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WAGES AND HOURS OF LABOR
IN THE LUMBER, MILLWORK, AND
FURNITURE INDUSTRIES, 1915



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

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WAGES AND HOURS OF LABOR IN THE LUMBER, MILLWORK, AND FURNITURE INDUSTRIES, 1915.

INTRODUCTION.

Rates of wages per hour, hours of labor per week, and full-time weekly earnings in the lumber, millwork, and furniture industries of the United States are presented in this report for the year 1915, together with comparable figures for 1913 and summary figures for each year from 1907 to 1913, inclusive, repeated from Bulletins 129 and 153.¹ Data were not collected for 1914. The report also shows the time actually made by individual employees in each industry during the representative pay period taken for 1915, and the fluctuations in employment during the year ending May 31, 1915.

Each industry is presented separately:

Lumber, including logging and a study of labor productivity, pages 5 to 245.

Millwork, pages 246 to 273.

Furniture, pages 274 to 314.

Summary figures for each industry appear on the opening pages of each section of the report.

The figures as to rates of wages and hours of labor are for one pay-roll period in each year, the period ending nearest May 15, except in a few establishments where conditions in May were not representative or figures for that period were not available. Nearly all of the pay rolls copied covered one or two weeks, except in lumber, where more of the pay-roll periods are for one-half month or one month. All data were taken from the books of representative establishments by special agents of the bureau.

Full-time hours per week are the regular hours during which, under normal conditions, employees in an occupation are on duty. The full-time hours per week do not in any way indicate the extent of unemployment. Employees may work overtime, or broken time, or

¹ Previous reports of wages and hours of labor in lumber, millwork, and furniture manufacturing have been published by the bureau as follows: Nineteenth Annual Report, covering 1890 to 1903; Bulletin No. 59 (July, 1905), covering 1903 and 1904; Bulletin No. 65 (July, 1906), covering 1904 and 1905; Bulletin No. 71 (July, 1907), covering 1905 and 1906; Bulletin No. 77 (July, 1908), covering 1906 and 1907; Bulletin No. 129 (August, 1913), covering 1907 to 1912; and Bulletin No. 153 (May, 1914), covering 1912 and 1913.

be laid off; or a temporary reduction may be made in working hours without affecting the full-time hours per week as here presented.

The rates of wages per hour appearing in the tables include the wages of timeworkers and the earnings of pieceworkers. All time rates, by the day, week, or month, have been reduced to rates per hour, and the earnings of pieceworkers and of persons working at both time and piece rates have been reduced to rates per hour by dividing the earnings by the hours worked. Comparatively few pieceworkers are found in these industries. Where there was no record regularly kept by establishments of the actual time worked by employees the firms, at the request of the bureau, kept a special record for the pay period selected.

The full-time weekly earnings are the earnings per week of employees working full time or the earnings on broken time reduced to equivalent earnings for a full week.

The averages of full-time hours per week, rates of wages per hour, and full-time weekly earnings are computed by adding the data for individual employees and dividing the totals by the number of employees.

In selecting establishments from which to secure data the bureau undertook to represent all States in which these industries are of material importance, the measure of importance being the number of employees as reported by the United States Census of Manufactures.

For the years 1907 to 1913 the bureau's reports as to these industries covered the principal occupations only, but for 1915 all employees in each establishment are included, those in occupations not shown previously being tabulated as "Other employees."

The establishments vary from year to year, as firms go out of business or cease to be representative, and new ones must be substituted. Data for a group of establishments in any year will not be precisely the same as for a different group in the same year, even though nearly all of the establishments may be common to both groups. In using the actual figures in this report, comparison from year to year should be made only between data coming from identical establishments. In the tables the data from identical establishments are grouped together.

The reader who desires an extended explanation of the methods used in compiling the figures herein presented is referred to Bulletin 153.

An exhaustive study of unemployment in these industries was not attempted, but in connection with the wage report information was gathered concerning the volume and regularity of employment during the year ending May 31, 1915, so far as indicated by the number of days each plant was in operation, the number of employees on the pay roll, and the amount of the pay roll for each pay period of the year.

LUMBER MANUFACTURING.

The information relating to the lumber industry is presented under four general topics:

Wages and hours of labor in sawmill operation, 1907 to 1915, pages 7 to 67.

Productivity and cost of labor in the lumber industry, pages 68 to 147.

Description of processes and occupations in the lumber industry, pages 147 to 192.

Wages and hours of labor in logging, 1915, pages 193 to 245.

WAGES AND HOURS OF LABOR IN SAWMILL OPERATION, 1907 TO 1915.

SUMMARY.

The lumber-manufacturing industry was much depressed in 1915. The average rate of wages per hour of employees in sawmill operation in 1915 was 9 per cent lower than in 1913, 6 per cent lower than in 1912, 4 per cent lower than in 1911, and 3 per cent lower than in 1910; the average full-time hours per week were but slightly changed since 1910. Full-time weekly earnings in 1915, therefore, bore practically the same relation to those of preceding years that the average rate of wages per hour did to the average of preceding years.

The number of lumber-manufacturing establishments included or summarized in this report has varied considerably since 1907, as follows:

1907 to 1910.....	40 identical establishments.
1910 and 1911.....	245 identical establishments.
1911 and 1912.....	301 identical establishments.
1912 and 1913.....	361 identical establishments.
1913 and 1915.....	324 identical establishments.

In addition to the 324 establishments furnishing information for 1913 and 1915, data were secured from 24 establishments for 1915 only, making a total of 348 establishments for which data for 1915 are presented.

The salient facts concerning the several occupations are summarized in Table 1 which follows. Direct comparison can be made between the figures for different years only when they are from identical establishments. For 1915 all employees in each establishment are covered by this report, those in occupations other than the selected occupations included in previous reports being grouped in one class and tabulated as "Other employees." In this table the occupations are arranged in wage-rate groups.

LUMBER MANUFACTURING.

TABLE 1.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS IN THE PRINCIPAL OCCUPATIONS, 1907 TO 1915.

[The figures opposite each group of years are for identical establishments. When a second line is shown for 1915 it contains all data secured for 1915 whether or not comparable data for 1913 were available.]

Occupation, and number of establishments.	Year.	Number of employees.	Average full-time hours per week.	Per cent of employees whose full-time hours per week were—					Average rate of wages per hour.	Per cent of employees whose rates of wages per hour were—				Average full-time weekly earnings.
				Under 60.	60.	Over 60 and under 66.	66.	Over 66.		Under 14 cts.	14 and under 18 cts.	18 and under 25 cts.	25 cts. and over.	
Doggers:														
273 establishments.....	1911	852	61.5	2	72	5	21	1	\$0.179	24	31	38	8	\$10.96
	1912	869	61.4	2	72	5	20	1	.180	20	33	40	7	11.03
334 establishments.....	1912	973	61.4	2	72	5	20	1	.181	19	34	40	8	11.06
	1913	939	61.2	4	74	5	16	1	.184	15	36	39	11	11.22
321 establishments.....	1913	935	61.1	4	74	6	15	1	.192	14	35	35	17	11.68
	1915	1,033	61.2	3	73	7	15	2	.178	25	30	34	11	10.84
345 establishments.....	1915	1,099	61.3	3	71	8	17	1	.178	26	29	33	12	10.83
Laborers:														
41 establishments.....	1907	4,097	60.5	3	87	5	4	1	.183	16	34	45	5	11.07
	1908	3,662	60.6	5	83	7	4	1	.167	19	51	28	2	10.12
	1909	3,910	60.5	5	84	6	4	1	.171	17	46	36	2	10.35
	1910	4,582	60.5	5	85	5	3	1	.183	14	28	54	4	11.07
245 establishments.....	1910	20,327	61.3	3	74	5	18	1	.166	29	31	37	3	10.12
	1911	19,256	61.3	3	74	5	18	1	.166	29	34	34	3	10.10
299 establishments.....	1911	26,784	61.4	1	73	7	18	1	.162	31	37	29	3	9.91
	1912	25,506	61.5	2	72	7	19	1	.164	31	37	28	4	10.04
361 establishments.....	1912	29,365	61.5	2	72	5	21	1	.164	32	37	27	4	10.03
	1913	28,835	61.1	3	76	6	14	1	.171	27	35	32	6	10.40
324 establishments.....	1913	28,555	61.0	4	76	6	13	1	.173	26	34	32	8	10.49
	1915	34,506	61.1	2	77	5	14	2	.158	36	34	25	4	9.62
348 establishments.....	1915	36,569	61.3	2	75	6	16	2	.157	37	33	25	4	9.58
Machine feeders, planing mill:														
178 establishments.....	1911	1,156	61.3	2	75	6	17	.....	.179	17	43	28	12	10.94
	1912	1,165	61.1	1	79	6	15	.....	.185	14	40	33	13	11.27
253 establishments.....	1912	1,548	61.4	1	74	5	20	1	.181	20	37	31	12	11.07
	1913	1,531	61.1	3	76	5	15	1	.186	15	39	30	15	11.34
241 establishments.....	1913	1,525	61.0	3	77	5	13	1	.190	14	39	28	19	11.53
	1915	1,573	61.1	1	78	5	15	1	.177	25	33	29	13	10.79
269 establishments.....	1915	1,679	61.2	1	76	6	16	1	.176	27	32	29	13	10.74
Trimmer operators:														
37 establishments.....	1907	72	60.7	3	83	4	7	3	.207	10	15	56	19	12.56
	1908	68	60.7	3	82	4	7	3	.196	10	29	41	19	11.90
	1909	72	60.7	3	83	4	7	3	.197	8	31	42	19	11.96
	1910	74	60.7	3	82	5	7	3	.197	8	20	49	23	11.96
228 establishments.....	1910	503	61.0	2	79	3	15	1	.209	11	18	46	25	12.71
	1911	485	61.0	2	79	3	15	1	.211	11	19	44	27	12.85
294 establishments.....	1911	479	61.3	1	76	5	17	1	.209	11	20	42	27	12.77
	1912	441	61.3	2	75	5	17	1	.210	10	21	43	26	12.84
346 establishments.....	1912	511	61.2	2	76	4	17	1	.209	10	23	43	24	12.73
	1913	538	61.0	4	78	4	14	1	.217	8	20	42	29	13.20
316 establishments.....	1913	510	61.0	4	76	6	14	1	.218	7	21	42	30	13.29
	1915	521	61.0	4	75	6	13	1	.204	13	22	43	22	12.37
345 establishments.....	1915	564	61.1	4	74	7	14	1	.203	14	21	43	22	12.34

WAGES AND HOURS OF LABOR IN SAWMILL OPERATION.

TABLE 1.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS IN THE PRINCIPAL OCCUPATIONS, 1907 TO 1915.—Continued.

Occupation, and number of establishments.	Year.	Number of employ-ees.	Aver- age full-time hours per week.	Per cent of employees whose full-time hours per week were—					Aver- age rate of wages per hour.	Per cent of em- ployees whose rates of wages per hour were—				Aver- age full-time week- ly earnings.
				Un- der 60.	60.	Over 60 and un- der 66.	66.	Over 66.		Un- der 20 cts.	20 and un- der 25 cts.	25 and un- der 30 cts.	30 cts. and over.	
Carriage men:														
41 establishments	1907	208	60.7	4	81	6	5	3	\$0.218	31	33	30	7	\$13.23
	1908	201	60.8	4	81	7	5	3	.207	43	30	21	6	12.59
	1909	195	60.8	5	79	6	4	4	.212	36	32	24	7	12.89
	1910	215	60.7	4	82	7	5	3	.220	28	36	30	6	13.35
245 establishments	1910	1,327	61.4	2	73	5	20	1	.209	44	26	18	12	12.76
	1911	1,298	61.3	2	74	5	18	1	.211	42	26	20	13	12.94
Edgermen:														
41 establishments	1907	79	60.7	3	82	6	6	3	.254	19	15	41	25	15.42
	1908	78	60.7	4	81	6	6	3	.246	21	21	42	17	14.93
	1909	77	60.7	4	81	7	7	3	.248	21	19	40	20	15.05
	1910	84	60.7	4	82	6	6	2	.265	17	17	36	31	16.09
245 establishments	1910	585	61.2	2	76	5	17	1	.255	16	19	37	27	15.58
	1911	589	61.2	2	76	6	16	1	.259	15	19	37	30	15.79
299 establishments	1911	684	61.3	1	76	5	17	1	.260	14	19	38	29	15.86
	1912	686	61.2	2	76	6	15	1	.260	14	18	38	29	15.87
361 establishments	1912	751	61.2	2	76	6	16	1	.262	13	18	39	29	15.97
	1913	754	61.0	4	77	6	12	1	.268	13	15	38	34	16.28
324 establishments	1913	701	61.0	4	76	6	12	1	.269	12	16	38	35	16.34
	1915	720	61.0	4	77	6	12	1	.252	19	22	32	27	15.32
348 establishments	1915	756	61.0	4	75	6	13	1	.252	20	21	31	27	15.32
Sawyers, resaw:														
98 establishments	1911	149	60.7	1	86	5	8	.....	.252	15	29	30	26	15.24
	1912	147	60.7	1	86	5	8	.....	.256	13	27	31	29	15.48
138 establishments	1912	197	60.7	1	85	4	10	.....	.254	14	28	31	27	15.41
	1913	192	60.7	2	85	4	9	.....	.261	13	25	32	31	15.77
125 establishments	1913	169	60.8	2	83	6	9	.....	.259	13	24	36	27	15.69
	1915	182	60.8	3	80	7	9	.....	.238	14	30	25	22	14.40
152 establishments	1915	215	60.9	3	77	8	11	.....	.240	22	30	25	23	14.57
Setters:														
301 establishments	1911	714	61.3	1	75	6	17	1	.251	16	22	34	28	15.30
	1912	713	61.3	2	75	6	16	1	.252	16	21	36	27	15.37
361 establishments	1912	780	61.3	2	75	6	16	1	.250	16	22	38	24	15.29
	1913	782	61.0	3	78	6	12	1	.258	13	21	38	29	15.79
324 establishments	1913	681	61.0	4	76	6	13	1	.256	12	20	43	26	15.59
	1915	640	61.0	4	75	6	13	2	.240	19	28	35	18	14.59
348 establishments	1915	687	61.2	3	73	7	15	2	.239	21	27	34	18	14.56
Sawyers, gang:														
5 establishments	1907	6	60.0	.....	100	.....	.....	.....	.271	.....	67	33	.....	16.26
	1908	6	60.0	.....	100	.....	.....	.....	.256	33	50	17	.....	15.36
	1909	6	60.0	.....	100	.....	.....	.....	.258	33	33	33	.....	15.48
	1910	6	60.0	.....	100	.....	.....	.....	.264	17	50	33	.....	15.84
52 establishments	1910	64	61.4	.....	75	5	20	.....	.309	22	22	33	23	18.88
	1911	60	61.6	.....	72	5	23	.....	.301	23	23	33	20	18.42
66 establishments	1911	74	61.6	.....	72	3	26	.....	.306	19	27	31	23	18.77
	1912	75	61.6	.....	71	4	25	.....	.306	15	31	32	23	18.74

TABLE 1.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS IN THE PRINCIPAL OCCUPATIONS, 1907 TO 1915.—Concluded.

Occupation, and number of establishments.	Year.	Number of employees.	Average full-time hours per week.	Per cent of employees whose full-time hours per week were—					Average rate of wages per hour.	Per cent of employees whose rates of wages per hour were—				Average full-time weekly earnings.
				Under 60.	60.	Over 60 and under 66.	66.	Over 66.		Under 25 cts.	25 and under 30 cts.	30 and under 40 cts.	40 cts. and over.	
Sawyers, gang—Concluded.														
71 establishments.....	1912	79	61.7	1	70	3	25	1	\$0.307	15	29	35	20	\$18.86
	1913	80	61.4	5	69	3	23	1	.311	14	28	39	20	19.02
67 establishments.....	1913	77	61.5	4	69	3	23	1	.322	9	30	35	26	19.70
	1915	79	61.7	4	65	8	22	3	.291	28	24	34	14	17.80
81 establishments.....	1915	98	61.8	3	63	6	24	3	.289	30	22	33	15	17.74
Sawyers, band:														
34 establishments.....	1907	71	60.8	3	85	6	7	.....	.490	11	32	39	17	29.79
	1908	69	60.8	3	86	4	7	.....	.481	14	29	41	16	29.24
	1909	69	60.8	3	86	4	7	.....	.489	14	28	36	22	29.73
	1910	73	60.7	3	86	4	7	.....	.501	12	29	34	25	30.41
203 establishments.....	1910	429	61.2	2	75	7	17	.....	.543	8	21	34	38	33.18
	1911	432	61.2	2	75	7	16	.....	.554	7	19	32	42	33.79
243 establishments.....	1911	508	61.2	2	76	6	16	.....	.550	8	17	35	39	33.61
	1912	492	61.2	2	77	6	15	.....	.551	7	19	34	40	33.64
288 establishments.....	1912	561	61.1	2	77	5	16	.....	.546	7	20	35	38	33.47
	1913	554	60.9	4	78	5	13	.....	.557	7	18	34	42	33.90
267 establishments.....	1913	534	60.9	4	78	5	13	.....	.561	5	19	31	45	34.14
	1915	539	60.9	4	78	6	12	(¹)	.537	6	29	32	34	32.61
286 establishments.....	1915	572	61.0	4	76	7	13	(¹)	.539	6	29	31	34	32.75
Sawyers, circular:														
12 establishments.....	1907	14	61.3	7	71	7	.....	14	.545	7	21	43	29	33.41
	1908	14	61.3	7	71	7	.....	14	.519	7	36	29	29	31.81
	1909	13	61.3	8	69	8	.....	15	.525	8	31	38	23	32.18
	1910	14	61.3	7	71	7	.....	14	.550	.....	36	29	36	33.72
58 establishments.....	1910	81	61.9	1	67	2	26	4	.496	11	32	40	17	30.66
	1911	78	62.0	1	65	3	27	4	.498	12	29	41	18	30.77
72 establishments.....	1911	95	62.6	1	57	4	35	3	.504	12	28	42	18	31.42
	1912	94	62.5	1	59	4	30	6	.509	15	19	47	19	31.70
92 establishments.....	1912	119	62.4	3	58	8	25	7	.499	19	20	41	20	31.03
	1913	123	62.0	3	64	7	18	7	.513	15	21	37	26	31.71
66 establishments.....	1913	89	62.5	2	56	10	21	10	.505	16	24	38	22	31.44
	1915	86	61.9	5	53	8	24	9	.459	31	28	23	17	27.97
76 establishments.....	1915	98	62.1	4	51	10	27	8	.462	33	26	23	18	28.27
Other employees: ²														
348 establishments.....	1915	16,513	63.3	2	61	6	17	15	.214	23	24	35	18	13.44

¹ Less than 1 per cent.

² This group, taken in 1915 for the first time, includes all occupations not specifically named above.

In 1915 the average full-time weekly earnings of employees in the selected occupations shown varied from \$9.58 for laborers to \$32.75 for band sawyers. The full-time hours of employees in the different establishments ranged from 48 to 70. An exception to this is the regular time of a few laborers, and of watchmen, firemen, and some others who are included in "Other employees," whose hours are often as high as 84, or in some instances, 91 or 98 per week. The predominant hours were 60 per week and the average full-time hours per week of all employees for 1915 were 61.1.

As wages and hours differ in different establishments, the inclusion or exclusion of any establishment in a group may raise or lower the average for the group, so that exact comparisons can not be made between the actual wages shown for different years unless the data for the several years are from identical establishments. To illustrate: In the last column of Table 1 under doggers it will be seen that the full-time weekly earnings of employees in 334 establishments increased from \$11.06 in 1912 to \$11.22 in 1913. In 321 establishments there was a decrease from \$11.68 in 1913 to \$10.84 in 1915, but, because of the change in the number of establishments and of the difference in the average for 1913 in the two groups of establishments, it would not be a proper comparison to state that weekly earnings had decreased from \$11.06 in 1912 to \$10.84 in 1915. To aid in making comparisons where the establishments are changing more or less from year to year, relative (or index) numbers have been computed from the averages in Table 1 for full-time hours per week, rates of wages per hour, and full-time weekly earnings, for each occupation and for the industry, for the years 1910 to 1915, inclusive. These relative numbers, which are shown in Table 2, following, are simply percentages in which the figures for 1915 are taken as the base, or 100 per cent. Thus the facts for each preceding year are brought into direct comparison with the facts for the latest year available, namely, 1915. The relative for each year preceding 1915 is the per cent that the average for that year is of the average for 1915. For example, the table shows that the relative full-time weekly earnings of band sawyers in 1910 were 101 per cent of the weekly earnings in 1915. In 1911 they had increased to 103 per cent, in 1912 they remained the same as in 1911, and in 1913 they had increased to 105 per cent of the earnings in 1915. The relative number being 100 in 1915 indicates the drop as compared with 1913. The relative numbers (in heavy-faced type) in the table may all be read in like manner.

In addition to the relative numbers in Table 2, percentages have been computed showing the per cent of increase or decrease in 1915 as compared with each preceding year back to 1910, while in another column is given the per cent of increase or decrease in each year com-

pared with the year immediately preceding. Referring, for example, to the weekly earnings of edgermen, it is seen that in 1915 they were 7 per cent lower than in 1913, 5 per cent lower than in 1912, etc.; and in the next column that they were 2 per cent higher in 1911 than in 1910, the same in 1912 as in 1911, and so on.

TABLE 2.—RELATIVE FULL-TIME HOURS PER WEEK, RATES OF WAGES PER HOUR, AND FULL-TIME WEEKLY EARNINGS, 1910 TO 1915, TOGETHER WITH PER CENT OF INCREASE OR DECREASE IN SPECIFIED YEARS, IN THE PRINCIPAL OCCUPATIONS AND THE INDUSTRY.

Occupation and year.	Hours per week.			Wages per hour.			Weekly earnings.		
	Relative full-time hours per week (1915 = 100).	Per cent of increase (+) or decrease (-) in—		Relative rate of wages per hour (1915 = 100).	Per cent of increase (+) or decrease (-) in—		Relative full-time weekly earnings (1915 = 100).	Per cent of increase (+) or decrease (-) in—	
		1915 as compared with each specified year.	Each specified year as compared with year preceding.		1915 as compared with each specified year.	Each specified year as compared with year preceding.		1915 as compared with each specified year.	Each specified year as compared with year preceding.
Doggers:									
1911.....	100	(1)	.....	106	- 6	.....	106	- 6	.....
1912.....	100	(1)	(1)	106	- 6	(1)	106	- 6	(1)
1913.....	100	(1)	(1)	108	- 7	+ 2	108	- 7	+ 2
1915.....	100	(1)	(1)	100	.....	- 7	100	.....	- 7
Edgermen:									
1910.....	101	- 1	.....	103	- 3	.....	103	- 3	.....
1911.....	101	- 1	(1)	104	- 4	+ 1	105	- 5	+ 2
1912.....	100	(1)	- 1	104	- 4	(1)	105	- 5	(1)
1913.....	100	(1)	(1)	107	- 7	+ 3	107	- 7	+ 2
1915.....	100	(1)	(1)	100	.....	- 7	100	.....	- 7
Laborers:									
1910.....	100	(1)	.....	104	- 4	.....	104	- 4	.....
1911.....	100	(1)	(1)	104	- 4	(1)	104	- 4	(1)
1912.....	101	- 1	+ 1	105	- 5	+ 1	105	- 5	+ 1
1913.....	100	(1)	+ 1	110	- 9	+ 5	109	- 8	+ 4
1915.....	100	(1)	(1)	100	.....	- 9	100	.....	- 8
Machine feeders, planing mill:									
1911.....	101	- 1	.....	101	- 1	.....	101	- 1	.....
1912.....	100	(1)	- 1	104	- 4	+ 3	104	- 4	+ 3
1913.....	100	(1)	(1)	107	- 7	+ 3	107	- 7	+ 3
1915.....	100	(1)	(1)	100	.....	- 7	100	.....	- 7
Sawyers, band:									
1910.....	100	(1)	.....	100	(1)	.....	101	- 1	.....
1911.....	100	(1)	(1)	102	- 2	+ 2	103	- 3	+ 2
1912.....	100	(1)	(1)	102	- 2	(1)	103	- 3	(1)
1913.....	100	(1)	(1)	105	- 5	+ 3	105	- 5	+ 2
1915.....	100	(1)	(1)	100	.....	- 5	100	.....	- 5
Sawyers, circular:									
1910.....	102	- 2	.....	106	- 6	.....	109	- 8	.....
1911.....	102	- 2	(1)	106	- 6	(1)	109	- 8	(1)
1912.....	102	- 2	(1)	107	- 7	+ 1	110	- 9	+ 1
1913.....	101	- 1	- 1	110	- 9	+ 3	112	- 11	+ 2
1915.....	100	.....	- 1	100	.....	- 9	100	.....	- 11
Sawyers, gang:									
1910.....	100	(1)	.....	112	- 11	.....	113	- 12	.....
1911.....	100	(1)	(1)	109	- 8	- 3	110	- 9	- 3
1912.....	100	(1)	(1)	109	- 8	(1)	110	- 9	(1)
1913.....	100	(1)	(1)	111	- 10	+ 2	111	- 10	+ 1
1915.....	100	(1)	(1)	100	.....	- 10	100	.....	- 10
Sawyers, resaw:									
1911.....	100	(1)	.....	104	- 4	.....	105	- 5	.....
1912.....	100	(1)	(1)	106	- 6	+ 2	107	- 7	+ 2
1913.....	100	(1)	(1)	109	- 8	+ 3	109	- 8	+ 2
1915.....	100	(1)	(1)	100	.....	- 8	100	.....	- 8

¹ No change.

TABLE 2.—RELATIVE FULL-TIME HOURS PER WEEK, RATES OF WAGES PER HOUR, AND FULL-TIME WEEKLY EARNINGS, 1910 TO 1915, TOGETHER WITH PER CENT OF INCREASE OR DECREASE IN SPECIFIED YEARS, IN THE PRINCIPAL OCCUPATIONS AND THE INDUSTRY—Concluded.

