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WAGES AND HOURS OF LABOR SERIES

**WAGES AND HOURS IN THE
MANUFACTURE OF AIRPLANES
AND AIRCRAFT ENGINES, 1929**



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WAGES AND HOURS IN THE MANUFACTURE OF AIRPLANES AND AIRCRAFT ENGINES, 1929

INTRODUCTION

This report presents the results of the bureau's first comprehensive study of wages and hours of labor of wage earners in the airplane and aircraft-engine industries in the United States.

The information used in this report was collected late in 1929, and covers 11,079 wage earners employed in 41 representative airplane plants and 3,290 wage earners employed in 14 representative aircraft-engine plants. The airplane plants were located in 21 States and the engine plants in 8 States.

Early in 1929 the bureau mailed a questionnaire to all airplane and aircraft-engine manufacturers of record, requesting data pertaining to the number of planes and engines produced in 1928, as well as to the number of employees as of May, 1929. Replies were received from 101 airplane manufacturers and 19 engine manufacturers. In 4 of the 101 plants, engines were manufactured in addition to the airplanes, making a total of 23 companies reporting the manufacture of engines. A total of 16,105 wage earners were reported as employed in the manufacture of airplanes and 5,977 in the manufacture of engines. Only 78 of the plants above mentioned produced planes in 1928. Therefore, it will be seen that the present study embraces approximately 65 per cent of the total number of wage earners in these two industries. The aircraft study is restricted to airplanes, thus excluding craft lighter than air.

No data are here shown for the few foundries connected with certain plants. Figures for "test pilots" were considered confidential by a number of manufacturers and consequently have been omitted. There were eight females employed as inspectors in one engine plant, but data for these are omitted to avoid publishing averages for one plant. Hence, the figures for manufacture of aircraft engines are for male wage earners only.

For purposes of tabulation, the data have been presented by geographic districts in order not to publish figures for individual plants.

The States in which airplane or aircraft-engine plants were located are arranged below by districts:

District	States included
New England.....	Connecticut, Rhode Island, and Massachusetts.
Middle Atlantic.....	New York, New Jersey, and Pennsylvania.
South Atlantic.....	Delaware, Maryland, and West Virginia.
East North Central....	Illinois, Indiana, Michigan, Ohio, and Wisconsin.
West North Central....	Kansas, Minnesota, Missouri, and Nebraska.
West South Central....	Arkansas and Oklahoma.
Western.....	Colorado, California, Oregon, and Washington.

AVERAGE HOURS AND EARNINGS, BY OCCUPATION

Table 1 presents average full-time hours per week, average earnings per hour, and average full-time earnings per week for all important occupations and for a group designated as "other employees." This group includes employees in occupations, each too small in number of workers to warrant separate presentation.

Airplanes.—The average full-time hours per week for all male wage earners covered were 47.9, as shown at the end of the first section of the table. The average for females was 47.3 hours. The average earnings per hour were 66.9 cents for males and 38.0 cents for females; and the average full-time earnings per week, \$32.05 for males and \$17.97 for females. For both sexes combined, the full-time hours per week averaged 47.9; average earnings per hour were 66.3 cents; and average full-time earnings per week, \$31.76.

Inspection of the data for the occupations shows that the average earnings per hour for males ranged from 48.4 cents for helpers to 82.7 cents for inspectors, and for females from 36.7 cents for coverers, fabric, to 54.0 cents for welders.

Aircraft engines.—The averages for all occupations combined in the manufacture of engines show the full-time hours per week to be 48.9; the earnings per hour, 70.6 cents; and the full-time earnings per week, \$34.52.

The averages for the several occupations show that the earnings per hour range from 42.5 cents for apprentices to 86.1 cents for polishers and buffers.

TABLE 1.—Average hours and earnings in the manufacture of airplanes and aircraft engines, 1929, by occupation and sex

AIRPLANES					
Occupation and sex	Number of establishments	Number of employees	Average full-time hours per week	Average earnings per hour	Average full-time earnings per week
Assemblers, detail, male.....	36	466	47.1	\$0.645	\$30.38
Assemblers, final, male.....	40	680	47.6	.674	32.08
Cabinetmakers, male.....	23	208	47.1	.727	34.24
Cable splicers, male.....	20	66	47.3	.673	31.33
Coppersmiths, male.....	16	50	47.5	.719	34.15
Coverers, dural, male.....	11	225	48.9	.685	33.50
Coverers, fabric, male.....	29	118	48.4	.604	29.23
Coverers, fabric, female.....	18	159	47.0	.367	17.25
Coverers, wood, male.....	3	67	46.7	.678	31.66
Cowl makers, male.....	37	265	48.2	.744	35.82
Drill press operators, male.....	20	82	48.1	.562	27.03

TABLE 1.—Average hours and earnings in the manufacture of airplanes and aircraft engines, 1929, by occupation and sex—Continued

AIRPLANES—Continued

Occupation and sex	Number of establishments	Number of employees	Average full-time hours per week	Average earnings per hour	Average full-time earnings per week
Electricians, male	26	64	47.8	\$0.685	\$32.74
Fitters and bench hands, male	34	1,152	47.7	.665	31.72
Frame builders, male:					
Dural fuselage	4	67	46.5	.712	33.11
Steel fuselage	33	330	47.7	.699	33.34
Wood fuselage	5	55	47.2	.756	35.68
Dural tail	9	84	47.5	.684	32.49
Steel tail	20	134	49.1	.616	30.24
Wood tail	7	39	46.5	.688	31.99
Dural wing	12	217	48.3	.669	32.31
Wood wing	34	513	47.6	.656	31.23
Helpers, male	38	867	47.6	.484	23.04
Inspectors, male	37	271	47.5	.827	39.28
Laborers, male	37	539	48.6	.520	25.27
Lathe operators, male	21	169	47.2	.759	35.82
Machinists, male	34	195	47.9	.773	37.03
Milling-machine operators, male	19	113	48.2	.727	35.04
Painters, hand, male	26	240	48.5	.604	29.29
Painters, letterers, and strippers, male	21	28	47.8	.817	39.06
Painters, spray, male	38	222	48.6	.660	32.06
Pattern makers, male	20	73	48.2	.817	39.38
Polishers and rubbers, male	5	19	46.9	.677	31.75
Rib builders, dural, male	7	67	48.3	.652	31.49
Rib builders, wood, male	27	133	48.3	.593	24.29
Rib builders, wood, female	4	17	48.4	.372	18.00
Screw-machine operators, male	14	63	48.4	.693	33.54
Sewing-machine operators, male	6	7	47.8	.802	38.34
Sewing-machine operators, female	17	42	47.7	.410	19.56
Sheet-metal machine operators, male	28	131	49.4	.608	30.04
Sheet-metal workers, hand, male	36	503	47.8	.728	34.80
Spar builders, dural, male	3	42	49.9	.645	32.19
Spar builders, wood, male	19	70	47.3	.710	33.58
Testers, ground, male	31	48	47.6	.753	35.84
Toolmakers, male	28	264	48.5	.822	39.87
Upholsterers, male	31	65	47.0	.759	35.67
Welders, male	37	567	47.8	.764	36.52
Welders, female	2	3	49.0	.540	26.46
Woodworking-machine operators, male	33	119	47.8	.727	34.75
Other employees, male	40	1,148	48.0	.695	33.36
Other employees, female	7	13	48.0	.413	19.82
All airplane occupations, male	41	10,845	47.9	.669	32.05
All airplane occupations, female	24	234	47.3	.380	17.97
All airplane occupations, male and female	41	11,079	47.9	.663	31.76

AIRCRAFT ENGINES

Apprentices, male	5	114	47.6	\$0.425	\$20.23
Assemblers, male	13	205	49.3	.714	35.20
Blacksmiths, male	3	3	48.3	.728	35.16
Boring-mill operators, male	5	41	50.1	.814	40.78
Coppersmiths and tinsmiths, male	3	38	47.7	.762	36.35
Drill-press operators, male	11	277	49.2	.672	33.06
Fitters and bench hands, male	12	404	48.7	.628	30.58
Grinding-machine operators, male	11	216	49.2	.791	38.92
Helpers, male	8	91	49.3	.537	26.47
Inspectors, male	11	210	48.7	.753	36.67
Laborers, male	11	235	48.5	.526	25.51
Lathe operators, engine, male	11	167	49.2	.783	38.52
Lathe operators, turret, male	6	74	49.1	.742	36.43
Machinists, male	10	123	49.3	.795	39.19
Machinists' and toolmakers' helpers, male	3	15	50.5	.528	26.66
Milling-machine operators, male	10	161	49.2	.749	36.85
Packers, male	9	43	48.7	.594	28.93
Paint sprayers, male	4	16	48.9	.675	33.01
Polishers and buffers, male	5	49	48.3	.861	41.59
Screw-machine operators, male	8	198	49.2	.781	38.43
Sheet-metal machine operators, male	2	3	48.8	.709	34.60
Testers, male	12	57	49.1	.783	38.45
Toolmakers, male	10	108	49.1	.844	41.44
Other precision-machine operators, male	4	35	48.2	.756	36.45
Other skilled employees, male	13	241	48.8	.849	41.43
Other employees, male	13	166	49.1	.630	30.93
All aircraft engine occupations, male	14	3,290	48.9	.706	34.52

AVERAGE HOURS AND EARNINGS IN 1929, BY DISTRICT

The figures in Table 2 show average full-time hours per week, average earnings per hour, and average full-time weekly earnings for all males, for all females, and for both sexes combined in each industry and for each district.

Airplanes.—Average full-time hours in the airplane plants are lowest in the Western district, the average for the 1,888 males reported being 46.5 hours per week, and for the 86 females 45.1 hours per week. The highest full-time hours are shown for the West South Central district, where the average is 50.8 for males and 51.8 for females.

The highest hourly earnings are for the 1,307 male wage earners in the East North Central district, who received an average of 70.5 cents per hour, and the lowest earnings for males, 55.3 cents per hour, were in the West South Central district. The average hourly earnings for females range from 26 cents in the West North Central district to 41.7 cents in the Western district. The average earnings for both sexes combined range from 54.7 cents in the West South Central district to 70.3 cents in the East North Central district.

The full-time earnings per week for males range from \$28.06 in the West North Central district to \$33.91 in the East North Central district; for females, from \$12.97 in the West North Central district to \$19.58 in the Middle Atlantic district.

Full-time earnings for both sexes combined range from \$27.72 in the West North Central district to \$33.81 in the East North Central district.

Aircraft engines.—The aircraft-engine establishments visited were located in four districts only. The average full-time hours per week range from 48 for the 1,831 employees in the Middle Atlantic district to 50.2 for the 704 employees in the New England district.

The average hourly earnings for the employees range from 65.9 cents in the New England district to 78.4 cents in the Western district, and the full-time earnings range from \$33.08 per week in the New England district to \$38.96 in the Western district.

TABLE 2.—Average hours and earnings in the manufacture of airplanes and aircraft engines, 1929, by sex and district

AIRPLANES

[See definition of districts, p. 2]

Sex and district	Number of establishments	Number of employees	Average full-time hours per week	Average earnings per hour	Average full-time earnings per week
MALES					
New England.....	4	688	47.9	\$0.642	\$30.75
Middle Atlantic.....	9	4,816	47.6	.695	33.08
South Atlantic.....	4	857	50.6	.641	32.43
East North Central.....	8	1,307	48.1	.705	33.91
West North Central.....	8	1,011	48.3	.581	28.06
West South Central.....	4	278	50.8	.553	28.09
Western.....	4	1,888	46.5	.666	30.97
Total.....	41	10,845	47.9	.669	32.05

TABLE 2.—Average hours and earnings in the manufacture of airplanes and aircraft engines, 1929, by sex and district—Continued

AIRPLANES—Continued

Sex and district	Number of establishments	Number of employees	Average full-time hours per week	Average earnings per hour	Average full-time earnings per week
FEMALES					
New England.....	3	9	48.3	\$0.361	\$17.44
Middle Atlantic.....	7	74	47.3	.414	19.58
South Atlantic.....	2	27	49.7	.318	15.80
East North Central.....	2	7	49.6	.330	16.37
West North Central.....	5	23	49.9	.260	12.97
West South Central.....	2	8	51.8	.342	17.72
Western.....	3	86	45.1	.417	18.81
Total.....	24	234	47.3	.380	17.97
MALES AND FEMALES					
New England.....	4	697	47.9	.639	30.61
Middle Atlantic.....	9	4,890	47.6	.661	32.89
South Atlantic.....	4	884	50.6	.632	31.98
East North Central.....	8	1,314	48.1	.703	33.81
West North Central.....	8	1,034	48.3	.574	27.72
West South Central.....	4	285	50.9	.547	27.85
Western.....	4	1,974	46.4	.656	30.44
Total.....	41	11,079	47.9	.663	31.76

AIRCRAFT ENGINES

MALES					
New England.....	2	704	50.2	\$0.659	\$33.08
Middle Atlantic.....	2	1,831	48.0	.702	33.73
East North Central.....	7	569	49.8	.748	37.25
Western.....	3	186	49.7	.784	38.96
Total.....	14	3,290	48.9	.706	34.52

CLASSIFIED EARNINGS

In Table 3 are presented the average earnings per hour and a percentage distribution, by average earnings per hour, of the employees in 16 of the most important occupations in the airplane industry and in 7 occupations in the aircraft-engine industry. The 16 occupations represent 60 per cent of all the wage earners covered in airplane plants, while the 7 occupations represent 47 per cent of all the wage earners engaged in the manufacture of aircraft engines. The purpose of this table is to illustrate the range of hourly earnings. The spread is much the same in the other occupations.

The data shown on the first line are for "assemblers, final, male." The 40 establishments in which the occupation was found employed a total of 680 wage earners in the occupation, as shown by the first two columns of the table. The next column shows that the average earnings per hour were 67.4 cents. Continuing, it will be observed that less than 1 per cent of the employees in this occupation earned 25 and under 30 cents per hour; 1 per cent earned 30 and under 35 cents; less than 1 per cent 35 and under 40 cents; 3 per cent 40 and under 45 cents, etc. The last figure for this occupation shows that 4 per cent earned \$1 and under \$1.25 per hour.

TABLE 3.—Average and classified earnings per hour of employees in 23 specified occupations in the manufacture of airplanes and aircraft engines, 1929, by sex

AIRPLANES

Occupation and sex	Number of—		Average earnings per hour	Per cent of employees whose earnings per hour were—																			
	Estab-lish-ments	Em-ploy-ees		20 and under 25 cents	25 and under 30 cents	30 and under 35 cents	35 and under 40 cents	40 and under 45 cents	45 and under 50 cents	50 and under 55 cents	55 and under 60 cents	60 and under 65 cents	65 and under 70 cents	70 and under 75 cents	75 and under 80 cents	80 and under 85 cents	85 and under 90 cents	90 and under 95 cents	95 cents and under \$1	\$1 and under \$1.25	\$1.25 and under \$1.50	\$1.50 and under \$1.75	\$2 and over
Assemblers, final, male.....	40	680	\$0.674	-----	(1)	1	(1)	3	3	8	7	19	16	13	13	6	2	3	2	4	-----	-----	-----
Coverers, fabric, male.....	29	118	.604	-----	3	-----	-----	8	14	16	6	12	8	16	11	2	3	3	-----	-----	-----	-----	
Cowl makers, male.....	37	265	.744	-----	-----	-----	-----	(1)	3	5	17	13	17	12	11	6	6	3	6	1	-----	-----	
Fitters and bench hands, male.....	34	1,152	.665	-----	(1)	1	1	1	1	6	9	18	17	17	15	8	4	1	1	1	-----	-----	
Frame builders:																							
Steel fuselage, male.....	33	330	.699	(1)	1	1	2	(1)	(1)	4	6	16	15	10	15	11	7	5	3	1	-----	-----	
Wood wing, male.....	34	513	.656	-----	-----	-----	1	4	6	9	5	15	17	10	19	9	5	1	(1)	(1)	-----	-----	
Helpers, male.....	38	867	.484	-----	(1)	1	6	20	25	24	14	7	4	1	(1)	(1)	-----	-----	-----	-----	-----	-----	
Inspectors, male.....	37	271	.827	-----	-----	-----	2	1	2	4	1	4	7	9	16	14	12	9	5	13	2	(1)	(1)
Laborers, male.....	37	539	.520	(1)	2	2	4	16	9	28	15	12	5	2	2	(1)	2	1	(1)	1	-----	-----	
Machinists, male.....	34	195	.773	-----	-----	-----	1	2	1	2	1	3	4	16	26	25	11	6	3	2	-----	-----	
Painters, spray, male.....	38	222	.660	-----	2	3	1	2	1	8	10	18	18	10	13	5	5	2	2	2	-----	-----	
Sewing-machine operators, female.....	17	42	.410	-----	10	19	14	17	19	5	12	-----	5	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Sheet-metal workers, hand, male.....	36	503	.728	-----	-----	-----	-----	1	(1)	5	3	15	12	21	14	12	4	6	2	5	(1)	-----	
Toolmakers, male.....	28	264	.822	-----	-----	-----	-----	-----	-----	(1)	3	3	3	6	21	24	21	11	2	8	1	-----	
Welders, male.....	37	567	.764	-----	-----	1	2	-----	1	3	3	4	9	15	16	15	14	8	4	6	(1)	-----	
Woodworking-machine operators, male.....	23	119	.727	-----	-----	-----	-----	-----	1	5	4	10	14	18	18	14	7	4	2	3	-----	-----	

AIRCRAFT ENGINES

Assemblers, male.....	13	205	\$0.714	-----	-----	-----	-----	(1)	7	4	15	15	18	15	15	2	7	1	1	2	(1)	-----	-----
Fitters and bench hands, male.....	12	404	.628	-----	-----	(1)	(1)	2	14	15	26	22	11	7	2	9	1	(1)	(1)	(1)	-----	-----	
Grinding-machine operators, male.....	11	216	.791	-----	-----	-----	-----	-----	1	2	5	7	20	20	22	16	9	7	4	8	-----	-----	
Inspectors, male.....	11	210	.753	-----	-----	-----	-----	-----	1	1	9	11	24	22	16	10	7	7	4	2	-----	-----	
Laborers, male.....	11	235	.526	-----	-----	1	8	17	43	19	6	3	3	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Lathe operators, engine, male.....	11	167	.783	-----	-----	-----	-----	-----	1	2	2	10	24	21	13	9	11	5	2	-----	-----		
Machinists, male.....	10	123	.795	-----	-----	-----	-----	-----	-----	1	1	7	11	24	23	20	8	3	2	-----	-----		

¹ Less than 1 per cent.

AIRPLANES AND AIRCRAFT ENGINES

REGULAR OR CUSTOMARY FULL-TIME HOURS

The customary full-time hours per day and per week are those recognized as constituting full running time when the plant is in regular operation. This excludes the time taken for the midday meal and overtime, but includes lost time for any cause. Changes in the customary hours for a period of three months or less in the year were not considered in determining the full-time hours of a plant. Where the change was for more than three months the average hours per week for the whole year were used in computing full-time hours.

The average full-time hours per week for an occupation were obtained by adding the full-time hours of each employee in the occupation and dividing the total by the number of employees in the occupation. These customary full-time hours must not be confused with hours actually worked. An employee may have worked more than full time by working the regular full-time hours on each day of the week and working overtime on one or more days in the week. Again, he may have worked less than full time in a week because of sickness, disability, voluntary absence, or because he was employed only part of the week. The report does not attempt to indicate the reason for more or less than full time actually worked.

CLASSIFIED FULL-TIME HOURS

Table 4 shows for the same occupations appearing in Table 3 the average full-time hours per week and the per cent of employees in each occupation working each specified number of full-time hours.

The average full time of the 680 "assemblers, final, male," shown on the first line, was 47.6 hours per week. The distribution shows that 4 per cent of the 680 employees had full time of 40 hours per week; 6 per cent full time of 44 hours, etc. Only 2 per cent had full time as much as 54 hours per week.

TABLE 4.—Average and classified full-time hours per week in 23 specified occupations in the manufacture of airplanes and aircraft engines, 1929, by sex
AIRPLANES

Occupation and sex	Number of—		Average full-time hours per week	Per cent of employees whose full-time hours per week were—												
	Establishments	Employees		40	44	45	Over 45, under 47	47	47½	48	Over 48, under 50	50	Over 50, under 54	54	55	60
Assemblers, final, male.....	40	680	47.6	4	6	9	10	9	18	17	6	12	8	2	---	
Coverers, fabric, male.....	29	118	48.4	---	8	6	1	14	15	10	14	21	10	---	1	
Cowl makers, male.....	37	265	48.2	3	4	5	5	17	12	18	5	13	17	(1)	(1)	
Fitters and bench hands, male.....	34	1,152	47.7	1	9	5	6	7	30	22	1	6	11	1	(1)	
Frame builders, steel fuselage, male.....	33	330	47.7	---	13	10	13	16	3	9	7	19	7	3	(1)	
Frame builders, wood wing, male.....	34	513	47.6	---	8	16	11	6	17	13	5	15	9	---	---	
Helpers, male.....	38	867	47.6	---	5	5	13	5	40	13	1	9	8	(1)	(1)	
Inspectors, male.....	37	271	47.5	3	10	6	11	10	15	21	3	14	7	1	---	
Laborers, male.....	37	539	48.6	3	8	6	7	7	20	16	6	12	9	1	---	
Machinists, male.....	34	195	47.9	---	2	10	3	16	28	13	4	15	7	1	---	
Painters, spray, male.....	38	222	48.6	2	7	9	6	5	25	10	4	14	8	5	5	
Sewing-machine operators, female.....	17	42	47.7	---	14	17	5	5	10	21	2	14	12	---	---	
Sheet-metal workers, hand, male.....	36	503	47.8	3	2	10	22	4	13	6	4	24	10	(1)	1	
Toolmakers, male.....	28	284	48.5	5	4	9	4	5	14	19	1	14	17	---	9	
Welders, male.....	37	567	47.8	1	11	11	8	12	12	17	4	11	9	3	---	
Woodworking-machine operators, male.....	33	119	47.8	---	10	11	10	1	13	19	9	18	8	---	---	

¹ Less than 1 per cent.

TABLE 4.—Average and classified full-time hours per week in 23 specified occupations in the manufacture of airplanes and aircraft engines, 1929, by sex—Con.

Occupation and sex	Number of—		Average full-time hours per week	Per cent of employees whose full-time hours per week were—												
	Establishments	Employees		40	44	45	Over 45, under 47	47	47½	48	Over 48, under 50	50	Over 50, under 54	54	55	60
Assemblers, male.....	13	205	49.3						20	11	22	45			2	
Fitters and bench hands, male.....	12	404	48.7						44	8	8	39			1	
Grinding-machine operators, male.....	11	216	49.2						30	20	11	33			3	
Inspectors, male.....	11	210	48.7						35	24	8	32			1	
Laborers, male.....	11	235	48.5						40	29	11	19			1	
Lathe operators, engine, male.....	11	167	49.2						36	19	15	24			3	
Machinists, male.....	10	123	49.3						18	13	38	27			4	

The customary hours per day differ as between the several establishments. There are different hours for beginning and ending the day's work, and different lengths of the period allowed for lunch.

Table 5 shows all of the variations in the customary hours of the various plants in each industry, Monday to Friday, and on Saturday, as well as the difference in the regular hours per week.

The length of the regular day in the airplane plants ranged from 8 to 9½ hours, while the hours per week ranged from 40 to 54. The regular hours of the plants in the aircraft engine industry ranged from 8½ to 10 per day and had a range per week from 47½ to 55 hours.

In five establishments in the airplane industry and in two in the aircraft-engine industry the regular days of operation were only five per week. In three establishments in the airplane industry hours were the same on Saturday as on Monday to Friday. In 33 airplane plants and 12 of the 14 aircraft-engine plants hours were less on Saturday than on other days.

A 5-day week (Monday to Friday) of 8 hours was in operation in one airplane plant in the East North Central district; of 9½ hours in one in the New England district and in two in the Middle Atlantic district; and of 9½ hours in one plant in the Middle Atlantic district. In two aircraft-engine plants the regular days of operation were 5 per week, one had a 9½-hour day or 47½-hour week and the other a 10-hour day or 50-hour week.

Eight airplane and 5 engine plants were operating on the basis of 9 hours per day from Monday to Friday and 5 hours on Saturday; seven airplane plants and one engine plant were operating 48 hours per week, with the hours of work varying as follows: One plant in the West South Central district was operating 8½ hours Monday to Friday and 4½ hours on Saturday; two plants in the West South Central district were operating 8 hours per day on all six days, one airplane plant and one engine plant each in the Middle Atlantic district were operating 8½ hours Monday to Friday and 4 hours on Saturday, while there were one each in the New England and South Atlantic district operating 8½ hours from Monday to Friday and 4½ hours on Saturday.

Twenty-seven of the 41 airplane plants have full-time hours ranging from 47 to 50 per week and in the aircraft-engine industry the full-time hours of 13 of the 14 plants ranged from 47½ to 50 per week.

TABLE 5.—Number of establishments working specified full-time hours per week and per day in the manufacture of airplanes and aircraft engines, 1929

AIRPLANES

Full-time hours			Number of establishments in each district working specified hours per day and week							Total
Per week	Per day		New England	Middle Atlantic	South Atlantic	East North Central	West North Central	West South Central	Western	
	Monday to Friday	Saturday								
40.....	8	0				1				1
44.....	8	4		2			1			3
45.....	8	5				1			2	3
45½.....	8	5½							1	1
46½.....	8½	4								2
47.....	8½	4½		1		1	2			4
47½.....	8½	5							1	1
47½.....	9½	0	1	2						3
48.....	8½	4½						1		1
48.....	8	8						2		2
48.....	8½	4		1						1
48.....	9½	0		1						1
48.....	8½	4½	1		1					2
49½.....	9	4½			1		2	1		4
50.....	9	5	2		1	3	2			8
51.....	9½	4¾			1					1
52½.....	9½	4¾		1						1
53.....	9½	5½						1		1
54.....	9	9		1						1
Total			4	9	4	8	8	4	4	41

AIRCRAFT ENGINES

47½.....	9½	0		1						1
48.....	8½	4		1						1
48½.....	9½	4½							1	1
49½.....	9	8½				3			1	4
50.....	10	0	1							1
50.....	9	5				4			1	5
55.....	10	5	1							1
Total			2	2		7			3	14

CHANGES IN HOURS AND RATES SINCE JANUARY 1, 1928

The companies were asked if there had been any change in the regular hours of work, or any change in wage rates since January 1, 1928. The replies to the inquiry regarding the change of hours showed that only 3 of the 55 plants covered had made a change.

One of the three made a change in hours per week. This plant, located in the South Atlantic district, changed from 8½ hours per day Monday to Friday and 4½ Saturday to 9 hours per day Monday to Friday and 4½ on Saturday. This lengthened the week from 47 hours to 49½ hours. Two plants changed the daily but not the weekly hours. These were both located in the Middle Atlantic district. One changed from 8½ hours each day Monday to Friday and 4½ hours on Saturday, to 9½ hours each day Monday to Friday

with no work on Saturday, the length of the week remaining 48 hours; the other changed from 9 hours per day Monday to Thursday, 8 hours on Friday with no work on Saturday, to 8 hours per day Monday to Friday and 4 hours on Saturday; the week thus remained unchanged at 44 hours.

Only one of the 55 plants covered, an airplane plant, made any material change in wage rates. In this plant the minimum rates were changed on December 1, 1929, by an increase of 16% per cent, while all employees at rates higher than the minimum were given an increase of 5 per cent.

PAY FOR OVERTIME AND WORK ON SUNDAY AND HOLIDAYS

Any time worked by an employee in excess of the regular full-time hours per day is considered overtime. In the seven plants which regularly worked but five days per week, any time worked on Saturday was considered overtime.

Nineteen of the forty-one airplane plants and 9 of the 14 engine plants paid increased rates for overtime. One of the airplane plants paid extra only for work on Sunday or holidays, the rate for such work being one and one-half times the regular rate. One plant paid each employee his regular rate for each hour of overtime up to 7 p. m. Monday to Friday, to 2 p. m. Saturday, or mealtime on Sunday or holidays. For any time thereafter on any day he was paid 50 cents, and also his regular rate per hour.

All of the other plants paid overtime rates for any work after the regular hours per day, the rates being one and one-fourth times the regular rate in 4 plants, one and one-half times the regular rate in 21 plants, and in 1 plant one and one-half times the regular rate from the regular quitting time until midnight and twice the regular rate for any work after midnight. For Sunday and holiday work 1 plant paid one and one-fourth times the regular rate, 22 paid time and one-half, and 4 paid double time.

Table 6 shows the number of establishments which paid extra for overtime or for Sunday and holiday work, the employees entitled to such pay, the conditions under which the extra amounts were paid, and the rate for such work. It will be observed that all employees do not fare alike in many cases.

TABLE 6.—Number of establishments paying extra for overtime and for Sunday and holiday work, employees entitled, and amounts of increase, 1929

Number of establishments	Employees entitled to extra pay	Payment for		
		Overtime on week days		Work on Sunday and holidays: Hourly rate multiplied by—
		After	Hourly rate multiplied by—	
2	All except salaried.....	Regular hours per day.....	1 1/2	2
2	All except salaried and laborers.....	do.....	1 1/2	1 1/2
2	All.....	do.....	1 1/2	1 1/2
1	{All (day).....	do.....	1 1/2	1 1/2
1	{All (night).....	do.....	1 1/2	1 1/2
1	All except salaried maintenance, painters, and carpenters, concrete finishers, and laborers other than maintenance laborers and sandblasters.	do.....	1 1/2	1 1/2
1	All productive labor.....	do.....	1 1/2	1 1/2
1	{All except sweepers (day).....	do.....	1 1/2	1 1/2
1	{All except sweepers (night).....	do.....	1 1/2	1 1/2
1	All except salaried.....	do.....	1 1/2	1 1/2
1	do.....	do.....	1 1/2	1 1/2
1	do.....	50 hours per week.....	1 1/2	1 1/2
1	All except janitors.....	50 hours per week and full time on Sunday and holidays.....	1 1/2	1 1/2
1	All.....	7 p. m. Monday to Friday, 2 p. m. Saturday or past any meal time on Sunday or holidays.....	1	1
1	All hourly men.....	Regular hours per day.....	1 1/2	1 1/2
1	All productive.....	8 1/2 hours Monday to Friday, 5 hours Saturday.....	1 1/2	1 1/2
1	All shop employees.....	8 hours Monday to Friday, 5 1/2 hours Saturday.....	1 1/2	1 1/2
1	All except salaried, electricians and millwright helpers, maintenance carpenters and electricians, stock handlers and elevator men.	Regular hours per day.....	1 1/2	1 1/2

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5	All.....	Regular hours per day.....	1 1/2	1 1/2
1	do.....	do.....	1 1/2	2
1	do.....	Midnight.....	2	2
1	All except porters.....	Regular hours per day.....	1 1/2	1 1/2
1	All.....	do.....	1 1/2	2
1	do.....	do.....	1 1/2	1 1/2

¹ Any work on Saturday is considered overtime.

² Also 1 hour's extra pay at regular rate.

³ And 50 cents extra if overtime extended beyond 7 p. m. Monday to Friday, 2 p. m. Saturday, or beyond mealtime Sunday and holidays.

BONUS SYSTEMS

A bonus is pay in addition to a wage earner's usual earnings at stipulated time or piece rates. Three plants had bonus systems in operation at the time of the study. Two of these systems were based on production of work in less time than a standard set for the performance of the job; the third system was based on attendance.

The time standard for the various units, pieces, parts, or kinds of work in the two plants was established by a time study of the different kinds of work. In one of the two plants one-half of the time rate was paid to the employees in the fuselage, machine-shop, sheet-metal, and wing departments for each hour's work saved. In the other

plant the time set for a job includes fatigue time and is based on 100 per cent efficiency or the number of pieces set by a time study as the standard work for a 9-hour or 540-minute day. The bonus is paid to production employees and begins when the output of an employee reaches a 70 per cent efficiency, the bonus for this attainment being 4 per cent. This rate increases seven-tenths of 1 per cent for each additional per cent of efficiency, thus, the employee would earn 25 per cent more than his regular rate for 100 per cent efficiency. In the third plant a bonus of 10 per cent of earnings at basic rates was paid to any employee who had been absent not more than half an hour during the week.

DAYS ACTUALLY WORKED IN ONE WEEK

Table 7 presents for 23 representative occupations the number of plants in which the occupation was found, the number of employees, the average number of calendar days actually worked in one week, and the per cent of employees who worked on each specified number of days in one week. Any part of a calendar day upon which an employee performed work was counted a day.

The first line of the table shows that the occupation "assemblers, final, male," was found in 40 of the 41 airplane plants covered in the study. The second column of data shows that 680 wage earners were in this occupation, and the third column that the whole group worked an average of 5.5 calendar days in a week. Continuing on the same line it will be observed that 1 per cent of the employees in the occupation worked on 1 day only, 1 per cent on 2 days, 1 per cent on 3 days, 5 per cent on 4 days, 30 per cent on 5 days, 60 per cent on 6 days, and 3 per cent on 7 days.

The table does not undertake to show whether the short week of certain workers is due to voluntary idleness or to other reasons which may or may not have been within the control of the employee.

TABLE 7.—Average number of days in one week on which employees worked in specified occupations and per cent of employees who worked on each specified number of days in one week in the manufacture of airplanes and aircraft engines, 1929, by sex

AIRPLANES

Occupation and sex	Number of—		Average number of days worked in 1 week	Per cent of employees who worked each specified number of days						
	Estab-lish-ments	Em-ploy-ees		1	2	3	4	5	6	7
Assemblers, final, male.....	40	680	5.5	1	1	1	5	30	60	3
Coverers, fabric, male.....	29	118	5.4		2	3	2	38	55	1
Cowl makers, male.....	37	265	5.6	(¹)	1	1	3	28	65	2
Fitters and bench hands, male.....	34	1,152	5.5	1	(¹)	1	4	35	57	1
Frame builders, steel fuselage, male.....	33	330	5.5	1		2	3	37	56	2
Frame builders, wood wing, male.....	34	513	5.5		1	(¹)	4	33	61	2
Helpers, male.....	38	867	5.3	2	2	2	4	43	46	1
Inspectors, male.....	37	271	5.8	(¹)			(¹)	19	80	
Laborers, male.....	37	539	5.6	1	1	2	3	29	61	3
Machinists, male.....	34	195	5.2	1		4	5	54	36	1
Painters, spray, male.....	38	222	5.4	2	(¹)	3	3	39	48	5
Sewing-machine operators, female.....	17	42	5.5		2			43	55	
Sheet-metal workers, hand, male.....	36	503	5.5	1	1	2	5	25	65	2
Toolmakers, male.....	28	264	5.3	1	2	2	4	44	47	
Welders, male.....	37	567	5.5	1	1	2	3	37	56	1
Woodworking-machine operators, male.....	33	119	5.6		1	2	2	31	63	2

¹ Less than 1 per cent.

TABLE 7.—Average number of days in one week on which employees worked in specified occupations and per cent of employees who worked on each specified number of days in one week in the manufacture of airplanes and aircraft engines, 1929, by sex—Continued

Occupation and sex	Number of—		Average number of days worked in 1 week	Per cent of employees who worked each specified number of days						
	Estab-lish-ments	Em-ploy-ees		1	2	3	4	5	6	7
Assemblers, male.....	13	205	5.7	(1)	(1)	1	3	28	60	7
Fitters and bench hands, male.....	12	404	5.2	1	(1)	1	8	54	35	2
Grinding-machine operators, male.....	11	216	5.5	(1)	(1)	(1)	4	46	41	8
Inspectors, male.....	11	210	5.4			1	4	48	45	2
Laborers, male.....	11	235	5.4	(1)	(1)	1	3	46	48	2
Lathe operators, male.....	11	167	5.4			2	5	55	34	5
Machinists, male.....	10	123	5.4		1	2	3	38	55	

¹ Less than 1 per cent.

GROWTH OF THE AIRPLANE INDUSTRY

The United States Census Bureau showed data for the airplane industry for the first time in 1914. At that time the airplane was only beginning to show its commercial possibilities. The World War caused much time and money to be given to research and the development of aircraft, both for civil and military use. As a result the 1919 Census of Manufactures, which came just after the war, revealed that the number of factories had almost doubled and that the number of wage earners was 21 times more than in 1914.

Table 8 contains information published by the Census Office for each census year from 1914 to 1927, relating to the number of airplane establishments, the number of wage earners, the amounts paid for wages, the average wage per year, the cost of materials used, and the value of the products. Figures for 1929, the last census year, are not yet available. The figures in the table indicate forcefully the radical changes that have taken place in the industry. In 1914 the census showed only 16 establishments employing 168 wage earners, while in 1919 there were 31 establishments and 3,543 wage earners. The depression year of 1921 brought employment down to 1,395 wage earners. In 1923 wage earners numbering 2,901 were employed. This number nearly equalled the employment in 1919. In 1925 the number decreased to 2,701 wage earners. In 1927 the number of workers employed had increased to 4,422, the largest employment in the history of the industry up to that time. From 1921 there has been a steady increase in the number of plants manufacturing airplanes, the table showing an increase from 21 plants in 1921 to 70 plants in 1927.

The number of wage earners published in previous years by the Census Office, as shown in Table 8, is the average employment for the year and therefore not strictly comparable with the figures obtained by the Bureau of Labor Statistics as of May, 1929, details of which are described on page 1, when there were 22,082 employees in the industry. This figure represents conditions probably at the highest point of employment of the year 1929.

TABLE 8.—*Number of establishments and wage earners, wages, cost of materials, and value of products in the airplane industry, 1914 to 1927*

[Data from the United States Census of Manufactures]

Census year	Number of establishments	Wage earners (average number)	Total wages paid	Average wages per wage earner	Cost of materials ¹	Value of products
1914.....	16	168	\$134,827	\$803	\$133,939	789,872
1919.....	31	3,543	4,906,740	1,385	7,126,965	14,372,643
1921.....	21	1,895	2,202,307	1,579	2,407,395	6,641,988
1923.....	33	2,901	4,521,949	1,559	3,829,574	12,945,263
1925.....	44	2,701	4,222,151	1,563	2,869,967	12,524,719
1927 ²	70	4,422	6,857,014	1,551	7,517,183	21,161,853

¹ Including cost of fuel, electric power, and shop supplies.² Data for 1929 not available.

Statistics are not available to indicate the increase in the commercial use of the airplane except for the period since 1926. As the census figures include production of all planes built, whether for military or for commercial use, the available data for the commercial part of the industry are given separately in Table 9, which table shows data for civil aviation in the United States for each of the four years from 1926 to 1929. The figures are for the number of planes in the transport service, the number of passengers carried, the number of miles flown, the number of miles of commercial airways, the number of miles of lighted airways, the number of gas and electric beacons, and the number of commercial and private airports.

The number of planes increased from 69 in 1926 to 525 in 1929; passengers carried, from 5,782 in 1926 to 173,405 in 1929; and the number of miles flown from approximately 4,300,000 in 1926 to more than 25,000,000 in 1929. The mileage of commercial airways increased from 8,404 in 1926 to 36,000 in 1929. In 1926, 2,041 miles of these were lighted while in 1929 there were 12,448 miles lighted. The number of beacons increased from 612 in 1926 to 1,311 in 1929 and the number of airports, including both commercial and private, from 263 in 1927 to 495 in 1929. The number of airports in 1926 was not shown.

TABLE 9.—*Civil aviation in the United States, 1926 to 1929* ¹

Year	Number of planes in transport service	Passengers carried on transport lines	Airplane miles flown by all operators	Mileage of commercial airways in operation	Mileage of lighted airways	Electric and gas beacons	Commercial and private airports
1926.....	69	5,782	4,318,087	8,404	2,041	612	-----
1927.....	128	8,679	5,870,489	9,122	4,468	760	263
1928.....	325	49,713	10,673,450	16,667	6,988	1,188	385
1929.....	² 525	² 173,405	² 25,141,499	36,000	12,448	1,311	495

¹ Data from Mar. 22, 1930, number of "Aviation."² U. S. Department of Commerce Yearbook, 1930.

GENERAL TABLES

In addition to the preceding text tables data as to days, hours, and earnings of wage earners by occupations and districts are presented in five general tables, as follows:

TABLE A.—Average number of days on which employees worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1929, by occupation, sex, and district.