Occupation and year.	Hours per week.		Wages per hour.		Weekly earnings.	
	Relative full-time hours per week (1915 = 100).	Per cent of increase (+) or decrease (-) in—	Relative rate of wages per hour (1915 = 100).	Per cent of increase (+) or decrease (-) in—	Relative full-time weekly earnings (1915 = 100).	Per cent of increase (+) or decrease (-) in—
		1915 as compared with each specified year.		Each specified year as compared with year preceding.		1915 as compared with each specified year.	Each specified year as compared with year preceding.
Setters:						
1911.....	101	-1	103	-3	104	-4
1912.....	101	(¹)	103	-3	104	-4
1913.....	100	(¹)	107	-7	107	-7
1915.....	100	(¹)	100	-	100	-
Trimmers:						
1910.....	100	(¹)	102	-2	102	-2
1911.....	100	(¹)	103	-3	103	-3
1912.....	100	(¹)	103	-3	104	-4
1913.....	100	(¹)	107	-7	107	-7
1915.....	100	(¹)	100	-	100	-
The industry:						
1910.....	100	(¹)	103	-3	104	-4
1911.....	100	(¹)	104	-4	105	-5
1912.....	100	(¹)	106	-6	106	-6
1913.....	100	(¹)	110	-9	110	-9
1915.....	100	(¹)	100	-	100	-

¹ No change.

There was, in fact, a slight reduction in hours in the industry, but too small to be reflected in the relative numbers appearing above. The effect, however, was sufficient to make a difference of one point between the relative numbers for wages per hour and weekly earnings in 1910 and 1911.

The method of computing these relative numbers from the averages of the hours and wages shown in Table 1 is as follows. The rates of wages of edgermen are taken as an example.

	Number of establishments.	Year.				
		1910	1911	1912	1913	1915
Rates of wages per hour.....	245	\$0.255	\$0.259	\$0.260	\$0.268	\$0.252
	299		.260			
	361			.262		
	324				.269	
Relative rates of wages per hour.....		103	104	104	107	100

The rate per hour for 1915 is taken as the base (100). Then \$0.269 divided by \$0.252 equals 107, the relative for 1913. The ratio of 1912 to 1913 is that of \$0.262 to \$0.268. The relative for 1913, just determined (107), multiplied by \$0.262 and the result divided by \$0.268 equals 104, the relative for 1912. The ratio of 1911 to that of

1912 is that of \$0.260 to \$0.260, that is, there is no difference between the relatives for 1911 and 1912. The ratio of 1910 to 1911 is that of \$0.255 to \$0.259. The relative for 1911 (104) multiplied by \$0.255 and the result divided by \$0.259 equals 103, the relative for 1910. For greater accuracy the relative numbers were carried to one decimal place in the processes of computation, but are entered in the table to the nearest whole numbers.

The reasons for using the data for the most recent year available as the base for relative numbers are: First, the most recent data are probably the most accurate and representative; second, comparisons are more often made between recent years than between any others; and third, this method permits the inclusion of new or additional occupations that it may be found desirable to introduce, and the computing of relatives for such occupations for the years for which data are available, on the same base as that upon which the relatives for other occupations are computed.

FLUCTUATIONS IN EMPLOYMENT DURING YEAR.

Reports as to the volume of employment during the year ending May 31, 1915, were obtained from 303 of the 348 sawmill establishments furnishing wage data for 1915.

Table 3 shows for these establishments the average number of days the plants were in operation, the total number of employees, the total amount of pay rolls, and the average earnings per employee in each month during the year. It also shows the percentages that the number of employees, amount of pay rolls, and earnings per employee, respectively, for each month, are of the averages for the year. These data are given on a monthly basis because in a large number of establishments the pay-roll periods cover one month, and it was not practicable to separate the figures so as to show them for a shorter period; but for the establishments with weekly, biweekly, or semimonthly pay rolls the wage payments were combined so as to bring all establishments to a monthly basis. The column "average days in operation" has reference to the establishment as a whole and not the number of employees shown in the next column. These average days are based on the running days of the several establishments regardless of the number of employees in each. The average days in operation of all plants during a given month may have been 24.7 while the employees who worked in the establishments actually in operation during that month may have averaged more or less time depending upon the different number of employees in the several establishments, upon broken time worked individually, and upon the plants shut down.

The figures in this table show considerable fluctuation in the volume of employment during the year. Taken in connection with the facts shown in Tables 4 and 5, they seem to indicate that while the low

per cents shown during the winter months were due in part to seasonal conditions, the industry was more or less affected throughout the year by business depression which caused a good deal of "slack work."

TABLE 3.—AVERAGE DAYS ESTABLISHMENTS WERE IN OPERATION, EMPLOYEES, TOTAL PAY ROLLS, AND AVERAGE EARNINGS PER EMPLOYEE IN ONE MONTH, FOR THE YEAR ENDING APPROXIMATELY MAY 31, 1915, BY MONTHS.

Month ending approximately--	Average days in operation.	Employees.		Total pay rolls.		Average earnings per employee in one month.	
		Number.	Percent of average for year.	Amount.	Percent of average for year.	Amount.	Percent of average for year.
1914.							
June 30.....	24.7	61,228	115	\$2,653,723.88	121	\$43.34	106
July 31.....	24.1	62,604	118	2,687,357.41	123	42.93	105
August 31.....	24.4	60,338	113	2,600,610.80	119	43.10	105
September 30.....	23.8	57,179	107	2,409,057.09	110	42.13	103
October 31.....	23.8	53,975	101	2,295,326.60	105	42.53	104
November 30.....	20.2	49,088	92	1,876,101.08	86	38.22	93
December 31.....	18.0	44,373	83	1,656,920.64	76	37.34	91
1915.							
January 31.....	17.9	44,402	83	1,688,393.06	77	38.03	93
February 28.....	19.2	47,122	88	1,772,252.65	81	37.61	92
March 31.....	23.2	51,269	96	2,170,612.51	99	42.34	103
April 30.....	22.8	52,850	99	2,205,534.29	101	41.73	102
May 31.....	23.8	54,720	103	2,237,045.59	105	41.98	103
Average for year	22.2	53,262	100	2,192,744.63	100	40.94	100

The accompanying graphic chart is based on the percentages of Table 3 and presents at a glance the trend of the items shown.

The change in the volume of employment during the year ending with May, 1915, so far as this may be brought out by the pay rolls, is still further developed in Table 4.

TABLE 4.—NUMBER OF ESTABLISHMENTS HAVING LARGEST AND SMALLEST PAY ROLLS IN MONTHS SPECIFIED.

Month.	Number of establishments having--			Number of establishments entirely closed down in the month for--			
	Largest pay roll in specified months.	Smallest actual pay roll in specified months. ¹	Smallest full-time pay roll in specified months.	1 week.	2 weeks.	3 weeks.	4 weeks.
1914.							
June.....	55	11	16	5	1	1	3
July.....	84	7	3	17	6	5	3
August.....	55	6	10	7	1	1	7
September.....	10	13	22	12	4	3	8
October.....	28	16	22	12	6	4	15
November.....	6	47	23	20	13	5	26
December.....	3	81	5	58	11	5	55
1915.							
January.....	6	26	20	18	11	8	63
February.....	1	50	104	19	7	2	42
March.....	23	12	19	13	6	2	25
April.....	9	13	26	12	13	4	17
May.....	23	21	29	16	7	5	5
Total.....	303	303	² 299				

¹ Not including pay-roll periods during which mill was idle all the time.

² Not including 4 establishments having no full-time pay rolls during the year.

CHART A.—FLUCTUATIONS IN NUMBER OF EMPLOYEES, TOTAL PAY ROLLS, AND MONTHLY EARNINGS PER EMPLOYEE.

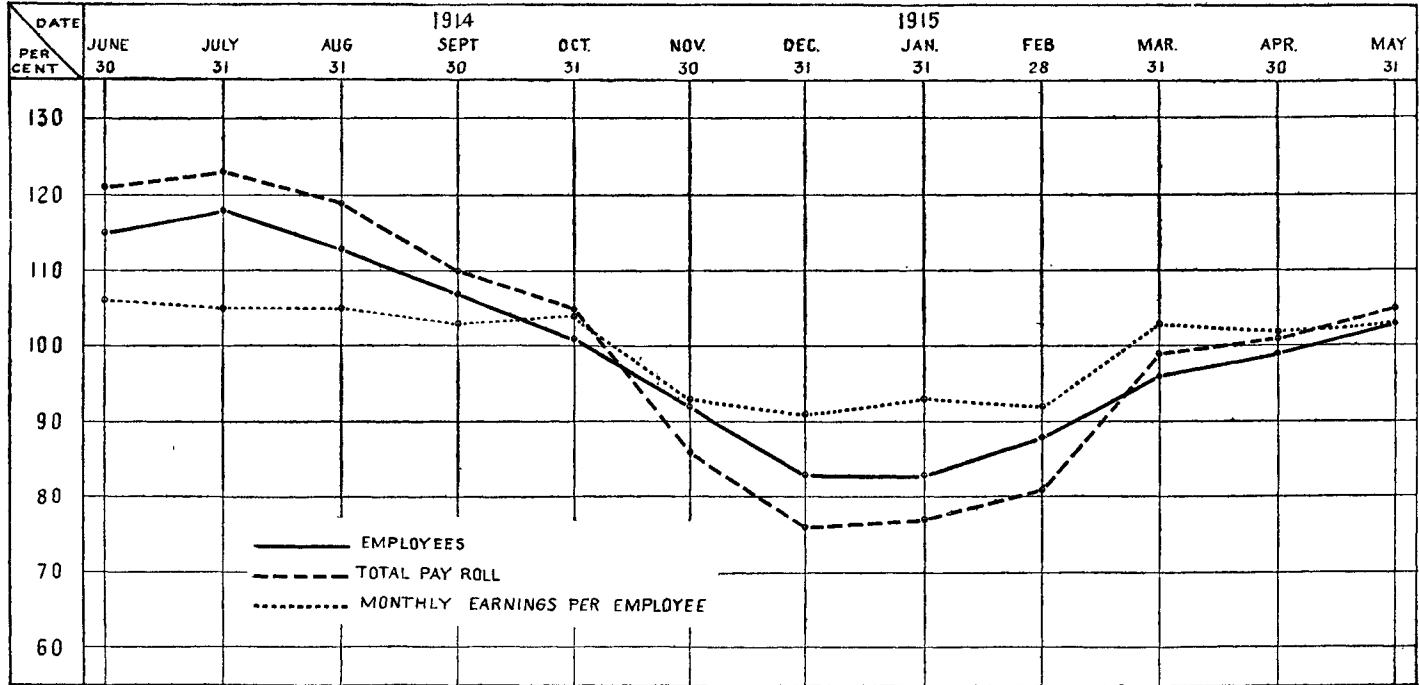


Table 4 shows for 303 establishments the months during which the largest pay roll, the smallest full-time pay roll, and the smallest actual pay-roll periods occur, and the number of establishments closed down entirely for one or more weeks each month.

The distribution of these figures indicates a low ebb in the volume of business during the winter months, and with the year closing in lower condition than that in which it began.

Attention is called to the fact that the same month may show a considerable number of both large and small pay rolls, because in many of the establishments each pay-roll period covers only one or two weeks, or one-half month, so that it is possible for an establishment to have a large pay roll and a small pay roll in the same month.

Table 5 shows the number of days that each of 303 establishments reporting was in operation during the year and the number of days idle, by specified causes. It will be seen that in addition to holidays and vacations, which are the result of custom or of an accepted policy of the establishments, the principal causes of idleness per establishment were 29.4 days on account of slack work, 7.3 days on account of winter shutdown, and 7.4 days for miscellaneous causes. The total average days idle during the year were 48.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION, AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR.

State.	Establishment number.	Days in operation during year.	Number of week days idle during year on account of—					Total week days idle during year.
			Holidays and vacations.	Strikes and lockouts.	Slack work.	Winter shut-down.	Other causes.	
Alabama.....	1	215	1		97			98
	2	296	5		12			17
	3	300	3				¹ 10	13
	4	270	4				¹ 39	43
	5	309	6		7			13
	6	295	3		15			18
	7	189	4		16		² 104	124
	8	283	3		8		¹ 19	30
	9	302	5				¹ 6	11
	10	225	2				³ 86	88
Arkansas.....	11	310	3					3
	12	283	4		25		⁴ 1	30
	13	310	3					3
	14	291	11		11			22
	15	289	6		12		¹ 6	24
	16	291	4		3		¹ 15	22
	17	303	4		⁶ 6			10
	18	310	3					3
	19	277	4		⁶ 31		⁴ 1	36
	20	308	5					5
	21	306	4				¹ 3	7
	22	294	4		9		¹ 6	19
	23	291	3		16		⁴ 3	22
	24	289	5		9			14
	25	297	3		13			16
	26	304	4		2		¹ 3	9
	27	276	4		25		¹ 8	37

¹ Repairs.
² Change in ownership.
³ Fire and rebuilding.

⁴ Inventory.
⁵ Including time closed for repairs.
⁶ Including time closed on account of car shortage.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION, AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR—Continued.

State.	Establishment number.	Days in operation during year.	Number of week days idle during year on account of—					Total week days idle during year.
			Holidays and vacations.	Strikes and lockouts.	Slack work.	Winter shut-down.	Other causes.	
California.....	28	279	8		18		1 8	34
	29	223	2			78	2 10	90
	30	278	2		33			35
	31	200	3		107		1 3	113
	32	260	8		19		1 26	53
	33	283	6				1 24	30
	34	303	10					10
	35	295	10				1 8	18
	36	292	6		15			21
	37	305	8					8
	38	306	5				3 2	7
	39	180	3			130		133
	Florida.....	40	296	5				1 12	17
41		202	2				1 109	111
42		308	5					5
43		308	3				1 2	5
44		276	6		6		1 25	37
45		311	2					2
Georgia.....	46	248	2				4 63	65
	47	306	2				1 5	7
	48	245	1		67			68
	49	304	2				6 7	9
	50	303	3				1 7	10
	51	235	3				6 75	78
	52	308	3				7 2	5
	53	296	1				8 16	17
	54	260	2				9 51	53
	55	218	2		79		10 14	95
	56	267	3				1 13	16
	57	299	4				9 10	14
	58	215	2				11 96	98
59	304	2				1 7	9	
60	309	2				1 2	4	
Idaho.....	61	207	3		103			106
	62	291	2		20			22
	63	213	2		98			100
Louisiana.....	64	308	2				1 3	5
	65	304	5				1 4	9
	66	307	2				1 4	6
	67	303	4		6			10
	68	297	2				1 14	16
	69	301	3				4 9	12
	70	299	3		10		12 1	14
	71	274	3		29		13 7	39
	72	293	1				1 19	20
	73	304	1		5		1 3	9
	74	296	2		15			17
	75	304	4				1 5	9
	76	290	2		21			23
	77	305	4		4			8
	78	304	9					9
	79	309	2				1 2	4
	80	260	4		4		14 45	53
	81	302	3				16 8	11
	82	266	4		43			47
83	246	4		44		1 19	67	

¹ Repairs.

² Repairs, 2 days; log shortage, 8 days.

³ Log shortage, 1 day; breakdown, 1 day.

⁴ Repairs, 56 days; not reported, 7 days.

⁵ Not reported.

⁶ Log shortage and minor repairs, 23 days; not reported, 52 days.

⁷ Log shortage.

⁸ Repairs, 11 days; log shortage and minor repairs, 5 days.

⁹ Log shortage and minor repairs.

¹⁰ Repairs, 8 days; flood, 6 days.

¹¹ Repairs, 89 days; log shortage, 7 days.

¹² Death.

¹³ Repairs, 6 days; death of president, 1 day.

¹⁴ Fire.

¹⁵ Repairs and car shortage.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION, AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR—Continued.

State.	Establishment number.	Days in operation during year.	Number of week days idle during year on account of—					Total week days idle during year.	
			Holidays and vacations.	Strikes and lockouts.	Slack work.	Winter shut-down.	Other causes.		
Maine.....	84	159	2			150	1 2	154	
	85	185	1			126	1 1	128	
	86	147				150	2 16	166	
	87	189	4			108	2 12	124	
	88	167	1			144	1 1	146	
	89	283	3				2 27	30	
	90	183	2			128		130	
	91	259	1			49	1 4	54	
	92	186	4			122	1 1	127	
	93	233	1			73	1 6	80	
	94	154	3			153	1 3	159	
	95	165	5			123	2 20	148	
	96	184	8			78	6 43	129	
	97	151	1			138	2 23	142	
	98	171	3			127	7 12	162	
	99	216	2			62	2 33	97	
	100	168	3			131	2 11	145	
	101	173	2			137	1 1	140	
	Michigan.....	102	274	4			18	10 17	39
		103	231	6		76			82
104		257	5		11 51			56	
105		308	5					5	
106		307	6					6	
107		309	4					4	
108		307	6					6	
109		181	5			127		132	
110		308	5					5	
111		297	6				1 10	16	
112		308	5					5	
113		191	5		117			122	
114		307	6					6	
115		282	6				12 25	31	
116		183	5		13 125			130	
117		307	6					6	
118		275	5				12 33	38	
119		257	5		51			56	
120		308	5					5	
121		209	4		100			104	
122	308	5					5		
123	296	5				1 12	17		
124	232	5		13 76			81		
125	309	4					4		
126	229	5		11 79			84		
127	309	4					4		
Minnesota.....	128	157	4		152			156	
	129	233	5		75			80	
	130	157	5		151			156	
Mississippi.....	131	309	4					4	
	132	298	3		12			15	
	133	267	4		6		14 36	46	
	134	310	2				1 1	3	
	135	304	2		7			9	
	136	245	5		26		16 37	68	
	137	309	2		2			4	
	138	311	2					2	
	139	305	2		6			8	
	140	279			34			34	
	141	309	4					4	
	142	306	2		5			7	
	143	307	5				16 1	6	
	144	306	3		4			7	
	145	313							
Montana.....	146	263	3		47			50	
	147	306	4		3			7	
	148	275	2		36			38	
	149	182	3		128			131	
	150	243	2		68			70	

1 Repairs.
 2 Log shortage.
 3 High water and repairs.
 4 Repairs, 4 days; frozen pond, 23 days.
 5 Log shortage, 38 days; repairs, 5 days.
 6 Log shortage, 19 days; high water, 4 days.
 7 Log shortage, 1 day; high water, 7 days; repairs, 4 days.
 8 Repairs, 1 day; building hot pond, 32 days.
 9 Repairs, 5 days; moving crew to other mill, 6 days.
 10 Repairs, 3 days; installing new boiler, 14 days.
 11 Including time closed for repairs.
 12 Inventory and repairs.
 13 Including time closed for inventory.
 14 Repairs, 16 days; mill burned, 20 days.
 15 Repairs, 7 days; log shortage, 30 days.
 16 Storm.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION, AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR—Continued.

State.	Establishment number.	Days in operation during year.	Number of week days idle during year on account of—					Total week days idle during year.
			Holidays and vacations.	Strikes and lockouts.	Slack work.	Winter shut-down.	Other causes.	
North Carolina.....	151	301	3				1 9	12
	152	272	3		22		1 16	41
	153	298	5				2 10	15
	154	265	4		41		3 3	48
	155	305	6				3 2	8
	156	255	3		4 43		5 12	58
	157	285	3		21		6 4	28
	158	173	2		136		7 2	140
	159	301	4		8			12
	160	298	3				1 12	15
	161	298	6				3 9	15
	162	298	5				3 10	15
	163	303	2				6 8	10
	164	226	2		72		3 13	87
	165	294	2				3 17	19
	166	289	4		8		3 12	24
	167	284	2		9 27			29
	168	257	2		51		3 3	56
	Oregon.....	169	284	6			5 23	29
170		261	14		38		52	
171		298	5		10		15	
172		243	7		63		70	
173		301	3		9		12	
Pennsylvania.....	174	294	5		14		19	
	175	310	3				3	
	176	310	3				3	
	177	147	4		7		166	
	178	306	4		3		7	
	179	306	4		3		7	
	180	288	4		21		25	
	181	308	3		2		5	
	182	309	4				4	
	183	309	4				4	
	184	311	2				2	
	185	308	3		2		5	
	186	222	4		87		91	
	187	311	2				2	
	188	308	4		1		5	
	189	311	2				2	
	190	311	2				2	
	South Carolina.....	191	308	3			5 2	5
		192	297	2			10 14	16
193		310	1			3 2	3	
194		299	3			11 11	14	
195		239	2		70	3 2	74	
196		288	2			12 23	25	
197		298	2			10 13	15	
198		295	2		16		18	
199		275	2		36		38	
200		219	3		91		94	
201		130	2		181		183	
202		142	4		167		171	
203		253	4		56		60	
204	231	2		77		79		
205	163	1		149		150		
206	196	1		116		117		
207	211	3		93		102		
208	296	3		14	13 6	17		
209	269	5			14 39	44		
210	274	4		35		39		
211	292	2		19		21		
212	245	2		66		68		
213	167	2		144		146		
214	160	1		128	6 24	153		
215	125	2		186		188		
216	240	4		69		73		
217	285	2		26		28		
218	248	2		63		65		
219	227	2		48	5 36	86		

¹ Repairs and log shortage.

² Repairs, 8 days; not reported, 2 days.

³ Not reported.

⁴ Including time closed on account of log shortage.

⁵ Repairs.

⁶ Log shortage and not reported.

⁷ Log shortage, 1 day; not reported, 1 day.

⁸ Repairs and not reported.

⁹ Including time closed for repairs.

¹⁰ Log shortage and repairs.

¹¹ Repairs and bad weather.

¹² Repairs, 17 days; log shortage, 6 days.

¹³ Inventory.

¹⁴ Inventory and repairs.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION, AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR—Continued.

State.	Establishment number.	Days in operation during year.	Number of week days idle during year on account of—					Total week days idle during year.
			Holidays and vacations.	Strikes and lockouts.	Slack work.	Winter shut-down.	Other causes.	
Texas.....	220	248	4		2		1 59	65
	221	267	7		33		2 6	46
	222	278	3				3 32	35
	223	293	3		4 17			26
	224	304	3		4 6			9
	225	304	3		5 6			9
	226	297	2				5 14	16
	227	236	5		5 72			77
	228	302	3				7 8	11
	229	286	5		5 22			27
	230	292	4				9 17	21
	231	263	3				2 47	50
	Virginia.....	232	299	11		3			14
233		257	11		45			56
234		300	11		1		9 1	13
235		248	2		10 63			65
236		251	2				5 60	62
237		215	1		97			98
238		300	2				3 11	13
239		167	3		140		3 3	146
240		286	2				11 25	27
241		176	2		5 135			137
242		300	2		5 11			13
243		306	2		5			7
244		171	2		5 140			142
Washington.....	245	236	2		5 75			77
	246	286	2		5 25			27
	247	307	2		4			6
	248	305	2		6			8
	249	201	2		5 110			112
	250	201	2	105	5			112
	251	306	7					7
	252	190	2		121			123
	253	275	3		35			38
	254	280	2		31			33
	255	305	5				7 3	8
	256	302	2		9			11
	257	260	2		5 51			53
West Virginia.....	258	171	2		140			142
	259	299	2		12			14
	260	270	2		41			43
	261	78	2		233			235
	262	300	2		11			13
	263	303	2		8			10
	264	292	2		19			21
	265	307	2		4			6
	266	301	3		9			12
	267	259	2		52			54
	268	288	2		23			25
	269	282	2		29			31
	270	239	3		71			74
West Virginia.....	271	305	2		5 6			8
	272	311	2					2
	273	299	2		5 12			14
	274	175	2		5 136			138
	275	284	2		5 27			29
	276	195	2		5 116			118
	277	221	2		5 90			92
	278	221	2		90			92
	279	281	2		5 30			32
	280	255	2		5 35			58
	281	184	1		123		7 5	129
	282	297	2		5 14			16

1 Fire.
 2 Bad weather.
 3 Log shortage.
 4 Including time closed for repairs and on account of log shortage.
 5 Including time closed for repairs.
 6 Repairs, 7 days; bad weather, 7 days.
 7 Repairs.
 8 Repairs and log shortage.
 9 Death.
 10 Including time closed on account of log shortage.
 11 Repairs, 13 days; log shortage, 12 days.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION, AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR—Concluded.

State.	Estab- lishment number.	Days in operation during year.	Number of week days idle during year on account of—					Total week days idle during year.
			Holidays and va- cations.	Strikes and lockouts.	Slack work.	Winter shut- down.	Other causes.	
West Virginia..... (Concluded).	283	304	2				1	9
	284	295	2		² 16			18
	285	186	2		² 125			127
	286	281	2		² 30			32
	287	280	2		² 31			33
	288	293	4		16			20
Wisconsin.....	289	309	2		2			4
	290	294	5		104			109
	291	295	3		105			108
	292	306	5		2			7
	293	154	2		157			159
	294	143	5		165			170
	295	157	4		152			156
	296	310	3					3
	297	297	3				¹ 13	16
	298	180	5		128			133
	299	297	6		10			16
	300	258	5		50			55
	301	272	4		37			41
	302	307	5		1			6
	303	306	3		4			7
	Average.....		265.0	3.4	.3	20.4	7.3	7.4	48.0

¹ Repairs.² Including time closed for repairs.

As stated on page 5, data have been secured showing, for 1915, the hours actually worked by employees. Table 6, which is a summary of General Table D, shows the number and per cent of employees working certain classified percentages of full time, by States. This table is divided into three sections, one relating to employees whose time was reported for one week, one relating to those whose time was reported for one-half month, and the third relating to those whose time was reported for one month. The figures of necessity are presented in three sections, as data for one week only can not be segregated from the semimonthly and monthly pay-roll data. Thirteen establishments having biweekly pay rolls and 7 establishments whose records were incomplete are omitted altogether from this table.

TABLE 6.—NUMBER AND PER CENT OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES.

[This table includes data from all establishments from which information was secured for 1915 except 13 establishments having biweekly pay rolls and 7 establishments whose records were incomplete.]

One-week pay rolls.

State.	Num-ber of estab-lish-ments	Num-ber of em-ploy-ees	Employees working each classified per cent of full time.									
			100 per cent and over.		Under 100 per cent.		Under 75 per cent.		Under 50 per cent.		Under 25 per cent.	
			Num-ber.	Per cent.	Num-ber.	Per cent.	Num-ber.	Per cent.	Num-ber.	Per cent.	Num-ber.	Per cent.
Alabama.....	3	438	196	45	242	55	100	23	53	12	27	6
Florida.....	1	167	123	74	44	26	22	13	13	8	6	4
Georgia.....	4	410	145	35	265	65	95	23	35	9	14	3
Louisiana.....	11	2,062	1,316	64	746	36	230	11	68	3	26	1
Maine.....	19	1,995	1,580	79	415	21	172	9	94	5	37	2
Michigan.....	2	173	158	91	15	9	7	4	2	1	.....	.....
Minnesota.....	1	311	211	68	100	32	72	23	1	(1)	.....	.....
Mississippi.....	5	1,212	830	68	382	32	123	10	51	4	18	1
North Carolina.....	15	2,240	1,313	59	927	41	366	16	169	8	80	4
South Carolina.....	4	590	301	51	289	49	101	17	33	6	9	2
Tennessee.....	15	650	220	34	430	66	140	22	87	13	31	5
Texas.....	1	165	92	56	73	44	54	33	33	20	21	13
Virginia.....	6	765	355	50	350	50	182	26	79	11	41	6
Wisconsin.....	1	167	141	84	26	16	7	4	2	1	2	1
Total.....	88	11,285	6,981	62	4,304	38	1,671	15	720	6	312	3

Semimonthly pay rolls.

Alabama.....	1	120	72	60	48	40	29	24	16	13	2	2
Arkansas.....	15	3,788	1,108	29	2,680	71	710	19	296	8	150	4
Florida.....	3	784	453	58	331	42	156	20	86	11	38	5
Georgia.....	3	571	215	38	356	62	171	30	84	15	40	7
Idaho.....	1	199	73	37	126	63	40	20	27	14	5	3
Louisiana.....	7	1,834	591	32	1,243	68	417	23	213	12	83	5
Michigan.....	12	1,821	789	43	1,032	57	300	16	169	9	68	4
Minnesota.....	1	294	215	73	79	27	43	15	29	10	21	7
Mississippi.....	7	1,433	536	37	897	63	317	22	110	8	37	3
North Carolina.....	2	332	83	25	249	75	97	29	55	17	23	7
Pennsylvania.....	10	935	335	36	600	64	182	19	96	10	49	5
South Carolina.....	1	84	12	14	72	86	47	56	16	19	9	11
Tennessee.....	1	51	1	2	50	98	32	63	18	35	12	24
Washington.....	4	426	233	55	193	45	75	18	45	11	20	5
West Virginia.....	1	54	2	4	52	96	26	48	22	41	13	24
Wisconsin.....	7	1,226	517	42	709	58	174	14	111	9	39	3
Total.....	76	13,952	5,235	38	8,717	62	2,816	20	1,393	10	609	4

Monthly pay rolls.

Alabama.....	6	1,470	145	10	1,325	90	786	53	244	17	105	7
Arkansas.....	4	1,087	207	19	880	81	292	27	186	17	102	9
California.....	12	2,239	615	27	1,624	73	518	23	342	15	154	7
Florida.....	6	1,359	316	23	1,043	77	525	39	344	25	192	14
Georgia.....	14	1,679	243	14	1,436	86	738	44	497	30	294	18
Idaho.....	2	525	192	37	333	63	163	31	123	23	46	9
Louisiana.....	5	1,235	248	20	987	80	340	28	221	18	111	9
Michigan.....	6	1,656	536	32	1,120	68	216	13	123	7	46	3
Minnesota.....	2	692	231	33	461	67	177	26	58	8	31	4
Mississippi.....	4	831	195	23	636	77	167	20	71	9	22	3
Montana.....	3	583	264	45	319	55	106	18	70	12	45	8
North Carolina.....	4	1,040	189	18	851	82	363	35	244	23	138	13
Oregon.....	6	1,414	250	18	1,164	82	520	37	291	21	136	10
Pennsylvania.....	6	312	35	11	277	89	93	30	62	20	28	9
South Carolina.....	5	1,826	214	12	1,612	88	819	45	495	27	255	14
Tennessee.....	8	756	101	13	655	87	286	38	180	24	106	14
Texas.....	11	2,711	588	22	2,123	78	915	34	510	19	277	10
Virginia.....	14	1,687	330	20	1,357	80	606	36	324	19	177	10
Washington.....	21	4,739	1,888	29	3,351	71	1,517	32	886	19	511	11
West Virginia.....	20	2,177	528	24	1,649	76	629	29	323	15	172	8
Wisconsin.....	5	1,029	255	25	774	75	184	18	102	10	39	4
Total.....	164	31,047	7,070	23	23,977	77	9,960	32	5,696	18	2,987	10

¹ Less than 1 per cent.

Table 7 shows, by States, the number of employees in the industry as reported by the United States Census of 1910, the number of establishments from which the bureau secured data for 1915, and the number of employees for whom data are shown in this report:

TABLE 7.—TOTAL NUMBER OF EMPLOYEES IN LUMBER MANUFACTURING AND NUMBER OF EMPLOYEES FOR WHICH DATA ARE SHOWN FOR 1915.

State.	Number of employees reported by United States Census, 1910.	Establishments and employees for which data for 1915 are shown in this report.	
		Number of establishments.	Number of employees.
Louisiana	43,996	23	5,131
Washington	41,684	25	5,165
Mississippi	32,106	17	3,588
Arkansas	31,404	19	4,875
North Carolina	30,534	21	3,612
Virginia	29,758	21	2,510
Michigan	27,325	25	4,083
Wisconsin	25,445	17	2,876
Texas	21,519	12	2,876
Alabama	20,949	14	2,658
Tennessee	19,233	25	1,510
Georgia	18,110	22	2,795
Florida	17,842	12	2,918
West Virginia	17,629	21	2,231
Minnesota	16,650	4	1,297
Pennsylvania	15,707	17	1,265
California	15,614	12	2,239
South Carolina	13,586	10	2,500
Oregon	13,460	6	1,414
Maine	13,203	19	1,995
Idaho	5,046	3	724
Montana	3,028	3	583
Other States	73,350	.....	.....
Total	547,178	348	53,845

According to the census for 1910 more than 86 per cent of the total number of employees in the industry are found in the States in which the establishments furnishing information to the Bureau of Labor Statistics are located. The number of employees for whom the bureau secured 1915 data and for whom detailed information for 1915 is presented in this report is equal to nearly 11 per cent of the total number in the industry in 1909 (the year to which the census figures apply.)

In addition to the text tables already shown four general tables are presented as follows:

Table A.—Average and classified full-time hours per week and rates of wages per hour, and average full-time weekly earnings, in the United States, by years, 1907 to 1915.

Table B.—Average and classified full-time hours per week and rates of wages per hour, and average full-time weekly earnings, in each State, by years, 1913 and 1915.

Table C.—Average and classified full-time hours per week and rates of wages per hour, and average full-time weekly earnings, by States, 1915.

Table D.—Average full-time hours, average hours actually worked, and number of employees working each classified per cent of full time, by States, 1915.

TABLE A.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS, IN THE UNITED STATES, BY YEARS, 1907 TO 1915—Continued.

Occupation and number of establishments.	Year.	Number of employ-ees.	Average full-time hours per week.	Average rate of wages per hour.	Average full-time weekly earnings.	Employees whose full-time hours per week were—										Employees whose rates of wages per hour were—									
						Under 54.	54 and under 57.	57 and under 60.	60.	Over 60 and under 63.	63 and under 66.	66.	Over 66.	Under 10 cts.	10 and under 12 cts.	12 and under 14 cts.	14 and under 16 cts.	16 and under 18 cts.	18 and under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 40 cts.	40 and under 50 cts.	50 and under 60 cts.	60 cts. and over.
Edgemen—Concluded. 324 establishments.	1913	701	61.0	\$0.269	\$16.34	.....	3	26	536	9	35	86	6	.....	1	9	20	23	34	109	263	206	34	2	.....
	1915	720	61.0	.252	15.32	2	8	18	551	6	39	88	8	3	16	11	32	32	45	158	227	174	22	.....	.....
348 establishments.	1915	756	61.0	.252	15.32	3	8	18	568	7	42	102	8	4	19	15	33	37	46	161	234	181	26	.....	.....
Laborers: 41 establishments.	1907	4,097	60.5	.183	11.07	.....	12	121	3,544	50	171	147	52	77	163	392	440	948	378	1,478	214	7	.....	.....	.....
	1908	3,662	60.6	.167	10.12	.....	12	185	3,027	51	188	148	51	113	227	370	578	1,280	426	612	54	2	.....	.....	.....
	1909	3,910	60.5	.171	10.35	.....	12	171	3,278	52	193	152	52	101	226	328	402	1,375	676	732	68	2	.....	.....	.....
	1910	4,582	60.5	.183	11.07	.....	15	228	3,890	53	187	158	51	62	252	312	321	950	816	1,667	199	3	.....	.....	.....
245 establishments.	1910	20,327	61.3	.166	10.12	.....	47	556	15,008	207	801	3,596	112	543	2,822	2,600	2,522	3,760	2,162	5,309	580	29	.....	.....	.....
	1911	19,256	61.3	.166	10.10	.....	46	450	14,176	226	801	3,443	114	299	2,664	2,638	2,566	3,963	2,072	4,440	574	40	.....	.....	.....
299 establishments.	1911	26,784	61.4	.162	9.91	.....	11	388	19,567	145	1,601	4,872	200	519	3,649	4,238	4,510	5,312	2,274	5,469	746	67	.....	.....	.....
	1912	25,506	61.5	.164	10.04	.....	25	355	18,336	145	1,531	4,851	263	346	3,291	4,303	4,257	5,179	1,927	5,121	911	153	18	.....	.....
361 establishments.	1912	29,365	61.5	.164	10.03	.....	.....	483	21,015	336	1,104	6,050	377	397	3,809	5,084	4,993	5,757	2,130	5,895	1,128	158	14	.....	.....
	1913	28,835	61.1	.171	10.40	.....	16	914	21,901	381	1,261	4,050	312	199	2,590	4,858	5,043	5,028	2,545	6,788	1,532	235	17	.....	.....
324 establishments.	1913	28,555	61.0	.173	10.49	.....	199	818	21,839	397	1,279	3,710	313	186	2,585	4,774	4,757	4,838	2,442	6,613	2,076	265	19	.....	.....
	1915	34,506	61.1	.158	9.62	61	286	353	26,534	365	1,498	4,771	638	2,177	5,538	4,653	5,697	6,197	3,082	5,704	1,240	207	8	2	1
348 establishments. Machine feeders, plan- ing mill.	1915	36,569	61.3	.157	9.58	61	286	353	27,325	409	1,698	5,799	638	2,684	6,058	4,817	5,890	6,313	3,146	6,047	1,390	211	10	2	1
	178 establishments.	1911	1,156	61.3	.179	10.94	.....	20	871	7	57	201	.....	.....	48	152	203	288	84	240	122	18	1	.....	.....
1912		1,165	61.1	.185	11.27	.....	8	918	8	61	170	.....	1	27	138	162	300	119	267	131	20	.....	.....	.....
253 establishments.	1912	1,548	61.4	.181	11.07	.....	.....	11	1,143	19	52	202	2	65	242	208	363	148	335	160	25	.....	.....	.....
	1913	1,531	61.1	.186	11.34	.....	6	41	1,158	21	57	233	15	3	48	179	262	339	134	330	173	62	1	.....
241 establishments.	1913	1,525	61.0	.190	11.53	.....	13	40	1,178	21	56	202	15	3	44	165	246	349	121	309	217	70	1	.....
	1915	1,573	61.1	.177	10.79	.....	7	9	1,225	29	51	230	22	23	133	245	236	282	131	320	152	49	2	.....
269 establishments.	1915	1,679	61.2	.176	10.74	.....	7	9	1,277	29	65	270	22	32	156	262	244	289	145	337	161	51	2	.....

228 establishments...	1910	503	61.0	.209	12.71	.....	4	5	397	5	12	77	3	1	11	45	37	54	39	192	85	36	3	.....	
	1911	485	61.0	.211	12.85	.....	4	5	383	5	12	73	3	.....	10	43	36	54	27	185	93	34	3	.....	
294 establishments...	1911	479	61.3	.209	12.77	.....	1	5	362	3	21	83	4	.....	15	38	42	54	25	176	100	25	4	.....	
	1912	441	61.3	.210	12.84	.....	2	6	331	2	21	75	4	.....	15	31	44	48	24	165	84	25	5	.....	
346 establishments...	1912	511	61.2	.209	12.73	.....	.....	11	387	5	17	86	5	.....	15	38	57	58	29	190	85	33	6	.....	
	1913	538	61.0	.217	13.20	.....	1	18	420	5	16	73	5	.....	14	28	54	56	26	202	100	51	7	.....	
316 establishments...	1913	510	61.0	.218	13.29	1	1	16	387	6	24	70	5	13	23	53	54	26	188	90	59	4	
	1915	521	61.0	.204	12.37	1	4	16	393	5	27	68	7	8	19	41	48	69	52	171	67	43	3	
345 establishments...	1915	564	61.1	.203	12.34	1	4	16	418	6	34	78	7	12	20	47	49	72	56	186	74	45	3	
Other employees:																										
348 establishments...	1915	16,513	63.3	.214	13.44	27	85	194	10,117	221	729	2,741	2,399	1,525	1,176	1,090	1,239	1,529	1,222	3,375	2,391	2,069	592	216	89

TABLE B.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS, IN EACH STATE, BY YEARS, 1913 AND 1915—Continued.

MACHINE FEEDERS, PLANING MILL.

State and number of establishments.	Year.	Number of employees.	Average full-time hours per week.	Average rate of wages per hour.	Average full-time weekly earnings.	Employees whose full-time hours per week were—						Employees whose rates of wages per hour were—														
						Under 54.	54 and under 57.	57 and under 60.	60.	Over 60 and under 63.	63 and under 66.	66.	Over 66.	Under 10 cts.	10 and under 12 cts.	12 and under 14 cts.	14 and under 16 cts.	16 and under 18 cts.	18 and under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 40 cts.	40 and under 50 cts.	50 and under 60 cts.	60 cts. and over.	
Alabama:																										
12 establishments....	1913	78	65.6	\$0.136	\$8.87				8																	
	1915	91	65.9	.123	8.08				5																	
Arkansas:																										
19 establishments....	1913	206	59.7	.163	9.73		5	16	185																	
	1915	220	60.0	.173	10.35				220																	
California:																										
8 establishments....	1913	43	60.0	.226	13.57				43																	
	1915	35	60.0	.226	13.55				35																	
Florida:																										
10 establishments....	1913	42	63.9	.155	9.89				15					1	10	24	2	1	3							
	1915	62	63.2	.138	8.69				29					2	20	19	10	3	4	2	1	1				
Georgia:																										
12 establishments....	1913	55	63.4	.148	9.36				25		3	23	4		5	25	14	5	1	5						
	1915	49	64.7	.124	8.01				11		3	32	3	4	16	21	4	1	2	1						
Idaho:																										
3 establishments....	1913	44	60.0	.272	16.31				44																	
	1915	24	60.0	.284	17.01				24																	
Louisiana:																										
22 establishments....	1913	189	60.7	.185	11.24			14	146		18	11				3	26	90	22	44						
	1915	197	60.3	.173	10.45				187			10					9	71	15	52	1	2				
Maine:																										
13 establishments....	1913	28	63.3	.220	13.94				8	2	18								1	9	11	6	1			
	1915	33	63.0	.225	14.18				13		20								1	9	14	5	4			
Michigan:																										
11 establishments....	1913	67	60.0	.195	11.70				67																	
	1915	68	60.0	.190	11.41				68								1	7	11	16	33	3	1			
Minnesota:																										
2 establishments....	1913	31	60.0	.243	14.55				31																	
	1915	36	60.0	.233	13.97				36																	

LUMBER MANUFACTURING.

TABLE B.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS, IN EACH STATE, BY YEARS, 1913 AND 1915—Continued.

SETTERS—Concluded.

State and number of establishments.	Year.	Number of employ-ees.	Average full-time hours per week.	Average rate of wages per hour.	Average full-time weekly earnings.	Employees whose full-time hours per week were—						Employees whose rates of wages per hour were—																			
						Under 54.	54 and under 57.	57 and under 60.	60.	Over 60 and under 63.	63 and under 66.	66.	Over 66.	Under 10 cts.	10 and under 12 cts.	12 and under 14 cts.	14 and under 16 cts.	16 and under 18 cts.	18 and under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 40 cts.	40 and under 50 cts.	50 and under 60 cts.	60 cts. and over.						
Mississippi: 17 establishments...	1913	37	60.0	\$0.228	\$13.67				37											1	2	18	16								
	1915	32	60.5	.211	12.68				32						2	5	2				16	6		1							
Montana: 3 establishments...	1913	8	57.0	.403	22.97		4		4															2	6						
	1915	9	58.0	.380	22.01		3		6															5	4						
North Carolina: 19 establishments...	1913	30	62.0	.188	11.64			2	17	2	9				2	3	9	4			10	2									
	1915	32	62.9	.175	10.99		1		16	3	10	2			1	2	10	6	6		5	2									
Oregon: 8 establishments...	1913	12	60.0	.298	17.88				12													2	10								
	1915	11	60.0	.280	16.77				11													8	3								
Pennsylvania: 17 establishments...	1913	26	62.3	.261	16.24			2	13	4	7										6	19	1								
	1915	25	61.7	.259	15.97			3	13	6	3										8	16	1								
South Carolina: 8 establishments...	1913	16	61.5	.208	12.75				10	2	1	3			3	1	4				2	6									
	1915	16	60.9	.181	10.99		2		8	2	1	3			5	2	1				8										
Tennessee: 22 establishments...	1913	28	61.1	.211	12.94			2	20			6				1	7				9	11									
	1915	27	61.1	.208	12.75			3	18			6			1	2	5	2			9	8									
Texas: 12 establishments...	1913	35	59.6	.255	15.23			3	23	4		2									10	20	5								
	1915	31	59.3	.235	13.96		3		26	2		2					2				15	14									
Virginia: 19 establishments...	1913	31	63.5	.204	12.87			3	6	2	4	16					2	6	6	1	4	11	1								
	1915	31	62.7	.187	11.68			1	11	2	7	10					2	11	6	2	1	19									
Washington: 24 establishments...	1913	47	60.0	.288	17.27				47												3	20	24								
	1915	43	60.1	.269	16.20				41		2										10	14	19								

Georgia.....	14	16	66.8	.368	24.52					12	4					1		3	7	3	2	
Louisiana.....	7	8	60.8	.573	34.56			7		1								1		2	1	4
Maine.....	4	7	63.6	.434	27.69			2		5									2	4	1	
Michigan.....	4	8	60.0	.507	30.41			8												1	6	1
Mississippi.....	6	9	53.8	.607	31.46		2	7												2	3	4
North Carolina.....	5	5	60.5	.272	16.39			2		1								3	1		1	
Texas.....	4	5	60.0	.535	32.10			5													4	1
Washington.....	8	11	69.0	.503	30.19			11												1	5	3
Other States.....	9	10	61.4	.532	32.31			7		2	1								2	2	2	4
Total.....	76	98	62.1	.462	28.27		2	2	50	10	26	8				1	5	9	17	25	23	18

SAWYERS, GANG.

Alabama.....	11	16	65.8	\$0.220	\$14.48					2	12	2		1	2	1	1	1	5	2	3	
Arkansas.....	7	7	60.0	.324	19.47			7												3	2	2
Florida.....	6	7	63.4	.257	16.18			3			4								2	1	3	
Louisiana.....	8	9	60.0	.321	19.27			9											3		4	2
Minnesota.....	3	4	60.0	.318	19.05			4												2	1	1
Mississippi.....	9	9	60.0	.306	18.37			9												1	5	1
Wisconsin.....	4	4	60.0	.280	15.62			4												2	1	1
Other States.....	33	37	61.4	.307	18.70		1	2	23	1	3	6	1		1	2		1	4	6	16	6
Total.....	81	93	61.8	.289	17.74		1	2	59	1	5	22	3	1	3	4	1	2	17	20	31	12

SAWYERS, RESAW.

California.....	6	9	60.0	\$0.279	\$16.75					9											4	1
Maine.....	8	11	63.1	.251	15.79			2		2										1	5	4
Michigan.....	16	31	60.0	.233	13.96			31							3	1	2			7	14	4
Minnesota.....	4	5	60.0	.255	15.30			5													5	
North Carolina.....	13	16	62.5	.163	10.19			9		1	6			2	2	6	1	2			2	1
Oregon.....	6	10	60.0	.301	18.05			10													1	3
Pennsylvania.....	7	8	61.8	.236	14.54			1		4		2	1							5	2	1
South Carolina.....	8	13	61.1	.153	11.03		1	8	1		3			1	3	3	1	3			3	2
Tennessee.....	7	7	60.9	.198	12.06			6		1	1			1	1	1				3	1	
Virginia.....	12	15	63.5	.171	10.74			4	1	4	6			4	3	3				1	4	1
Washington.....	20	31	60.1	.314	18.88			30		1										1	1	5
West Virginia.....	8	11	61.0	.252	15.85			1		8		2								1	3	6
Wisconsin.....	15	22	60.0	.246	14.75			22													14	3
Other States.....	22	26	61.0	.237	14.31		2	18		1	5			1	1	1	2			5	3	1
Total.....	152	215	60.9	.240	14.57		3	4	166	2	16	24		2	9	17	10	10	64	53	49	1

TABLE D.—AVERAGE FULL-TIME HOURS, AVERAGE HOURS ACTUALLY WORKED, AND NUMBER OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES, 1915.

[This table includes data from all establishments from which information was secured for 1915, except from 13 establishments having biweekly pay rolls and from 7 establishments whose records were incomplete.]

ONE-WEEK PAY ROLLS.

DOGGERS.

Occupation and State.	Number of establishments.	Number of employees.	Average full-time hours of establishments per week.	Average hours worked per employee in one week.	Employees working each classified per cent of full time in one week.					
					Under 25 per cent.	25 and under 50 per cent.	50 and under 75 per cent.	75 and under 100 per cent.	100 per cent.	Over 100 per cent (overtime).
Alabama.....	3	10	65.8	56.9		1	1	4	4	
Georgia.....	3	8	65.3	56.0			1	6	1	
Louisiana.....	11	49	60.5	58.7			3	10	31	5
Maine.....	19	39	62.7	60.5	1			6	31	1
Mississippi.....	5	22	60.0	60.2				2	18	2
North Carolina.....	15	35	62.1	58.4			3	12	15	5
South Carolina.....	4	13	61.2	61.5				4	6	3
Tennessee.....	15	25	59.8	50.1		3	1	15	6	
Virginia.....	6	21	63.5	51.4	1		6	7	7	
Other States.....	6	16	61.5	57.3		1	1		14	
Total.....	87	238	61.7	57.4	2	5	16	66	133	16

EDGERMEN.

Alabama.....	3	5	65.9	64.8				2	2	1
Louisiana.....	11	28	60.6	56.2		1	4	2	16	5
Maine.....	19	33	61.8	59.9		1		3	29	
Mississippi.....	5	18	60.0	55.5			3	3	11	1
North Carolina.....	15	24	62.2	61.9				6	14	4
South Carolina.....	4	6	61.0	53.1		1	1	1	2	1
Tennessee.....	15	17	59.7	45.8	2	2	1	7	3	2
Virginia.....	6	10	62.9	56.4			2	5	3	
Other States.....	10	22	61.5	61.7				2	18	2
Total.....	88	163	61.4	57.5	2	5	11	31	98	16

LABORERS.

Alabama	3	301	66.3	53.6	25	22	36	105	79	34
Georgia	4	241	65.5	53.2	8	14	35	110	67	7
Louisiana	11	1,292	61.1	55.8	18	38	126	370	632	108
Maine	19	1,106	62.0	57.3	27	38	55	138	813	35
Michigan	2	110	60.0	58.4	-----	1	4	8	93	4
Mississippi	5	739	60.2	54.3	16	27	56	187	416	37
North Carolina	15	1,187	61.7	53.9	52	58	105	344	486	142
South Carolina	4	264	61.2	52.8	7	11	39	110	64	33
Tennessee	15	420	59.8	47.9	26	41	35	198	104	16
Virginia	6	414	62.5	51.4	28	28	65	116	150	27
Other States	4	510	61.3	53.7	25	17	69	65	304	
Total	88	6,584	61.7	54.3	232	295	625	1,751	3,208	75

MACHINE FEEDERS, PLANING MILL.

Alabama	2	13	67.3	63.3	-----	-----	2	8	-----	3
Louisiana	11	72	60.0	57.9	-----	-----	2	31	29	10
Maine	16	36	62.9	58.2	1	1	2	4	26	2
Mississippi	5	45	60.0	57.5	1	-----	2	14	22	6
North Carolina	13	93	62.0	60.3	-----	1	3	18	57	14
South Carolina	2	10	62.0	55.9	-----	-----	-----	7	3	-----
Virginia	4	13	62.2	61.1	-----	-----	1	2	6	4
Other States	9	34	61.8	55.5	-----	-----	11	5	13	5
Total	62	316	61.6	58.6	2	2	23	89	156	44

SAWYERS, BAND.

Louisiana	7	17	60.7	60.5	-----	-----	-----	2	13	2
Maine	12	24	61.4	61.2	-----	-----	-----	1	23	-----
North Carolina	11	21	62.7	56.9	1	1	-----	4	15	-----
Tennessee	14	16	59.6	53.9	-----	-----	1	6	8	-----
Virginia	6	10	62.9	60.8	-----	-----	-----	2	8	-----
Other States	13	27	60.8	60.8	-----	-----	-----	-----	27	-----
Total	63	115	61.3	59.2	1	2	1	15	94	2

SAWYERS, CIRCULAR.

All States	27	33	62.8	61.7	-----	-----	2	3	25	3
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GENERAL TABLES.

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TABLE D.—AVERAGE FULL-TIME HOURS, AVERAGE HOURS ACTUALLY WORKED, AND NUMBER OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES, 1915—Continued.

ONE-WEEK PAY ROLLS—Concluded.

SAWYERS, GANG.

Occupation and State.	Number of establishments.	Number of employees.	Average full-time hours of establishments per week.	Average hours worked per employee in one week.	Employees working each classified per cent of full time in one week.					
					Under 25 per cent.	25 and under 50 per cent.	50 and under 75 per cent.	75 and under 100 per cent.	100 per cent.	Over 100 per cent (overtime).
All States.....	11	13	61.8	64.5				1	9	3

SAWYERS, RESAW.

Maine.....	8	11	63.1	62.4				1	10	
North Carolina.....	7	9	61.2	59.3				3	5	1
Tennessee.....	5	5	60.0	51.7				3	1	
Other States.....	12	13	62.2	59.9			1	3	7	2
Total.....	32	38	61.9	59.4			2	10	23	3

SETTERS.