The purpose of this table is to show all of the 1929 averages that have been computed for the employees in each occupation in both industries in each district and for the employees in all occupations combined, of each industry in each district; to present in parallel columns "average full-time hours per week," "average hours actually worked in one week," and the "per cent of full time worked"; and to make easy the comparison of the figures, one district with another. "Average full-time earnings per week" and "average actual earnings in one week" are presented in the last two columns of the table. One column shows the average amount that each employee would have earned in one week had all employees in an occupation, a district, or the industry worked full time at the same average earnings per hour as was earned in the hours actually worked in the one week covered by the study. The other column shows the amount actually earned in one week.

TABLE B.—Average and classified earnings per hour in 23 specified occupations, 1929, by sex and district (p. 28).

TABLE C.—Average and classified full-time hours per week in 23 specified occupations, 1929, by sex and district (p. 34).

TABLE D.—Average and classified hours actually worked in one week in 23 specified occupations, 1929, by sex and district (p. 38).

TABLE E.—Average and classified actual earnings in one week in 23 specified occupations, 1929, by sex and district (p. 44).

TABLE A.—Average number of days on which employees worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1929, by occupation, sex, and district

AIRPLANES

Occupation, sex, and district	Number of establishments	Number of wage earners	Average number of days on which employees worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full time worked	Average earnings per hour	Average full-time earnings per week	Average actual earnings in 1 week
Assemblers, detail, male:									
New England.....	2	13	5.1	47.7	46.0	96.4	\$0.626	\$29.86	\$28.80
Middle Atlantic.....	9	114	5.3	46.5	48.6	104.5	.728	33.85	35.37
South Atlantic.....	4	31	5.6	49.8	46.7	93.8	.632	31.47	29.53
East North Central.....	8	37	5.3	47.8	44.0	92.1	.586	28.01	25.77
West North Central.....	8	44	5.5	48.0	46.4	96.7	.569	27.31	26.38
West South Central.....	2	13	5.4	51.8	48.1	92.9	.509	26.37	24.50
Western.....	3	214	5.9	46.5	45.7	98.3	.635	29.53	29.03
Total.....	36	466	5.6	47.1	46.5	98.7	.645	30.38	29.97
Assemblers, final, male:									
New England.....	4	46	4.9	48.2	43.5	90.2	.681	32.82	29.64
Middle Atlantic.....	9	276	5.5	47.8	51.3	107.3	.720	34.42	36.95
South Atlantic.....	3	18	5.8	49.2	51.5	104.7	.806	39.66	41.57
East North Central.....	8	109	5.3	47.0	45.2	96.2	.698	32.81	31.56
West North Central.....	8	88	5.5	48.1	46.3	96.3	.539	25.93	24.95
West South Central.....	4	25	6.0	50.6	50.5	99.8	.520	26.31	26.28
Western.....	4	118	5.8	46.1	45.8	99.3	.646	29.78	29.59
Total.....	40	680	5.5	47.6	48.2	101.3	.674	32.08	32.49
Cabinet makers, male:									
New England.....	2	24	5.0	47.6	45.6	95.8	.712	33.89	32.47
Middle Atlantic.....	9	121	5.4	46.6	49.4	106.0	.746	34.76	36.87
South Atlantic.....	2	22	5.9	49.7	49.1	98.8	.667	33.15	32.73
East North Central.....	3	8	6.0	48.7	50.6	103.9	.692	33.70	35.04
West North Central.....	4	7	5.4	46.9	42.7	87.3	.577	28.22	24.63
Western.....	3	26	5.7	45.8	43.7	95.4	.750	34.35	32.78
Total.....	23	208	5.5	47.1	48.0	101.9	.727	34.24	34.93
Cable splicers, male:									
New England.....	3	4	5.3	48.3	46.7	96.7	.671	32.41	31.32
Middle Atlantic.....	7	33	5.7	47.2	51.6	109.3	.685	32.33	35.37
South Atlantic.....	3	5	5.6	49.1	45.5	92.7	.589	28.92	26.82
East North Central.....	2	3	5.7	50.0	46.7	93.4	.618	30.80	28.74
West North Central.....	2	3	5.3	47.5	44.1	92.8	.620	29.45	27.33
Western.....	3	18	5.9	46.4	46.0	99.1	.689	31.97	31.67
Total.....	20	66	5.7	47.3	48.8	103.2	.673	31.83	32.80
Coppersmiths, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	8	27	5.3	46.8	47.3	101.1	.726	33.98	34.37
South Atlantic.....	3	6	5.2	49.6	43.5	87.7	.643	31.89	27.95
East North Central.....	3	5	6.4	51.9	52.5	101.2	.898	46.60	47.14
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	16	50	5.4	47.5	46.8	98.5	.719	34.15	33.59
Coverers, dural, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	4	127	5.2	51.5	51.0	99.0	.665	34.25	33.94
South Atlantic.....	2	12	5.5	50.8	49.6	97.6	.797	40.49	39.57
East North Central.....	3	34	5.2	42.7	42.6	99.8	.789	33.69	33.61
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	11	225	5.3	48.9	48.5	99.2	.685	33.50	33.17

¹Data included in total but not given separately to avoid identification.

TABLE A.—Average number of days on which employees worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1929, by occupation, sex, and district—Continued

AIRPLANES—Continued

Occupation, sex, and district	Number of establishments	Number of wage earners	Average number of days on which employees worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full time worked	Average earnings per hour	Average full-time earnings per week	Average actual earnings in 1 week
Coverers, fabric, male:									
New England.....	3	9	5.2	48.2	45.8	95.0	\$0.554	\$26.70	\$25.38
Middle Atlantic.....	7	35	5.3	47.6	51.6	108.4	.650	30.94	33.57
South Atlantic.....	4	13	5.5	50.3	47.5	94.4	.668	33.60	31.70
East North Central.....	5	32	5.5	49.5	47.9	96.8	.570	28.22	27.34
West North Central.....	6	20	5.8	46.6	45.5	97.6	.605	28.19	27.56
West South Central.....	3	7	5.1	50.1	46.7	93.2	.432	21.64	20.18
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	29	118	5.4	48.4	48.3	100.0	.604	29.23	29.15
Coverers, fabric, female:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	5	53	5.3	47.6	44.3	93.1	.374	17.80	16.57
South Atlantic.....	2	7	6.0	49.4	52.9	107.1	.265	13.09	14.01
East North Central.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
West North Central.....	5	20	5.5	49.7	45.4	91.3	.264	13.12	11.98
West South Central.....	2	5	6.0	51.0	53.4	104.7	.376	19.18	20.04
Western.....	2	67	5.9	44.9	43.6	97.1	.408	18.32	17.82
Total.....	18	159	5.6	47.0	44.7	95.1	.367	17.25	16.43
Coverers, wood, male:									
Middle Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	3	67	5.2	46.7	46.8	100.2	.678	31.66	31.71
Cowl makers, male:									
New England.....	2	23	5.0	47.8	45.7	95.6	.745	35.61	34.07
Middle Atlantic.....	9	130	5.6	48.1	49.9	103.7	.734	35.31	36.58
South Atlantic.....	4	36	5.6	50.2	47.6	94.8	.765	38.40	36.46
East North Central.....	7	29	5.4	47.1	44.0	93.4	.791	37.26	34.79
West North Central.....	8	24	5.8	47.9	47.9	100.0	.690	32.99	32.99
West South Central.....	4	7	6.1	50.1	51.3	102.4	.713	35.72	36.53
Western.....	3	16	5.8	46.2	45.8	99.2	.798	36.87	36.59
Total.....	37	265	5.6	48.2	48.2	100.0	.744	35.82	35.82
Drill-press operators, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	3	12	5.7	47.2	48.8	103.4	.696	32.85	33.96
South Atlantic.....	2	15	5.8	50.3	49.2	97.8	.433	21.73	21.30
East North Central.....	4	11	5.2	49.4	43.6	88.3	.548	27.07	23.91
West North Central.....	6	10	5.0	49.2	41.4	84.1	.467	22.98	19.35
West South Central.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Western.....	3	31	5.7	46.6	45.4	97.4	.618	28.80	28.07
Total.....	20	82	5.6	48.1	45.8	95.2	.562	27.03	25.76
Electricians, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	8	30	5.7	47.7	53.2	111.5	.684	32.63	36.41
South Atlantic.....	3	4	5.8	49.4	48.4	98.0	.723	35.72	34.98
East North Central.....	4	9	5.7	46.5	48.2	103.7	.804	37.39	38.73
West North Central.....	5	6	5.2	49.0	42.8	87.3	.564	27.64	24.11
West South Central.....	2	4	6.0	50.5	50.3	99.6	.506	25.55	25.44
Western.....	3	10	5.8	46.8	45.1	96.4	.694	32.48	31.30
Total.....	26	64	5.7	47.8	49.7	103.9	.685	32.74	33.99

¹ Data included in total but not given separately to avoid identification.

TABLE A.—Average number of days on which employees worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1929, by occupation, sex, and district—Continued

AIRPLANES—Continued

Occupation sex, and district	Number of establishments	Number of wage earners	Average number of days on which employees worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full time worked	Average earnings per hour	Average full-time earnings per week	Average actual earnings in 1 week
Fitters and bench hands, male:									
New England.....	3	51	5.0	47.6	45.8	96.2	\$0.661	\$31.46	\$30.30
Middle Atlantic.....	9	714	5.4	47.6	45.7	96.0	.684	32.56	31.23
South Atlantic.....	4	33	5.6	50.7	49.4	97.4	.649	32.90	32.03
East North Central.....	6	62	5.6	48.5	47.4	97.7	.700	33.95	33.22
West North Central.....	8	57	5.2	48.3	41.6	86.1	.474	22.89	19.73
West South Central.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Western.....	3	223	5.8	47.0	46.7	99.4	.664	31.21	30.97
Total.....	34	1,152	5.5	47.7	45.9	96.2	.665	31.72	30.54
Frame builders, dural fuselage, male:									
Middle Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
East North Central.....	2	18	5.3	42.6	43.8	102.8	.964	41.07	42.22
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	4	67	5.7	46.5	46.1	99.1	.712	33.11	32.81
Frame builders, steel fuselage, male:									
New England.....	3	16	5.4	49.5	44.4	89.7	.671	33.21	29.77
Middle Atlantic.....	7	133	5.3	46.8	47.5	101.5	.804	37.63	38.15
South Atlantic.....	3	19	5.6	49.3	49.2	99.8	.689	33.97	33.92
East North Central.....	6	57	5.5	49.4	48.0	97.2	.697	34.43	33.42
West North Central.....	8	61	5.4	47.9	44.1	92.1	.549	26.30	24.29
West South Central.....	3	13	5.9	50.3	50.5	100.4	.493	24.80	24.92
Western.....	3	31	5.9	45.5	44.9	98.7	.641	29.17	28.78
Total.....	33	330	5.5	47.7	46.8	98.1	.699	33.34	32.70
Frame builders, wood fuselage, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	3	36	4.8	46.0	42.0	91.3	.794	36.52	33.32
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	5	55	4.9	47.2	43.5	92.2	.756	35.68	32.35
Frame builders, dural tail, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	4	58	5.8	47.8	48.7	101.9	.666	31.83	32.40
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
East North Central.....	3	10	5.3	43.9	42.2	96.1	.790	34.68	33.36
Total.....	9	84	5.6	47.5	47.2	99.4	.684	32.49	32.31
Frame builders, steel tail, male:									
Middle Atlantic.....	4	39	5.2	46.3	44.5	96.1	.750	34.73	33.37
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
East North Central.....	5	29	6.5	54.9	56.1	102.2	.619	33.98	34.72
West North Central.....	7	41	5.8	47.5	48.8	102.7	.532	25.27	25.96
West South Central.....	2	7	5.7	51.6	49.0	95.0	.434	22.39	21.31
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	20	134	5.8	49.1	49.1	100.0	.616	30.24	30.24
Frame builders, wood tail, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	2	18	5.1	45.9	43.1	93.9	.741	34.01	31.93
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
West North Central.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Western.....	2	12	6.0	45.4	45.4	100.0	.692	31.39	31.39
Total.....	7	39	5.5	46.5	44.2	95.1	.688	31.99	30.43

¹ Data included in total but not given separately to avoid identification.

TABLE A.—Average number of days on which employees worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1929, by occupation, sex, and district—Continued

AIRPLANES—Continued

Occupation, sex, and district	Number of establishments	Number of wage earners	Average number of days on which employees worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full time worked	Average earnings per hour	Average full-time earnings per week	Average actual earnings in 1 week
Frame builders, dural wing, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	5	118	5.5	49.1	49.1	100.0	\$0.680	\$33.37	\$33.37
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
East North Central.....	3	28	5.2	41.7	41.9	100.5	.918	38.28	38.76
West North Central.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	12	217	5.5	48.3	47.5	98.3	.689	32.31	31.81
Frame builders, wood wing, male:									
New England.....	3	13	5.5	49.1	45.9	93.5	.623	30.59	28.60
Middle Atlantic.....	8	236	5.4	47.1	46.8	99.4	.700	32.97	32.75
South Atlantic.....	3	19	6.0	49.3	52.1	105.7	.652	32.14	33.97
East North Central.....	5	67	5.5	48.8	46.3	93.0	.532	26.49	24.63
West North Central.....	7	63	5.6	47.0	47.0	100.0	.610	28.66	28.66
West South Central.....	4	19	6.1	50.4	55.9	110.9	.542	27.32	30.34
Western.....	4	96	6.0	46.5	45.8	98.5	.695	32.32	31.83
Total.....	34	513	5.6	47.6	47.1	98.9	.656	31.23	30.87
Helpers, male:									
New England.....	3	110	4.9	47.6	44.6	93.7	.472	22.47	21.03
Middle Atlantic.....	9	428	5.1	47.2	45.7	96.8	.494	23.32	22.57
South Atlantic.....	4	68	5.3	50.6	45.5	89.9	.428	21.66	19.45
East North Central.....	7	55	5.6	49.9	47.7	95.6	.483	24.10	23.05
West North Central.....	8	35	5.4	47.7	43.2	90.6	.445	21.23	19.23
West South Central.....	3	9	5.6	50.8	46.3	91.1	.334	16.97	15.50
Western.....	4	162	5.9	46.2	45.8	99.1	.506	23.38	23.20
Total.....	38	867	5.3	47.6	45.6	95.8	.484	23.04	22.07
Inspectors, male:									
New England.....	3	11	5.6	48.5	48.5	100.0	.875	42.50	42.50
Middle Atlantic.....	9	111	5.7	46.9	49.6	105.8	.893	41.88	44.33
South Atlantic.....	4	31	5.8	49.4	47.4	96.0	.805	39.77	38.17
East North Central.....	8	35	5.7	47.6	47.3	99.4	.841	40.03	39.78
West North Central.....	8	25	6.0	48.3	50.1	103.7	.631	30.48	31.59
West South Central.....	2	7	6.0	51.6	51.6	100.0	.877	34.91	34.91
Western.....	3	51	5.9	46.3	46.1	99.6	.793	36.72	36.53
Total.....	37	271	5.8	47.5	48.5	102.1	.827	39.28	40.08
Laborers, male:									
New England.....	3	56	5.1	47.7	48.5	101.7	.493	23.52	23.91
Middle Atlantic.....	9	232	5.5	47.7	51.0	106.9	.545	26.00	27.78
South Atlantic.....	4	45	5.9	57.1	53.8	94.2	.420	23.98	22.58
East North Central.....	8	71	5.3	48.0	46.5	96.9	.614	29.47	28.53
West North Central.....	7	58	5.8	48.6	49.1	101.0	.439	21.34	21.54
West South Central.....	3	19	5.6	50.6	52.6	104.0	.388	19.63	20.43
Western.....	3	58	5.8	46.6	46.5	99.8	.552	25.72	25.67
Total.....	37	539	5.6	48.6	49.7	102.3	.520	25.27	25.88
Lathe operators, male:									
New England.....	2	11	5.1	47.6	46.7	98.1	.720	34.27	33.61
Middle Atlantic.....	7	70	5.2	46.9	47.1	100.4	.764	35.83	35.99
South Atlantic.....	3	17	5.2	50.7	43.7	86.2	.716	36.30	31.27
East North Central.....	3	11	5.5	44.5	45.5	102.2	.923	41.07	42.01
West North Central.....	3	7	5.4	47.6	42.4	89.1	.669	31.84	28.40
Western.....	3	53	5.6	46.9	46.1	98.3	.751	35.22	34.64
Total.....	21	169	5.4	47.2	46.1	97.7	.759	35.82	35.01

¹ Data included in total but not given separately to avoid identification.

TABLE A.—Average number of days on which employees worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1929, by occupation, sex, and district—Continued

AIRPLANES—Continued

Occupation, sex, and district	Number of establishments	Number of wage earners	Average number of days on which employees worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full time worked	Average earnings per hour	Average full-time earnings per week	Average actual earnings in 1 week
Machinists, male:									
New England.....	3	32	5.0	47.8	45.6	95.4	\$0.792	\$37.86	\$36.14
Middle Atlantic.....	7	76	5.0	47.0	44.7	95.1	.802	37.69	35.85
South Atlantic.....	4	19	5.2	50.0	43.9	87.8	.773	38.65	33.92
East North Central.....	6	21	5.5	49.2	45.5	92.5	.748	36.80	33.99
West North Central.....	7	22	5.5	48.4	44.0	90.9	.684	33.11	30.11
West South Central.....	3	10	5.9	49.5	47.8	96.6	.754	37.32	36.05
Western.....	4	15	5.7	46.9	49.2	104.9	.759	35.60	37.33
Total.....	34	195	5.2	47.9	45.3	94.6	.773	37.03	34.99
Milling machine operators, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	6	41	5.3	46.8	47.0	100.4	.744	34.82	34.98
South Atlantic.....	3	19	5.5	50.7	47.5	93.7	.745	37.77	35.38
East North Central.....	4	10	5.9	49.7	53.8	108.2	.629	31.26	33.86
West North Central.....	2	5	5.2	49.3	41.3	83.8	.588	28.99	24.30
Western.....	3	32	5.3	48.1	46.0	95.6	.755	36.32	34.73
Total.....	19	113	5.4	48.2	47.1	97.7	.727	35.04	34.30
Painters, hand, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	9	129	5.4	49.0	51.7	105.5	.651	31.90	33.65
South Atlantic.....	4	15	5.6	49.7	48.8	98.2	.546	27.14	26.63
East North Central.....	8	26	5.8	47.6	49.4	103.8	.504	23.99	24.94
West North Central.....	2	11	5.3	51.6	53.7	104.1	.424	21.88	22.74
Western.....	2	57	5.8	46.6	45.9	98.5	.588	27.40	27.01
Total.....	26	240	5.5	48.5	49.9	102.8	.604	29.29	30.17
Painters, letterers, and strippers, male:									
New England.....	2	2	5.5	47.8	47.0	98.3	.989	47.27	46.49
Middle Atlantic.....	6	8	5.0	48.4	46.1	95.2	.791	38.28	36.48
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
East North Central.....	2	2	5.5	49.8	52.5	105.4	.750	37.35	39.38
West North Central.....	6	6	5.5	47.3	47.1	99.6	.809	38.27	38.06
West South Central.....	2	2	5.0	50.5	42.5	84.2	.913	46.11	38.80
Western.....	2	6	5.7	45.3	43.9	96.9	.793	35.92	34.76
Total.....	21	28	5.4	47.8	46.2	96.7	.817	39.05	37.73
Painters, spray, male:									
New England.....	3	16	5.1	47.8	45.6	95.4	.676	32.31	30.80
Middle Atlantic.....	9	93	5.2	49.1	50.1	102.0	.722	35.45	36.16
South Atlantic.....	4	17	5.8	49.8	53.2	106.8	.605	30.13	32.17
East North Central.....	8	27	5.5	47.6	46.1	96.8	.744	35.41	34.29
West North Central.....	6	27	5.3	49.7	46.5	93.6	.438	21.77	20.38
West South Central.....	4	6	6.0	49.7	51.9	104.4	.592	29.42	30.73
Western.....	4	36	5.7	46.7	46.6	99.8	.627	29.28	29.22
Total.....	38	222	5.4	48.6	48.6	100.0	.660	32.05	32.05
Pattern makers, male:									
New England.....	2	6	5.0	47.6	43.6	91.6	.943	44.89	41.10
Middle Atlantic.....	6	17	5.7	47.1	47.5	100.8	.807	38.01	38.37
South Atlantic.....	4	20	5.8	49.8	53.8	108.0	.898	44.72	48.29
East North Central.....	3	13	5.7	49.6	49.3	99.4	.741	36.75	36.53
West North Central.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
West South Central.....	2	2	6.0	50.5	53.0	105.0	.799	40.35	42.35
Western.....	2	14	6.0	46.1	46.1	100.0	.726	33.44	33.44
Total.....	20	73	5.7	48.2	49.2	102.1	.817	39.38	40.16

¹ Data included in total but not given separately to avoid identification.