Alabama.....	3	5	65.8	63.0				2	3	
Georgia.....	4	5	66.4	55.7				2	2	
Louisiana.....	11	22	60.5	59.8		1			13	5
Maine.....	19	34	61.9	60.6				3	30	
Mississippi.....	5	11	60.0	61.8				1	9	2
North Carolina.....	15	24	62.4	61.7				6	11	6
South Carolina.....	4	6	61.0	53.3				2	1	2
Tennessee.....	15	18	59.7	51.7			1	2	9	1
Virginia.....	6	11	62.9	52.3		1		3	3	4
Other States.....	6	18	60.7	60.7					18	
Total.....	88	154	61.6	58.8		3		10	29	16

TRIMMER OPERATORS.

Louisiana.....	11	13	60.5	52.2	1	2	3	6	1	
Maine.....	19	38	61.7	58.9	1		5	32		
Mississippi.....	5	9	60.0	59.7			1	7	1	
North Carolina.....	15	20	62.4	62.9			5	9	6	
Tennessee.....	15	15	59.6	51.0		1	1	8	4	
Virginia.....	6	8	62.5	49.5		2	1	2	3	
Other States.....	17	27	62.0	60.0			1	5	20	
Total.....	88	130	61.4	57.6	2	3	5	29	81	10

OTHER EMPLOYEES.

Alabama.....	3	93	69.0	63.7	2	3	8	19	46	15
Georgia.....	4	133	68.0	57.1	6	6	18	47	46	10
Louisiana.....	11	559	63.2	61.9	7	3	23	95	330	101
Maine.....	19	665	63.1	60.1	7	17	20	80	494	47
Michigan.....	2	44	61.8	61.7		1	1		36	6
Mississippi.....	5	353	62.2	60.5		6	10	51	241	44
North Carolina.....	15	821	64.6	58.5	27	29	85	163	394	123
South Carolina.....	4	278	63.8	59.9	2	12	26	63	117	58
Tennessee.....	15	133	60.9	54.5	3	7	11	44	45	23
Virginia.....	6	214	67.3	59.8	12	7	24	30	128	13
Other States.....	4	208	62.9	59.3	4	2	30	17	129	26
Total.....	88	3,501	63.9	59.8	71	93	256	609	2,006	466

GENERAL TABLES.

TABLE D.—AVERAGE FULL-TIME HOURS, AVERAGE HOURS ACTUALLY WORKED, AND NUMBER OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES, 1915—Continued.

SEMIMONTHLY PAY ROLLS.

DOGGERS.

Occupation and State.	Number of establishments.	Number of employees.	Average full-time hours of establishments per half month.	Average hours worked per employee in one-half month.	Employees working each classified per cent of full time in one-half month.					
					Under 25 per cent.	25 and under 50 per cent.	50 and under 75 per cent.	75 and under 100 per cent.	100 per cent.	Over 100 per cent (overtime).
Arkansas.....	15	71	129.3	103.3	5	8	6	34	13	5
Florida.....	3	17	138.4	131.2	.....	1	1	3	9	3
Georgia.....	3	11	138.3	111.1	.....	1	3	4	3	.....
Louisiana.....	7	31	130.8	109.3	1	2	2	18	7	1
Michigan.....	12	26	130.0	112.3	.....	3	2	10	9	2
Mississippi.....	7	27	130.0	112.8	.....	1	8	12	4	2
North Carolina.....	2	6	143.0	118.3	.....	.....	1	5	.....	.....
Pennsylvania.....	10	17	134.0	120.4	.....	.....	2	11	3	1
Washington.....	4	6	130.0	124.3	.....	.....	1	2	2	1
Wisconsin.....	7	17	130.0	108.6	1	2	.....	8	5	1
Other States.....	6	13	130.0	112.7	.....	1	2	4	3	3
Total.....	76	242	131.5	111.4	7	19	28	111	58	19

EDGERMEN.

Arkansas.....	15	44	129.7	119.0	1	.....	2	27	6	8
Florida.....	3	7	137.4	138.2	.....	.....	.....	6	1	1
Georgia.....	3	5	137.8	128.7	.....	.....	.....	3	1	1
Louisiana.....	7	27	130.5	116.2	.....	1	3	15	5	3
Michigan.....	12	25	130.0	118.2	.....	2	1	6	14	2
Mississippi.....	7	16	130.0	123.4	.....	.....	.....	8	8	.....
Pennsylvania.....	10	17	134.0	124.1	.....	1	1	9	2	4
Washington.....	4	5	130.0	125.0	.....	.....	.....	2	2	1
Wisconsin.....	7	23	130.0	120.2	.....	2	.....	12	8	1
Other States.....	8	21	132.5	114.2	1	2	1	4	11	2
Total.....	76	190	131.1	120.1	2	8	8	86	63	23

LUMBER MANUFACTURING.

LABORERS.

Arkansas.....	15	2,521	130.2	108.7	124	114	333	1,415	422	113
Florida.....	3	478	138.2	116.9	29	35	55	137	122	100
Georgia.....	3	322	137.0	102.1	29	31	59	125	59	19
Louisiana.....	7	1,088	130.7	103.9	55	88	137	539	212	57
Michigan.....	12	1,129	130.0	110.6	59	61	98	498	319	94
Mississippi.....	7	864	130.3	115.7	30	50	141	391	206	46
North Carolina.....	2	175	143.5	107.5	13	21	26	90	24	1
Pennsylvania.....	10	660	134.5	111.6	42	42	61	306	163	46
Washington.....	4	268	130.0	111.9	16	19	21	88	62	62
Wisconsin.....	7	781	130.0	112.1	28	50	46	365	267	25
Other States.....	6	498	130.0	103.9	40	47	65	141	153	52
Total.....	76	8,784	131.5	109.6	465	558	1,042	4,095	2,009	615

MACHINE FEEDERS, PLANING MILL.

Arkansas.....	15	175	130.0	114.2	2	7	12	110	21	23
Florida.....	2	16	135.7	127.6	1	1	1	5	3	6
Georgia.....	3	10	137.8	108.0	1	1	5	2	2	2
Louisiana.....	7	86	130.5	115.8	1	5	9	33	35	3
Michigan.....	7	53	130.0	102.3	4	3	8	26	7	5
Mississippi.....	7	50	130.0	109.4	5	5	10	21	9	5
Pennsylvania.....	7	17	134.6	120.9	1	1	2	9	3	3
Washington.....	3	13	130.0	105.8	1	1	2	6	1	2
Wisconsin.....	5	26	130.0	110.2	1	1	1	17	6	.....
Other States.....	5	35	131.5	125.6	1	1	1	19	6	9
Total.....	61	481	130.7	113.6	10	24	50	246	93	58

SAWYERS, BAND.

Arkansas.....	14	30	129.6	111.7	1	1	4	12	11	1
Florida.....	3	7	137.4	129.1	1	1	1	1	3	2
Louisiana.....	6	15	130.0	115.5	1	1	9	5	.....	1
Michigan.....	12	25	130.0	118.1	1	3	6	15	.....	1
Mississippi.....	5	9	130.0	130.4	1	1	6	.....	.....	3
Pennsylvania.....	10	17	133.9	124.4	1	1	2	9	5	1
Wisconsin.....	7	13	130.0	118.7	1	1	4	8	.....	.....
Other States.....	11	21	134.3	117.7	1	1	3	5	11	1
Total.....	68	137	131.4	118.6	3	5	10	52	58	9

TABLE D.—AVERAGE FULL-TIME HOURS, AVERAGE HOURS ACTUALLY WORKED, AND NUMBER OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES, 1915—Continued.

SEMIMONTHLY PAY ROLLS—Concluded.

SAWYERS, CIRCULAR.

Occupation and State.	Number of establishments.	Number of employees.	Average full-time hours of establishments per half month.	Average hours worked per employee in one-half month.	Employees working each classified per cent of full time in one-half month.					
					Under 25 per cent.	25 and under 50 per cent.	50 and under 75 per cent.	75 and under 100 per cent.	100 per cent.	Over 100 per cent (overtime).
All States.....	11	12	122.4	110.6			3	3	5	1

SAWYERS, GANG.

All States.....	25	26	131.0	129.4			1	11	6	8
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SAWYERS, RESAW.

Arkansas.....	6	8	128.5	121.1			1	4		3
Michigan.....	10	17	130.0	117.2			2	7	8	
Pennsylvania.....	5	6	132.8	123.8			1	3	1	1
Wisconsin.....	6	7	130.0	123.3			1	2	4	
Other States.....	10	12	134.3	124.3			2	5	2	3
Total.....	37	50	131.1	121.2			7	21	15	7

SETTERS.

Arkansas.....	15	33	129.6	116.7	1		2	20	7	3
Florida.....	3	6	138.7	140.5					5	1
Georgia.....	3	6	138.7	117.4			1	3		2
Louisiana.....	7	15	130.9	127.1				9	4	2
Michigan.....	12	24	130.0	123.3			2	7	13	2
Mississippi.....	7	11	130.0	117.7			1	1	4	1

Pennsylvania.....	10	17	133.9	122.5			2	10	2	3
Washington.....	4	5	130.0	121.2			1	1	2	1
Wisconsin.....	7	14	130.0	126.4			1	2	10	1
Other States.....	8	14	133.7	115.3	1			6	2	3
Total.....	76	145	131.5	121.6	2	2	11	62	49	19

TRIMMER OPERATORS.

Arkansas.....	15	22	129.5	116.2		1	1	14	5	1
Louisiana.....	7	11	131.2	115.5		1		6	4	
Michigan.....	12	30	130.0	121.9		1	1	12	11	5
Mississippi.....	7	8	130.0	123.5				4	3	1
Pennsylvania.....	10	19	134.1	129.9			1	11	5	2
Wisconsin.....	7	19	130.0	109.4	1	2	1	9	6	
Other States.....	16	24	133.8	129.1			2	7	11	4
Total.....	74	133	131.3	121.2	1	5	6	63	45	13

OTHER EMPLOYEES.

Arkansas.....	15	876	136.1	126.6	16	15	53	329	303	160
Florida.....	3	248	140.5	137.1	8	12	12	28	74	114
Georgia.....	3	205	142.3	125.0	10	10	19	45	86	35
Louisiana.....	7	554	137.0	118.9	25	33	53	194	139	110
Michigan.....	12	490	134.7	125.7	5	28	16	159	194	88
Mississippi.....	7	443	134.9	123.9	7	16	46	132	167	73
North Carolina.....	2	129	147.0	121.4	10	11	14	43	36	15
Pennsylvania.....	10	164	138.5	127.4	7	4	13	50	47	43
Washington.....	4	117	132.2	127.5	3	5	4	16	49	40
Wisconsin.....	7	322	133.6	122.1	8	14	13	116	129	42
Other States.....	6	206	132.1	114.4	20	15	14	39	74	44
Total.....	76	3,752	136.5	124.5	119	163	257	1,151	1,298	764

TABLE D.—AVERAGE FULL-TIME HOURS, AVERAGE HOURS ACTUALLY WORKED, AND NUMBER OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES, 1915—Continued.

MONTHLY PAY ROLLS.

DOGGERS.

Occupation and State.	Number of establishments.	Number of employees.	Average full-time hours of establishments per month.	Average hours worked per employee in one month.	Employees working each classified per cent of full time in one month.					
					Under 25 per cent.	25 and under 50 per cent.	50 and under 75 per cent.	75 and under 100 per cent.	100 per cent.	Over 100 per cent (overtime).
Alabama.....	6	24	282.6	216.0			13	9		2
Arkansas.....	4	22	255.5	189.5	1	2	4	14		1
California.....	12	39	260.3	186.7	4	6	4	22	2	1
Florida.....	6	25	280.8	241.6	1		4	14		6
Georgia.....	13	30	282.2	221.5	2	1	7	19		1
Idaho.....	2	11	260.0	164.8	3	2		2	4	
Louisiana.....	5	37	260.0	214.1	2	2	3	28		2
Michigan.....	6	25	260.0	225.0	1	1		17	3	3
Minnesota.....	2	11	260.0	225.7			3	6	2	
Mississippi.....	4	18	260.0	216.2		2	1	14	1	
Montana.....	3	14	252.6	241.8				10	4	
North Carolina.....	4	14	276.7	226.5	1	2		7	1	3
Oregon.....	6	18	260.0	197.9	1	2	3	8		4
Pennsylvania.....	6	7	264.6	226.4			1	6		
South Carolina.....	5	27	271.7	170.8	6	2	6	13		
Tennessee.....	8	13	276.2	222.8			4	7	1	1
Texas.....	11	58	258.3	198.5	2	8	10	32	2	4
Virginia.....	14	43	274.2	198.0	2	8	8	20	1	4
Washington.....	21	75	260.9	198.9	10	8	7	32	6	12
West Virginia.....	20	43	265.9	196.2	3	5	8	20	3	4
Wisconsin.....	5	18	260.0	234.7	1			15		2
Total.....	163	572	265.5	206.1	40	51	86	315	30	50

EDGERMEN.

Alabama.....	6	14	283.1	218.9			7	6		1
Arkansas.....	4	13	256.2	215.0	1			10		2
California.....	12	29	260.3	206.4		1	1	17	4	6

Florida.....	6	11	281.3	265.2				8	1	2
Georgia.....	14	17	283.3	222.8		1	1	10		3
Idaho.....	2	8	280.0	205.8			2	1	5	
Louisiana.....	5	16	280.0	233.9				13		2
Michigan.....	6	20	260.0	228.9	1			17	2	
Minnesota.....	2	12	260.0	234.4				2	2	
Mississippi.....	4	12	260.0	224.7				9	7	
Montana.....	3	11	252.9	251.7				5	4	2
North Carolina.....	4	7	274.9	260.4				7		
Oregon.....	6	13	260.0	196.7			3	5		2
Pennsylvania.....	6	14	265.3	253.4				1	3	
South Carolina.....	5	14	267.6	199.7	1			7	1	1
Tennessee.....	8	13	275.6	240.0			1	10	2	
Texas.....	11	38	258.3	191.5	3		5	22	2	2
Virginia.....	14	25	271.6	236.3			2	10	2	5
Washington.....	21	31	260.4	230.1			2	13	4	6
West Virginia.....	20	40	266.0	229.4	1		1	20	5	5
Wisconsin.....	5	21	260.0	258.7				12	3	6
Total.....	164	371	264.7	225.1	8	18	48	207	44	46

LABORERS.

Alabama.....	6	1,018	280.6	187.6	83	119	415	346	8	47
Arkansas.....	4	721	258.9	191.0	85	70	81	409	34	42
California.....	12	1,508	260.8	204.5	133	153	125	801	134	162
Florida.....	6	895	279.4	184.7	160	126	138	345	18	108
Georgia.....	14	1,006	282.8	177.8	208	136	155	433	24	50
Idaho.....	2	278	260.0	186.8	32	47	25	94	64	16
Louisiana.....	5	787	260.1	189.6	96	90	88	423	13	77
Michigan.....	6	1,085	260.0	221.3	40	59	81	666	177	62
Minnesota.....	2	429	260.0	212.9	27	15	85	172	119	11
Mississippi.....	4	512	268.6	216.6	18	38	78	300	39	39
Montana.....	3	352	248.5	207.2	32	20	30	133	96	41
North Carolina.....	4	507	277.9	175.3	62	60	61	273	17	34
Oregon.....	6	922	260.0	185.5	104	114	163	453	24	64
Pennsylvania.....	6	226	266.8	199.4	24	29	22	136	2	13
South Carolina.....	5	1,075	270.6	174.3	171	159	213	470	11	51
Tennessee.....	8	452	275.4	182.9	80	55	63	222	19	13
Texas.....	11	1,727	260.3	185.1	221	179	305	796	109	117
Virginia.....	14	937	273.1	195.4	121	82	187	427	38	82
Washington.....	21	3,146	260.2	194.7	396	304	509	1,282	246	409
West Virginia.....	20	1,256	264.4	203.7	115	97	205	632	95	112
Wisconsin.....	5	638	260.0	214.6	29	48	73	380	11	97
Total.....	164	19,477	265.6	194.1	2,237	2,000	3,102	9,193	1,298	1,647

TABLE D.—AVERAGE FULL-TIME HOURS, AVERAGE HOURS ACTUALLY WORKED, AND NUMBER OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES, 1915—Continued.

MONTHLY PAY ROLLS—Continued.

MACHINE FEEDERS, PLANING MILL.

Occupation and State.	Number of establishments.	Number of employees.	Average full-time hours of establishments per month. ¹	Average hours worked per employee in one month.	Employees working each classified per cent of full time in one month.					
					Under 25 per cent.	25 and under 50 per cent.	50 and under 75 per cent.	75 and under 100 per cent.	100 per cent.	Over 100 per cent (overtime).
Alabama.....	6	45	285.1	164.7	.....	2	20	23	.....	.....
Arkansas.....	4	45	260.0	229.9	.....	3	2	28	.....	7
California.....	8	35	260.3	213.8	.....	3	4	27	.....	1
Florida.....	6	34	278.4	235.1	.....	2	1	20	.....	8
Georgia.....	10	39	285.1	241.3	.....	2	9	22	.....	5
Idaho.....	2	15	260.0	198.9	.....	1	2	11	.....	.....
Louisiana.....	5	41	260.0	232.5	.....	2	4	18	.....	6
Michigan.....	5	37	260.0	231.9	.....	1	.....	26	.....	7
Mississippi.....	3	21	274.9	256.3	.....	.....	.....	18	.....	2
Montana.....	3	22	251.7	223.4	.....	1	1	12	.....	3
North Carolina.....	4	28	278.6	245.8	.....	.....	4	16	.....	6
Oregon.....	6	64	260.0	199.6	.....	5	24	26	.....	5
South Carolina.....	4	34	277.6	200.5	.....	3	9	14	.....	4
Texas.....	11	114	260.5	215.2	.....	5	24	63	.....	15
Virginia.....	9	27	277.9	216.5	.....	1	6	15	.....	2
Washington.....	21	125	260.0	230.2	.....	5	6	74	.....	24
West Virginia.....	15	41	266.3	223.6	.....	2	7	22	.....	4
Wisconsin.....	4	25	260.0	211.2	.....	2	1	19	.....	.....
Other States.....	7	30	268.3	231.9	.....	1	2	23	.....	2
Total.....	133	822	266.1	220.3	29	38	127	477	50	101

SAWYERS, BAND.

Alabama.....	5	9	282.9	223.6	.....	.....	2	7	.....	.....
Arkansas.....	4	10	255.0	251.3	.....	.....	.....	3	.....	4
California.....	12	26	260.4	251.3	.....	.....	1	14	.....	2
Florida.....	2	6	277.3	208.3	.....	2	1	.....	.....	3
Georgia.....	5	8	281.8	206.6	.....	2	1	2	.....	1
Idaho.....	2	11	260.0	179.2	.....	2	2	3	.....	.....

Louisiana.....	4	13	260.0	215.3		2		11		
Michigan.....	5	10	260.0	235.2				9		1
Minnesota.....	2	11	260.0	239.4			3		7	
Mississippi.....	3	6	260.0	245.0				5		1
Montana.....	3	10	252.2	228.9	1			3	4	2
North Carolina.....	4	7	274.9	249.7			1	3	1	2
Oregon.....	5	8	260.0	194.3	1	1		5		1
Pennsylvania.....	6	7	264.6	237.9			1	5	1	
South Carolina.....	5	11	274.3	231.4	1		1	7		2
Tennessee.....	8	12	273.9	235.1	1	1		7	3	
Texas.....	10	23	257.8	229.0		1	1	14	5	2
Virginia.....	14	25	271.3	229.8		3	4	10	4	4
Washington.....	16	29	260.4	235.5			6	12	7	4
West Virginia.....	20	38	265.6	227.1	2	1	5	19	7	4
Wisconsin.....	5	12	260.0	252.2			1	9		2
Total.....	140	292	264.4	229.5	10	12	29	149	57	36

SAWYERS, CIRCULAR.

All States.....	34	48	270.6	233.1	2	2	6	20	11	7
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SAWYERS, GANG.

All States.....	40	47	269.2	240.1	1		8	18	8	12
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SAWYERS, RESAW.

California.....	6	9	261.1	236.9				7	2	
Michigan.....	4	11	260.0	251.6				8	1	
Oregon.....	6	10	260.0	217.9		1	2	6		1
South Carolina.....	4	9	265.6	224.1	1			7		1
Virginia.....	7	10	273.1	242.3		1	2	8		1
Washington.....	18	28	260.5	238.0		1	2	17	4	4
West Virginia.....	8	11	267.0	242.3			3	5	1	2
Wisconsin.....	5	9	260.0	267.0				3		6
Other States.....	18	20	266.2	237.0			4	11	3	2
Total.....	76	117	263.5	239.2	1	3	11	72	11	19

TABLE D.—AVERAGE FULL-TIME HOURS, AVERAGE HOURS ACTUALLY WORKED, AND NUMBER OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES, 1915—Concluded.

MONTHLY PAY ROLLS—Concluded.

SETTERS.

Occupation and State.	Number of establishments.	Number of employees.	Average full-time hours of establishments per month.	Average hours worked per employee in one month.	Employees working each classified per cent of full time in one month.					
					Under 25 per cent.	25 and under 50 per cent.	50 and under 75 per cent.	75 and under 100 per cent.	100 per cent.	Over 100 per cent (overtime).
Alabama.....	6	11	282.3	220.9			5	5		1
Arkansas.....	4	15	253.3	157.5	4	1	2	8		
California.....	12	32	260.3	228.7		3	2	21	3	3
Florida.....	6	12	279.5	246.5	1		1	9		1
Georgia.....	14	18	284.4	232.9	1		3	13		1
Idaho.....	2	11	260.0	205.4		3		4	3	1
Louisiana.....	5	15	260.0	222.1		1	1	13		
Michigan.....	6	18	260.0	240.9				13	2	3
Minnesota.....	2	15	260.0	214.3		2	3	4	5	1
Mississippi.....	4	8	260.0	238.3				4	3	1
Montana.....	3	9	251.3	240.4				5	4	
North Carolina.....	4	7	274.9	257.1			1	4		2
Oregon.....	6	11	260.0	192.4	1	2	1	5		2
Pennsylvania.....	6	7	264.6	233.5		1		6		
South Carolina.....	5	19	275.2	130.9	8	3	2	5		1
Tennessee.....	8	11	275.2	249.2		1		9		
Texas.....	11	29	257.3	206.8	2	2	4	15	3	3
Virginia.....	14	22	269.8	228.5		2	4	12		4
Washington.....	21	40	261.3	235.9			7	19	6	8
West Virginia.....	20	35	265.6	231.2		1	6	21	5	2
Wisconsin.....	5	12	260.0	249.8				9	1	2
Total.....	164	357	264.8	220.7	17	21	43	204	35	37

LUMBER MANUFACTURING.

TRIMMER OPERATORS.

Alabama.....	6	11	281.1	235.0			4	5		2
Arkansas.....	4	7	256.4	209.2		1	1	4	1	
California.....	12	31	260.6	233.8	1		1	20	5	4
Florida.....	6	9	283.1	240.1		1	1	4	2	1

Georgia.....	13	13	282.8	253.5			2	7	1	3
Idaho.....	2	4	260.0	221.3		1		1	1	2
Louisiana.....	5	8	260.0	244.9						2
Michigan.....	6	18	260.0	244.3				13	3	2
Minnesota.....	2	8	260.0	244.1			1	1		
Mississippi.....	4	6	260.0	225.7				6	6	
Montana.....	3	5	254.8	259.1				2	1	2
North Carolina.....	4	4	273.0	265.3				5		1
Oregon.....	4	4	260.0	207.6		2		5		3
Pennsylvania.....	6	6	265.3	231.1			1	1	5	
South Carolina.....	5	9	271.7	195.5	1		4	4		
Tennessee.....	8	8	274.4	232.5			1	1		
Texas.....	11	18	258.8	234.7		1		11	2	4
Virginia.....	14	19	270.0	226.4	1	2	2	8	2	4
Washington.....	21	30	260.4	233.2	1		5	15	3	6
West Virginia.....	20	27	268.3	245.0		1	5	11	3	7
Wisconsin.....	5	12	260.0	247.1		1		8		3
Total.....	163	268	265.3	234.6	4	10	33	146	30	45

OTHER EMPLOYEES.

Alabama.....	6	325	288.5	233.7	21	18	72	131	25	58
Arkansas.....	4	252	267.5	243.2	10	7	16	111	40	68
California.....	12	526	272.5	251.1	16	22	38	174	116	160
Florida.....	6	356	285.8	244.1	28	21	34	116	58	99
Georgia.....	14	532	296.0	217.0	80	63	61	183	64	81
Idaho.....	2	186	266.6	237.1	8	19	13	54	29	63
Louisiana.....	5	315	269.3	243.8	11	15	21	134	60	74
Michigan.....	6	424	272.6	263.8	3	15	12	133	146	115
Minnesota.....	2	184	264.7	233.1	3	10	20	82	41	28
Mississippi.....	4	243	275.0	260.0	4	9	15	112	29	74
Montana.....	3	157	256.1	233.3	11	5	5	42	58	36
North Carolina.....	4	462	287.5	211.4	74	44	52	171	69	52
Oregon.....	6	346	265.9	228.3	28	24	26	127	54	87
Pennsylvania.....	6	47	274.0	236.3	4	3	4	20	2	14
South Carolina.....	5	628	281.7	215.9	62	72	84	265	55	88
Tennessee.....	8	236	278.3	215.8	25	17	35	100	31	28
Texas.....	11	696	268.4	235.8	44	33	55	251	139	174
Virginia.....	14	575	278.3	224.8	52	46	63	240	94	80
Washington.....	21	1,221	265.7	238.0	98	53	79	365	231	395
West Virginia.....	20	636	271.7	231.4	49	44	59	270	149	115
Wisconsin.....	5	281	269.0	249.0	7	14	7	135	67	51
Total.....	164	8,676	274.5	234.4	638	554	771	3,216	1,557	1,940

PRODUCTIVITY AND COST OF LABOR IN THE LUMBER INDUSTRY.

BY BENJAMIN M. SQUIRES.

INTRODUCTION.

Beyond a general description of selected occupations, previous reports on lumber manufacture issued by the United States Bureau of Labor Statistics attempted to do no more than to give the hours of labor and rates of wages.¹ In this report an attempt has been made to go somewhat further and show what return the workmen give for the wages received; in other words, the productivity of labor is shown in addition to wages and hours.