TABLE A.—Average number of days on which employees worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1929, by occupation, sex, and district—Continued

AIRPLANES—Continued

Occupation, sex, and district	Number of establishments	Number of wage earners	Average number of days on which employees worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full time worked	Average earnings per hour	Average full-time earnings in 1 week	Average actual earnings in 1 week
Polishers and rubbers, male:									
Middle Atlantic.....	3	15	5.1	46.1	47.7	103.5	\$0.715	\$32.96	\$34.11
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
East North Central.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	5	19	5.3	46.9	47.9	102.1	.677	31.75	32.42
Rib builders, dural, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	4	29	6.0	48.5	52.7	108.7	.679	32.93	35.76
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	7	67	5.4	48.3	48.5	100.4	.652	31.49	31.66
Rib builders, wood, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	7	61	5.6	49.2	47.9	97.4	.560	27.55	26.82
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
East North Central.....	4	13	5.4	49.2	44.3	90.0	.549	27.01	24.33
West North Central.....	6	29	5.4	45.7	42.8	93.7	.364	16.68	15.57
West South Central.....	4	13	6.0	51.5	56.2	109.1	.379	19.52	21.34
Western.....	4	12	5.1	46.1	39.7	86.1	.648	29.37	25.74
Total.....	27	133	5.5	48.3	46.4	96.1	.503	24.29	23.30
Rib builders, wood, female:									
South Atlantic.....	2	8	4.9	49.8	40.8	81.9	.299	14.89	12.19
Western.....	2	9	5.8	47.2	43.1	91.3	.433	20.44	18.68
Total.....	4	17	5.4	48.4	42.0	86.8	.372	18.00	15.63
Screw-machine operators, male:									
Middle Atlantic.....	6	31	5.5	47.3	47.5	100.4	.725	34.29	34.41
South Atlantic.....	2	9	5.4	50.8	46.3	91.1	.673	34.19	31.18
East North Central.....	3	11	5.4	49.5	45.2	91.3	.639	31.63	28.91
West North Central.....	2	3	5.3	51.3	46.0	89.7	.429	22.01	19.73
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	14	63	5.4	48.4	46.4	95.9	.693	33.54	32.16
Sewing-machine operators, male:									
Middle Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
East North Central.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
West North Central.....	2	2	4.5	46.8	35.3	75.4	.633	29.62	22.32
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	6	7	5.6	47.8	45.9	96.0	.802	38.34	36.76
Sewing-machine operators, female:									
New England.....	2	7	5.0	47.9	44.5	92.9	.357	17.10	15.90
Middle Atlantic.....	6	18	5.6	46.6	47.0	100.9	.475	22.14	22.34
South Atlantic.....	2	6	6.0	49.7	49.3	99.2	.341	16.95	16.80
East North Central.....	2	2	5.5	49.8	44.7	89.8	.344	17.13	15.38
West North Central.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
West South Central.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Western.....	3	5	5.0	44.8	37.5	83.7	.444	19.89	16.67
Total.....	17	42	5.5	47.7	46.0	96.4	.410	19.56	18.82

¹Data included in total but not given separately to avoid identification.

TABLE A.—Average number of days on which employees worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1929, by occupation, sex, and district—Continued

AIRPLANES—Continued

Occupation, sex, and district	Number of establishments	Number of wage earners	Average number of days on which employees worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full time worked	Average earnings per hour	Average full-time earnings per week	Average actual earnings in 1 week
Sheet-metal machine operators, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	7	29	5.7	47.8	47.2	98.7	\$.661	\$31.60	\$31.16
South Atlantic.....	4	45	5.8	50.3	49.8	99.0	.599	27.11	26.84
East North Central.....	5	29	5.6	50.1	47.0	93.8	.706	35.37	33.19
West North Central.....	7	15	5.7	49.4	47.7	96.6	.513	25.34	24.49
West South Central.....	2	3	6.0	51.3	50.3	98.1	.487	24.98	24.46
Western.....	2	8	6.0	47.0	47.0	100.0	.720	33.82	33.52
Total.....	28	131	5.7	49.4	48.1	97.4	.608	30.04	29.23
Sheet-metal workers, hand, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	9	137	5.4	48.1	49.1	102.1	.765	36.80	37.53
South Atlantic.....	4	33	5.1	49.7	43.8	88.1	.689	34.24	30.17
East North Central.....	8	133	5.4	49.1	46.3	94.3	.694	34.08	32.14
West North Central.....	8	30	5.6	47.9	46.2	96.5	.655	32.81	31.65
West South Central.....	2	7	6.0	49.4	49.4	100.0	.731	36.10	36.10
Western.....	4	157	5.8	46.0	44.9	97.6	.743	34.18	33.34
Total.....	36	503	5.5	47.8	46.5	97.3	.728	34.80	33.84
Spar builders, dural, male:									
Middle Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	3	42	5.6	49.9	48.5	97.2	.645	32.19	31.31
Spar builders, wood, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	8	42	5.5	47.4	46.9	98.9	.730	34.60	34.22
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
West North Central.....	4	6	5.2	47.8	43.8	91.6	.664	31.74	29.05
West South Central.....	2	2	6.0	50.5	52.0	103.0	.692	34.95	36.00
Western.....	3	17	5.8	46.1	44.7	97.0	.709	32.68	31.72
Total.....	19	70	5.6	47.3	46.3	97.9	.710	33.58	32.86
Testers, ground, male:									
New England.....	2	4	5.3	48.1	47.6	99.0	.865	41.61	41.17
Middle Atlantic.....	9	17	5.7	47.2	48.0	101.7	.791	37.34	37.96
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
East North Central.....	8	11	5.6	46.5	47.3	101.7	.742	34.50	35.11
West North Central.....	7	7	5.6	48.3	47.5	98.3	.652	31.49	30.96
West South Central.....	2	2	6.0	50.5	50.2	99.4	.668	33.73	33.54
Western.....	2	3	6.0	46.8	45.5	97.2	.872	40.81	39.66
Total.....	31	48	5.7	47.6	47.8	100.4	.753	35.84	35.97
Toolmakers, male:									
New England.....	3	26	5.0	47.8	44.6	93.3	.838	40.06	37.36
Middle Atlantic.....	8	94	5.3	47.1	45.7	97.0	.802	37.77	36.62
South Atlantic.....	3	66	5.3	52.2	48.9	93.7	.799	41.71	39.11
East North Central.....	5	31	5.1	46.0	41.3	89.8	.918	42.23	37.91
West North Central.....	4	12	5.3	48.9	43.4	88.8	.848	41.47	36.81
West South Central.....	2	7	6.0	50.9	51.6	101.4	.726	36.95	37.45
Western.....	3	28	5.8	47.3	46.7	98.7	.858	40.58	40.01
Total.....	28	264	5.3	48.5	46.0	94.8	.822	39.87	37.86
Upholsterers, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	6	8	5.6	46.8	52.0	111.1	.864	40.44	44.96
South Atlantic.....	2	3	6.0	49.0	48.8	99.6	1.077	52.77	52.58
East North Central.....	8	21	5.6	46.0	45.9	99.8	.854	39.28	39.15
West North Central.....	7	17	5.2	47.1	41.9	89.0	.655	30.85	27.45
West South Central.....	4	6	6.2	49.7	53.0	106.6	.655	28.08	29.93
Western.....	3	6	6.3	46.1	49.2	106.7	.672	30.98	33.07
Total.....	31	65	5.6	47.0	46.7	99.4	.759	35.67	35.47

¹ Data included in total but not given separately to avoid identification.

TABLE A.—Average number of days on which employees worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1929, by occupation, sex, and district—Continued

AIRPLANES—Continued

Occupation, sex, and district	Number of establishments	Number of wage earners	Average number of days on which employees worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full time worked	Average earnings per hour	Average full-time earnings per week	Average actual earnings in 1 week
Welders, male:									
New England.....	4	16	5.1	48.5	44.6	92.0	\$0.667	\$32.35	\$29.76
Middle Atlantic.....	9	267	5.3	47.2	46.2	97.9	.792	37.38	36.59
South Atlantic.....	4	21	5.9	49.7	50.3	101.2	.808	40.16	40.62
East North Central.....	7	72	5.6	48.8	49.3	101.0	.800	39.04	39.38
West North Central.....	7	90	5.4	48.0	44.6	92.9	.685	32.88	30.60
West South Central.....	3	32	5.8	51.1	50.1	98.0	.649	33.16	32.50
Western.....	3	69	6.0	46.4	47.4	102.2	.777	36.05	36.83
Total.....	37	567	5.5	47.8	46.8	97.9	.764	36.52	35.75
Welders, female:									
Middle Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	2	3	5.7	49.0	47.5	96.9	.540	26.46	25.63
Woodworking-machine operators, male:									
New England.....	3	9	5.0	48.1	43.4	90.2	.711	34.20	30.86
Middle Atlantic.....	8	41	5.5	47.2	48.1	101.9	.758	35.78	36.45
South Atlantic.....	4	11	5.7	49.5	49.0	99.0	.765	37.87	37.44
East North Central.....	4	20	5.6	49.9	46.8	93.8	.657	32.78	30.77
West North Central.....	7	13	5.5	46.8	46.7	99.8	.688	32.20	32.16
West South Central.....	3	5	6.0	50.0	57.3	114.6	.701	35.05	40.16
Western.....	4	20	6.0	46.0	45.5	98.9	.749	34.45	34.11
Total.....	33	119	5.6	47.8	47.4	99.2	.727	34.75	34.46
Other employees, male:									
New England.....	4	61	5.3	48.6	47.8	98.4	.652	31.69	31.14
Middle Atlantic.....	9	482	5.6	47.5	50.3	105.9	.716	34.01	36.01
South Atlantic.....	4	126	5.6	50.1	48.3	96.4	.661	28.11	27.08
East North Central.....	7	155	5.5	47.1	47.4	100.6	.719	36.22	36.44
West North Central.....	8	127	5.7	49.7	49.9	100.4	.710	35.29	35.39
West South Central.....	4	26	5.7	51.3	48.6	94.7	.721	36.99	35.02
Western.....	4	171	5.9	46.5	46.9	100.9	.664	30.88	31.10
Total.....	40	1,148	5.6	48.0	48.9	101.9	.695	33.36	34.01
Other employees, female:									
Middle Atlantic.....	2	2	5.0	46.0	44.0	95.7	.700	32.20	30.80
South Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
East North Central.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Western.....	3	5	6.0	48.3	46.6	96.5	.305	14.73	14.23
Total.....	7	13	5.8	48.0	47.1	98.1	.413	19.82	19.45
All occupations, male:									
New England.....	4	688	5.0	47.9	45.6	95.2	.642	30.75	29.28
Middle Atlantic.....	9	4,816	5.4	47.6	48.1	101.1	.695	33.08	33.42
South Atlantic.....	4	857	5.6	50.6	48.6	96.0	.641	32.43	31.19
East North Central.....	8	1,307	5.5	48.1	46.6	96.9	.705	33.91	32.83
West North Central.....	8	1,011	5.5	48.3	46.2	95.6	.681	28.06	26.87
West South Central.....	4	278	5.8	50.8	50.9	100.2	.553	28.09	28.13
Western.....	4	1,888	5.8	46.5	46.0	98.9	.666	30.97	30.62
Total.....	41	10,845	5.5	47.9	47.3	98.7	.669	32.05	31.63
All occupations, female:									
New England.....	3	9	5.2	48.3	45.3	93.8	.361	17.44	16.36
Middle Atlantic.....	7	74	5.4	47.3	44.9	94.9	.414	19.58	18.50
South Atlantic.....	2	27	5.7	49.7	47.9	96.4	.318	15.80	15.24
East North Central.....	2	7	5.1	49.6	42.0	84.7	.330	16.37	13.86
West North Central.....	5	23	5.6	49.9	45.8	91.8	.260	12.97	11.91
West South Central.....	2	8	5.9	51.8	52.5	101.4	.342	17.72	17.97
Western.....	3	86	5.8	45.1	43.3	96.0	.417	18.81	18.04
Total.....	24	234	5.6	47.3	44.9	94.9	.380	17.97	17.09

¹Data included in total but not given separately to avoid identification.

TABLE A.—Average number of days on which employees worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1929, by occupation, sex, and district—Continued

AIRPLANES—Continued

Occupation, sex, and district	Number of establishments	Number of wage earners	Average number of days on which employees worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full time worked	Average earnings per hour	Average full-time earnings in 1 week	Average actual earnings in 1 week
All occupations, male and female:									
New England.....	4	697	5.0	47.9	45.6	95.2	\$0.639	\$30.61	\$29.11
Middle Atlantic.....	9	4,890	5.4	47.6	45.1	101.1	.691	32.89	33.19
South Atlantic.....	4	894	5.6	50.6	48.6	96.1	.652	31.98	30.70
East North Central.....	8	1,314	5.5	48.1	46.6	96.9	.703	33.81	32.77
West North Central.....	8	1,034	5.5	48.3	46.2	95.7	.574	27.72	26.54
West South Central.....	4	286	5.8	50.9	50.9	100.0	.547	27.85	27.85
Western.....	4	1,974	5.8	46.4	45.9	98.9	.686	30.44	30.07
Total.....	41	11,079	5.5	47.9	47.3	98.7	.663	31.76	31.37

AIRCRAFT ENGINES

Apprentices, male:									
Middle Atlantic.....	1	(¹)							
East North Central.....	2	3	6.0	49.7	50.8	102.2	\$0.390	\$19.38	\$19.80
Western.....	2	4	4.8	49.2	35.2	71.5	.494	24.30	17.38
Total.....	5	114	4.8	47.6	45.3	95.2	.425	20.23	19.22
Assemblers, male:									
New England.....	2	36	5.7	50.7	56.4	111.2	.741	37.57	41.78
Middle Atlantic.....	2	63	5.2	47.7	46.8	98.1	.648	30.91	30.35
East North Central.....	7	89	5.9	49.8	53.0	106.4	.735	36.60	38.91
Western.....	2	17	5.9	49.4	44.3	89.7	.770	38.04	34.10
Total.....	13	205	5.7	49.3	51.0	104.1	.714	35.20	36.38
Blacksmiths, male:									
Middle Atlantic.....	2	2	5.5	47.8	47.8	100.0	.800	38.21	38.21
East North Central.....	1	(¹)							
Total.....	3	3	5.7	48.3	49.8	103.1	.728	35.16	36.27
Boring-mill operators, male:									
New England.....	1	(¹)							
Middle Atlantic.....	2	20	5.8	49.8	53.1	106.6	.802	39.94	42.55
East North Central.....	2	11	6.6	50.9	70.4	138.3	.894	45.50	62.93
Total.....	5	41	5.8	50.1	57.9	115.6	.814	40.78	47.19
Coppersmiths and tinsmiths, male:									
New England.....	1	(¹)							
Middle Atlantic.....	2	37	5.3	47.6	48.8	102.5	.764	36.37	37.31
Total.....	3	38	5.3	47.7	49.1	102.9	.762	36.35	37.41
Drill-press operators, male:									
New England.....	1	(¹)							
Middle Atlantic.....	2	133	4.9	48.4	45.9	94.8	.739	35.77	33.93
East North Central.....	6	40	5.8	50.3	55.7	110.7	.673	33.85	37.49
Western.....	2	9	5.9	49.4	46.9	94.9	.724	35.77	33.93
Total.....	11	277	5.2	49.2	49.7	101.0	.672	33.06	33.39
Fitters and bench hands, male:									
New England.....	2	127	5.4	50.1	53.4	106.6	.602	30.16	32.13
Middle Atlantic.....	2	212	4.9	47.6	46.3	97.3	.635	30.23	29.38
East North Central.....	6	41	6.0	49.9	54.6	109.4	.645	32.19	35.25
Western.....	2	24	6.0	49.5	45.2	91.3	.683	33.81	30.86
Total.....	12	404	5.2	48.7	49.3	101.2	.628	30.58	30.93

¹ Data included in total but not given separately to avoid identification.

TABLE A.—Average number of days on which employees worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1929, by occupation, sex, and district—Continued

AIRCRAFT ENGINES—Continued

Occupation, sex, and district	Number of establishments	Number of wage earners	Average number of days on which employees worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full time worked	Average earnings per hour	Average full-time earnings per week	Average actual earnings in 1 week
Grinding-machine operators, male:									
New England.....	2	55	5.3	50.1	52.3	104.4	\$0.714	\$35.77	\$37.36
Middle Atlantic.....	2	114	5.3	48.2	47.6	98.8	.821	39.57	39.06
East North Central.....	6	39	6.2	50.6	62.8	124.1	.812	41.09	50.96
Western.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Total.....	11	216	5.5	49.2	51.6	104.9	.791	38.92	40.80
Helpers, not otherwise specified, male:									
New England.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Middle Atlantic.....	2	29	5.7	47.9	48.2	100.6	.574	27.49	27.64
East North Central.....	3	23	5.8	49.8	50.3	101.0	.525	26.15	26.44
Western.....	2	3	6.3	49.2	61.6	125.2	.566	27.85	34.89
Total.....	8	91	5.6	49.3	51.3	104.1	.537	26.47	27.57
Inspectors, male:									
New England.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Middle Atlantic.....	2	127	5.3	47.9	48.0	100.2	.744	35.64	35.73
East North Central.....	7	30	6.1	49.8	53.3	107.0	.793	39.49	42.30
Western.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Total.....	11	210	5.4	48.7	49.6	101.9	.753	36.67	37.34
Laborers, male:									
New England.....	2	37	5.3	50.3	52.2	103.8	.493	24.80	25.76
Middle Atlantic.....	2	162	5.4	47.9	52.3	109.2	.537	25.72	28.11
East North Central.....	6	27	5.9	49.9	55.1	110.4	.492	24.55	27.12
Western.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Total.....	11	235	5.4	48.5	52.5	108.2	.526	25.51	27.62
Lathe operators, engine, male:									
New England.....	2	24	5.1	50.2	50.9	101.4	.681	34.19	34.66
Middle Atlantic.....	2	97	5.2	48.4	48.2	99.6	.798	38.62	38.48
East North Central.....	6	36	6.8	50.3	55.4	110.1	.791	39.79	43.80
Western.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Total.....	11	167	5.4	49.2	50.0	101.6	.783	38.52	39.16
Lathe operators, turret, male:									
New England.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Middle Atlantic.....	2	28	4.6	47.6	42.0	88.2	.861	40.98	36.13
East North Central.....	2	5	5.2	50.8	53.0	104.3	.794	40.34	42.10
Western.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Total.....	6	74	5.0	49.1	48.4	98.6	.742	36.43	35.96
Machinists, male:									
New England.....	2	26	5.2	51.0	51.7	101.4	.767	39.12	39.60
Middle Atlantic.....	2	38	5.4	47.7	49.1	102.9	.789	36.68	37.74
East North Central.....	3	19	5.7	49.5	49.0	99.0	.784	38.81	38.41
Western.....	3	40	5.5	49.6	44.9	90.5	.849	42.11	38.13
Total.....	10	123	5.4	49.3	48.3	98.0	.795	39.19	38.86
Machinists' and toolmakers' helpers, male:									
New England.....	2	9	5.4	52.2	52.1	99.8	.492	25.68	25.63
Middle Atlantic.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Total.....	3	15	5.5	50.5	49.6	98.2	.528	26.66	26.19

¹ Data included in total but not given separately to avoid identification.

TABLE A.—Average number of days on which employees worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1929, by occupation, sex, and district—Continued

AIRCRAFT ENGINES—Continued

Occupation, sex, and district	Number of establishments	Number of wage earners	Average number of days on which employees worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full time worked	Average earnings per hour	Average full-time earnings per week	Average actual earnings in 1 week
Milling-machine operators, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	2	93	5.2	48.6	47.5	97.7	\$0.777	\$37.76	\$36.90
East North Central.....	6	33	6.2	50.5	61.3	121.4	.736	37.17	45.09
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	10	161	5.4	49.2	50.7	103.0	.749	36.85	37.95
Packers, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	2	23	5.2	47.7	48.5	101.7	.845	26.00	26.42
East North Central.....	5	10	6.0	49.8	54.9	110.2	.856	32.67	36.01
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	9	43	5.5	48.7	51.9	106.6	.594	28.93	30.86
Paint sprayers, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
East North Central.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	4	16	5.5	48.9	47.8	97.8	.675	33.01	32.27
Polishers and buffers, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	2	35	4.9	47.6	45.6	95.8	.913	43.46	41.59
Total.....	3	49	4.9	48.3	46.6	96.5	.861	41.59	40.11
Screw-machine operators, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	2	149	5.2	48.7	47.8	98.2	.786	38.28	37.53
East North Central.....	5	41	6.2	50.9	61.7	121.2	.794	40.41	49.00
Total.....	8	198	5.4	49.2	50.9	103.5	.781	38.43	39.76
Sheet-metal machine operators, male:									
Middle Atlantic.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
East North Central.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	2	3	5.3	48.8	46.8	95.9	.709	34.60	33.19
Testers, male:									
New England.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Middle Atlantic.....	2	26	5.3	47.7	49.3	103.4	.694	33.10	34.23
East North Central.....	7	19	5.9	50.6	56.4	111.5	.880	44.53	49.64
Western.....	2	5	6.4	49.6	60.4	121.8	.863	42.80	52.11
Total.....	12	57	5.7	49.1	54.3	110.6	.783	38.45	42.47
Toolmakers, male:									
New England.....	2	21	5.2	50.2	51.6	102.8	.837	42.02	43.14
Middle Atlantic.....	2	38	5.6	47.8	50.7	106.1	.821	39.24	41.65
East North Central.....	5	29	5.7	49.6	49.1	99.0	.839	41.61	41.20
Western.....	1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total.....	10	108	5.6	49.1	50.1	102.0	.844	41.44	42.28

¹Data included in total but not given separately to avoid identification.

TABLE A.—Average number of days on which employees worked, average full-time and actual hours and earnings per week, average earnings per hour, and per cent of full time worked, 1929, by occupation, sex, and district—Continued

AIRCRAFT ENGINES—Continued

Occupation, sex, and district	Number of establishments	Number of wage earners	Average number of days on which employees worked in 1 week	Average full-time hours per week	Average hours actually worked in 1 week	Per cent of full time worked	Average earnings per hour	Average full-time earnings per week	Average actual earnings in 1 week
Other precision-machine operators, male:									
New England.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Middle Atlantic.....	2	27	5.3	47.7	46.7	97.9	\$0.778	\$37.11	\$36.32
East North Central.....	1	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Total.....	4	35	5.3	48.2	48.2	100.0	.756	36.45	36.45
Other skilled employees, male:									
New England.....	2	48	5.3	50.3	52.4	104.2	.888	44.67	46.51
Middle Atlantic.....	2	138	5.4	48.0	50.9	106.0	.824	39.55	41.91
East North Central.....	6	41	5.8	49.6	51.8	104.4	.887	44.00	45.89
Western.....	3	14	5.9	49.3	47.7	96.8	.857	42.25	40.85
Total.....	13	241	5.4	48.8	51.1	104.7	.849	41.43	43.44
Other employees, male:									
New England.....	2	19	5.6	50.3	54.0	107.4	.575	28.92	31.01
Middle Atlantic.....	2	115	5.1	48.2	48.4	100.4	.597	28.78	28.90
East North Central.....	6	27	6.1	50.6	62.0	122.5	.789	39.92	48.93
Western.....	3	5	6.2	56.5	54.4	96.3	.528	29.83	28.71
Total.....	13	166	5.3	49.1	51.4	104.7	.630	30.93	32.39
All occupations, male:									
New England.....	2	704	5.3	50.2	52.8	105.2	.659	33.08	34.81
Middle Atlantic.....	2	1,831	5.2	48.0	48.0	100.0	.702	33.73	33.73
East North Central.....	7	569	6.0	49.8	55.7	111.9	.748	37.25	41.68
Western.....	3	186	5.8	49.7	46.9	94.4	.784	38.96	36.80
Total.....	14	3,290	5.4	48.9	50.3	102.9	.706	34.52	35.51

¹ Data included in total but not given separately to avoid identification.

TABLE B.—Average and classified earnings per hour in 23 specified occupations, 1929, by sex and district

AIRPLANES

Occupation, sex, and district	Number of—		Average earnings per hour	Number of employees whose earnings in cents per hour were—																		
	Estab-lish-ments	Em-ploy-ees		20, under 25	25, under 30	30, under 35	35, under 40	40, under 45	45, under 50	50, under 55	55, under 60	60, under 65	65, under 70	70, under 75	75, under 80	80, under 85	85, under 90	90, under 95	95, under 100	100, under 125	125, under 150	150, under 175
Assemblers, final, male:																						
New England.....	4	46	\$0.681						1	3	3	10	4	9	7	8						
Middle Atlantic.....	9	276	.720						1	5	15	52	55	38	58	20	7	13	9	3		
South Atlantic.....	3	18	.806									1	2	3	6	1	1					
East North Central.....	8	109	.698					7	8	17	4	12	11	11	4	6	5	2	4	18		
West North Central.....	8	88	.539		3	6		5	11	21	10	9	9	8	5	1						
West South Central.....	4	25	.520				2	7	1	5	3	4	1			1		1				
Western.....	4	118	.646					2	1	6	9	39	24	22	6	5	2		1	1		
Total.....	40	680	.674		3	6	2	21	23	57	44	127	106	91	86	42	15	18	14	25		
Coverers, fabric, male:																						
New England.....	3	9	.554					1	1	2	2	1	1		1							
Middle Atlantic.....	7	35	.650						2	6	3	3	5	9	3	1	1					
South Atlantic.....	4	13	.668						1	1	1	2	2	4	1		1	1				
East North Central.....	5	32	.570					7	7	3	2	3	1	1	7			2				
West North Central.....	6	20	.605					1	3	5	3	3	1	5	1		1					
West South Central.....	3	7	.432		3					2		2										
Western.....	1	(1)	(1)						(1)							(1)						
Total.....	29	118	.604		3			9	16	19	7	14	9	19	13	2	3	4				
Cowl makers, male:																						
New England.....	2	23	.745									1	6	4	1	8	2		1			
Middle Atlantic.....	9	130	.734							1	10	30	22	13	12	11	12	8	5	6		
South Atlantic.....	4	36	.765								1	4	3	12	5	2	1	4	3	1		
East North Central.....	7	29	.791								1	4	3	7	5			1	1	6	1	
West North Central.....	8	24	.690						1	3		4	1	4	4	5	1		1			
West South Central.....	4	7	.713							2		1		1				1		1		
Western.....	3	16	.798							1				3	5	3		3	1			
Total.....	37	265	.744						1	7	12	44	35	44	32	30	16	17	9	16	2	
Fitters and bench hands, male:																						
New England.....	3	51	.661				1			3	2	8	14	14	6	2	1					
Middle Atlantic.....	9	714	.684						2	22	53	152	132	117	112	67	43	8	3	3		
South Atlantic.....	4	33	.649							6	4	6	4	5	5	1						

TABLE B.—Average and classified earnings per hour in 23 specified occupations, 1929, by sex and district—Continued

AIRPLANES—Continued

Occupation, sex, and district	Number of—		Average earnings per hour	Number of employees whose earnings in cents per hour were—																			
	Estab-lish-ments	Emp-loy-ees		20, under 25	25, under 30	30, under 35	35, under 40	40, under 45	45, under 50	50, under 55	55, under 60	60, under 65	65, under 70	70, under 75	75, under 80	80, under 85	85, under 90	90, under 95	95, under 100	100, under 125	125, under 150	150, under 175	200 and over
Laborers, male:																							
New England.....	3	56	.493				3	16	7	21	4	3	1		1								
Middle Atlantic.....	9	232	.545		4	2	2	15	22	69	53	36	18	4	6	1							
South Atlantic.....	4	45	.420			3	8	21	5	5	1	2											
East North Central.....	8	71	.614					13	3	19	6	5	2	4		1	9	3	2	4			
West North Central.....	7	58	.439		2	5	9	18	6	8	5	4		1									
West South Central.....	3	19	.388	1	5	3	1	2	3	1	2	3	1										
Western.....	3	58	.552					2	1	25	11	10	6	2	1								
Total.....	37	539	.520	1	11	13	23	86	46	150	81	62	27	11	8	2	9	3	2	4			
Machinists, male:																							
New England.....	3	32	.792											12	7	2	4	4		3			
Middle Atlantic.....	7	76	.802										3	2	23	28	12	5					
South Atlantic.....	4	19	.773											4	5	9				1			
East North Central.....	6	21	.748							1	1	4	2	1	2	5	1	3	1				
West North Central.....	7	22	.684						1	3			2	1	9	6	1	1					
West South Central.....	3	10	.754									1	2	1	3	1	1				1		
Western.....	4	15	.759											3	5	3	3						
Total.....	34	195	.773						1	4	2	5	8	32	51	49	22	12	5	4			
Painters, spray, male:																							
New England.....	3	16	.676							1	1	4	4	1	2	2	1						
Middle Atlantic.....	9	93	.722					1	4	4	13	25	12	13	6	6	4	3	2				
South Atlantic.....	4	17	.605				2	3		1	3	1	1	5	1								
East North Central.....	8	27	.744							3	2	3	2	3	5		5		2	2			
West North Central.....	6	27	.438		4	6	1	1	1	6	4	3	1										
West South Central.....	4	6	.592					1			2		2		1								
Western.....	4	36	.627							2	8	14	4	4	2	2							
Total.....	38	222	.660		4	6	3	5	2	17	21	40	39	21	28	11	12	4	5	4			
Sewing-machine operators, female:																							
New England.....	2	7	.357		3	1	1		2														
Middle Atlantic.....	6	18	.475				3	4	4		5		2										
South Atlantic.....	2	6	.341					1	1														
East North Central.....	2	2	.344			1		1															
West North Central.....	1	(1)	(1)						(1)														

TABLE B.—Average and classified earnings per hour in 23 specified occupations, 1929, by sex and district—Continued

AIRCRAFT ENGINES

Occupation, sex, and district	Number of—		Average earnings per hour	Number of employees whose earnings in cents per hour were—																			
	Estab-lish-ments	Em-ploy-ees		20, under 25	25, under 30	30, under 35	35, under 40	40, under 45	45, under 50	50, under 55	55, under 60	60, under 65	65, under 70	70, under 75	75, under 80	80, under 85	85, under 90	90, under 95	95, under 100	100, under 125	125, under 150	150, under 175	200 and over
Assemblers, male:																							
New England.....	2	36	\$0.741								6	5	8	4	10	3							
Middle Atlantic.....	2	63	.648					1	13	6	6	12	14	3	4	2	1	1					
East North Central.....	7	89	.735						2	2	18	13	13	15	16	6	1	2	1				
Western.....	2	17	.770								1	1	2	8	1	4							
Total.....	13	205	.714					1	15	8	31	31	37	30	31	15	2	3	1				
Fitters and bench hands, male:																							
New England.....	2	127	.602					4	21	28	46	20	7				1						
Middle Atlantic.....	2	212	.635				1	2	32	29	48	44	26	16	7	4	1	1	1				
East North Central.....	6	41	.645			1	1	1	1	2	7	22	3	3	3								
Western.....	2	24	.683					1	1	2	2	1	8	8	1								
Total.....	12	404	.628			1	2	8	55	61	103	87	44	27	8	4	1	1	1				
Grinding-machine operators, male:																							
New England.....	2	55	.714						1	2	6	9	12	16	8	1							
Middle Atlantic.....	2	114	.821							1	1	4	26	22	21	9	8	7	15				
East North Central.....	6	39	.812							1	3	2	5	9	5	7	4	1	2				
Western.....	1	(1)	(1)						(1)				(1)			(1)							
Total.....	11	216	.791						2	4	10	15	44	47	34	20	15	8	17				
Inspectors, male:																							
New England.....	1	(1)	(1)								(1)	8	(1)	(1)	(1)	(1)	(1)	(1)	(1)				
Middle Atlantic.....	2	127	.744						1			12	43	29	15	14	1	3	1				
East North Central.....	7	30	.793						2	3		1	1	6	7	1	7	1	2				
Western.....	1	(1)	(1)									(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)				
Total.....	11	210	.753						3	3	18	23	50	38	33	20	14	4	4				

TABLE C.—Average and classified full-time hours per week in 23 specified occupations, 1929, by sex and district

Occupation, sex, and district	Number of—		Average full-time hours per week	Number of employees whose full-time hours per week were—												
	Estab-lish-ments	Emp-loy-ees		40	44	45	Over 45, under 47	47	47½	48	Over 48, under 50	50	Over 50, under 54	54	55	60 and over
AIRPLANES																
Assemblers, final, male:																
New England.....	4	46	48.2						27	7		12				
Middle Atlantic.....	9	276	47.8		24	27		35	55	92		43				
South Atlantic.....	3	18	49.2							5	7					
East North Central.....	8	109	47.0	25		9		7		21	47					
West North Central.....	8	88	48.1		15		19	17		13	12		12			
West South Central.....	4	25	50.6									13				
Western.....	4	118	46.1				24	51		43						
Total.....	40	680	47.6	25	39	60	70	59	125	117	39	78	56	12		
Coverers, fabric, male:																
New England.....	3	9	48.2						4	3		2				
Middle Atlantic.....	7	35	47.6		1	5		8	14	4			2		1	
South Atlantic.....	4	13	50.3						1	1	2	3	7			
East North Central.....	5	32	49.5					4			9	19				
West North Central.....	6	20	46.6		8		1	5		5	1					
West South Central.....	3	7	50.1							4			3			
Western.....	1	(1)	(1)			(1)										
Total.....	29	118	48.4		9	7	1	17	18	12	16	25	12		1	
Cowl makers, male:																
New England.....	2	23	47.8						20			3				
Middle Atlantic.....	9	130	48.1		8	11		36	6	41		28				
South Atlantic.....	4	36	50.2							3	4	14	15			
East North Central.....	7	29	47.1	8				3		3	3	14		1		
West North Central.....	8	24	47.9		3		4	7			5	4		1		
West South Central.....	4	7	50.1							4			3			
Western.....	3	16	46.2			1	9		6							
Total.....	37	265	48.2	8	11	12	13	46	32	48	12	35	46	1	1	
Fitters and bench hands, male:																
New England.....	3	51	47.6						45	4		2				
Middle Atlantic.....	9	714	47.6		95	44		72	167	246		93				
South Atlantic.....	4	33	50.7							1	5	3	20		1	
East North Central.....	6	62	48.5	9				3			4	45		1		
West North Central.....	8	57	48.3		12			14	5		6	10		10		
West South Central.....	1	(1)	(1)										(1)			
Western.....	3	223	47.0			18	55		137			13				
Total.....	34	1,152	47.7	9	107	62	69	80	349	251	5	73	125	10	2	
Frame builders, steel fuselage, male:																
New England.....	3	16	49.5							4		12				
Middle Atlantic.....	7	133	46.8		28	27		37	8	15			18			
South Atlantic.....	3	19	49.3							5	8	6				
East North Central.....	6	57	49.4			4		5		5	8	39		1		
West North Central.....	8	61	47.9		14		15	9			7	7		9		
West South Central.....	3	13	50.3							7			6			
Western.....	3	31	45.5			3	27		1							
Total.....	33	330	47.7		42	34	42	51	9	31	23	64	24	9	1	
Frame builders, wood wing, male:																
New England.....	3	13	49.1							6		7				
Middle Atlantic.....	8	236	47.1		26	74		16	38	46			36			
South Atlantic.....	3	19	49.3							5	6	8				
East North Central.....	5	67	49.8					3		5	11	53				
West North Central.....	7	63	47.0		15			15	13		10	10				
West South Central.....	4	19	50.4							10			9			
Western.....	4	96	46.5			9	39		48							
Total.....	34	513	47.6		41	83	54	32	86	67	27	78	45			

¹ Data included in total but not given separately to avoid identification.

TABLE C.—Average and classified full-time hours per week in 23 specified occupations, 1929, by sex and district—Continued

AIRPLANES—Continued

Occupation, sex, and district	Number of—		Average full-time hours per week	Number of employees whose full-time hours per week were—											
	Establishments	Employees		40	44	45	Over 45, under 47	47	47½	48	Over 48, under 50	50	Over 50, under 54	54	55
Helpers, male:															
New England.....	3	110	47.6						96	10		4			
Middle Atlantic.....	9	428	47.2		43	40		35	195	96			19		
South Atlantic.....	4	68	50.6						4	3	17	43		1	
East North Central.....	7	55	49.9			1		2		8	42			2	
West North Central.....	8	35	47.7		4		12	6		1	11		1	2	
West South Central.....	3	9	50.8						4			5			
Western.....	4	162	46.2			6	96		59		1				
Total.....	38	867	47.6		47	47	108	43	350	114	12	75	67	1	3
Inspectors, male:															
New England.....	3	11	48.5						4	3		4			
Middle Atlantic.....	9	111	46.9		16	12		17	15	51					
South Atlantic.....	4	31	49.4		5					2	9	15			
East North Central.....	8	35	47.6	7		1		3		2	3	21			
West North Central.....	8	25	48.3			3		4		7	5	3	3		
West South Central.....	2	7	51.6								3	5			
Western.....	3	51	46.3		2	2	26		21						
Total.....	37	271	47.5	7	26	15	30	27	40	58	8	37	20	3	
Laborers, male:															
New England.....	3	56	47.7						45	7		4			
Middle Atlantic.....	9	232	47.7		35	27		31	35	62			40		2
South Atlantic.....	4	45	57.1						10	8	9			18	5
East North Central.....	8	71	48.0	18		3		3		12	30				
West North Central.....	7	58	48.6		7		11	4		13	19		4		5
West South Central.....	3	19	50.6						9			10			
Western.....	3	58	46.6			3	25		28		2				
Total.....	37	539	48.6	18	42	33	36	38	108	88	33	64	50	4	25
Machinists, male:															
New England.....	3	32	47.8						24	5		3			
Middle Atlantic.....	7	76	47.0		1	10		26	30	9					
South Atlantic.....	4	19	50.0						5	1	2	11			
East North Central.....	6	21	49.2			2		2		3	14				
West North Central.....	7	22	48.4		3		3	4		4	6		2		
West South Central.....	3	10	49.5						7			3			
Western.....	4	15	46.9			7	2		1		5				
Total.....	34	195	47.9	4	19	5	32	55	26	8	30	14	2		
Painters, spray, male:															
New England.....	3	16	47.8						12	3		1			
Middle Atlantic.....	9	93	49.1		11	10		6	30	12			12		12
South Atlantic.....	4	17	49.8						3	2	8	4			
East North Central.....	8	27	47.6	5		2		1		3	16				
West North Central.....	6	27	49.7		4		3	4		4	2		10		
West South Central.....	4	6	49.7						4			2			
Western.....	4	36	46.7			8	10		14		4				
Total.....	38	222	48.6	5	15	20	13	11	56	22	9	31	18	10	
Sewing-machine operators, female:															
New England.....	2	7	47.9					2	5						
Middle Atlantic.....	6	18	46.6		3	6		2	2	3			2		
South Atlantic.....	2	6	49.7							1		5			
East North Central.....	2	2	49.8							1	1				
West North Central.....	1	(1)	(1)				(1)								
West South Central.....	1	(1)	(1)										(1)		
Western.....	3	5	44.8		3	1	1								
Total.....	17	42	47.7		6	7	2	2	4	9	1	6	5		

¹Data included in total but not given separately to avoid identification.