Wages and hours are, of course, the most conspicuous elements in the labor records of any establishment and have been most often used as an index of the well-being of labor. When compiled over a period of years they show the trend in given industries and not only serve as a guide in the making of wage contracts but tend in no small measure to preserve established wage differentials as between industries and industrial centers.

Considered independently of other factors, however, wages and hours reflect only superficially the well-being of the employee. Of even greater importance to him is the question of what he must do during the hours of labor and what he can buy with the wages received. It is evident that if prices of consumption goods rise and money wages do not keep pace with the increase in prices, the employee will not be able to buy as much as he has been in the habit of buying. Or, if the expenditure of energy is so great that his working years are cut short, his total earnings as a worker will be reduced even though he receives a higher wage rate. In other words, an increase in money wages does not necessarily mean an increase either in real wages (that is, the necessities and comforts purchasable with money wages) or in total earnings during the period of productivity.

It is at this point that wages and hours studies usually fall short. They show what the employee receives per hour and the number of hours of service required, but they take no account of the amount of work done or what the money wages will purchase of the necessities of life. As a consequence it is impossible to determine from such studies whether an employee is able to maintain or to improve upon

¹ A study of production by hand and machine methods was begun in 1894 by the United States Bureau of Labor under authorization of Congress and was published in 1898 as a part of the Thirteenth Annual Report of the Commissioner of Labor. In a section of this report, devoted to the manufacture of lumber and shingles, labor cost was shown for each process of manufacture. Emphasis was placed, however, rather upon the relative total productivity by hand and machine methods than upon a comparison between identical processes in different establishments or the determination of standards of productivity.

his standards of living, or whether more or less is required of him in return for increased wages and shorter hours.

Two additional elements are thus necessary in determining, as between successive periods of time, whether the employee in a given industry is relatively worse or better off—the purchasing power of his money wages and the energy expended in return for those wages.

The purchasing power of money wages is, of course, dependent on the retail prices of commodities. Expressed in terms of the purchasing power of a dollar¹ it enables one to convert money wages into real wages. Considered with the amount and character of the work performed it shows the true significance of increases in the money wage.

Unfortunately there is no way of accurately measuring the human energy expended in a given occupation, and much less the effect upon the worker of such expenditure. The nearest approach to a measure is found in the quantity of work done, expressed in terms of the product. Even this will be of little significance in industries undergoing frequent changes in methods of production. For any industry, however, in which the methods of production have become somewhat standardized, it is possible to determine a rough standard of productivity or output for each process and occupations connected therewith, and thus to show with sufficient accuracy what is expected of the workers in these different occupations.

In arriving at standards of productivity, two records are essential: A record of time and a record of output or of work performed. The time record is conveniently expressed in one-man hours; the output record, in terms of the unit of the industry, as 1,000 board feet of lumber, a pair of shoes, a ton of pig iron. The number of one-man hours necessary to produce a given quantity of output is the time cost; the quantity of output produced in a given time is the productivity of labor. For purposes of comparison it is better to express both time and output in standard unit terms; thus, for the lumber industry, the time cost of 1,000 board feet of lumber is the number of one-man hours necessary to produce it; the productivity of labor is the number of board feet produced each one-man hour. There is no such thing as a standard working day, hence the necessity of expressing working time in hours.

It will be observed that the time cost and productivity of labor are quite distinct from the labor cost which is the total wages paid in the production of a given output. Labor cost may appear as an aggregate of wages over a productive period, as a day, a month, or a year, or it may be expressed in terms of a unit of product, as the total wages paid in the production of 1,000 feet of lumber.

¹ United States Bureau of Labor Statistics, Bulletin No. 197, p. 371; Bulletin No. 228, p. 426.

A comparison of total hours worked and wages paid with total output enables the employer to express his cost in terms of the unit of the industry and to compare total labor with other costs for his own and other establishments in the same industry. This is not of value, however, in determining the relative efficiency of employees or of machines connected with the various processes entering into the finished product. In other words, total labor cost and total productivity show merely the average efficiency of employees or of machines.

If the employer wishes to determine whether the cost of any process is too great or is capable of reduction, the records of time, of wages, and of output must be kept in such a manner that the cost of each process will be shown separately. That is to say, the employer must know what labor costs and what labor produces in each process. This necessitates: First, a classification of processes; second, a distribution of time and of wages in accordance with such a classification; and, third, a record of the work done in each process. Furthermore, if costs are to be compared as between establishments, the classification of processes must be uniform for those establishments. Such a record consistently kept even by a small percentage of the establishments in an industry will go a long way toward building up standards of cost and of productivity for that industry.

Thus far no attempt has been made to link the interests of the employer with those of the employee. It is important to both, however, to determine the standards of labor productivity and labor cost in each process of manufacture. To the employee it is important because it restores his individuality as a producer and shows him what he does or what is expected of him in return for the wages paid for his job. Moreover, it presents the facts necessary for him if he is to get a complete picture of the processes of production in the industry and the relation of his job to other jobs and to the final product. It is important to the employer because it enables him to measure the relative efficiency of the component parts of his establishment, to apportion his costs properly and to meet competition intelligently.

The need for a determination of standards of productivity and of cost has become more keenly felt because of the recent rapid rise in the prices of all commodities and of the demands generally made by labor for higher wages and better working conditions. It is further emphasized at this time by the possible speeding up of production during the war emergency and by the tendency of employers in different industries and in the same industry to bid against one another for labor and pass the increased cost on to the consumer. Moreover, in placing contracts and in embarking on a policy of price regulation in those industries vital to the prosecution of the

war and to the well-being of the nation, the Government has definitely committed itself to the policy of "cost plus reasonable profits," labor cost being predicated upon the maintenance of standards of living and standards of employment already existing.

In the study of productivity and cost of labor in the lumber industry an analysis has been made of wages, hours, and output in the different processes of manufacture for a selected period of operation in 27 establishments representative of the different forest areas of the United States. In 10 of these establishments figures are given for both logging and sawmill operations; in 16 only sawmill operations are shown, and in 1 only logging operations. For each establishment there is shown by occupation, process, and machine, the full-time positions, total one-man hours, total wages, total output in board feet, output in board feet per one-man hour, wage cost per one-man hour, and the cost per 1,000 board feet produced, in one-man hours and in wages.

The work was complicated by a lack of uniformity as between establishments in the classification of processes, by an inadequate distribution of time and of wages, by variations in methods of manufacture, and by incomplete records of output. It should be stated, too, that the unit of output—1,000 board feet—represents a variable quantity of labor on account of differences in the prevailing sizes of trees, in the dimensions of lumber sawed, in the kinds of timber, and in the methods of manufacturing and handling the finished product.

In order, therefore, that a comparison might be made as between establishments it was necessary (1) to adopt rather arbitrarily a classification of processes and to determine what occupations or machines should be included in each process; (2) to select those establishments in which a distribution of time and of wages was made and a record of output kept; and (3) to indicate for each establishment the equipment in machines and the character of the output.¹

It is realized that to attempt to express the amount of work done by a man who is felling trees in the forests, or is sawing these trees into log lengths after they are felled, in terms of board feet in the lumber pile does not give a very clear idea of the amount of work performed by the man in the logging camp. An attempt has, therefore, been made to secure data as to the average yield, in board feet, per tree. While this information could not be ascertained for all establishments, it was secured for a sufficient number to make the matter fairly clear. Estimates were also furnished by the United States Bureau of Forestry, the method by which such estimates were obtained being explained as follows: "The average diameter and

¹ For a description of the classification of processes, the distribution of time and wages, and the output bases used in computing costs in this study, see pages 86-98.

merchantable length were determined by the inspection of volume tables which give the number of trees of each diameter measured in various regions where actual logging operations were being conducted. Since these trees were measured under these circumstances, they tend to appear in the table in about the proportion in which they were used by the loggers. The average diameter and merchantable length having been found, the corresponding contents in board feet were found from the same tables."

In the table which follows, these estimates are shown for the principal kinds of timber in the United States:

TABLE 8.—ESTIMATED AVERAGE TREE SIZES AND MERCHANTABLE LUMBER PER TREE IN THE DIFFERENT FOREST SECTIONS OF THE UNITED STATES.

Estimates of logging companies on timber holdings.			Kind of timber.	Estimate of United States Bureau of Forestry.		
Establishment number.	Average yield per tree in board feet, lumber measure.	Average length in feet of portion of tree used for lumber.		Average yield per tree in board feet, lumber measure.	Average length in feet of portion of tree used for lumber.	Average diameter of tree, in inches. ¹
5	175	38	White spruce.....			
(?)	300	48	Red spruce.....	150	40	14
			Eastern white pine.....	350	64	18
			Norway pine.....	350	64	18
13	474.4	60	Western yellow pine: Rocky Mountains.....	500	66	22
			California.....	3,000	110	36
14	750	80-90	Western white pine.....			
23	550	48	Long-leaf yellow pine.....	400	50	20
			Short-leaf yellow pine.....	370	64	18
3	660	50-70	Eastern hemlock.....	500	50	24
13	1,200-2,000	(?)	Western hemlock.....	650	83	22
18	496	64	Larch.....			
(?)	225	24	White oak.....	560	48	24
(?)	350	50	Poplar, yellow.....	1,000	64	30
(?)	600	65	Cypress.....	750	72	28
13	222	42	Western fir.....			
			Douglas fir:			
			Rocky Mountains.....	500	64	22
18	2,500	(?)	California, Oregon.....	3,000	120	36
(?)	6,962	140	Oregon.....			
			Washington.....			
21	7,000-8,000	80-85	Redwood.....	4,000	144	40
18	2,500	(?)	Western red cedar.....	800	80	30
18	500	(?)	Incense cedar.....	650	64	30

¹ Diameter outside bark 4.5 feet above ground.

² Not specified.

² Company for which cost figures are not shown.

In order to show more concretely the significance of output figures in terms of log lengths and diameters, one of the several tables of log contents in use in different forest areas is reproduced here in full.

TABLE 9.—CLARK'S INTERNATIONAL LOG RULE.¹

[Formula: (D²×.22)—.71D×.904762 for 4-foot sections; taper allowance, ½ inch per 4 feet lineal; Standard scale for saws cutting a ¼-inch kerf.]

Diam- eter of log in inches.	Length of log in feet.												
	8	9	10	11	12	13	14	15	16	17	18	19	20
	Contents of log in board feet.												
4.....			5	5	5	5	5	5	5	5	5	10	10
5.....	5	5	5	5	10	10	10	10	10	15	15	15	15
6.....	10	10	10	10	15	15	15	20	20	20	25	25	25
7.....	10	15	15	15	20	20	25	25	30	30	35	35	40
8.....	15	20	20	25	25	30	35	35	40	40	45	50	50
9.....	20	25	30	30	35	40	45	45	50	55	60	65	70
10.....	30	35	35	40	45	50	55	60	65	70	75	80	85
11.....	35	40	45	50	55	65	70	75	80	85	95	100	105
12.....	45	50	55	65	70	75	85	90	95	105	110	120	125
13.....	55	60	70	75	85	90	100	105	115	125	135	140	150
14.....	65	70	80	90	100	105	115	125	135	145	155	165	175
15.....	75	85	95	105	115	125	135	145	160	170	180	195	205
16.....	85	95	110	120	130	145	155	170	180	195	205	220	235
17.....	95	110	125	135	150	165	180	190	205	220	235	250	265
18.....	110	125	140	155	170	185	200	215	230	250	265	280	300
19.....	125	140	155	175	190	205	225	245	260	290	300	315	335
20.....	135	155	175	195	210	230	250	270	290	310	330	350	370
21.....	155	175	195	215	235	255	280	300	320	345	365	390	410
22.....	170	190	215	235	260	285	305	330	355	380	405	430	455
23.....	185	210	235	260	285	310	335	360	390	415	445	470	495
24.....	205	230	255	285	310	340	370	395	425	455	485	515	545
25.....	220	250	280	310	340	370	400	430	460	495	525	560	590
26.....	240	275	305	335	370	400	435	470	500	535	570	605	640
27.....	260	295	330	365	400	435	470	505	540	580	615	655	690
28.....	280	320	355	395	430	470	510	545	585	625	665	705	745
29.....	305	345	385	425	465	505	545	590	630	670	715	755	800
30.....	325	370	410	455	495	540	585	630	675	720	765	810	860
31.....	350	395	440	485	530	580	625	675	720	770	820	870	915
32.....	375	420	470	520	570	620	670	720	770	825	875	925	980
33.....	400	450	500	555	605	660	715	765	820	875	930	985	1,045
34.....	425	480	535	590	645	700	760	815	875	930	990	1,050	1,110
35.....	450	510	565	625	685	745	805	865	925	990	1,050	1,115	1,175
38.....	475	540	600	665	725	790	855	920	990	1,045	1,115	1,180	1,245
37.....	505	570	635	700	770	835	905	970	1,040	1,110	1,175	1,245	1,315
38.....	535	605	670	740	810	885	955	1,025	1,095	1,170	1,245	1,315	1,390
39.....	565	635	710	785	855	930	1,005	1,080	1,155	1,235	1,310	1,390	1,465
40.....	595	670	750	825	900	980	1,060	1,140	1,220	1,300	1,380	1,460	1,540
41.....	625	705	785	870	950	1,030	1,115	1,200	1,280	1,365	1,450	1,535	1,620
42.....	655	740	825	910	995	1,085	1,170	1,260	1,345	1,435	1,525	1,615	1,705
43.....	690	780	870	965	1,045	1,140	1,230	1,320	1,410	1,505	1,600	1,695	1,785
44.....	725	815	910	1,005	1,095	1,195	1,290	1,385	1,480	1,580	1,675	1,775	1,870
45.....	755	855	955	1,050	1,150	1,250	1,350	1,450	1,550	1,650	1,755	1,855	1,960
46.....	795	895	995	1,100	1,200	1,305	1,410	1,515	1,620	1,730	1,835	1,940	2,050
47.....	830	935	1,040	1,150	1,255	1,365	1,475	1,585	1,695	1,805	1,915	2,030	2,140
48.....	865	975	1,090	1,200	1,310	1,425	1,540	1,655	1,770	1,885	2,000	2,115	2,235
49.....	905	1,020	1,135	1,250	1,370	1,485	1,605	1,725	1,845	1,965	2,085	2,205	2,330
50.....	940	1,060	1,185	1,305	1,425	1,550	1,675	1,795	1,920	2,045	2,175	2,300	2,425
51.....	980	1,105	1,235	1,360	1,485	1,615	1,745	1,870	2,000	2,130	2,265	2,395	2,525
52.....	1,020	1,150	1,285	1,415	1,545	1,685	1,815	1,945	2,080	2,215	2,355	2,490	2,625
53.....	1,060	1,195	1,335	1,470	1,605	1,745	1,885	2,025	2,165	2,305	2,445	2,590	2,730
54.....	1,100	1,245	1,385	1,530	1,670	1,815	1,960	2,100	2,245	2,395	2,540	2,690	2,835
55.....	1,145	1,290	1,440	1,585	1,735	1,885	2,035	2,185	2,330	2,485	2,640	2,790	2,945
56.....	1,190	1,340	1,495	1,645	1,800	1,955	2,110	2,265	2,420	2,575	2,735	2,895	3,050
57.....	1,230	1,390	1,550	1,705	1,865	2,025	2,185	2,345	2,510	2,670	2,835	3,000	3,165
58.....	1,275	1,440	1,605	1,770	1,930	2,100	2,265	2,430	2,600	2,770	2,935	3,105	3,275
59.....	1,320	1,490	1,660	1,830	2,000	2,170	2,345	2,515	2,690	2,865	3,040	3,215	3,390
60.....	1,370	1,545	1,720	1,895	2,070	2,250	2,425	2,605	2,785	2,965	3,145	3,325	3,510

¹ By permission of Mr. Judson F. Clark.

As an example of the scope of the study, the productivity and cost figures for one establishment, selected from the detailed table appearing later,¹ are presented here in full. The logging operations of this establishment are shown in the following table:

TABLE 10.—PRODUCTIVITY AND COST OF LABOR IN LOGGING OPERATIONS: ESTABLISHMENT NO. 21.

[Number of logs hauled, 6,257; log scale, 7,886,129 board feet (no other output record); kinds of timber: redwood, 70 per cent; white pine, 28 per cent; fir, 2 per cent.]

Occupation.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Foremen, scalers, general:								
Woods foremen	2	540	\$317.20	5,938,255	10,997	\$0.5874	0.0909	\$0.0534
Scalers	5	1,170	332.80	5,938,255	5,075	.2844	.1970	.0560
Total	7	1,710	650.00	5,938,255	3,472	.3801	.2880	.1095
Felling and log making:								
Choppers and fellers	55	13,775	4,029.90	5,938,255	431	.2926	2.3197	.6786
Peelers ^a	33	8,295	1,946.20	5,938,255	716	.2346	1.3969	.3277
Sawyers (buckers)	20	5,060	1,366.15	5,938,255	1,174	.2700	.8521	.2301
Filers	2	560	220.00	5,938,255	10,797	.4000	.0926	.0370
Total	110	27,680	7,562.25	5,938,255	215	.2732	4.6613	1.2734
Skidding, yarding, and loading:								
Engineers	7	1,947 ¹ / ₂	730.30	5,938,255	3,049	.3750	.3280	.1230
Firemen	6	1,370	342.45	5,938,255	4,334	.2500	.2307	.0577
Wood buckers	10	2,472 ¹ / ₂	559.15	5,938,255	2,402	.2261	.4164	.0642
Chunk sawyers	3	675	168.70	5,938,255	8,797	.2499	.1137	.0284
Pump men	3	812 ¹ / ₂	183.25	5,938,255	7,309	.2255	.1368	.0309
Powder men	2	552 ¹ / ₂	165.75	5,938,255	10,748	.3000	.0930	.0279
Mucker	1	165	33.00	5,938,255	35,989	.2000	.0278	.0056
Splicers	2	515	154.50	5,938,255	11,531	.3000	.0867	.0260
Spool tenders	4	1,102 ¹ / ₂	361.45	5,938,255	5,386	.3278	.1857	.0609
Signalmen	4	1,185	238.75	5,938,255	5,011	.2015	.1996	.0402
Chasers	2	412 ¹ / ₂	123.75	5,938,255	14,396	.3000	.0695	.0208
Riggers	22	5,447 ¹ / ₂	1,710.60	5,938,255	1,090	.3140	.9174	.2881
Hook tenders	8	2,050	897.25	5,938,255	2,897	.4377	.3452	.1511
Hook tenders, landing	12	2,717 ¹ / ₂	863.50	5,938,255	2,185	.3178	.4576	.1454
Night watchmen	3	940	221.45	5,938,255	6,317	.2249	.1583	.0356
Machinists	2	590	221.60	5,938,255	10,065	.3756	.0994	.0373
Total	91	22,955	6,965.45	5,938,255	259	.3042	3.8656	1.1730
Transportation and unloading:								
Engineers	3	846	380.70	5,938,255	7,019	.4500	.1425	.0641
Firemen	3	856	231.10	5,938,255	6,937	.2700	.1442	.0389
Conductors	3	892	356.80	5,938,255	6,657	.4000	.1502	.0601
Brakemen	7	1,898	569.40	5,938,255	3,129	.3000	.3196	.0950
Hostler	1	310	85.00	5,938,255	19,156	.2742	.0522	.0143
Wiper	1	310	50.00	5,938,255	19,156	.1613	.0522	.0084
Lineman	1	270	94.50	5,938,255	21,994	.3500	.0455	.0150
Total	19	5,382	1,767.50	5,938,255	1,103	.3284	.9063	.2976
Maintenance of transportation....	28	7,385	1,533.10	5,938,255	804	.2076	1.2436	.2582

^a Only the redwood timber is peeled, but the cost is here spread over all the timber cut.

In the logging operations of this establishment redwood, white pine, and fir were being cut. Under "Felling and log making" in the table above it is seen that there were 55² choppers and fellers, whose job it is to notch the trees and saw them down.³ During the

¹ Pages 99-146.

² The number of different employees working at a given occupation is seldom the same as the number of full-time positions. To count an employee once in each occupation at which he worked would show a total of employees in excess of the number actually employed in the establishment. If, on the other hand, each employee was counted only in the occupation at which he worked the greater part of his time, other occupations might not be fairly represented in number of employees and some might conceivably be filled by employees none of whom worked a sufficient time to be counted as employees. For these reasons it has seemed best to show the number of full-time positions to be filled irrespective of the number of employees working in those positions.

³ For a complete description of processes and occupations in logging and sawmill operations, see pages 147-192.

period under investigation choppers and fellers worked a total of 13,775 hours; the average hourly wage was 29¼ cents; the trees cut during the period yielded 5,938,255 board feet when manufactured into lumber. This amounted to 431 board feet per one-man hour in the occupation of chopping and felling. In other words, each chopper and feller in each hour he worked did his part on what would be 431 board feet of lumber in the pile when all the other operations had been performed by other men. Expressing the productivity of the chopper and feller in terms of 1,000 board feet, it is found that the time cost of felling the trees is practically 2¼ hours one-man time per 1,000 board feet of sawed lumber. In other words, each member of the crew required on the average two and one-third hours to fell trees enough to make eventually 1,000 board feet of sawed lumber. The labor cost in wages of felling trees is seen to be \$0.6786 per 1,000 board feet of lumber.

In a similar manner the productivity and cost of labor are shown for each process and occupation necessary in converting the tree into logs and delivering them at the log pond or yard of the sawmill.

The productivity and cost of labor in succeeding processes by which the logs are converted into lumber and the lumber is piled in the yard are shown for the same establishment in the following table:

TABLE 11.—PRODUCTIVITY AND COST OF LABOR IN SAWMILL OPERATION: ESTABLISHMENT NO. 21.

[*Equipment.*—Two single-cut bandsaws; 1 double-cut band saw; 1 sash gang saw; 3 edgers; 3 trimmers. *Material.*—Number of logs, 4,623; log scale, 7,927,000 board feet; log average, 1,713.9 board feet; kinds of timber: redwood 64.1 per cent; white pine, fir, and spruce, 35.9 per cent. *Product.*—Lumber tally, 5,975,000 board feet; prevailing sizes, four and eight quarter in stock widths.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Sawmill: Foreman.....	1	270	\$185.00	5,975,000	22,130	\$0.6852	6.0452	\$0.0310
Log pond or yard.....	9	2,464	652.90	5,975,000	2,425	.2650	.4124	.1093
Sawmill deck:								
Scalers.....	2	351	147.20	5,975,000	17,023	.4194	.0587	.0246
Splitter.....	1	296	88.80	5,975,000	20,186	.3000	.0495	.0149
Drag-saw men.....	2	536	131.35	5,975,000	11,147	.2451	.0897	.0220
Total.....	5	1,183	367.35	5,975,000	5,051	.3105	.1980	.0615
Band saw No. 1:								
Sawyer.....	1	266	125.00	1,877,055	7,057	.4699	.1417	.0666
Setter.....	1	266	73.15	1,877,055	7,057	.2750	.1417	.0390
Dogger.....	1	266	73.15	1,877,055	7,057	.2750	.1417	.0354
Tail sawyer.....	1	266	66.50	1,877,055	7,057	.2500	.1417	.0354
Total.....	4	1,064	337.80	1,877,055	1,764	.3175	.5668	.1800
Band saw No. 2:								
Sawyer.....	1	266	118.40	1,716,147	6,652	.4451	.1550	.0690
Setter.....	1	266	73.15	1,716,147	6,652	.2750	.1550	.0426
Dogger.....	1	266	59.85	1,716,147	6,652	.2250	.1550	.0349
Tail sawyer.....	1	266	66.50	1,716,147	6,652	.2500	.1550	.0387
Total.....	4	1,064	317.90	1,716,147	1,613	.2988	.6200	.1852

TABLE 11.—PRODUCTIVITY AND COST OF LABOR IN SAWMILL OPERATION: ESTABLISHMENT NO. 21—Continued.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Band saw No. 3 (double-cut):								
Sawyer.....	1	270	\$162.00	2,381,798	8,821	\$0.6000	0.1134	\$0.0680
Setter.....	1	270	74.25	2,381,798	8,821	.2750	.1134	.0312
Dogger.....	1	270	60.75	2,381,798	8,821	.2250	.1134	.0255
Tail sawyer.....	1	270	67.50	2,381,798	8,821	.2500	.1134	.0283
Total.....	4	1,080	364.50	2,381,798	2,205	.3375	.4534	.1530
Total band saws:								
Sawyers.....	3	802	405.40	5,975,000	7,450	.5055	.1342	.0678
Setters.....	3	802	220.55	5,975,000	7,450	.2750	.1342	.0369
Doggers.....	3	802	193.75	5,975,000	7,450	.2416	.1342	.0324
Tail sawyers.....	3	802	200.50	5,975,000	7,450	.2500	.1342	.0336
Total.....	12	3,208	1,020.20	5,975,000	1,863	.3180	.5369	.1707
Gang saw:								
Sawyer.....	1	270	81.00	5,975,000	22,130	.3000	.0452	.0136
Sawyer's helpers.....	4	1,080	222.75	5,975,000	5,532	.2063	.1808	.0373
Total.....	5	1,350	303.75	5,975,000	4,426	.2250	.2259	.0503
Total sawing (band, gang, resaw):								
	17	4,558	1,323.95	5,975,000	1,311	.2905	.7628	.2216
Edger No. 1:								
Edgerman.....	1	266	86.45	1,877,055	7,057	.3250	.1417	.0481
Edgerman's helpers.....	2	532	113.05	1,877,055	3,528	.2125	.2834	.0602
Total.....	3	798	199.50	1,877,055	2,352	.2500	.4251	.1083
Edger No. 2:								
Edgerman.....	1	266	86.45	1,716,147	6,452	.3250	.1550	.0504
Edgerman's helpers.....	2	532	113.05	1,716,147	3,226	.2125	.3100	.0669
Total.....	3	798	199.50	1,716,147	2,151	.2500	.4650	.1192
Edger No. 3:								
Edgerman.....	1	270	87.75	2,381,798	8,821	.3250	.1134	.0368
Edgerman's helpers.....	2	540	114.75	2,381,798	4,411	.2125	.2297	.0482
Total.....	3	810	202.50	2,381,798	2,940	.2500	.3401	.0850
Total edging:								
Edgerman.....	3	802	260.65	5,975,000	7,450	.3250	.1342	.0436
Edgerman's helpers.....	6	1,604	340.85	5,975,000	3,725	.2125	.2685	.0570
Total.....	9	2,406	601.50	5,975,000	2,483	.2500	.4027	.1007
Trimmer No. 1:								
Operator.....	1	266	73.15	1,877,055	7,057	.2750	.1417	.0390
Operator's helper.....	1	266	62.51	1,877,055	7,057	.2350	.1417	.0333
Total.....	2	532	135.66	1,877,055	3,528	.2550	.2834	.0723
Trimmer No. 2:								
Operator.....	1	266	66.50	1,716,147	6,452	.2500	.1550	.0337
Operator's helper.....	1	266	53.20	1,716,147	6,452	.2000	.1550	.0310
Total.....	2	532	119.70	1,716,147	3,226	.2250	.3100	.0697
Trimmer No. 3:								
Operator.....	1	270	74.25	2,381,798	8,821	.2750	.1134	.0312
Operator's helper.....	1	270	54.00	2,381,798	8,821	.2000	.1134	.0227
Total.....	2	540	128.25	2,381,798	4,411	.2375	.2267	.0538
Total trimming:								
Operators.....	3	802	213.90	5,975,000	7,450	.2667	.1342	.0353
Operator's helpers.....	3	802	169.71	5,975,000	7,450	.2116	.1342	.0284
Total.....	6	1,604	383.61	5,975,000	3,725	.2392	.2685	.0642

TABLE 11.—PRODUCTIVITY AND COST OF LABOR IN SAWMILL OPERATION: ESTABLISHMENT NO. 21—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Refuse—slasher, hog, burner.....	2	540	\$114.75	5,975,000	11,065	\$0.2125	0.0904	\$0.0192
Filers.....	4	1,080	621.00	5,975,000	5,532	.5750	.1808	.1039
Power and oiling.....	22	5,965	1,757.35	5,975,000	1,002	.2946	.9983	.2941
Repair.....	5	1,382	505.60	5,975,000	4,323	.3658	.2313	.0846
Night watch and fire protection.....	5	1,280	288.00	5,975,000	4,668	.2250	.2142	.0432
Clean-up and miscellaneous.....	10	2,767	498.44	5,975,000	2,159	.1801	.4631	.0834
Sorting green lumber:								
Foreman.....	1	270	100.00	5,975,000	22,130	.3704	.0452	.0167
Tallyman.....	1	270	87.75	5,975,000	22,130	.3250	.0452	.0147
Graders.....	4	1,060	304.50	5,975,000	5,637	.2873	.1774	.0510
Sorters and loaders.....	41	11,017	2,488.55	5,975,000	542	.2259	1.8438	.4165
Total.....	47	12,617	2,890.80	5,975,000	474	.2291	2.1116	.4838
Yard—green lumber:								
Foreman.....	1	270	115.00	5,975,000	22,130	.4259	.0452	.0192
Transferring.....	5	1,345	298.30	5,975,000	4,442	.2218	.2251	.0499
Piling.....	46	12,378	2,485.97	5,975,000	483	.2008	2.0716	.4161

In the summary table which follows there is shown the productivity and cost of labor for processes in manufacture from tree to lumber pile for six establishments selected from different forest areas. Occupation detail, total hours, total wages, and total output are omitted. For each process there is shown the output in board feet and the wage cost per one-man hour, and the cost in time and in wages per 1,000 board feet produced.