TABLE C.—Average and classified full-time hours per week in 23 specified occupations, 1929, by sex and district—Continued

AIRPLANES—Continued

Occupation, sex, and district	Number of—		Average full-time hours per week	Number of employees whose full-time hours per week were—												
	Establishments	Employees		40	44	45	Over 45, under 47	47	47½	48	Over 48, under 50	50	Over 50, under 54	54	55	60 and over
Sheet-metal workers, hand, male:																
New England.....	1	(¹)	(¹)						(¹)							
Middle Atlantic.....	9	137	48.1		9	36		12	24	14			41			1
South Atlantic.....	4	33	49.7							6	10	9	8			
East North Central.....	8	133	49.1	13		2		2			5	105			6	
West North Central.....	8	30	47.9		2		9	8			5	4		2		
West South Central.....	2	7	49.4										2			
Western.....	4	157	46.0			14	100		43							
Total.....	36	503	47.8	13	11	52	109	22	67	31	20	118	51	2	6	1
Toolmakers, male:																
New England.....	3	26	47.8					19	5			2				
Middle Atlantic.....	8	94	47.1		10	22		9	7	39	4		7			
South Atlantic.....	3	66	52.2									4	35		23	
East North Central.....	5	31	46.0	12				1				18				
West North Central.....	4	12	48.9					4			2	6				
West South Central.....	3	7	50.9							3			4			
Western.....	3	28	47.3			1	10		10			7				
Total.....	28	264	48.5	12	10	23	10	14	36	51	2	37	46		23	
Welders, male:																
New England.....	4	16	48.5					3	8			5				
Middle Atlantic.....	9	267	47.2		38	55		45	29	71			25			4
South Atlantic.....	4	21	49.7							5	5	4	7			
East North Central.....	7	72	48.3	6				6			17	43				
West North Central.....	7	90	48.0		25		16	18				12		19		
West South Central.....	3	32	51.1							12			20			
Western.....	3	69	46.4			9	27		33							
Total.....	37	567	47.8	6	63	64	43	69	65	96	22	64	52	19		4
Woodworking-machine operators, male:																
New England.....	3	9	48.1					3	5			1				
Middle Atlantic.....	8	41	47.2		8	8			7	12			6			
South Atlantic.....	4	11	49.5						3	2	4		2			
East North Central.....	4	20	49.9							6	14					
West North Central.....	7	13	46.8		4		3	1			3	2				
West South Central.....	3	5	50.0						3				2			
Western.....	4	20	46.0			5	9		6							
Total.....	33	119	47.8		12	13	12	1	16	23	11	21	10			

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Assemblers, male:																
New England.....	2	36	50.7									31				5
Middle Atlantic.....	2	63	47.7						41	22						
East North Central.....	7	89	49.8								28	61				
Western.....	2	17	49.4								17					
Total.....	13	205	49.3						41	22	45	92				5
Fitters and bench hands, male:																
New England.....	2	127	50.1									124				3
Middle Atlantic.....	2	212	47.6						178	34						
East North Central.....	6	41	49.9								10	31				
Western.....	2	24	49.5								23	1				
Total.....	12	404	48.7						178	34	33	156				3

¹Data included in total but not given separately to avoid identification.
²Including 2 whose hours were 42½.

TABLE C.—Average and classified full-time hours per week in 23 specified occupations, 1929, by sex and district—Continued

AIRCRAFT ENGINES—Continued

Occupation, sex, and district	Number of—		Average full-time hours per week	Number of employees whose full-time hours per week were—												
	Estab-lish-ments	Em-ploy-ees		40	44	45	Over 45, under 47	47	47½	48	Over 48, under 50	50	Over 50, under 54	54	55	60 and over
Grinding-machine operators, male:																
New England.....	2	55	50.1								54				1	
Middle Atlantic.....	2	114	48.2					65	44							5
East North Central.....	6	39	50.6							15	18				6	
Western.....	1	(¹)	(¹)							(¹)						
Total.....	11	216	49.2					65	44	23	72				7	5
Inspectors, male:																
New England.....	1	(¹)	(¹)								(¹)					
Middle Atlantic.....	2	127	47.9					74	51							2
East North Central.....	7	30	49.8							10	20					
Western.....	1	(¹)	(¹)							(¹)						
Total.....	11	210	48.7					74	51	16	67					2
Laborers, male:																
New England.....	2	37	50.3								35				2	
Middle Atlantic.....	2	162	47.9					93	67							2
East North Central.....	6	27	49.9							17	9				1	
Western.....	1	(¹)	(¹)							(¹)						
Total.....	11	235	48.5					93	67	26	44				3	2
Lathe operators, engine, male:																
New England.....	2	24	50.2								23				1	
Middle Atlantic.....	2	97	48.4					60	31							6
East North Central.....	6	36	50.3							15	17				4	
Western.....	1	(¹)	(¹)							(¹)						
Total.....	11	167	49.2					60	31	25	40				5	6
Machinists, male:																
New England.....	2	26	51.0								21				5	
Middle Atlantic.....	2	38	47.7					22	16							
East North Central.....	3	19	49.5							19						
Western.....	3	40	49.6							28	12					
Total.....	10	123	49.3					22	16	47	33				5	

¹ Data included in total but not given separately to avoid identification.

TABLE D.—Average and classified hours actually worked in one week in 23 specified occupations, 1929, by sex and district

AIRPLANES

Occupation, sex, and district	Number of—		Average hours actually worked in 1 week	Number of employees whose hours actually worked in 1 week were—																					
	Establishments	Employees		Under 16	16, under 24	24, under 32	32, under 40	40	Over 40, under 44	44	Over 44, under 45	45	Over 45, under 47½	47½	Over 47½, under 48	48	Over 48, under 50	50	Over 50, under 54	54	Over 54, under 55	55	Over 55, under 60	60 and over	
Assemblers, final, male:																									
New England.....	4	46	43.5	2	1	1	2	10				16	1		2	4	7								
Middle Atlantic.....	9	276	51.3	2	2	3	14	5	16	8	3	6	25	42	4	21	8	7	43		2	2	12	51	
South Atlantic.....	3	18	51.5				1		1			1	1		1	5	2	2					1	3	
East North Central.....	8	109	45.2	2	1	3	9	34	6	3		5	8	1	1	5	9	2	1			1	6	12	
West North Central.....	8	88	46.3	1		5	8	4	6	3	1	5	22		1	2	2	9	5			1	5	6	
West South Central.....	4	25	50.5					1	1		1	1			9	2		6		1	2	2	2		
Western.....	4	118	45.8	1		7	2	2	4	5	8	1	37	30		3	4		5		1		5	3	
Total.....	40	680	48.2	8	4	19	36	45	44	19	12	18	110	74	6	43	27	27	66	6	4	6	31	75	
Coverers, fabric, male:																									
New England.....	3	9	45.8						4				3				2								
Middle Atlantic.....	7	35	51.6			1		1	1			1	5	11		1		4		1		3	6		
South Atlantic.....	4	13	47.5			1						2			1	2	1	6							
East North Central.....	5	32	47.9		1		2	8				3				3	6	2				3	4		
West North Central.....	6	20	45.5					6	6	1		3				1	2						1		
West South Central.....	3	7	46.7	1		1												1				2	1		
Western.....	1	(1)	(1)					(1)			(1)														
Total.....	29	118	48.3	1	1	3	2	9	12	6	1	4	14	11	1	2	8	9	13		1		8	12	
Cowl makers:																									
New England.....	2	23	45.7				2		1				18				2								
Middle Atlantic.....	9	130	49.9	1	2	2	4		4	5	2	3	8	8	2	25	3	1	21			2	4	13	
South Atlantic.....	4	36	47.6				3		4			2	1	1	1	1	2	12	9		2	4	1		
East North Central.....	7	29	44.0		2			12	1			1	4			1	4					3	1		
West North Central.....	8	24	47.9				1	2	3	1		5			1	3	1	4	1				2		
West South Central.....	4	7	51.3												1	2		3				1			
Western.....	3	16	45.8	1								6	6					1				2			
Total.....	37	265	48.2	2	4	2	10	14	13	6	2	6	42	15	4	29	9	20	38	3	4	1	25	16	
Fitters and bench hands, male:																									
New England.....	3	51	45.8				3		5				39			2	2								
Middle Atlantic.....	9	714	45.7	9	4	13	36	6	94	63	7	27	33	134	44	148	4	4	66	1	1		16	4	

TABLE D.—Average and classified hours actually worked in one week in 23 specified occupations, 1929, by sex and district—Continued

AIRPLANES—Continued

Occupation, sex, and district	Number of—		Average hours actually worked in 1 week	Number of employees whose hours actually worked in 1 week were—																				
	Establishments	Employees		Under 16	16, under 24	24, under 32	32, under 40	40	Over 40, under 44	44	Over 44, under 45	45	Over 45, under 47½	47½	Over 47½, under 48	48	Over 48, under 50	50	Over 50, under 54	54	Over 54, under 55	55	Over 55, under 60	60 and over
Laborers, male:																								
New England.....	3	56	48.5			2	2					1	30		5	8		4	1					3
Middle Atlantic.....	9	232	51.0	2	2	3	12	3	10	2	1	5	25	8	8	8		36	2	2			37	38
South Atlantic.....	4	45	53.8				1		1			1	1	1	9	2	11	5					2	10
East North Central.....	8	71	46.5	3	3	2	4	17		1		3	1	1	10	6	1	6	1				4	15
West North Central.....	7	58	49.1				1	3	2	4	2		12	1	2	4	12	6	2		1		2	4
West South Central.....	3	19	52.6		1		2						1	1	5		3	1	1				1	3
Western.....	3	58	46.5	1	1	1	1					1	23	12	2	2	11					2	1	3
Total.....	37	539	49.7	6	7	10	23	23	13	7	3	6	65	73	10	21	41	22	72	11	3	1	48	74
Machinists, male:																								
New England.....	3	32	45.6			1	1		5	2	3		14			1	3	1						
Middle Atlantic.....	7	76	44.7	1		2	6		21	2		2	6	24	1	3	1	3	1				2	1
South Atlantic.....	4	19	43.9			4			2			1	1	1	2		2	7	1					
East North Central.....	6	21	45.5		1		1	4	1	1	1	1	3			2	2	1	1				3	
West North Central.....	7	22	44.0			1	1	5		5	1		5		1	1	1		1					
West South Central.....	3	10	47.8			1			1					2	4			1					2	
Western.....	4	15	49.2						1			3	2		1	5							3	
Total.....	34	195	45.3	1	1	9	9	9	30	10	5	6	31	25	4	9	6	14	13	2			10	1
Painters, spray, male:																								
New England.....	3	16	45.6			1			4				7		1	1	1							
Middle Atlantic.....	9	93	50.1	5		1	3	2	1			2	6	19	1	3	1	15	3	1			8	20
South Atlantic.....	4	17	53.2				1	7	1			1				1	2	8						3
East North Central.....	8	27	46.1		1	1	2	7	1	2			1		1	5	3	3						4
West North Central.....	6	27	46.5	2	1	1	1	3		1	4		1				5	5	2				5	1
West South Central.....	4	6	51.9						2	2					2		1	1					1	1
Western.....	4	36	46.6			1	1		2		3	1	9			12	4	1				1	1	1
Total.....	38	222	48.6	7	2	5	8	12	8	5	7	4	24	19	1	6	16	14	33	5	1	1	14	30

Sewing-machine operators, female:																			
New England.....	2	7	44.5						5					2					
Middle Atlantic.....	6	18	47.0							2		5		2	2	1	2		
South Atlantic.....	2	6	49.3															2	
East North Central.....	2	2	44.7				1										1	4	
West North Central.....	1	(1)	(1)											(1)					
West South Central.....	1	(1)	(1)											(1)					(1)
Western.....	3	5	37.5	1				1						1					
Total.....	17	42	46.0	1			1	1	5	2	2	5	7	2	2	3	4	4	2
Sheet-metal workers, hand, male:																			
New England.....	1	(1)	(1)						(1)										
Middle Atlantic.....	9	137	49.1	1		3	5	2	5	1	2	9	7	22	2	12	2	2	36
South Atlantic.....	4	33	43.8		1	2	5		4		1	3	2	1	1	4		3	5
East North Central.....	8	133	46.3	1	1	6	11	17	4	5	2	4	6	1	2	5	44	7	2
West North Central.....	8	30	46.2			1	5	1	1	2			6			1	2	3	6
West South Central.....	2	7	49.4												2	3			2
Western.....	4	157	44.9	4			5	1	7		2	2	88	38			7		1
Total.....	36	503	46.5	6	2	12	31	21	27	8	7	18	109	62	7	25	55	15	52
Toolmakers, male:																			
New England.....	3	26	44.6				3		3		4	1	14				1		
Middle Atlantic.....	8	94	45.7	1	2	2	7		9	6	4	9	6		4	9	21		3
South Atlantic.....	3	66	48.9	1	1	1	4		2	1			3				2	2	4
East North Central.....	5	31	41.3	1		1	2	15		1		1	4				1		4
West North Central.....	4	12	43.4					4	3	1	1		1				2		2
West South Central.....	2	7	51.6														1	2	
Western.....	3	28	46.7								5	10	10		1			2	
Total.....	28	284	46.0	3	3	4	16	19	17	9	9	16	38	14	11	26	5	12	32
Welders, male:																			
New England.....	4	16	44.6				2		8				2				1	3	
Middle Atlantic.....	9	267	46.2	3	2	5	23	2	42	17	6	34	11	22	13	31	2	2	25
South Atlantic.....	4	21	50.3				1		2			1	2			3		4	6
East North Central.....	7	72	49.3	1		4	2	13		1			9			2	1	11	6
West North Central.....	7	90	44.6	2	1	2	4	11	14	5	2	4	22			3	2	6	4
West South Central.....	3	32	50.1			1	2		2				3		1	6		1	14
Western.....	3	69	47.4				2		2				26	31			2		1
Total.....	37	567	46.8	6	4	11	36	26	68	23	8	39	75	53	14	42	9	23	58

¹ Data included in total but not given separately to avoid identification.

TABLE D.—Average and classified hours actually worked in one week in 23 specified occupations, 1929, by sex and district—Continued

AIRPLANES—Continued

Occupation, sex, and district	Number of—		Average hours actually worked in 1 week	Number of employees whose hours actually worked in 1 week were—																				
	Establishments	Employees		Under 16	16. under 24	24. under 32	32. under 40	40	Over 40. under 44	44	Over 44. under 45	45	Over 45. under 47½	47½	Over 47½. under 48	48	Over 48. under 50	50	Over 50. under 54	54	Over 54. under 55	55	Over 55. under 60	60 and over
Woodworking-machine operators, male:																								
New England.....	3	9	43.4				1		6		1													
Middle Atlantic.....	8	41	48.1				1		4	6			7		9				2	1			1	4
South Atlantic.....	4	11	49.0			1								1	1									1
East North Central.....	4	20	46.8		1	1		1	1					1		4	7		2	1			2	1
West North Central.....	7	13	46.7				2	1	2	1				1		1			2				2	
West South Central.....	3	5	57.3												1									2
Western.....	4	20	45.5				1		2	1	1	1	8	5					1					2
Total.....	33	119	47.4		1	2	5	2	15	8	2	7	12	12	2	13	5	11	8	2			5	7

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Assemblers, male:																								
New England.....	2	36	56.4				1		1							1	7	2				2	12	10
Middle Atlantic.....	2	63	46.8		1	1	5			1				32	11	3		7	3				2	2
East North Central.....	7	89	53.0		1	2	1		2			6		2	4	21	14	3	3			1	14	15
Western.....	2	17	44.3				3				8			1		1		1			1			
Total.....	13	205	51.0		2	3	10		3	9		8		35	15	26	21	13	3	1	3	3	28	25
Fitters and bench hands, male:																								
New England.....	2	127	53.4	1		1		1	2					1		8	52	3				4	38	14
Middle Atlantic.....	2	212	46.3	3	2		32		8	1	1			116	17	6	4	3				9	10	
East North Central.....	6	41	54.6				1					3		1	7	12	5	2				3	7	
Western.....	2	24	45.2				1		1	14		2		3		2						1		
Total.....	12	404	49.3	4	2	1	34	1	11	15	1	7		120	18	23	68	11	2		4	51	31	

Grinding-machine operators, male:																							
New England.....	2	55	52.3				2								1	7	22	1		1	15	3	
Middle Atlantic.....	2	114	47.6	1	1		5		6		1	3		61	21	2	22	8			3	5	
East North Central.....	6	39	62.8			1	1				2					8		4	1	1		21	
Western.....	1	(1)	(1)													(1)							
Total.....	11	216	51.6	1	1	1	8		6		1	5		61	22	25	22	13	1	1	1	18	29
Inspectors, male:																							
New England.....	1	(1)	(1)				(1)									(1)	(1)	(1)		(1)	(1)	(1)	7
Middle Atlantic.....	2	127	48.0			2	8	1	2	2				58	35	2	2	1	4		(1)	(1)	5
East North Central.....	7	30	53.3								2			1		10	7	1	1			2	6
Western.....	1	(1)	(1)					(1)		(1)					(1)	(1)							
Total.....	11	210	49.6			2	10	2	2	5	2	2		59	36	16	35	6	1	3	3	11	17
Laborers, male:																							
New England.....	2	37	52.2		1	1		1									10	6	1	1	6	7	3
Middle Atlantic.....	2	162	52.3			1	7	1		1				35	23	2	2	35	1		1	31	26
East North Central.....	6	27	55.1							1						7	4		1			5	7
Western.....	1	(1)	(1)	1											(1)	(1)		(1)					
Total.....	11	235	52.5	1	1	2	7	1	1	2	1	1		35	24	12	14	45	3	1	6	43	36
Lathe operators, engine, male:																							
New England.....	2	24	50.9				1									2	13	6					2
Middle Atlantic.....	2	97	48.2				4		5					57	14		1	4		1		2	7
East North Central.....	6	36	55.4		1	1			2		1	3		2		9	2	1	2				12
Western.....	1	(1)	(1)		(1)						(1)					(1)							
Total.....	11	167	50.0		2	3	5		7		1	4		59	14	19	16	11	2	1		2	21
Machinists, male:																							
New England.....	2	26	51.7				1		1					1			14	2			2	3	2
Middle Atlantic.....	2	38	49.1				2		1					18	7					1		4	1
East North Central.....	3	19	49.0			1			1		2				1	9		4				4	1
Western.....	3	40	44.9	1	1	3	2	1	1	1	2	2			1	17		7		1			
Total.....	10	123	48.3	1	1	4	4	2	3	2	2	4		19	9	26	14	17		2	2	7	4

¹ Data included in total but not given separately to avoid identification.

TABLE E.—Average and classified actual earnings in one week in 23 specified occupations, 1929, by sex and district

AIRPLANES

Occupation, sex, and district	Number of—		Average actual earnings in 1 week	Number of employees whose earnings in 1 week were—																			
	Estab-lish-ments	Em-ploy-ees		Under \$5	\$5, under \$10	\$10, under \$15	\$15, under \$20	\$20, under \$25	\$25, under \$30	\$30, under \$35	\$35, under \$40	\$40, under \$45	\$45, under \$50	\$50, under \$55	\$55, under \$60	\$60, under \$65	\$65, under \$70	\$70, under \$75	\$75, under \$80	\$80, under \$85	\$85, under \$90	\$90 and over	
Assemblers, final, male:																							
New England.....	4	46	\$29.64	1	1	1	2	5	10	12	11	3											
Middle Atlantic.....	9	276	36.95		2	2	2	13	48	72	66	27	14	7	5	4	4	3		3	3	1	
South Atlantic.....	3	13	41.57					2		2	8	1	1	2								1	
East North Central.....	8	109	31.56		2	1	19	13	5	19	24	12	14										
West North Central.....	8	88	24.95	1	1	8	9	25	21	12	11												
West South Central.....	4	25	26.28				4	7	11	1			2										
Western.....	4	118	29.59	1			7	11	52	28	11	5	1	2									
Total.....	40	680	32.49	3	6	12	43	76	147	146	131	48	32	9	7	5	4	3	3	3	3	2	
Coverers, fabric, male:																							
New England.....	3	9	25.38				2	3	1	3													
Middle Atlantic.....	7	35	33.57				2	7	5	7	4	5	1	4									
South Atlantic.....	4	13	31.70					3	1	3	5	1											
East North Central.....	5	32	27.34			1	8	4	8	2	6	2	1										
West North Central.....	6	20	27.6				2	6	7	2	2			1									
West South Central.....	3	7	20.18		2	1		1	1	2													
Western.....	1	(1)	(1)					(1)			(1)												
Total.....	29	118	29.15		2	2	14	25	23	19	18	8	2	5									
Cowl makers, male:																							
New England.....	2	23	34.07					1	1	12	7	2											
Middle Atlantic.....	9	130	36.58	1		2		5	25	36	17	17	11	11	3	1	1						
South Atlantic.....	4	36	36.46					6	7	13	5	3	1	1									
East North Central.....	7	29	34.79			1	1	4	1	6	7	4	4	1									
West North Central.....	8	24	32.99					3	3	10	4	4											
West South Central.....	4	7	36.53					2	1	2		2											
Western.....	3	16	36.59		1					4	6	2	2	1									
Total.....	37	265	35.82	1	1	3	1	13	38	76	56	34	22	14	4	1	1						
Fitters and bench hands, male:																							
New England.....	3	51	30.30				1	3	15	27	5												
Middle Atlantic.....	9	714	31.23	3	6	4	13	37	207	272	139	26	6	1									
South Atlantic.....	4	33	32.03		1			5	8	7	9	2										1	

TABLE E.—Average and classified actual earnings in one week in 23 specified occupations, 1929, by sex and district—Continued

AIRPLANES—Continued

Occupation, sex, and district	Number of—		Average actual earnings in 1 week	Number of employees whose earnings in 1 week were—																		
	Estab-lish-ments	Em-ploy-ees		Under \$5	\$5. under \$10	\$10. under \$15	\$15. under \$20	\$20. under \$25	\$25. under \$30	\$30. under \$35	\$35. under \$40	\$40. under \$45	\$45. under \$50	\$50. under \$55	\$55. under \$60	\$60. under \$65	\$65. under \$70	\$70. under \$75	\$75. under \$80	\$80. under \$85	\$85. under \$90	\$90 and over
Laborers, male:																						
New England.....	3	56	\$23.91				6	29	15	4	1	1										
Middle Atlantic.....	9	232	27.78	1	1	9	15	45	65	70	19	3	4									
South Atlantic.....	4	45	22.58			2	13	18	5	5	2											
East North Central.....	8	71	28.53	1	3	4	9	11	6	12	14	9	1	1								
West North Central.....	7	58	21.54			8	11	28	7	2	2											
West South Central.....	3	19	20.43		1	2	5	5	6													
Western.....	3	58	25.67	1	1		4	10	35	4	3											
Total.....	37	539	25.88	3	6	25	63	146	139	97	41	13	5	1								
Machinists, male:																						
New England.....	3	32	36.14					1		14	9	5	3									
Middle Atlantic.....	7	76	35.85		1			3	4	22	30	10	2	4								
South Atlantic.....	4	19	33.92				2	2		3	6	5	1	2								
East North Central.....	6	21	33.99			1	1	2	5	1	5	3	1	2								
West North Central.....	7	22	30.11					3	8	8	2	1										
West South Central.....	3	10	36.05							3	4	1			1							
Western.....	4	15	37.33					1		2	7	5										
Total.....	34	195	34.99	1	1	3	13	17	53	63	30	7	6	1								
Painters, spray, male:																						
New England.....	3	16	30.80				1	1	6	3	4	1										
Middle Atlantic.....	9	93	36.16	2	3		2	4	17	14	16	17	10	2	4	1						1
South Atlantic.....	4	17	32.17				2	5	1	1	4	1		3								
East North Central.....	8	27	34.29			1	1	5	3	2	5	5	4		1							
West North Central.....	6	27	20.38	1		7	5	5	6	2	1											
West South Central.....	4	6	30.73					2		3		1										
Western.....	4	36	29.22				1	5	18	5	6			1								
Total.....	38	222	32.05	3	3	8	12	27	51	30	36	25	14	6	5	1						1
Sewing-machine operators, female:																						
New England.....	2	7	15.90			4	1	2														
Middle Atlantic.....	6	18	22.34				7	7	3	1												
South Atlantic.....	2	6	16.80				5	1														

East North Central.....	2	2	15.38			1	1												
West North Central.....	1	(1)	(1)				(1)												
West South Central.....	1	(1)	(1)			(1)	(1)												
Western.....	3	(5)	16.67	1			1	3											
Total.....	17	42	18.82	1		7	17	13	3	1									
Sheet-metal workers, hand, male:																			
New England.....	1	(1)	(1)				(1)	(1)	(1)										
Middle Atlantic.....	9	137	37.53		1	1	2	13	39	43	17	9	5	4	1	1		1	
South Atlantic.....	4	33	30.17			2	1	8	6	6	4								
East North Central.....	8	133	32.14		1	3	6	9	23	43	25	14	7	2					
West North Central.....	8	30	31.65			2	4	7	7	5	3	2							
West South Central.....	2	7	36.10				2	1	1							1			
Western.....	4	157	33.34			3	1	6	10	93	27	11	4						
Total.....	36	503	33.84			5	6	10	32	62	191	106	50	23	7	7	1	2	1
Toolmakers, male:																			
New England.....	3	26	37.36					1	1	6	14	3		1					
Middle Atlantic.....	8	94	36.62		1		2	5	2	22	40	11		6	1	3			1
South Atlantic.....	3	66	39.11			1	1	2	2	3	16	32							
East North Central.....	5	31	37.91					5		2	2	12	7	2					
West North Central.....	4	12	36.81						1	4	3	3							
West South Central.....	2	7	37.45							3	1	2	1						
Western.....	3	28	40.07							17	9	2							
Total.....	28	264	37.86	1	1	1	3	13	6	40	93	72	26	4	3				1
Welders, male:																			
New England.....	4	16	29.76				3	5	2		1	4	1						
Middle Atlantic.....	9	267	36.59		1	2	5	6	33	75	86	25	12	12	5				1
South Atlantic.....	4	21	40.62						2	2	6	8	1			1	1		
East North Central.....	7	72	39.38			1	2	1	2	13	19	18	9	3	1	3			
West North Central.....	7	90	30.60		2	1	1	9	5	18	31	12	5	3	2	1			
West South Central.....	3	32	32.50				1	3	12	6	4	4	4	2					
Western.....	3	69	36.83					1	20	11	11	12	12	1	1				
Total.....	37	567	35.75	3	4	1	20	21	89	138	139	76	38	20	8	4	1	1	1
Woodworking-machine operators, male:																			
New England.....	3	9	30.86					1	1	7									
Middle Atlantic.....	8	41	36.45						5	15	11	5	4	1					
South Atlantic.....	4	11	37.44				1			2	2	3	1		1				
East North Central.....	4	20	30.77			2		2	4	4	6	2							
West North Central.....	7	13	32.16					1	4	4	3	1							
West South Central.....	3	5	40.16							2		1	2						
Western.....	4	20	34.11					3	3	5	5	3	1						
Total.....	33	119	34.46			2	1	7	18	39	27	15	8	1	1				

¹ Data included in total but not separately to avoid identification.

TABLE E.—Average and classified actual earnings in one week in 23 specified occupations, 1929, by sex and district—Continued

AIRCRAFT ENGINES

Occupation, sex, and district	Number of—		Average actual earnings in 1 week	Number of employees whose earnings in 1 week were—																			
	Estab-lish-ments	Em-ploy-ees		Under \$5	\$5, under \$10	\$10, under \$15	\$15, under \$20	\$20, under \$25	\$25, under \$30	\$30, under \$35	\$35, under \$40	\$40, under \$45	\$45, under \$50	\$50, under \$55	\$55, under \$60	\$60, under \$65	\$65, under \$70	\$70, under \$75	\$75, under \$80	\$80, under \$85	\$85, under \$90	\$90 and over	
Assemblers, male:																							
New England.....	2	36	\$41.78					1	1	4	7	10	8	4	1								
Middle Atlantic.....	2	63	30.35				3	14	13	18	10	2	2	1									
East North Central.....	7	89	38.91			1	1	4	11	17	21	13	10	2	1	3	4	1					
Western.....	2	17	34.10					1	1	10	2	3											
Total.....	13	205	36.38			1	4	20	26	49	40	28	20	7	2	3	4	1					
Fitters and bench hands, male:																							
New England.....	2	127	32.13		1	1	7	31	52	20	13	1	1										
Middle Atlantic.....	2	212	29.38	1	2	2	3	43	74	50	26	3	6	1	1								
East North Central.....	6	41	35.25				3	1	8	17	3	3	1		4		1						
Western.....	2	24	30.86				1	2	4	14	2	1		4									
Total.....	12	404	30.93	1	3	2	8	53	117	133	51	20	8	2	5		1						
Grinding-machine operators, male:																							
New England.....	2	55	37.36					3	4	13	14	13	6	2									
Middle Atlantic.....	2	114	39.06		1			1	4	25	44	17	15	5	1		1						
East North Central.....	6	39	50.96					1	4	3	4	5	1	2	4	7	3	2					
Western.....	1	(1)	(1)					(1)		(1)		(1)	(1)		4								
Total.....	11	216	40.80		1			6	12	42	62	40	23	9	5	7	4	3	2				
Inspectors, male:																							
New England.....	1	(1)	(1)					(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)								
Middle Atlantic.....	2	127	35.73				1	2	15	52	33	12	4	4	2	1	1						
East North Central.....	7	30	42.30					3	2	2	5	5	7	3	1	1	1						
Western.....	1	(1)	(1)								(1)	(1)	(1)										
Total.....	11	210	37.34				1	7	19	68	50	29	18	10	4	2	2						

APPENDIX.—DEFINITIONS OF OCCUPATIONS

AIRPLANES

Assemblers, detail, do bench work, such as fitting wheels, assembling axles, putting on connection for control cables, etc., preparatory to final assembly. They also attach wood and metal connectors, brackets, etc., to metal frames of fuselages and to tail surfaces and assemble the instrument boards.

Assemblers, final, put together the various complete units, such as fuselages, wings, landing gears, and engines, and secure them with bolts, nuts, etc., and install windshields, controls, instrument boards, tanks in center sections, streamlines, also landing, flying, incident, and stagger wires.

Cabinetmakers lay wood floors in the fuselages, fit window and door moldings, build cockpit arches where wood is used, and perform any other woodwork in the fitting and trimming of the cabins.

Cable splicers attach the fittings and splice and install the control cables.

Coppersmiths bend and fit oil and gas lines.

Coverers cut by hand and fit the fabric covering material by sewing or tacking to fuselage wings and tail surfaces or apply wood or metal covering or "skin" over the completed frames.

Cowl makers shape and form all types of cowling by hand.

Drill-press operators operate radial, multiple spindle, gang, or automatic drill presses.

Electricians do the necessary electric wiring and connect the instruments.

Fitters and bench hands chip, file, ream, and fit machine parts to give them proper relation to each other and allowance for correct mechanical adjustment in their assembly.

Frame builders, fuselage, fit and align the parts of the fuselage frames in a jig, securing wooden parts with bolts, steel tubing by tack welding or clamps, and duralumin parts by riveting. In the manufacture of flying boats they lay the keels, assemble the stringers of the hulls, the frame of the cabins, and the sponsons.

Frame builders, tail surfaces, fit and align the parts of the tail surface frames in a jig, frequently performing the operations at a bench. They secure the wooden parts with bolts, steel tubing by tack welding or clamps, and duralumin parts by riveting.

Frame builders, wing, place the spars, which run longitudinally within the wing, in a jig, arrange the ribs crosswise with the spars, glue wooden ribs, bolt or rivet metal ribs in place, and attach stringers or other forms of bracing at right angles or diagonally to the ribs to hold them in place.

Helpers are workers who exercise some degree of skill in assisting workers engaged in the more highly skilled occupations.

Inspectors inspect stock at the various stages of machining, examine sheet-metal stampings, seaming and finishing, tools and cutters in the tool room, forgings, wire and spar building, fuselage and woodwork, and the various stages of assembly or the completed planes.

Laborers truck or carry material about the shop or yard, give unskilled assistance to other employees, do sand blasting, load and unload cars, sweep, rub machines, and do other common unskilled work.

Lathe operators operate lead screws, low swing, cam, and tool (engine) lathes, and turret lathes.

Machinists (a) repair or adjust one or more kinds of machine tools used in a machine shop; (b) set one or more kinds of automatic or semiautomatic machine tools for others to operate; (c) set up and operate at least most of the kinds of machine tools usually found in machine shops. Each of these three groups may also do bench fitting. If a man is qualified as an all-round machinist but is actually operating only a milling machine he would be classified as a "milling machine operator"; if required to operate various tools, he would be classified as a "machinist."

Milling-machine operators operate plain, universal, horizontal, vertical, cam, hand, automatic, keyway, and thread mills, profilers, etc.

Painters, hand, apply dopes, oxide paints, varnishes, or pyroxylin substances to parts and covering of aircraft by the hand-brush method.

Painters, letterers, and strippers, apply color varnishes and paints in the lettering and decorating of the interior and exterior of the craft.

Painters, spray, apply dopes, oxide paints, varnishes, and pyroxylin substances to the parts and covering of aircraft by the "air-brush" or spray method.

Patternmakers build wooden or metal models for castings or wooden jigs for the assembly of ribs, spars, wings, tail sections, etc.

Polishers and rubbers use sandpaper to clean and roughen surfaces to be painted; or other coarse abrasives, either dry or with water, oil, or other liquids, to perform the rubbing down of the different coats of paint, stain, or varnish.

Rib builders work at benches and assemble in a jig the parts of the ribs. Wooden parts are already cut and shaped and are secured by tacking or gluing. Metal parts are formed in the jig and are secured usually by riveting.

Screw-machine operators operate hand-screw machines, semiautomatic, full automatic screw machines, or automatic lathes.

Sewing-machine operators sew the fuselage and tail surface covering by machine prior to the fitting of the fabric over the frames.

Sheet-metal machine operators use various sheet-metal machines, such as bending, breaking, crimping, flanging, nibbling, and rolling machines, square and round shears, punch presses, etc.

Sheet-metal workers, hand, shape and form by hand the gas tanks, radiators, etc.

Spar builders form the spars by gluing or otherwise fastening together thin laminations of wood, or build up the metal beams or spars, using either steel or duralumin. Spars consisting of a single timber are gouged out by the spar builders at intervals, to reduce the weight, and blocks of hardwood are attached to the top and bottom to support the struts.

Testers, ground, perform a running test under propeller load after installation of motors. The test is for revolutions per minute, air pressure, oil pressure, temperature of oil, charging rate of generator, vibration, etc.

Toolmakers are skilled workers who make and repair tools, metal jigs, dies, and gauges.

Upholsterers cut the material and install all leather or artificial leather or other similar upholstering material in the cabins and cockpits, on pontoon bumpers, or other places where upholstering is required.

Welders use a hand torch or an electric arc to weld or braze tubular and metal joints in connection with aircraft construction and also broken metal parts, aluminum stock, and machine-tool parts. The group includes spot welders.

Woodworking-machine operators cut out by machine sections of spars, ribs, stringers, flanges, cabin trimmings, etc.

Other employees are skilled or semiskilled workers, too few in number to be classified separately, and which can not properly be included in any of the classified occupations.

AIRCRAFT ENGINES

Apprentices work under the supervision of skilled mechanics, serving a specified period of time to learn the work of the skilled occupations of the industry.

Assemblers bring together the various parts, pieces, or units of which an engine consists and secures them with bolts, nuts, or screws, thereby forming a final unit.

Blacksmiths make light and medium-sized forgings and do general anvil work, often being called upon to harden hand and machine tool bits by heating in the forge and quenching in oil, water, or other liquid. The group includes "light fire" blacksmiths, hand hammermen, tool hardeners or temperers, and tool dressers.

Boring-mill operators operate bullards, "hole hog," horizontal, and vertical boring mills.

Coppersmiths or tinsmiths bend and form aluminum intake pipes, ignition wire manifolds (made from brass tubes), copper gasoline and oil pipes, air heaters, radio shielding tail pipes, exhaust pipes, collector ring manifolds, etc.

Drill-press operators operate radial, multiple spindle, gang, or automatic drill presses.

Fitters and bench hands do necessary filing, chipping, scraping, reaming, and fitting of machine parts to give them proper relation to each other and allowance for correct mechanical adjustment in their assembly. The classification does not include workers who do assembling only.

Grinding-machine operators operate rough, surface, tool, plain, universal, or cutter grinders. The group includes lapping-machine operators.

Helpers not otherwise specified are workers who exercise some degree of skill in assisting others engaged in the more highly skilled occupations. They help the following skilled workers:

Assemblers.	Erectors.	Millwrights.
Babbitters.	Fitters.	Pattern makers.
Buffers.	Flangers.	Pipe fitters.
Carpenters.	Gear-cutter operators.	Planer operators.
Coppersmiths.	Inspectors.	Riggers.
Drill-press operators.	Ironworkers.	Sheet-metal workers.
Electricians.	Layout men.	Tinners.
Enamellers.	Machine-tool operators.	

Blacksmiths' helpers and machinists' and toolmakers' helpers are not included in this classification.

Inspectors examine stock at the various stages of machining; sheet-metal stamping, wiring, seaming, and finishing; tools and cutters in the tool room; discarded material for salvage purposes; the various stages of assembly; forgings; shipments received and shipping and packing.

Laborers truck or carry material about the shop or yard, give unskilled assistance to other employees, do sandblasting, load and unload cars, sweep, rub machines, and do other common unskilled work. The following are included:

Carriers.	Furnace tenders' helpers.	Stock-room and store-room labor.
Casting cleaners.	Heat treaters' helpers.	Truckers (not electric).
Chippers (chip pullers).	Loaders.	Tumbler operators.
Picklers.	Roustabouts.	Warehouse labor.
Plating-room and receiving laborers.	Sandblasters.	Wheelers.
Sweepers.	Scrap wheelers.	Window washers.
Testers' helpers.	Shipping labor.	Yard labor.
Tool-crib and tool-room helpers.	Stockmen.	Any other general or common labor.
	Stock-keepers' helpers.	
	Stock pilers.	

This classification does not include persons belonging under blacksmith's helpers, machinists' and toolmakers' helpers, or helpers not otherwise specified.

Lathe operators, engine, operate lead screw, low swing, cam, or tool (engine) lathes.

Lathe operators, turret, operate chucking lathes or other turret lathes, as Monitor, Gisholt, Jones and Lamson (J. & L.), American, Libby, etc.

Machinists (a) repair or adjust one or more kinds of machine tools used in a machine shop; (b) set one or more kinds of automatic or semiautomatic machine tools for others to operate; (c) set up and operate at least most of the kinds of machine tools usually found in machine shops.

Each of these three groups may also do bench work and fitting. If a man is qualified as an all-round machinist but actually operates only a milling machine, for example, during the pay period covered, he is classified as a "milling-machine operator," while if required to operate various tools he is classified as a "machinist." The classification includes machine-tool repairers.

Machinists' and toolmakers' helpers are persons with some degree of skill who assist machinists and toolmakers in their work.

Milling-machine operators operate plain, universal, horizontal, vertical, cam, hand, automatic, keyway, or thread mills, profilers, or any other milling machines not specified.

Packers grease, clean, wrap, and crate engines for shipment.

Paint sprayers spray outside parts such as manifolds, cylinders, cylinder heads, shutters, etc., with enamel.

Polishers and buffers use abrasive wheels to polish metals and buffing wheels to obtain luster.

Screw-machine operators operate hand-screw machines, semiautomatic, full automatic, or automatic lathes.

Sheet-metal machine operators run various sheet-metal machines, such as bending, breaking, crimping, flanging, nibbling, and rolling machines, square and round shears, and punch presses.

Testers place the engine on test stand and run it under propeller load to determine if the running parts develop the expected standards.

Toolmakers are skilled workers who make and repair tools, jigs, dies, and gauges.

Other precision-machine operators operate broachers, bolt cutters, burring and centering machines, gear cutters or gear generators, hobbers, key setters, planers,

pointing machines, shapers, slotters, special or single-purpose lathes, such as facing, pulley, speed, spinning, or wristing lathes, tapping machines, threaders, or trimming machines.

Other skilled employees are workers skilled in the performance of a trade or specialized kind of work who can not otherwise be classified under a specific occupation. The group includes such workers as:

Air-compressor engineers.	Gear straighteners.	Shrink-oven tenders.
Airplane mechanics.	Layout men.	Skilled working foremen.
Braziers.	Millwrights.	Tool demonstrators.
Carbonizers.	Painters (brush).	Welders.
Carpenters.	Pattern makers.	Woodworking-machine operators.
Case hardeners.	Pipe benders.	
Copper platers.	Pipe fitters.	
Electricians.	Saw filers.	

Other employees include all workers whose duties require little or no skill and who are not provided for elsewhere, as:

Belt men.	Learners.	Rivet passers.
Bolt headers.	Markers.	Shipping clerks.
Cold-saw operators.	Messenger boys (shop).	Sorters.
Convey or operators.	Oilers.	Stock keepers.
Crane followers or hitchers.	Order pickers.	Tool chasers.
Electric truckers.	Pressmen (air).	Tool tracers.
Elevator operators.	Pattern shellackers.	Tool-crib tenders.
Errand boys.	Pattern storemen.	Truckers (electric).
Expeditors.	Pipe cutters.	Weighmen.
Greasers.	Power-saw men.	Water testers.
Hookers-on.	Rivet buckers.	Working foremen (un- skilled).
	Rivet heaters.	