It will be observed that in Establishment 21, and for the period selected, 19,6860 hours of one man's time would be required to produce 1,000 board feet of lumber if he performed all the processes from the standing tree to lumber in the pile. The output in board feet per one-man hour from tree to lumber pile was 58 board feet. The average wages paid per one-man hour to all occupations throughout the processes was \$0.2693. The cost in wages of all labor necessary to produce 1,000 board feet of lumber was \$5.3024.

TABLE 12.—SUMMARY OF PRODUCTIVITY AND COST OF LABOR FOR TREE-TO LUMBER-PILE OPERATIONS IN SIX ESTABLISHMENTS.

Establishment No. 21. Redwood, white pine, and fir.

Occupation, process, or machine.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
			One-man hours.	Wages.
Logging:				
Foremen, scalers, general.....	3,472	\$0.3801	0.2820	\$0.1095
Felling and log making.....	215	.2732	4.6613	1.2734
Skidding, yarding, and loading.....	259	.3042	3.9656	1.1730
Transportation and unloading.....	1,163	.3284	.9063	.2975
Maintenance of transportation.....	804	.2076	1.2436	.2582
Total logging.....	91	.2838	10.9648	3.1117

TABLE 12.—SUMMARY OF PRODUCTIVITY AND COST OF LABOR FOR TREE-TO-LUMBER-PILE OPERATIONS IN SIX ESTABLISHMENTS—Continued.

Establishment No. 21. Redwood, white pine, and fir—Concluded.

Occupation, process, or machine.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
			One-man hours.	Wages.
Log pond or yard.....	2,425	\$0.2650	0.4124	\$0.1093
Sawmill:				
Foremen.....	22,130	.6852	.0452	.0310
Deck.....	5,051	.3105	.1980	.0615
Sawing—head, gang, and resaw.....	1,311	.2905	.7628	.2216
Edging.....	2,483	.2500	.4027	.1007
Trimming.....	3,725	.2392	.2685	.0642
Refuse—slasher, hog, burner.....	11,066	.2125	.0904	.0192
Filing.....	5,532	.5750	.1808	.1039
Power and oiling.....	1,002	.2946	.9983	.2941
Repair.....	4,323	.3658	.2313	.0846
Night watch and fire protection.....	4,668	.2250	.2142	.0482
Clean-up and miscellaneous.....	2,159	.1801	.4631	.0834
Total sawmill.....	259	.2855	3.8553	1.1124
Sorting.....	474	.2291	2.1116	.4838
Yard—green lumber:				
Foremen.....	22,130	.4259	.0452	.0192
Transferring.....	4,442	.2218	.2251	.0499
Piling.....	483	.2008	2.0716	.4161
Total yard.....	427	.2072	2.3419	.4852
Total, tree to lumber pile.....	58	.2693	19.6860	5.3024

Establishment No. 2. White oak, poplar, and miscellaneous hard woods.

Logging:				
Foremen, scalers, general.....	1,750	\$0.2708	0.5715	\$0.1548
Felling and log making.....	102	.1598	9.8043	1.5667
Skidding, yarding, and loading.....	116	.1744	8.6305	1.5054
Transportation and unloading.....	327	.2372	3.0621	.7262
Maintenance of transportation.....	315	.1649	3.1785	.5242
Total logging.....	40	.1795	25.2469	4.4773
Log pond or yard.....	1,804	.1874	.5543	.1039
Sawmill:				
Foremen.....	8,918	.6094	.1121	.0683
Deck.....	4,459	.2427	.2243	.0544
Sawing—head, gang, and resaw.....	689	.2779	1.4507	.4032
Edging.....	2,234	.1750	.4477	.0783
Trimming.....	2,973	.2000	.3364	.0673
Refuse—slasher, hog, burner.....	4,367	.1653	.2290	.0379
Filing.....	3,252	.4667	.3075	.1435
Power and oiling.....	1,417	.2383	.7056	.1681
Repair.....	901	.2379	1.1094	.2639
Night watch and fire protection.....	6,776	.1750	.1476	.0258
Clean-up and miscellaneous.....	1,276	.1591	.7837	.1247
Total sawmill.....	171	.2444	5.8540	1.4354
Sorting.....	960	.1926	1.0415	.2006
Yard—green lumber:				
Foremen.....	8,870	.4000	.1127	.0451
Transferring.....	1,809	.1740	.5528	.0962
Piling.....	576	.1949	1.7374	.3386
Total yard.....	416	.2007	2.4029	.4799
Total, tree to lumber pile.....	29	.2266	35.0996	6.6971

TABLE 12.—SUMMARY OF PRODUCTIVITY AND COST OF LABOR FOR TREE-TO-LUMBER-PILE OPERATIONS IN SIX ESTABLISHMENTS—Continued.

Establishment No. 13. Western yellow pine and larch.

Occupation, process, or machine.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
			One-man hours.	Wages.
Logging:				
Foremen, scalers, general.....	2,168	\$0.4512	0.4613	\$0.2082
Felling and log making.....	394	.3089	2.5381	.7839
Skidding, yarding, and loading.....	118	.3062	8.4705	2.5941
Transportation and unloading.....	1,257	.4293	.7958	.3417
Maintenance of transportation.....	2,505	.6550	.3992	.2615
Total logging.....	79	.3308	12.6649	4.1894
Log pond or yard.....	9,365	.2929	.1068	.0313
Sawmill:				
Foremen.....	19,263	.7099	.0519	.0369
Deck.....	6,421	.3148	.1557	.0490
Sawing—head, gang, and resaw.....	1,494	.4508	.6694	.3018
Edging.....	2,158	.3173	.4634	.1470
Trimming.....	1,482	.2646	.6749	.1786
Refuse—slasher, hog, burner.....	19,263	.3055	.0519	.0159
Filing.....	7,173	.8338	.1394	.1163
Power and oiling.....	2,560	.3840	.3907	.1500
Repair.....	2,390	.3997	.4184	.1672
Night watch and fire protection.....	4,352	.3441	.2298	.0791
Clean-up and miscellaneous.....	9,631	.3032	.1038	.0315
Total sawmill.....	299	.3790	3.3493	1.2733
Sorting.....	647	.2781	1.5466	.4300
Yard—green lumber:				
Foremen.....	37,986	.6000	.0263	.0158
Transferring.....	2,385	.3352	.4192	.1405
Piling.....	581	.3107	1.7202	.5304
Total yard.....	462	.3290	2.1657	.6867
Total, tree to lumber pile.....	50	.3363	19.8333	6.6107

Establishment No. 17. Douglas fir.

Logging:				
Foremen, scalers, general.....	1,122	\$0.3599	0.8910	\$0.3207
Felling and log making.....	283	.2967	3.5288	1.0469
Skidding, yarding, and loading.....	222	.3242	4.5073	1.4614
Transportation and unloading.....	782	.4413	1.2783	.5641
Maintenance of transportation.....	212	.1989	4.7274	.9403
Total logging.....	67	.2902	14.9328	4.3334
Log pond or yard.....	3,045	.2853	.3284	.0937
Sawmill:				
Foremen.....	12,459	.5032	.0803	.0404
Deck.....	18,938	.2354	.0528	.0124
Sawing—head, gang, and resaw.....	1,060	.2649	.9431	.2498
Edging.....	3,948	.2588	.2533	.0658
Trimming.....	3,510	.2489	.2849	.0709
Refuse—slasher, hog, and burner.....	5,205	.2069	.1921	.0397
Filing.....	6,009	.4711	.1669	.0784
Power and oiling.....	1,304	.2919	.7665	.2237
Repair.....	3,773	.2881	.2650	.0764
Night watch and fire protection.....	3,410	.2390	.2933	.0701
Clean-up and miscellaneous.....	2,876	.2170	.3477	.0754
Total sawmill.....	274	.2752	3.6459	1.0030
Sorting.....	535	.2221	1.8706	.4155
Yard—green lumber:				
Foremen.....	37,327	.5000	.0268	.0134
Transferring.....	1,883	.2212	.5311	.1175
Piling.....	407	.2314	2.4586	.5863
Total yard.....	332	.2329	3.0165	.7172
Total, tree to lumber pile.....	42	.2669	23.7942	6.5628

TABLE 12.—SUMMARY OF PRODUCTIVITY AND COST OF LABOR FOR TREE-TO-LUMBER-PILE OPERATIONS IN SIX ESTABLISHMENTS—Concluded.

Establishment No. 22. Cypress and gum.

Occupation, process, or machine.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
			One-man hours.	Wages.
Logging:				
Foremen, scalers, general.....	1,752	\$9.2989	0.5708	\$0.1706
Felling and log making.....	264	.2422	3.7932	.9187
Skidding, yarding, and loading.....	148	.2023	6.7596	1.3375
Transportation and unloading.....	566	.2116	1.7677	.3749
Maintenance of transportation.....	216	.1777	4.6309	.8231
Total logging.....	57	.2085	17.5223	3.6539
Log pond or yard.....	1,881	.1995	.5316	.1061
Sawmill:				
Foremen.....	6,521	.6400	.1533	.0981
Deck.....	2,717	.2167	.3651	.0797
Sawing—head, gang, and resaw.....	815	.3250	1.2218	.3987
Edging.....	815	.1310	1.2213	.1608
Trimming.....	2,717	.2087	.3681	.0753
Refuse—slasher, hog, and burner.....	1,996	.1622	.5010	.0813
Filing.....	4,076	.5000	.2454	.1227
Repair.....	2,115	.2200	.4728	.1040
Power and oiling.....	1,102	.2687	.9073	.2438
Night watch and fire protection.....	1,778	.1689	.5623	.0950
Clean-up and miscellaneous.....	1,412	.2004	.7080	.1419
Total sawmill.....	148	.2378	6.7399	1.6023
Sorting.....	773	.1711	1.2933	.2213
Yard—green lumber:				
Foremen.....	6,521	.3850	.1534	.0590
Transferring.....	864	.1601	1.1579	.1853
Piling.....	714	.3750	1.4004	.5252
Total yard.....	369	.2838	2.7117	.7695
Total, tree to lumber pile.....	35	.2183	22.7933	6.3536

Establishment No. 26. Short-leaf yellow pine.

Logging:				
Foremen, scalers, general.....	1,025	\$9.2049	0.9754	\$0.1993
Felling and log making.....	493	.2256	2.4622	.5555
Skidding, yarding, and loading.....	151	.2283	.6624	1.5124
Transportation and unloading.....	239	.2483	4.1869	1.0333
Maintenance of transportation.....	207	.1631	4.8194	.7832
Total logging.....	52	.2295	13.1033	4.0937
Log pond or yard.....	3,291	.2050	.3038	.0523
Sawmill:				
Foremen.....	16,457	.5830	.0608	.0351
Deck.....	8,228	.2625	.1215	.0319
Sawing—head, gang, and resaw.....	823	.2635	1.2153	.3203
Edging.....	2,743	.2167	.3646	.0790
Trimming.....	4,114	.1763	.2431	.0428
Refuse—slasher, hog, burner.....	6,583	.1550	.1519	.0237
Filing.....	5,485	.6667	.1823	.1215
Power and oiling.....	1,371	.3273	.7292	.2387
Repair.....	3,827	.2768	.2613	.0723
Night watch and fire protection.....	3,501	.1489	.2856	.0425
Clean-up and miscellaneous.....	2,006	.1594	.4933	.0794
Total sawmill.....	242	.2644	4.1139	1.0875
Sorting.....	694	.1729	1.4402	.2491
Yard—green lumber:				
Foremen.....	16,457	.2750	.0608	.0167
Transferring.....	1,349	.1757	.7413	.1302
Piling.....	713	.1841	1.4035	.2588
Total yard.....	467	.1839	2.2056	.4057
Total, tree to lumber pile.....	47	.2232	21.1693	5.8933

The two following tables summarize the productivity and cost of labor by processes for each of the 27 establishments covered by the investigation. Table 13 shows logging operations; Table 14, sawmill operations.¹

TABLE 13.—SUMMARY OF PRODUCTIVITY AND COST OF LABOR IN 11 LOGGING ESTABLISHMENTS, BY PROCESSES.

Establishment No.	Productivity and cost.	Foreman, scaler, general.	Felling and log making.	Skidding, yarding, and loading.	Transportation and unloading.	Maintenance of transportation.
2	Output per one-man hour..... board feet.....	1,750	102	116	327	315
	Cost per one-man hour..... wages.....	\$0.2708	\$0.1598	\$0.1744	\$0.2372	\$0.1049
	Cost per 1,000 board feet } (One-man hours.....	.5715	9.8043	8.6305	3.0621	3.1785
	produced..... } Wages.....	\$0.1543	\$1.5667	\$1.5054	\$0.7262	\$0.5242
13	Output per one-man hour..... board feet.....	2,168	394	118	1,257	2,505
	Cost per one-man hour..... wages.....	\$0.4512	\$0.3089	\$0.3062	\$0.4293	\$0.6550
	Cost per 1,000 board feet } (One-man hours.....	.4613	2.5381	8.4705	.7958	.3992
	produced..... } Wages.....	\$0.2082	\$0.7839	\$2.5941	\$0.3417	\$0.2615
17	Output per one-man hour..... board feet.....	1,122	283	222	732	212
	Cost per one-man hour..... wages.....	\$0.3599	\$0.2967	\$0.3242	\$0.4413	\$0.1989
	Cost per 1,000 board feet } (One-man hours.....	.8910	3.5288	4.5073	1.2793	4.7274
	produced..... } Wages.....	\$0.3207	\$1.0469	\$1.4614	\$0.5641	\$0.9403
18	Output per one-man hour..... board feet.....	7,265	862	243	820	724
	Cost per one-man hour..... wages.....	\$0.4524	\$0.3451	\$0.3124	\$0.3415	\$0.2704
	Cost per 1,000 board feet } (One-man hours.....	.1376	1.1598	4.1064	1.2199	1.3821
	produced..... } Wages.....	\$0.0623	\$0.4003	\$1.2838	\$0.4166	\$0.3737
19	Output per one-man hour..... board feet.....	5,006	599	288	3,360	3,713
	Cost per one-man hour..... wages.....	\$0.4121	\$0.2844	\$0.2879	\$0.3654	\$0.2958
	Cost per 1,000 board feet } (One-man hours.....	.1998	1.6692	3.4751	.2977	.2693
	produced..... } Wages.....	\$0.0623	\$0.4747	\$1.0005	\$0.1088	\$0.0796
20	Output per one-man hour..... board feet.....	2,971	108	113	1,465	1,671
	Cost per one-man hour..... wages.....	\$0.4061	\$0.2706	\$0.2912	\$0.2873	\$0.2453
	Cost per 1,000 board feet } (One-man hours.....	.3366	6.4843	8.8731	.6826	.5984
	produced..... } Wages.....	\$0.1337	\$1.7543	\$2.5842	\$0.1961	\$0.1468
21	Output per one-man hour..... board feet.....	3,472	215	259	1,103	804
	Cost per one-man hour..... wages.....	\$0.3301	\$0.2732	\$0.3042	\$0.3294	\$0.2076
	Cost per 1,000 board feet } (One-man hours.....	.2880	4.6613	3.8556	.9063	1.2436
	produced..... } Wages.....	\$0.1096	\$1.2734	\$1.1730	\$0.2976	\$0.2582
22	Output per one-man hour..... board feet.....	1,752	264	148	566	216
	Cost per one-man hour..... wages.....	\$0.2689	\$0.2422	\$0.2023	\$0.2116	\$0.1777
	Cost per 1,000 board feet } (One-man hours.....	.5708	3.7932	6.7596	1.7677	4.6310
	produced..... } Wages.....	\$0.1706	\$0.9187	\$1.3675	\$0.3740	\$0.8231
24	Output per one-man hour..... board feet.....	6,987	446	276	1,131	1,379
	Cost per one-man hour..... wages.....	\$0.5255	\$0.1763	\$0.1848	\$0.1654	\$0.2183
	Cost per 1,000 board feet } (One-man hours.....	.1431	2.2442	3.7722	.8841	.7252
	produced..... } Wages.....	\$0.0752	\$0.3957	\$0.6879	\$0.1462	\$0.1583
26	Output per one-man hour..... board feet.....	1,025	406	151	239	207
	Cost per one-man hour..... wages.....	\$0.2049	\$0.2256	\$0.2283	\$0.2483	\$0.1631
	Cost per 1,000 board feet } (One-man hours.....	.9754	2.4622	6.6224	4.1869	4.8194
	produced..... } Wages.....	\$0.1998	\$0.5555	\$1.5124	\$1.0398	\$0.7862
27	Output per one-man hour..... board feet.....	15,925	1,231	241	1,542	10,131
	Cost per one-man hour..... wages.....	\$0.3269	\$0.3128	\$0.3062	\$0.3084	\$0.2128
	Cost per 1,000 board feet } (One-man hours.....	.0628	.8122	4.1542	.6487	.9871
	produced..... } Wages.....	\$0.0519	\$0.2540	\$1.2804	\$0.2000	\$0.2100

¹ Occupation and other detail for these establishments is shown in Table 16, pages 90-146.

TABLE 14.—SUMMARY OF PRODUCTIVITY AND COST OF

Estab- lish- ment No.	Productivity and cost.	Saw- mill fore- man.	Log pond or yard.	Saw- mill deck.	Sawing: head, gang, resaw.	Edging.	Trim- ming.
1	Output per one-man hour.....board feet..	10,941	2,761	6,119	1,035	2,492	6,119
	Cost per one-man hour.....wages..	\$0.8000	\$0.1697	\$0.2125	\$0.3569	\$0.2602	\$0.3090
	Cost per 1,000 board feet.....(One-man hours..	.0914	.3621	.1634	.9659	.4012	.1634
	produced.....} Wages.....	\$0.0731	\$0.0615	\$0.0347	\$0.3447	\$0.1044	\$0.0490
2	Output per one-man hour.....board feet..	8,918	1,804	4,459	689	2,234	2,973
	Cost per one-man hour.....wages..	\$0.6094	\$0.1874	\$0.2427	\$0.2779	\$0.1750	\$0.2000
	Cost per 1,000 board feet.....(One-man hours..	.1121	.5543	.2243	1.4507	.4477	.3364
	produced.....} Wages.....	\$0.0683	\$0.1039	\$0.0544	\$0.4032	\$0.0783	\$0.0673
3	Output per one-man hour.....board feet..	11,739	2,890	11,739	1,098	2,935	2,935
	Cost per one-man hour.....wages..	\$0.4231	\$0.2335	\$0.2692	\$0.3064	\$0.2550	\$0.2671
	Cost per 1,000 board feet.....(One-man hours..	.0852	.3460	.0852	.9108	.3407	.3407
	produced.....} Wages.....	\$0.0360	\$0.0808	\$0.0229	\$0.2791	\$0.0869	\$0.0910
4	Output per one-man hour.....board feet..	4,634	2,713	4,634	1,159	2,317	2,317
	Cost per one-man hour.....wages..	\$0.3819	\$0.2200	\$0.2450	\$0.3082	\$0.2473	\$0.2575
	Cost per 1,000 board feet.....(One-man hours..	.2158	.3686	.2158	.8631	.4316	.4316
	produced.....} Wages.....	\$0.0824	\$0.0811	\$0.0529	\$0.2660	\$0.1067	\$0.1111
5	Output per one-man hour.....board feet..	11,109	2,777	3,703	926	1,851	2,777
	Cost per one-man hour.....wages..	\$0.4615	\$0.1846	\$0.2423	\$0.2721	\$0.2500	\$0.2432
	Cost per 1,000 board feet.....(One-man hours..	.0900	.3601	.2701	1.0802	.5401	.3601
	produced.....} Wages.....	\$0.0415	\$0.0665	\$0.0654	\$0.2939	\$0.1350	\$0.0873
6	Output per one-man hour.....board feet..	12,807	3,202	3,202	985	2,135	2,135
	Cost per one-man hour.....wages..	\$0.3551	\$0.1846	\$0.2308	\$0.2964	\$0.2338	\$0.2338
	Cost per 1,000 board feet.....(One-man hours..	.0781	.3123	.3123	1.0151	.4685	.4685
	produced.....} Wages.....	\$0.0277	\$0.0577	\$0.0721	\$0.3009	\$0.1189	\$0.1189
7	Output per one-man hour.....board feet..	5,766	2,883	1,922	721	2,883	1,441
	Cost per one-man hour.....wages..	\$0.4807	\$0.1750	\$0.3000	\$0.2563	\$0.2875	\$0.3000
	Cost per 1,000 board feet.....(One-man hours..	.1734	.3469	.5203	1.3875	.3469	.6937
	produced.....} Wages.....	\$0.0834	\$0.0607	\$0.1561	\$0.3355	\$0.0997	\$0.2681
8	Output per one-man hour.....board feet..	8,284	2,452	8,284	1,069	1,744	3,673
	Cost per one-man hour.....wages..	\$0.4196	\$0.2424	\$0.2650	\$0.3961	\$0.2985	\$0.2699
	Cost per 1,000 board feet.....(One-man hours..	.1207	.4078	.1207	.9355	.5734	.2723
	produced.....} Wages.....	\$0.0507	\$0.0989	\$0.0320	\$0.3706	\$0.1711	\$0.0735
9	Output per one-man hour.....board feet..	16,850	5,841	12,464	997	2,106	4,212
	Cost per one-man hour.....wages..	\$0.4231	\$0.2450	\$0.3847	\$0.3491	\$0.2916	\$0.2875
	Cost per 1,000 board feet.....(One-man hours..	.0593	.1712	.0802	1.0030	.4748	.2374
	produced.....} Wages.....	\$0.0251	\$0.0419	\$0.0309	\$0.3501	\$0.1384	\$0.0682
10	Output per one-man hour.....board feet..	19,333	2,682	6,536	940	1,401	3,222
	Cost per one-man hour.....wages..	\$0.3846	\$0.2486	\$0.2851	\$0.3186	\$0.1800	\$0.2500
	Cost per 1,000 board feet.....(One-man hours..	.0517	.3728	.1530	1.0641	.7138	.3104
	produced.....} Wages.....	\$0.0199	\$0.0927	\$0.0436	\$0.3390	\$0.1285	\$0.0776
11	Output per one-man hour.....board feet..	10,808	3,800	7,887	1,010	2,231	2,817
	Cost per one-man hour.....wages..	\$0.4321	\$0.2572	\$0.2588	\$0.3704	\$0.2794	\$0.2438
	Cost per 1,000 board feet.....(One-man hours..	.0925	.2632	.1268	.9903	.4482	.3550
	produced.....} Wages.....	\$0.0400	\$0.0677	\$0.0328	\$0.3068	\$0.1252	\$0.0866
12	Output per one-man hour.....board feet..	5,454	5,454	5,454	1,363	2,727	2,727
	Cost per one-man hour.....wages..	\$0.5833	\$0.3085	\$0.2940	\$0.4955	\$0.3515	\$0.3050
	Cost per 1,000 board feet.....(One-man hours..	.1834	.1834	.1834	.7334	.3667	.3667
	produced.....} Wages.....	\$0.1070	\$0.0566	\$0.0539	\$0.3634	\$0.1289	\$0.1118
13	Output per one-man hour.....board feet..	19,263	9,365	6,421	1,494	2,158	1,482
	Cost per one-man hour.....wages..	\$0.7099	\$0.2929	\$0.3148	\$0.4508	\$0.3173	\$0.2646
	Cost per 1,000 board feet.....(One-man hours..	.0519	.1068	.1557	.6694	.4634	.6749
	produced.....} Wages.....	\$0.0369	\$0.0313	\$0.0490	\$0.3018	\$0.1470	\$0.1786
14	Output per one-man hour.....board feet..	13,135	3,091	4,452	1,383	1,947	2,452
	Cost per one-man hour.....wages..	\$0.6916	\$0.3243	\$0.3002	\$0.3582	\$0.2882	\$0.2540
	Cost per 1,000 board feet.....(One-man hours..	.0761	.3236	.2246	.7233	.5136	.4079
	produced.....} Wages.....	\$0.0527	\$0.1049	\$0.0674	\$0.2807	\$0.1480	\$0.1036
15	Output per one-man hour.....board feet..	12,179	4,102	12,327	1,419	3,078	2,985
	Cost per one-man hour.....wages..	\$0.4733	\$0.3058	\$0.2833	\$0.3216	\$0.2961	\$0.2930
	Cost per 1,000 board feet.....(One-man hours..	.0821	.2438	.0811	.7047	.3249	.3350
	produced.....} Wages.....	\$0.0389	\$0.0746	\$0.0230	\$0.2267	\$0.0963	\$0.0681

LABOR IN 26 SAWMILL ESTABLISHMENTS, BY PROCESSES.

Refuse: slasher, hog, burner.	Filing.	Power and oiling.	Repair.	Night watch and fire protec- tion.	Clean-up and mis- cella- neous.	Sorting green lumber.	Yard foreman, green lumber.	Transfer, green lumber.	Piling green lumber.	Es- tab- lish- ment No.
12, 238 \$.0250 .0817 \$.0184	6, 119 \$.0700 .1634 \$.0144	1, 863 \$.03153 .5367 \$.1692	1, 252 \$.02513 .7990 \$.2008	8, 239 \$.02038 .1214 \$.0247	3, 462 \$.01943 .2888 \$.0561	1, 430 \$.02240 .6992 \$.1566	10, 941 \$.05000 .0914 \$.0457	1, 384 \$.01788 .7224 \$.1292	700 \$.01967 1.4280 \$.2809	1
4, 367 \$.01653 .2290 \$.0379	3, 252 \$.04667 .3075 \$.1435	1, 417 \$.02383 .7056 \$.1681	901 \$.02379 1.1094 \$.0238	6, 776 \$.01750 .1476 \$.0258	1, 276 \$.01591 .7837 \$.1247	960 \$.01926 1.0415 \$.2006	8, 870 \$.04000 .1127 \$.0451	1, 809 \$.01740 .5528 \$.0962	576 \$.01949 1.7374 \$.3386	2
3, 750 \$.02066 .2667 \$.0551	3, 854 \$.03753 .2595 \$.0974	2, 489 \$.02601 .4017 \$.1045	2, 396 \$.03889 .4174 \$.1623	7, 131 \$.02200 .1402 \$.0309	978 \$.02162 1.0229 \$.2212	1, 273 \$.02228 .7854 \$.1750	11, 739 \$.03846 .0852 \$.0328	1, 659 \$.02265 .6029 \$.1366	777 \$.02376 1.2863 \$.3057	3
2, 251 \$.02200 .4442 \$.0977	3, 862 \$.05708 .2589 \$.1478	1, 324 \$.02601 .7552 \$.1859	4, 181 \$.03200 .2392 \$.0765	3, 835 \$.02450 .2607 \$.0639	3, 476 \$.02331 .2877 \$.0671	927 \$.02186 1.0789 \$.2358	..... 1, 448 .6905 \$.1593	580 \$.02397 1.7236 \$.4132	590 \$.02397 1.7236 \$.4132	4
2, 777 \$.01962 .3601 \$.0706	3, 703 \$.04231 .2701 \$.1143	1, 383 \$.02201 .7229 \$.1591	791 \$.02128 1.2648 \$.2692	3, 337 \$.01946 .2997 \$.0583	1, 701 \$.01820 .5879 \$.1070	1, 182 \$.01887 .8463 \$.1597	22, 217 \$.02631 .0450 \$.0118	3, 087 \$.01844 .3239 \$.0597	529 \$.01809 1.8916 \$.3422	5
1, 830 \$.01846 .5466 \$.01009	6, 404 \$.02931 .1562 \$.1442	2, 081 \$.02730 .4805 \$.1312	1, 968 \$.02488 .5081 \$.1264	10, 953 \$.02072 .0913 \$.0189	1, 632 \$.01917 .6127 \$.1174	1, 159 \$.01974 .8625 \$.1702	10, 953 \$.02294 .0913 \$.0294	2, 135 \$.01846 .4685 \$.3054	608 \$.01855 1.6457 \$.3054	6
2, 883 \$.02000 .3469 \$.0694	5, 766 \$.08000 .1734 \$.1387	1, 797 \$.02860 .5564 \$.1592	1, 521 \$.02654 .6576 \$.1745	2, 471 \$.02375 .4047 \$.0961	935 \$.01922 1.0695 \$.2056	961 \$.02458 1.0406 \$.2558	..... 1, 441 .6937 \$.1734	961 \$.02500 1.0406 \$.2411	961 \$.02250 1.0406 \$.2411	7
6, 543 \$.02651 .1528 \$.0405	4, 142 \$.05916 .2414 \$.1428	2, 771 \$.02627 .3609 \$.0948	5, 021 \$.03283 .1992 \$.0654	8, 054 \$.02017 .1242 \$.0250	2, 420 \$.02341 .4132 \$.0967	738 \$.02506 1.3559 \$.3399	16, 568 \$.04911 .0604 \$.0296	1, 349 \$.02204 .7413 \$.1634	632 \$.02478 1.5829 \$.3922	8
3, 651 \$.02398 .2739 \$.0657	5, 617 \$.06767 .1780 \$.1205	3, 228 \$.02606 .3079 \$.0807	7, 112 \$.02944 .1406 \$.0414	2, 923 \$.02501 .3421 \$.0856	1, 452 \$.02029 .6889 \$.1398	935 \$.02583 1.0692 \$.2762	15, 107 \$.02948 .0662 \$.0195	2, 206 \$.02225 .4533 \$.1009	783 \$.02596 1.2764 \$.3314	9
5, 230 \$.02250 .1912 \$.0430	7, 733 \$.06600 .1293 \$.0853	3, 751 \$.02631 .2666 \$.0701	6, 765 \$.03637 .1478 \$.0538	14, 915 \$.02284 .0670 \$.0153	3, 515 \$.02508 .2845 \$.0714	1, 152 \$.02530 .8684 \$.2197	38, 665 \$.05128 .0259 \$.1033	1, 952 \$.02537 .5124 \$.1300	831 \$.03178 1.2034 \$.3825	10
3, 722 \$.02250 .2687 \$.0604	5, 612 \$.05750 .1782 \$.1025	2, 924 \$.02829 .3420 \$.0968	6, 610 \$.03225 .1513 \$.0488	13, 265 \$.02244 .0734 \$.0169	2, 915 \$.02123 .3430 \$.0728	1, 216 \$.02471 .8222 \$.2031	22, 448 \$.03205 .0445 \$.0143	1, 473 \$.02359 .6790 \$.1602	702 \$.02998 1.4243 \$.4271	11
2, 689 \$.03413 .3718 \$.1289	5, 454 \$.06784 .1834 \$.1244	1, 745 \$.03896 .5732 \$.2233	26, 735 \$.04069 .0374 \$.0152	7, 791 \$.02971 .1283 \$.0381	4, 110 \$.03131 .2433 \$.0762	1, 120 \$.02891 .8926 \$.2581	10, 100 \$.03704 .0990 \$.0367	1, 891 \$.03140 5552 \$.1743	1, 788 \$.04828 5592 \$.2700	12
19, 263 \$.03055 .0519 \$.0159	7, 173 \$.03338 .1394 \$.1163	2, 560 \$.03840 .3907 \$.1500	2, 390 \$.03967 .4184 \$.1672	4, 352 \$.03441 .2298 \$.0791	9, 631 \$.03032 .1038 \$.0315	647 \$.02781 1.5466 \$.4300	37, 986 \$.06000 .0263 \$.0158	2, 385 \$.03352 .4192 \$.1405	581 \$.03107 1.7203 \$.5304	13
6, 709 \$.02510 .1490 \$.0374	5, 254 \$.06600 .1903 \$.1142	2, 894 \$.02913 .3455 \$.1006	6, 468 \$.04835 .1546 \$.0747	9, 242 \$.04915 .1082 \$.0532	6, 567 \$.02628 1.523 \$.0400	949 \$.02724 1.0534 \$.2870	26, 270 \$.04423 .0381 \$.0168	1, 658 \$.02765 .6032 \$.1668	1, 054 \$.03532 9486 \$.3351	14
12, 327 \$.02583 .0811 \$.0210	6, 365 \$.05205 .1571 \$.0818	2, 741 \$.03630 .3649 \$.1325	5, 539 \$.04143 .1805 \$.0748	7, 854 \$.02875 .1273 \$.0366	1, 739 \$.02511 .5751 \$.1444	1, 450 \$.02958 .6897 \$.2040	31, 438 \$.03846 .0318 \$.0122	2, 891 \$.02758 .3159 \$.0954	1, 013 \$.03470 .9873 \$.3426	15

TABLE 14.—SUMMARY OF PRODUCTIVITY AND COST OF LABOR

Estab- lish- ment No.	Productivity and cost.	Saw- mill fore- man.	Log pond or yard.	Saw- mill deck.	Sawing: head, gang, resaw.	Edging.	Trim- ming.
16	Output per one-man hour.....board feet..	19,423	6,668	9,395	1,025	1,931	2,639
	Cost per one-man hour.....wages..	\$0.6522	\$0.2763	\$0.3960	\$0.2778	\$0.2709	\$0.2518
	Cost per 1,000 board feet) (One-man hours..	.0515	.1500	.1064	.9759	.5180	.3789
	produced.....) Wages.....	\$0.0336	\$0.0414	\$0.0421	\$0.2711	\$0.1403	\$0.0954
17	Output per one-man hour.....board feet..	12,459	3,045	18,938	1,060	3,948	3,510
	Cost per one-man hour.....wages..	\$0.5032	\$0.2853	\$0.2354	\$0.2649	\$0.2598	\$0.2489
	Cost per 1,000 board feet) (One-man hours..	.0803	.3284	.0528	.9431	.2533	.2849
	produced.....) Wages.....	\$0.0404	\$0.0937	\$0.0124	\$0.2498	\$0.0658	\$0.0709
18	Output per one-man hour.....board feet..	26,645	4,869	13,434	1,219	2,416	2,770
	Cost per one-man hour.....wages..	\$0.5729	\$0.3083	\$0.2845	\$0.3072	\$0.2774	\$0.2806
	Cost per 1,000 board feet) (One-man hours..	.0375	.2054	.0744	.8204	.4139	.3611
	produced.....) Wages.....	\$0.0215	\$0.0633	\$0.0212	\$0.2520	\$0.1148	\$0.1013
19	Output per one-man hour.....board feet..	14,066	10,326	11,078	1,167	2,771	3,694
	Cost per one-man hour.....wages..	\$0.4271	\$0.2366	\$0.2561	\$0.3606	\$0.2803	\$0.2583
	Cost per 1,000 board feet) (One-man hours..	.0711	.0968	.0903	.8573	.3609	.2737
	produced.....) Wages.....	\$0.0304	\$0.0229	\$0.0231	\$0.3091	\$0.1012	\$0.0699
20	Output per one-man hour.....board feet..	18,784	2,790	3,172	1,189	1,556	2,379
	Cost per one-man hour.....wages..	\$0.4630	\$0.2651	\$0.2416	\$0.3095	\$0.2633	\$0.2437
	Cost per 1,000 board feet) (One-man hours..	.0532	.3585	.3152	.8410	.6306	.4204
	produced.....) Wages.....	\$0.0246	\$0.0950	\$0.0762	\$0.2527	\$0.1660	\$0.1024
21	Output per one-man hour.....board feet..	22,130	2,425	5,061	1,311	2,483	3,725
	Cost per one-man hour.....wages..	\$0.6852	\$0.2650	\$0.3105	\$0.2905	\$0.2500	\$0.2392
	Cost per 1,000 board feet) (One-man hours..	.0452	.4124	.1980	.7628	.4027	.2685
	produced.....) Wages.....	\$0.0310	\$0.1093	\$0.0615	\$0.2216	\$0.1007	\$0.0642
22	Output per one-man hour.....board feet..	6,521	1,881	2,717	815	815	2,717
	Cost per one-man hour.....wages..	\$0.6400	\$0.1995	\$0.2167	\$0.3250	\$0.1310	\$0.2087
	Cost per 1,000 board feet) (One-man hours..	.1533	.5316	.3681	1.2268	1.2268	.3681
	produced.....) Wages.....	\$0.0931	\$0.1061	\$0.0797	\$0.3987	\$0.1608	\$0.0768
23	Output per one-man hour.....board feet..	8,564	4,034	5,178	1,121	1,840	2,892
	Cost per one-man hour.....wages..	\$0.6250	\$0.1755	\$0.2006	\$0.2822	\$0.2259	\$0.1786
	Cost per 1,000 board feet) (One-man hours..	.1168	.2479	.1931	.9831	.5434	.3458
	produced.....) Wages.....	\$0.0730	\$0.0435	\$0.0387	\$0.2789	\$0.1223	\$0.0618
24	Output per one-man hour.....board feet..	9,314	2,194	4,903	996	1,822	3,553
	Cost per one-man hour.....wages..	\$0.4045	\$0.1555	\$0.1542	\$0.2410	\$0.1976	\$0.1917
	Cost per 1,000 board feet) (One-man hours..	.1074	.4559	.2040	1.0145	.5490	.2814
	produced.....) Wages.....	\$0.0434	\$0.0709	\$0.0314	\$0.2445	\$0.1085	\$0.0539
25	Output per one-man hour.....board feet..	8,763	2,340	6,699	767	1,819	2,858
	Cost per one-man hour.....wages..	\$0.4007	\$0.1674	\$0.1700	\$0.2205	\$0.1765	\$0.1576
	Cost per 1,000 board feet) (One-man hours..	.1141	.4273	.1499	1.3045	.5498	.3499
	produced.....) Wages.....	\$0.0457	\$0.0716	\$0.0255	\$0.2377	\$0.0970	\$0.0551
26	Output per one-man hour.....board feet..	16,457	3,291	8,228	823	2,743	4,114
	Cost per one-man hour.....wages..	\$0.5830	\$0.2050	\$0.2625	\$0.2635	\$0.2167	\$0.1763
	Cost per 1,000 board feet) (One-man hours..	.6608	.3038	.1215	1.2153	.3646	.2431
	produced.....) Wages.....	\$0.0354	\$0.0623	\$0.0319	\$0.3203	\$0.0790	\$0.0423

IN 26 SAWMILL ESTABLISHMENTS, BY PROCESSES—Concluded.

Refuse: slasher, hog, burner.	Filing.	Power and oiling.	Repair.	Night watch and fire protection.	Clean-up and mis- cella- neous.	Sorting green lumber.	Yard foreman, green lumber.	Transfer, green lumber.	Piling green lumber.	Es- tab- lish- ment No.
4,425 \$.2608 .2260 \$.0589	5,598 \$.4288 .1786 \$.0766	3,243 \$.2601 .3083 \$.0802	1,174 \$.3425 .8515 \$.2917	3,384 \$.2415 .2955 \$.0713	1,963 \$.1915 .5095 \$.0976	549 \$.2268 1.8207 \$.4129	15,870 \$.3000 .0630 \$.0189	1,743 \$.2137 .5737 \$.1226	664 \$.2081 1.5665 \$.3126	16
5,205 \$.2069 .1921 \$.0397	6,009 \$.4711 .1664 \$.0784	1,305 \$.2919 .7666 \$.2237	3,773 \$.2881 .2650 \$.0764	3,410 \$.2390 .2933 \$.0701	2,876 \$.2170 .3477 \$.0754	535 \$.2221 1.8706 \$.4155	37,327 \$.5000 .0268 \$.0134	1,883 \$.2212 .5311 \$.1175	407 \$.2314 2.4586 \$.5863	17
9,281 \$.2491 .1077 \$.0268	7,066 \$.5851 .1415 \$.0828	2,764 \$.3083 .3619 \$.1116	1,230 \$.3441 .8130 \$.2798	20,628 \$.2581 .0485 \$.0125	1,366 \$.2494 .7318 \$.1825	534 \$.2393 1.8718 \$.4478	24,595 \$.3846 .0407 \$.0156	1,430 \$.2619 .6994 \$.1831	782 \$.2361 1.2787 \$.3018	18
3,680 \$.2499 .2717 \$.0679	5,023 \$.4663 .1991 \$.0928	3,282 \$.3137 .3047 \$.0956	4,785 \$.4842 .2090 \$.1012	6,551 \$.2719 .1526 \$.0415	2,829 \$.2193 .3535 \$.0775	1,382 \$.3007 .7237 \$.2176	36,060 \$.4637 .0277 \$.1123	1,274 \$.2448 .7848 \$.1921	1,112 \$.4433 8.989 \$.3955	19
3,172 \$.1983 .3153 \$.0625	6,343 \$.7430 .1576 \$.1171	1,144 \$.2456 .8739 \$.2146	3,687 \$.3433 .2712 \$.0932	2,172 \$.2266 .4604 \$.1043	2,131 \$.2006 .4693 \$.0942	583 \$.2085 1.7153 \$.3576	20,616 \$.3528 .0485 \$.0171	9,392 \$.2500 .1065 \$.0266	497 \$.2019 2.0106 \$.4060	20
11,065 \$.2125 .0904 \$.0192	5,532 \$.5750 .1808 \$.1039	1,002 \$.2946 .9983 \$.2941	4,323 \$.3658 .2313 \$.0846	4,668 \$.2250 .2142 \$.0482	2,159 \$.1801 .4631 \$.0834	474 \$.2291 2.1116 \$.4838	22,130 \$.4259 .0452 \$.0192	4,442 \$.2218 .2251 \$.0499	483 \$.2008 2.0716 \$.4161	21
1,996 \$.1622 .5010 \$.0813	4,076 \$.5000 .2454 \$.1227	1,102 \$.2687 .9073 \$.2438	2,115 \$.2200 .4728 \$.1040	1,778 \$.1689 .5623 \$.0950	1,412 \$.2004 .7090 \$.1419	773 \$.1711 1.2933 \$.2213	6,521 \$.3850 .1534 \$.0590	864 \$.1601 1.1579 \$.1853	714 \$.3750 1.4004 \$.5252	22
3,374 \$.1787 .2964 \$.0530	5,060 \$.5125 .1976 \$.1012	1,999 \$.2808 .5003 \$.1405	4,123 \$.3802 .2425 \$.0922	7,091 \$.2146 .1410 \$.0303	2,020 \$.1666 .4949 \$.0824	1,447 \$.1879 .6912 \$.1299	12,579 \$.3946 .0795 \$.0306	1,438 \$.1521 .6953 \$.1058	515 \$.1907 1.9423 \$.3703	23
2,896 \$.1453 .3454 \$.0502	5,242 \$.4984 .1907 \$.0951	2,479 \$.2117 .4034 \$.0854	3,282 \$.2329 .3047 \$.0710	5,711 \$.2107 .1751 \$.0369	1,270 \$.1814 .7373 \$.1271	844 \$.1475 1.1852 \$.1747	11,070 \$.3846 .0903 \$.0347	1,230 \$.1500 .8130 \$.1220	692 \$.1874 1.4457 \$.2709	24
4,880 \$.1475 .2058 \$.0304	5,002 \$.5300 .1999 \$.1060	1,116 \$.1995 .8963 \$.1788	4,257 \$.2933 .2319 \$.0689	17,150 \$.2643 .0583 \$.0154	2,237 \$.1424 .4373 \$.0623	789 \$.2674 1.2670 \$.3387	17,324 \$.3250 .0577 \$.0188	1,171 \$.1155 .8543 \$.0987	560 \$.1452 1.7846 \$.2591	25
6,583 \$.1560 .1519 \$.0237	5,455 \$.6667 .1823 \$.1215	1,371 \$.3273 .7292 \$.2387	3,827 \$.2768 .2613 \$.0723	3,501 \$.1489 .2856 \$.0425	2,006 \$.1594 .4983 \$.0794	694 \$.1729 1.4402 \$.2491	16,457 \$.2750 .0608 \$.0167	1,349 \$.1757 .7413 \$.1302	713 \$.1844 1.4035 \$.2588	26

CLASSIFICATION OF PROCESSES AND DISTRIBUTION OF TIME AND WAGES.

As previously explained,¹ any refinement of labor productivity and cost figures beyond total cost or productivity necessitates a classification of processes and a distribution of time and of wages in accordance with such classification. And, further, if such figures are to have a comparable value as between establishments, the classification of processes must be uniform so that each item under consideration will have the same significance in the records of each establishment. This is especially true in the lumber industry where methods of manufacture vary widely, not only as between forest areas but between establishments in the same area as well.

Although any classification of manufacturing processes for the purpose of apportioning labor costs implies a distribution of time and wages, a word needs to be said concerning the practical difficulties in making such a distribution in logging and sawmill operations.

The general principle may be laid down that a distribution of time becomes increasingly difficult in the degree (1) that the work is not highly specialized and permits of the shifting of labor from one process to another, (2) that the processes are widely separated in point of time and place, and (3) that the processes are not necessarily continuous or do not require a rigid complement of labor force.

Anyone familiar with the lumber industry will recognize that all these difficulties are met with in that industry. Except in a few positions calling for a peculiar skill, each employee has a variety of work to perform. Logging operations are carried on, sometimes many miles from the sawmill, and extend over a large forest area. One logging crew may be building or repairing roads while several miles away other crews are felling the timber or moving the logs to a point accessible to a transportation agency. Even the sawmill plant with its storage sites for logs and lumber may cover many acres. As a consequence the physical task of accurately checking the time at different kinds of work is a large undertaking. The task would be less difficult, however, if each operation required a constant number of full-time employees. Then it might be assumed that an operation, carried on for a certain number of hours, would require a number of one-man hours equal to the product of the complement and the number of hours of operation and, since the class of work generally determines the wage rate, any shifting of positions would not disturb the total wages for the operation and could be disregarded. This is true, however, for but a comparatively small number of the processes in lumber manufacture. Although continuous operation necessitates a certain balance between the crews in the woods, in the sawmill, and in the lumber yard, and a normal complement may be

¹ See page 70.

arrived at, the number of full-time men employed is variable from month to month and even from day to day, particularly in logging operations and in handling lumber in the yard.

The other difficulty mentioned is rather inherent in any industry in which considerable time is required to convert the raw material into finished product and in which material and product are not constant in character. Several months may elapse between the time of felling the trees and their manufacture into lumber. If tree-to-lumber-pile costs are computed for, let us say, one month of operation, it is certain that not all the lumber piled during the month was manufactured from trees felled, skidded, or transported during the same month. Thus, while tree-to-lumber-pile costs rather imply progressive operations during which raw material—timber—of a definite character is transformed into a pile of lumber, such costs, if computed for a short period of operation, may contain this error: that the timber from which the lumber is manufactured during that period may be of a different character and may have been logged under different conditions than the timber which enters into the tree-to-lumber-pile cost for the period. This can only be avoided by an accurate distribution of time, a record of output in each process when the work is actually performed, and an averaging of costs over a long period of production.

None of the difficulties named are insurmountable. Many lumber companies, however, feel that the industry does not lend itself to any considerable subdivision of labor costs and that the expense would not be justified. This probably explains why few lumber establishments have attempted to make time studies of production. A number of establishments, it is true, distribute time and wages over a large number of items. Even such establishments, however, seldom distribute less than one-half hour of time and many disregard, for purposes of distribution, any time less than one-half day. Moreover, no two independent lumber manufacturing establishments apportion costs in exactly the same way. A striking illustration of this is the extreme variation in the cost of specific items reported by individual establishments to the lumber associations of which they are members. That these associations are requesting their members to submit statements of cost in accordance with a uniform classification of departments or processes is evidence that the need for subdivisions of total cost on a comparable basis is recognized.

The present study does not purport to be a system of accounting and no attempt is made to show other than labor cost and productivity. It is believed, however, that despite the differences in methods of manufacture, in the material, or in the output, all operations and occupations connected with lumber manufacture may quite properly be classified under group processes common to all establishments. Because of the lack of uniformity in the classi-

fication of processes used by the several establishments, it was necessary to define boundaries for each process. The question of where these boundaries should be drawn seemed less important than that they be drawn uniformly for all establishments and that each group be made large enough to overcome a large part of the shifting of occupation. In other words, if an employee is shifted about in a number of occupations without a distribution being made of his time, it is necessary to draw boundaries that will include at least the greater part of his time. The classification of processes used in this study is explained below. A detailed description of these processes and occupations included therein will be found in a subsequent section.¹

LOGGING.

Logging operations have been considered as extending from the tree to the log pond or yard at the sawmill. In general, these operations vary with the kind and size of timber and with the climate and topography of the forest region, but for comparative purposes they may be grouped as follows:

- Foremen, scalers, general.
- Boarding house.
- Felling and log making.
- Skidding, yarding, and loading
- Transportation and unloading.
- Maintenance of transportation.
- Construction of transportation facilities.

Foremen, scalers, general.—The term "woods foreman" has been used here to designate one immediately associated with operation, or, in other words, one who personally supervises logging operations, as distinct from general managers or woods superintendents acting in more of an executive capacity. Timekeepers have been omitted because their work is purely clerical. The occupation of log scaler, although involving more or less clerical work, belongs distinctly to the logging industry and has been included. The term "general" has been used to cover miscellaneous operations not otherwise specified, such as camp improvement, fire protection, and burning of brush.

Boarding house.—Some arrangement for feeding and housing employees is essential to logging operations. This may be provided by the logging company and men either pay for board at a stipulated price or receive board in addition to wages. When the boarding house is thus operated it is intended that it shall be self-supporting, and logging operations should be charged or credited only with the net loss or profit. Unless the boarding house is maintained by the logging company it can not be considered in any way a part of logging cost.

¹ See "Description of processes and occupations in the lumber industry," pages 147-192.