LIST OF BULLETINS OF THE BUREAU OF LABOR STATISTICS

The following is a list of all bulletins of the Bureau of Labor Statistics published since July, 1912, except that in the case of bulletins giving the results of periodic surveys of the bureau only the latest bulletin on any one subject is here listed.

A complete list of the reports and bulletins issued prior to July, 1912, as well as the bulletins published since that date, will be furnished on application. Bulletins marked thus () are out of print.*

Conciliation and Arbitration (including strikes and lockouts).

- *No. 124. Conciliation and arbitration in the building trades of Greater New York. [1913.]
- *No. 133. Report of the industrial council of the British Board of Trade on its inquiry into industrial agreements. [1913.]
- No. 139. Michigan copper district strike. [1914.]
- *No. 144. Industrial court of the cloak, suit, and skirt industry of New York City. [1914.]
- *No. 145. Conciliation, arbitration, and sanitation in the dress and waist industry of New York City. [1914.]
- *No. 191. Collective bargaining in the anthracite-coal industry. [1916.]
- *No. 198. Collective agreements in the men's clothing industry. [1916.]
- No. 233. Operation of the industrial disputes investigation act of Canada. [1918.]
- No. 255. Joint industrial councils in Great Britain. [1919.]
- No. 283. History of the Shipbuilding Labor Adjustment Board, 1917 to 1919.
- No. 287. National War Labor Board: History of its formation, activities, etc. [1921.]
- *No. 303. Use of Federal power in settlement of railway labor disputes. [1922.]
- No. 341. Trade agreement in the silk ribbon industry of New York City. [1923.]
- No. 402. Collective bargaining by actors. [1926.]
- No. 468. Trade agreements, 1927.
- No. 481. Joint industrial control in the book and job printing industry. [1928.]

Cooperation.

- No. 313. Consumers' cooperative societies in the United States in 1920.
- No. 314. Cooperative credit societies (credit unions) in America and in foreign countries. [1922.]
- No. 437. Cooperative movement in the United States in 1925 (other than agricultural).

Employment and Unemployment.

- *No. 109. Statistics of unemployment and the work of employment offices. [1913.]
- No. 172. Unemployment in New York City, N. Y. [1915.]
- *No. 183. Regularity of employment in the women's ready-to-wear garment industries. [1915.]
- *No. 195. Unemployment in the United States. [1916.]
- No. 196. Proceedings of the Employment Managers' Conference held at Minneapolis, Minn., January 19 and 20, 1916.
- *No. 202. Proceedings of the conference of Employment Managers' Association of Boston, Mass., held May 10, 1916.
- No. 206. The British system of labor exchanges. [1916.]
- *No. 227. Proceedings of the Employment Managers' Conference, Philadelphia, Pa., April 2 and 3, 1917.
- No. 235. Employment system of the Lake Carriers' Association. [1918.]
- *No. 241. Public employment offices in the United States. [1918.]
- No. 247. Proceedings of Employment Managers' Conference, Rochester, N. Y., May 9-11, 1918.
- *No. 310. Industrial unemployment: A statistical study of its extent and causes. [1922.]
- No. 409. Unemployment in Columbus, Ohio, 1921 to 1925.
- No. 520. Social and economic character of unemployment in Philadelphia, April, 1929.

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- *No. 142. Administration of labor laws and factory inspection in certain European countries. [1914.]
- No. 494. Labor legislation of Uruguay. [1929.]
- No. 510. Labor legislation of the Argentine Republic. [1930.]

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- *No. 158. Government aid to home owning and housing of working people in foreign countries. [1914.]
- No. 263. Housing by employers in the United States. [1920.]
- No. 295. Building operations in representative cities in 1920.
- No. 500. Building permits in the principal cities of the United States in [1921 to] 1928.

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- *No. 104. Lead poisoning in potteries, tile works, and porcelain enameled sanitary ware factories. [1912.]
- No. 120. Hygiene of the painters' trade. [1913.]
- *No. 127. Dangers to workers from dusts and fumes, and methods of protection. [1913.]
- *No. 141. Lead poisoning in the smelting and refining of lead. [1914.]
- *No. 157. Industrial accident statistics. [1915.]
- *No. 165. Lead poisoning in the manufacture of storage batteries. [1914.]
- *No. 179. Industrial poisons used in the rubber industry. [1915.]
- *No. 188. Report of British departmental committee on the danger in the use of lead in the painting of buildings. [1916.]
- *No. 201. Report of committee on statistics and compensation insurance cost of the International Association of Industrial Accident Boards and Commissions. [1916.]
- *No. 209. Hygiene of the printing trades. [1917.]
- *No. 219. Industrial poisons used or produced in the manufacture of explosives. [1917.]
- No. 221. Hours, fatigue, and health in British munition factories. [1917.]
- No. 230. Industrial efficiency and fatigue in British munition factories. [1917.]
- *No. 231. Mortality from respiratory diseases in dusty trades (inorganic dusts). [1918.]
- *No. 234. Safety movement in the iron and steel industry, 1907 to 1917.
- No. 236. Effects of the air hammer on the hands of stonecutters. [1918.]
- No. 249. Industrial health and efficiency. Final report of British Health of Munition Workers' Committee. [1919.]
- No. 251. Preventable death in the cotton-manufacturing industry. [1919.]
- No. 256. Accidents and accident prevention in machine building. [1919.]
- No. 267. Anthrax as an occupational disease. [1920.]
- No. 276. Standardization of industrial accident statistics. [1920.]
- No. 280. Industrial poisoning in making coal-tar dyes and dye intermediates. [1921.]
- *No. 291. Carbon-monoxide poisoning. [1921.]
- No. 293. The problem of dust phthisis in the granite-stone industry. [1922.]
- No. 298. Causes and prevention of accidents in the iron and steel industry, 1910-1919.
- No. 306. Occupational hazards and diagnostic signs: A guide to impairments to be looked for in hazardous occupations. [1922.]
- No. 392. Survey of hygienic conditions in the printing trades. [1925.]
- No. 405. Phosphorus necrosis in the manufacture of fireworks and in the preparation of phosphorus [1926.]
- No. 427. Health survey of the printing trades, 1922 to 1925.
- No. 428. Proceedings of the Industrial Accident Prevention Conference, held at Washington, D. C., July 14-16, 1926.
- No. 460. A new test for industrial lead poisoning. [1928.]
- No. 466. Settlement for accidents to American seamen. [1928.]
- No. 488. Deaths from lead poisoning, 1925-1927.
- No. 490. Statistics of industrial accidents in the United States to the end of 1927.
- No. 507. Causes of death, by occupation. [1929.]

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- No. 237. Industrial unrest in Great Britain. [1917.]
- No. 340. Chinese migrations, with special reference to labor conditions. [1923.]
- No. 349. Industrial relations in the West Coast lumber industry. [1923.]
- No. 361. Labor relations in the Fairmont (W. Va.) bituminous-coal field. [1924.]
- No. 380. Postwar labor conditions in Germany. [1925.]
- No. 383. Works council movement in Germany. [1925.]
- No. 384. Labor conditions in the shoe industry in Massachusetts, 1920-1924.
- No. 399. Labor relations in the lace and lace-curtain industries in the United States. [1925.]

Labor Laws of the United States (including decisions of courts relating to labor).

- No. 211. Labor laws and their administration in the Pacific States. [1917.]
- No. 229. Wage-payment legislation in the United States. [1917.]
- No. 285. Minimum-wage laws of the United States: Construction and operation. [1921.]
- No. 321. Labor laws that have been declared unconstitutional. [1922.]
- No. 322. Kansas Court of Industrial Relations. [1923.]
- No. 343. Laws providing for bureaus of labor statistics, etc. [1923.]
- No. 370. Labor laws of the United States, with decisions of courts relating thereto. [1925.]
- No. 408. Laws relating to payment of wages. [1926.]
- No. 486. Labor legislation of 1928.
- No. 517. Decisions of courts and opinions affecting labor, 1927-1928.

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- No. 206. Seventh, Seattle, Wash., July 12-15, 1920.
- No. 307. Eighth, New Orleans, La., May 2-6, 1921.
- No. 323. Ninth, Harrisburg, Pa., May 22-26, 1922.
- *No. 352. Tenth, Richmond, Va., May 1-4, 1923.
- *No. 389. Eleventh, Chicago, Ill., May 19-23, 1924.
- *No. 411. Twelfth, Salt Lake City, Utah, August 13-15, 1925.
- No. 429. Thirteenth, Columbus, Ohio, June 7-10, 1926.
- *No. 455. Fourteenth, Paterson, N. J., May 31 to June 3, 1927.
- No. 480. Fifteenth, New Orleans, La., May 21-24, 1928.
- No. 508. Sixteenth, Toronto, Canada, June 4-7, 1929.

Proceedings of Annual Meetings of the International Association of Industrial Accident Boards and Commissions.

- No. 210. Third, Columbus, Ohio, April 25-28, 1916.
- No. 248. Fourth, Boston, Mass., August 21-25, 1917.
- No. 264. Fifth, Madison, Wis., September 24-27, 1918.
- *No. 273. Sixth, Toronto, Canada, September 23-26, 1919.
- No. 281. Seventh, San Francisco, Calif., September 20-24, 1920.
- No. 304. Eighth, Chicago, Ill., September 19-23, 1921.
- No. 333. Ninth, Baltimore, Md., October 9-13, 1922.
- *No. 359. Tenth, St. Paul, Minn., September 24-26, 1923.
- No. 385. Eleventh, Halifax, Nova Scotia, August 26-28, 1924.
- No. 395. Index to proceedings, 1914-1924.
- No. 406. Twelfth, Salt Lake City, Utah, August 17-20, 1925.
- No. 432. Thirteenth, Hartford, Conn., September 14-17, 1926.
- *No. 456. Fourteenth, Atlanta, Ga., September 27-29, 1927.
- No. 485. Fifteenth, Paterson, N. J., September 11-14, 1928.
- No. 511. Sixteenth, Buffalo, N. Y., October 8-11, 1929.

Proceedings of Annual Meetings of the International Association of Public Employment Services.

- No. 192. First, Chicago, December 19 and 20, 1913; second, Indianapolis, September 24 and 25, 1914; third, Detroit, July 1 and 2, 1915.
- No. 220. Fourth, Buffalo, N. Y., July 20 and 21, 1916.
- No. 311. Ninth, Buffalo, N. Y., September 7-9, 1921.
- No. 337. Tenth, Washington, D. C., September 11-13, 1922.
- No. 355. Eleventh, Toronto, Canada, September 4-7, 1923.
- No. 400. Twelfth, Chicago, Ill., May 19-23, 1924.
- No. 414. Thirteenth, Rochester, N. Y., September 15-17, 1925.
- No. 478. Fifteenth, Detroit, Mich., October 25-28, 1927.
- No. 501. Sixteenth, Cleveland, Ohio, September 18-21, 1928.

Productivity of Labor.

- No. 356. Productivity costs in the common-brick industry. [1924.]
- No. 360. Time and labor costs in manufacturing 100 pairs of shoes, 1923.
- No. 407. Labor cost of production and wages and hours of labor in the paper box-board industry. [1926.]
- No. 412. Wages, hours, and productivity in the pottery industry, 1925.
- No. 441. Productivity of labor in the glass industry. [1927.]
- No. 474. Productivity of labor in merchant blast furnaces. [1928.]
- No. 475. Productivity of labor in newspaper printing. [1929.]

Retail Prices and Cost of Living.

- *No. 121. Sugar prices, from refiner to consumer. [1913.]
- *No. 130. Wheat and flour prices, from farmer to consumer. [1913.]
- *No. 164. Butter prices, from producer to consumer. [1914.]
- No. 170. Foreign food prices as affected by the war. [1915.]
- No. 357. Cost of living in the United States. [1924.]
- No. 369. The use of cost-of-living figures in wage adjustments. [1925.]
- No. 495. Retail prices, 1899 to 1928.

Safety Codes.

- *No. 331. Code of lighting: Factories, mills, and other work places.
- No. 336. Safety code for the protection of industrial workers in foundries.
- No. 350. Rules governing the approval of headlighting devices for motor vehicles.
- *No. 351. Safety code for the construction, care, and use of ladders.
- No. 375. Safety code for laundry machinery and operations.
- No. 378. Safety code for woodworking plants.
- No. 382. Code of lighting school buildings.

Safety Codes—Continued.

- No. 410. Safety code for paper and pulp mills.
- No. 430. Safety code for power presses and foot and hand presses.
- No. 433. Safety codes for the prevention of dust explosions.
- No. 436. Safety code for the use, care, and protection of abrasive wheels.
- No. 447. Safety code for rubber mills and calendars.
- No. 451. Safety code for forging and hot-metal stamping.
- No. 463. Safety code for mechanical power-transmission apparatus—first revision.
- No. 509. Textile safety code.
- No. 512. Code for identification of gas mask canisters
- No. 519. Safety code for woodworking plants, as revised, 1930.

Vocational and Workers, Education.

- *No. 159. Short-unit courses for wage earners, and a factory school experiment. [1915.]
- *No. 162. Vocational-education survey of Richmond, Va. [1915.]
- *No. 199. Vocational-education survey of Minneapolis, Minn. [1917.]
- No. 271. Adult working-class education in Great Britain and the United States. [1920.]
- No. 459. Apprenticeship in building construction. [1928.]

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- *No. 146. Wages and regularity of employment and standardization of piece rates in the dress and waist industry of New York City. [1914.]
- *No. 147. Wages and regularity of employment in the cloak, suit, and skirt industry. [1914.]
- No. 161. Wages and hours of labor in the clothing and cigar industries, 1911 to 1913.
- No. 163. Wages and hours of labor in the building and repairing of steam railroad cars, 1907 to 1913.
- *No. 190. Wages and hours of labor in the cotton, woolen, and silk industries, 1907 to 1914.
- No. 204. Street-railway employment in the United States. [1917.]
- No. 225. Wages and hours of labor in the lumber, millwork, and furniture industries, 1915.
- No. 265. Industrial survey in selected industries in the United States, 1919.
- No. 297. Wages and hours of labor in the petroleum industry, 1920.
- No. 356. Productivity costs in the common-brick industry. [1924.]
- No. 358. Wages and hours of labor in the automobile-tire industry, 1923.
- No. 360. Time and labor costs in manufacturing 100 pairs of shoes, 1923.
- No. 365. Wages and hours of labor in the paper and pulp industry, 1923.
- No. 394. Wages and hours of labor in metalliferous mines, 1924.
- No. 407. Labor cost of production and wages and hours of labor in the paper box-board industry. [1925]
- No. 412. Wages, hours, and productivity in the pottery industry, 1925.
- No. 416. Hours and earnings in anthracite and bituminous coal mining, 1922 and 1924.
- No. 472. Wages and hours of labor in the slaughtering and meat packing industry, 1927.
- No. 476. Union scales of wages and hours of labor, 1927. [Supplement to Bul. No. 457.]
- No. 484. Wages and hours of labor of common street laborers, 1928.
- No. 487. Wages and hours of labor in woolen and worsted goods manufacturing, 1910 to 1928.
- No. 492. Wages and hours of labor in cotton-goods manufacturing, 1910 to 1928.
- No. 497. Wages and hours of labor in the lumber industry in the United States, 1928.
- No. 498. Wages and hours of labor in the boot and shoe industry, 1910 to 1928.
- No. 499. History of wages in the United States from colonial times to 1928.
- No. 502. Wages and hours of labor in the motor-vehicle industry, 1928.
- No. 503. Wages and hours of labor in the men's clothing industry, 1911 to 1928.
- No. 504. Wages and hours of labor in the hosiery and underwear industries, 1907 to 1928.
- No. 513. Wages and hours of labor in the iron and steel industry, 1929.
- No. 514. Pennsylvania Railroad wage data. From Report of Joint Fact Finding Committee in wage negotiations in 1927.
- No. 515. Union scales of wages, May 15, 1929.
- No. 516. Hours and earnings in bituminous coal mining, 1929.
- No. 522. Wages and hours of labor in foundries and machine shops, 1929. (In press.)

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- *No. 123. Employers' welfare work. [1913.]
- No. 222. Welfare work in British munitions factories. [1917.]
- *No. 250. Welfare work for employees in industrial establishments in the United States. [1919.]
- No. 458. Health and recreation activities in industrial establishments, 1926.

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- No. 284. Index numbers of wholesale prices in the United States and foreign countries. [1921.]
- No. 453. Revised index numbers of wholesale prices, 1923 to July, 1927.
- No. 493. Wholesale prices, 1913 to 1928.
- No. 521. Wholesale prices, 1929.

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- No. 116. Hours, earnings, and duration of employment of wage-earning women in selected industries in the District of Columbia. [1913.]
- *No. 117. Prohibition of night work of young persons. [1913.]
- *No. 118. Ten-hour maximum working-day for women and young persons. [1913.]
- No. 119. Working hours of women in the pea canneries of Wisconsin. [1913.]
- *No. 122. Employment of women in power laundries in Milwaukee [1913.]
- *No. 160. Hours, earnings, and conditions of labor of women in Indiana mercantile establishments and garment factories. [1914.]
- *No. 167. Minimum-wage legislation in the United States and foreign countries. [1915.]
- *No. 175. Summary of the report on conditions of woman and child wage earners in the United States. [1915.]
- *No. 176. Effect of minimum-wage determinations in Oregon. [1915.]
- *No. 180. The boot and shoe industry in Massachusetts as a vocation for women. [1915.]
- *No. 182. Unemployment among women in department and other retail stores of Boston, Mass. [1916.]
- No. 193. Dressmaking as a trade for women in Massachusetts. [1916.]
- No. 215. Industrial experience of trade-school girls in Massachusetts. [1917.]
- *No. 217. Effect of workmen's compensation laws in diminishing the necessity of industrial employment of women and children. [1918.]
- *No. 223. Employment of women and juveniles in Great Britain during the war. [1917.]
- No. 253. Women in the lead industries. [1919.]

Workmen's Insurance and Compensation (including laws relating thereto).

- *No. 101. Care of tuberculous wage earners in Germany. [1912.]
- *No. 102. British national insurance act, 1911.
- No. 103. Sickness and accident insurance law in Switzerland. [1912.]
- No. 107. Law relating to insurance of salaried employees in Germany. [1913.]
- *No. 155. Compensation for accidents to employees of the United States. [1914.]
- No. 212. Proceedings of the conference on social insurance called by the International Association of Industrial Accident Boards and Commissions, Washington, D. C., December 5-9, 1916.
- *No. 243. Workmen's compensation legislation in the United States and foreign countries, 1917 and 1918.
- No. 301. Comparison of workmen's compensation insurance and administration. [1922.]
- No. 312. National health insurance in Great Britain, 1911 to 1921.
- No. 379. Comparison of workmen's compensation laws of the United States as of January 1, 1925.
- No. 477. Public-service retirement systems, United States and Europe. [1928.]
- No. 496. Workmen's compensation legislation of the United States and Canada as of January, 1929. (With text of legislation enacted in 1927 and 1928.)

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- *No. 174. Subject index of the publications of the United States Bureau of Labor Statistics up to May 1, 1915.
- No. 208. Profit sharing in the United States. [1916.]
- No. 242. Food situation in central Europe, 1917
- No. 254. International labor legislation and the society of nations. [1919.]
- No. 268. Historical survey of international action affecting labor. [1920.]
- No. 282. Mutual relief associations among Government employees in Washington, D. C. [1921.]
- No. 319. The Bureau of Labor Statistics: Its history, activities, and organization. [1922.]
- No. 326. Methods of procuring and computing statistical information of the Bureau of Labor Statistics. [1923.]
- No. 342. International Seamen's Union of America: A study of its history and problems [1923.]
- No. 346. Humanity in government. [1923.]
- No. 372. Convict labor in 1923.
- No. 386. Cost of American almshouses. [1925.]
- No. 398. Growth of legal-aid work in the United States. [1926.]
- No. 401. Family allowances in foreign countries. [1926.]
- No. 461. Labor organizations in Chile. [1928.]
- No. 462. Park recreation areas in the United States. [1928.]
- No. 465. Beneficial activities of American trade-unions. [1928.]
- No. 479. Activities and functions of a State department of labor. [1928.]
- No. 483. Conditions in the shoe industry in Haverhill, Mass., 1928.
- No. 489. Care of aged persons in United States. [1929.]
- No. 491. Handbook of labor statistics. 1929 edition.
- No. 505. Directory of homes for the aged in the United States. [1929.]
- No. 506. Handbook of American trade-unions: 1929 edition.
- No. 518. Personnel research agencies: 1930 edition.