In order, therefore, that the same cost items might be presented for all establishments, the boarding-house costs have been excluded. If, however, board is furnished in addition to wages to other than boarding-house employees, actual cost to the company of such board has been added to the money wages paid.

Felling and log making.—Under the operations of felling and log making have been included the clearing of brush about the tree preparatory to felling; notching, chopping, or sawing the standing tree; knotting and limbing the felled tree and bucking it into log lengths. Filing has been included in felling and log making, even though some of such work may be done for other logging processes.

Skidding, yarding, and loading.—The moving of logs to a landing or other assembling place from which they may be transported to the sawmill, and the loading of logs for such transportation have been considered in one group process. In power skidding a yarding engine is sometimes used for loading, and the time is not distributed as between the two operations. Loading, therefore, has been included with skidding and yarding. Road building for skidding purposes, though construction work, seems to be rather inseparably connected with operations in a limited area, and for this reason it has been included in operating costs. Maintenance and repair have also been included.

Transportation and unloading.—Transportation includes the moving of logs, after being loaded, to a point immediately accessible to the sawmill. Unloading is frequently done by the transportation crew, and for that reason has been included. Where the logs are dumped into a river some distance from the sawmill, or, when transportation is by water and the logs are left by boom drivers to be worked into the pond as needed, the movement of the logs to the pond has been included in transportation.

Many companies have their own transportation facilities from the woods to the sawmill. Others have spur lines and pay for the use of main lines or pay freight for main-line hauling. These main-line charges are not included and in such cases the entire time cost and money cost of transportation are not shown.

Maintenance of transportation.—All repairs to transportation equipment have been included under maintenance of transportation. For logging railroads the term has been used to include section crews, roundhouse men, railroad shopmen, and watchmen.

Construction of transportation facilities.—The construction of facilities for transporting logs approaches more nearly an operating than an overhead cost; but as it partakes in part of overhead cost, as does the construction of the mill, the item has not been included. It should be stated, however, that construction of roadbed, bridges, and log chutes are items of considerable expense which must be "charged off"

by the time the timber is removed. It is often necessary to construct expensive roads which are useful only for logging operations in a limited forest area.

SAWMILL.

Sawmill operations, as distinct from logging operations, are more uniform than the latter and labor time is usually distributed over a greater number of items. For the most part, however, no effort is made to distribute the time within the sawmill. Men work at different machines without a change being made in designation of occupation, and, as a consequence, the time to be charged to a given occupation has been a matter calling for arbitrary ruling. Thus, it has been assumed that when a machine is operated, certain positions about the machine must be filled for the entire time of operation. Moreover, the operation of a machine such as the head saw calls for the operation of an edger and a trimmer, and, as no provision is made on the sawmill floor for storing output while one machine is idle, a head saw, an edger, and a trimmer may be considered as a unit for purposes of operation. A study has been made of each plant to ascertain which machines made up different units and gaps in basic positions have been filled with the time of extra or spare men appearing on the sawmill payroll and receiving the rates called for by the position. Men designated as live-roll and transfer men have been assigned, so far as practicable, to some particular machine and charged to the same. The number of men to be charged to each machine has been determined by the work done and the arrangement of the mill rather than by the exact position of the men on the mill floor.

In this study sawmill operations have been classified as follows:

Sawmill foremen.

Log pond or yard.

Sawmill deck.

Sawing—circular or band head, gang, resaw.

Edging.

Trimming.

Refuse—hog, slasher, burner.

Filing.

Power and oiling.

Repair.

Night watch and fire protection.

Clean-up and miscellaneous.

Sorting.

Sawmill foremen.—Only those who personally supervise the operation of the sawmill as a whole are included under sawmill foremen.

Log pond or yard.—The log pond or yard is defined elsewhere¹ as a place immediately adjacent to the sawmill so arranged that logs stored therein are readily accessible. The work connected with the pond or yard does not include the unloading of logs nor any part of the transportation prior to their being placed in the pond or yard. It has to do solely with the sorting of logs in the pond or yard and moving them to a chain or other device for pulling them to the deck of the sawmill.

Sawmill deck.—The scaler and other men engaged in hauling up the logs and rolling them on to the saw carriages have been charged to the sawmill deck.

Sawing.—Sawing has been considered under three divisions: Head (circular or band), gang, and resaw. The occupations included are circular and band head sawyers, setters, doggers, tail sawyers, rock sawyers, gang sawyers, resawyers, and helpers. For individual establishments each machine has been shown in detail; but in the summary tables the machine has been disregarded and only the process, sawing, has been considered. In doing this the composite work of a head saw, gang saw, and resaw has been considered identical in nature with the work of a single head saw which does not have the complements of gang saw and resaw.

Edging.—Both single and double machines are used for edging. One man on a single edger and two men on a double edger, adjusting the saws and feeding the machine, have been called edgermen. Other men, lining up boards for the edger, catching the strips as they come from the edger, or transferring the product to or from the edger, have been called helpers.

Trimming.—The process of trimming calls for an operator and helpers. The man adjusting the saws has been designated the operator and those straightening the lumber or loading the chains for transferring the lumber to the saws have been called helpers.

Refuse—hog, slasher, burner.—Employees required to operate the slasher saws, feed the hog, or keep refuse from clogging the conveyor chains leading to the burner are necessary for the disposition of waste and have been included, but others engaged in picking stock from the conveyor chains have been considered as connected with a subsidiary product—lath, table squares, or other dimension stock—and have not been included.

Filing.—Only that part of filing chargeable to the sawmill has been included in sawmill costs.

Power and oiling.—For plants carrying on subsidiary operations, such as planing mill, dry kiln, lath mill, or factory, the charge for power is proportionally higher per unit of output than for those where power is furnished only for the sawmill, but, unless power plants are distinct

¹ See page 169.

for each department, any distribution would be simply an approximation and has not been undertaken. Where light was furnished for commercial use employees installing fixtures or repairing meters have been omitted. Night firemen are required even where light is not furnished, and it is assumed that their number would not be materially increased when light is furnished to the town or village.

Mill oilers seem more properly to belong to "power," and have been included therein.

Repair.—It is the practice with some establishments to distribute the repair charge as against the sawmill and planing mill and as against buildings and machines. Others carry only a millwright account, which includes all building repair. For this study it has seemed best to keep repair to buildings and machinery distinct from repair to yard, but not to attempt further distribution of the time and earnings of repair crews. Variation in this cost may be expected since considerable repair may be made during an output period without materially affecting the operation of the plant.

Night watch and fire protection.—In addition to the night watchmen for the sawmill and yard, those having to do with the upkeep of hydrants, filling water barrels, or affording other protection against fire, have been included in this charge. No attempt has been made to distribute the cost.

Clean-up and miscellaneous.—Undistributed time charged to the sawmill, as well as the time of those who are regularly employed in cleaning about the mill, has been charged to clean-up and miscellaneous.

Sorting.—The time of tallymen, markers, graders, pullers, and loaders in handling the green lumber as it comes from the trimmer saws and until it is loaded for transfer to the yard, has been charged to sorting.

YARD.

A greater interchangeability of positions is found in the yard than in the sawmill, and a greater variation in the classification of charges. Some companies keep a distribution of time as between green lumber and dry lumber and a lumber transfer account as distinct from piling or shipping. More frequently, however, men are classed as yardmen irrespective of the yard work performed. In this study only the green-lumber yard has been considered. Three items have been included in yard operations: Green-lumber foremen; green-lumber transfer; and green-lumber piling. Shipping has been considered as a distinct process, having nothing to do with manufacture.

Green-lumber foremen.—The time of green-lumber foremen is, in part, chargeable to shipping and dry kiln, as well as to green-lumber transfer and green-lumber piling, but to avoid arbitrary distribution all the time has been charged to the green-lumber yard.

Green-lumber transfer.—If shipment is made directly from the chains, or if lumber is kiln dried before air drying, and distribution can not be readily made, transfer to the shipping platform or to the dry kiln has been considered as equivalent to green-lumber transfer to pile. Repairs to trucks, trams, cranes, electric locomotives, or other transfer agency have been included in the transfer charge.

Green-lumber piling.—Repairs to pile foundations and the stacking of green lumber have been included in the piling charge.

SUBSIDIARY AND SUPPLEMENTARY PROCESSES.

Planing mill.—No attempt has been made to adopt a uniform classification of processes for the planing mill on account of the variation in work performed and in the equipment. For several establishments it was possible to secure records of output, and the labor cost in such establishments is presented in this report with as much detail of occupation as was shown in the records kept.

Dry kiln.—The dry kiln is properly chargeable with transfer of lumber to the kiln, and stacking the lumber for kiln drying, as well as with a portion of the labor of the power plant and with the labor of kiln maintenance. Labor time is seldom distributed in this manner, however, and the dry-kiln costs shown in this report are intended to be illustrative rather than comparative.

OUTPUT RECORDS AND BASES USED IN COMPUTING COSTS.

An accurate record of output is quite as essential in the determination of costs as is an accurate distribution of time and of wages. Two kinds of output records are usually kept—a log scale and a lumber tally. The log scale is a measure of log contents; the lumber tally, or board measure as it is sometimes called, is a measure of the manufactured lumber. It will be apparent that the log scale can never be more than a close approximation of the quantity of lumber that the log actually yields. For practically all timber there is an "overrun" in manufacture, that is, the lumber tally exceeds the log scale. Redwood is an exception to this rule and usually shows an "underrun" on account of imperfections not apparent until the log is being sawed into lumber. The kinds and sizes of lumber manufactured make for differences in the underrun or overrun but as between establishments in the same forest area such differences should not be marked.

The unit of output for either logging or sawmill operations is 1,000 board feet. This unit, although standard in quantity, represents, as previously stated, a variable quantity of labor on account of differences in prevailing sizes of trees, in the kinds of timber, in the dimensions of lumber sawed, and in the methods of manufacture.¹ Thus it may be assumed that logging operations carried on with the aid of power-driven machinery and in virgin forests of fir and redwood will show a greater output per one-man hour than operations confined to cut-over forests of hardwood and carried on largely with hand and animal power. Similarly in sawmill operations, a mill working on small oak or chestnut logs, sawing to order or turning out chiefly four-quarter boards, will produce less per one-man hour than a mill with like equipment working on large fir logs and cutting considerable timber stock. It is probable, too, that logs and product being similar for each, a mill equipped with head saw, resaw and gang saw will produce more per one-man hour than a mill equipped with one saw doing the work of all three machines.

In the present study an effort has been made to show for each establishment the number, kind and scale of logs, the lumber tally, the prevailing sizes of lumber and, for the sawmill, to show clearly the equipment in machines. Not all establishments, however, keep a record of the sizes and kinds of logs and few keep an accurate tally of the sizes of lumber. Moreover, in the tallying of lumber as it comes from the sorting chains, it is not unusual to tally combinations of pieces. Thus, two 2x6's might be tallied as one 4x6.

The prevailing methods of determining output in logging and sawmill operations, and the output bases used in computing costs in the present study are explained in the following paragraphs:

LOGGING.

Logs are usually scaled but once for logging records. This is the scale made when logs are loaded for transportation or unloaded at the log pond or yard of the sawmill. In lieu of these the log scale at the sawmill deck—a record usually kept in sawmill operations—may be used for computing logging costs. Some establishments omit the log scale entirely and compute logging, as well as sawmill, costs on the basis of the lumber tally. Still others use a yearly inventory in connection with logs loaded in the woods or delivered at the mill to arrive at a yearly output.

It is very evident that the scale of logs loaded for transportation or brought to the deck of the sawmill during a given period of operation may bear little relation to the number of feet of logs felled, bucked, or skidded during the same period. This is more emphati-

¹ Page 71.

cally true with timber that is peeled before skidding and which is consequently felled some little time before being transported to the mill or manufactured into lumber. Output based on the yearly inventory of logs in the woods and the records of logs delivered to the mill, although constituting a reasonably accurate basis for the yearly cost of all logging operations, is not so desirable as separate records of logs felled, bucked, skidded, loaded and transported.

If the cost of operations from tree to lumber pile are to enter into a total, either a log scale must be used throughout as a base, or else the log scale must be converted into lumber measure on the basis of the underrun or overrun of the mill. For this study the log scale has been converted into lumber measure on the basis of the overrun or underrun of the sawmill for the period selected, and lumber measure has been used as a base in computing costs. If the records of any establishment showed the number of feet skidded or cut as distinct from the number of feet loaded, the cost of each of these processes has been figured on the basis of actual output expressed in lumber measure. If only a loading record was kept, such record—converted into lumber measure—has been used as the base in the cost of all woods operations.

SAWMILL.

Most establishments figure the cost of all sawmill operations on the basis of total log scale or lumber tally though it is not uncommon to rely upon monthly and yearly inventories of lumber on hand and the records of sales. Indeed some establishments hold that both the log scale and the tally of lumber as it is manufactured are so inaccurate as to be useless for cost purposes. A log scale at the deck is usually the only record kept of the material handled by each head saw, and no records are kept of the number of board feet that pass through each gang saw, resaw, edger, or trimmer. The attempt is seldom made to determine the cost of each machine, either on the basis of the log scale or the lumber tally.

In this study the entire output of the sawmill, expressed in lumber measure, has been used as a base in computing costs for each of the following process groups: Sawmill foremen; log pond or yard; sawmill deck; refuse—hog, slasher, and burner; filing; power and oiling; repair; night watch and fire protection; clean-up and miscellaneous; and sorting green lumber.

Sawing—head, gang, resaw.—As stated above, when a mill is equipped with more than one head saw, a log scale at the deck is usually the only indication of the work of each machine. In this study, in order to arrive at costs for each saw, the log scale at the deck has been converted into lumber measure on the basis of the overrun or underrun of the mill for the period selected. Gang saws and resaws have been charged with the entire output of the mill or with the output of the head saw with which they form a composite machine or direct process part. The total of all sawing—head, gang, and resaw—has been charged with the entire output of the mill.

Edging.—If more than one edger was used, each machine has been charged with the output of the head saw in connection with which the edger was operated. It has been assumed that the entire product passes over the edger saws.

Trimming.—It has been assumed that all lumber must be trimmed as well as edged. If more than one trimmer was used, each machine has been charged with the output of the head saw for which the trimmer saw was operated.

GREEN-LUMBER YARD.

As stated previously, there is considerable interchangeability of work in the yard. In the transfer of lumber, it is difficult to keep distinct the transfer of green and dry lumber. This is especially true as regards lumber of special sizes for export and in cutting to order where some of the product is loaded directly from the chains. The number of feet piled is seldom a matter of record unless piling is done by contract. With many companies all yard labor, whether trucking, loading, piling, or repair, is a yard charge based upon the output of the mill.

In this study the foreman of the green-lumber yard has been charged with the entire output of the sawmill for the period selected, and, unless deduction is made for green lumber transferred to the dry kiln or shipping platform and charged to these departments, the entire output of the sawmill has been charged to green-lumber transfer and to green-lumber piling.

PLANING MILL.

An accurate comparison of planing-mill costs as between establishments is practically impossible on account of the variability in work performed. In some establishments the work done in the planing mill consists chiefly in surfacing lumber. In other places the work includes resawing, tonguing and grooving, and the manufacture of ceiling and flooring and special shapes and sizes. As a consequence the unit of output—1,000 board feet—has a different significance in different establishments and represents a variable quantity of labor.

It is necessary, therefore, to consider the nature of the output in interpreting planing-mill costs. Such an interpretation, however, is often impossible, because in many cases the records of work performed are based upon the records of shipments or appear simply as a total of board feet delivered to the planing mill.

In this report only those establishments are shown that keep a record of work performed. The entire output of the planing mill has been used as a base in determining occupation costs, and the output record has been shown for each establishment in as great detail as was possible from the records kept.

DRY KILN.

Dry kiln costs are often incomparable on account of undistributed items of power, transfer, and maintenance. An additional difficulty is encountered in establishments manufacturing and kiln-drying shingles as well as lumber. The unit of output of shingles is the equivalent of a specified number of pieces of uniform size; consequently, a combination can not be made of the number of board feet and the number of thousands of shingles in order to secure one common base for labor cost. The work of transferring to the kiln is not kept distinct for each product, and different products may be dried at the same time.

Many establishments do not keep a record of the quantity of product kiln-dried and compute dry-kiln costs on the basis of total mill output. For the establishments shown in this report, the number of board feet of lumber kiln-dried has been used as a basis in computing costs, and any subsidiary products, such as lath or shingles, which were kiln-dried during the same period have been disregarded.

TABLE 15.—SUMMARY OF CLASSIFICATION OF PROCESSES AND OUTPUT BASES USED IN THIS STUDY.

Logging.

Process.	Occupations included.	Output bases used for computing costs.
Foremen, scalers, general.	Woods foremen, assistant foremen, scalers, brush burners, improvement men, fire protection men.	Log scale at landing converted into lumber measure on the basis of the overrun or underrun of the sawmill for the period selected.
Felling and log making.	Notchers, choppers, sawyers, buckers, knotters, filers, water boys.	Number of feet felled and bucked, or, in lieu thereof, the scale at the landing expressed in lumber measure.
Skidding, yarding, and loading.	Teamsters, blacksmiths, swampers, road monkeys, limbers, hookers, tong hookers, gophers, snipers, squirrels, engineers, firemen, water boys, wood bucks, pump men, loaders, chasers, lever men, riggers, night watchmen, chute men, grab drivers.	Number of feet actually handled in each process, or, if a record is not kept, the scale at the landing expressed in lumber measure.
Transportation and unloading.	Engineers, firemen, conductors, brakemen, unloaders, boom men, teamsters.	Number of feet loaded at landing expressed in lumber measure.
Maintenance of transportation.	Section bosses and laborers, bridge repair men, shopmen, hostlers, round-house men, night watchmen.	Do.

TABLE 15.—SUMMARY OF CLASSIFICATION OF PROCESSES AND OUTPUT BASES USED IN THIS STUDY—Concluded.

Sawmill.

Process.	Occupations included.	Output bases used for computing costs.
Sawmill foremen.....	Foremen and assistant foremen.....	Entire lumber tally of mill for the period selected.
Log pond or yard.....	Pond, log, boom, or slip men.....	Do.
Sawmill deck.....	Lever men, scalers, roll-on men, deck men, cut-off men, splitters.	Do.
Sawing:		
Head saws.....	Sawyers, setters, doggers, tail sawyers, rock sawyers.	Entire lumber tally of mill for the period selected, or, in lieu thereof, log scale of material handled by saw converted into lumber measure on the basis of overrun or underrun of mill for period selected.
Resaws.....	Sawyers, helpers.....	Output, expressed in lumber measure, of the head saw which cuts for the re-saw.
Gang saws.....	Sawyers, cranemen, cant setters, engineers, helpers.	Output, expressed in lumber measure, of the head saw which cuts for the gang.
Edging.....	Edgemen, helpers, tail edgers, edging catchers, line-up men, kickers, transfer men, live-roll men.	Entire lumber tally of mill or the output of the head saw for which the edger is operated.
Trimming.....	Trimmer operators, helpers, loaders, straighteners, transfer men.	Entire lumber tally of mill or output of head saw for which the trimmer is operated.
Refuse—hog, slasher, and burner.	Hogmen, slashers, burner men, conveyer men.	Entire lumber tally of mill for the period selected.
Filing.....	Filers and helpers.....	Do.
Power and oiling.....	Engineers, firemen, fuel men, electricians, helpers, mill oilers and helpers.	Do.
Repair.....	Millwrights, helpers, carpenters, shopmen, helpers.	Do.
Night watch and fire protection.	Night watchmen, pipe fitters, water carriers (to barrels).	Do.
Clean-up and miscellaneous.	Clear-up men, roustabouts, extra men, water boys.	Do.
Sorting.....	Foremen, markers, graders, tally men, pullers, and loaders.	Do.

Green-lumber yard.

Green-lumber foremen..	Foremen, assistant foremen.....	Entire lumber tally of mill for the period selected.
Green-lumber transfer...	Teamsters, cranemen, monorail men, truckers, pushers, repair men.	Entire lumber tally of mill for period selected, less any deductions made for green lumber transferred to dry kiln or shipping platform.
Green-lumber piling.....	Pilers, stackers, tippers, pile-foundation men.	Do.

Planing mill.

Not classified.....	Transfer men, feeders, filers, knife grinders, off-bearers, bundlers, tiers, graders, foremen, engineers.	Entire output of the planing mill for the period selected.
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Dry kiln.

Not classified.....	Transfer men, stackers, unstackers, sorters, graders.	Quantity of lumber kiln-dried during the period selected.
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DETAILED TABLE OF PRODUCTIVITY AND COST.

In the following table the productivity and cost of labor is shown by occupations for each establishment. An identity of process classification has been preserved for purposes of comparison but as much occupation detail within each process has been shown as was possible from the records kept by the establishments. A prefatory note to each establishment states the quantity and character of the output during the selected period of operation. Figures are shown for 11 logging establishments, 26 sawmill establishments, 5 dry-kiln establishments and 8 planing-mill establishments in the order named.

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS.

LOGGING.

Establishment No. 2.

[Number of logs cut, 16,164; number of feet cut, log scale, 1,606,711; number of logs skidded, 17,218; number of feet skidded, log scale, 1,711,469; number of logs loaded and hauled, 22,293; number of feet loaded and hauled, log scale, 2,217,453; kinds of timber: hard woods (oak, maple, and chestnut), 75 per cent; poplar, hemlock, basswood, and miscellaneous, 25 per cent.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Foremen, scalers, general:								
Foremen.....	2	630	\$215.50	2,439,198	3,872	\$0.3421	0.2583	\$0.0683
Scaler.....	1	250	75.00	2,439,198	9,757	.3000	.1025	.0307
Miscellaneous.....	2	514	86.97	2,439,198	4,746	.1692	.2107	.0357
Total.....	5	1,394	377.47	2,439,198	1,750	.2708	.5715	.1548
Felling and log making:								
Foremen.....	6	1,445	280.81	1,866,942	1,292	.1943	.7740	.1504
Cutters, knotlers, and buckers	60	14,926	2,382.51	1,866,942	125	.1596	7.9949	1.2762
Water boys.....	6	1,333	120.28	1,866,942	1,401	.0902	.7140	.0644
Filers.....	2	600	141.25	1,866,942	3,112	.2354	.3214	.0757
Total.....	74	18,304	2,924.85	1,866,942	102	.1598	9.8043	1.5667
Skidding, yarding, and loading:								
Barn bosses.....	3	900	150.00	1,878,679	2,087	.1667	.4791	.0798
Teamsters.....	12	3,066	561.77	1,878,679	613	.1832	1.6320	.2990
Grab drivers.....	10	2,388	403.80	1,878,679	787	.1691	1.2711	.2149
Tong hookers.....	4	935	233.75	1,878,679	2,009	.2500	.4977	.1244
Logging road makers.....	24	6,037	917.48	1,878,679	311	.1520	3.2134	.4884
Loaders.....	6	1,555	441.07	1,878,679	1,208	.2836	.8277	.2345
Water boys.....	5	1,333	120.29	1,878,679	1,409	.0902	.7095	.0640
Total.....	64	16,214	2,828.16	1,878,679	116	.1744	8.6305	1.5054
Transportation and unloading....	26	7,469	1,771.37	2,439,198	327	.2372	3.0621	.7262
Maintenance of transportation:								
Section bosses.....	4	1,004	207.05	2,439,198	2,429	.2062	.4116	.0849
Section laborers.....	23	5,615	842.20	2,439,198	434	.1500	2.3020	.3453
Water boys.....	2	354	45.20	2,439,198	6,890	.1277	.1451	.0185
Shopmen.....	3	780	184.25	2,439,198	3,127	.2362	.3198	.0755
Total.....	32	7,753	1,278.70	2,439,198	315	.1649	3.1785	.5242

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

LOGGING—Continued.

Establishment No. 13.

[Number of logs hauled, 57,542 (no other output record); log scale, 4,821,190 board feet; kinds of timber: white pine, 75 per cent; fir, 20 per cent; larch, 5 per cent.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Foremen, scalers, general.....	10	2,378½	\$1,073.20	5,155,780	2,168	\$0.4512	0.4613	\$0.2082
Felling and log making:								
Sawyers and buckers.....	52	12,546	3,836.15	5,155,780	411	.3058	2.4334	.7440
Filers.....	2	540	205.50	5,155,780	9,548	.3806	.1047	.0399
Total.....	54	13,086	4,041.65	5,155,780	394	.3089	2.5381	.7839
Skidding, yarding, and loading:								
Swampers.....	48	10,507½	3,392.70	5,155,780	491	.3229	2.0380	.6580
Skidwaymen.....	15	3,262½	1,056.30	5,155,780	1,580	.3238	.6328	.2049
Teamsters.....	40	9,031½	2,364.60	5,155,780	571	.2618	1.7517	.4586
Blacksmiths.....	4	855	280.05	5,155,780	6,030	.3275	.1658	.0543
Stabblers.....	2	562½	175.50	5,155,780	9,166	.3120	.1091	.0340
Roadmen.....	2	540	156.00	5,155,780	9,548	.2889	.1047	.0303
Chute men.....	35	8,761	2,737.55	5,155,780	588	.3125	1.6993	.5310
Chainmen.....	18	4,218½	1,265.85	5,155,780	1,222	.3001	.8183	.2455
Landing men.....	6	1,431	440.75	5,155,780	3,903	.3080	.2776	.0855
Brush burners.....	4	891	281.70	5,155,780	5,787	.3162	.1728	.0546
Loaders.....	15	3,611½	1,223.50	5,155,780	1,428	.3388	.7004	.2373
Total.....	189	43,672	13,374.50	5,155,780	118	.3062	8.4705	2.5941
Transportation and unloading:								
Railroad operation.....	8	1,863	937.50	5,155,780	2,767	.5032	.3613	.1818
Unloading.....	2	383	149.14	5,155,780	13,452	.3894	.0743	.0239
River.....	8	1,857	674.85	5,155,780	2,776	.3634	.3602	.1309
Total.....	18	4,103	1,761.49	5,155,780	1,257	.4293	.7958	.3417
Maintenance of transportation.....	9	2,058	1,348.07	5,155,780	2,505	.6550	.3992	.2615

Establishment No. 17.

[Number of logs hauled, 6,069 (no other output record); log scale, 2,744,761 board feet; kinds of timber: fir, 70 per cent; cedar, 15 per cent; hemlock, 15 per cent.]

Foremen, scalers, general:								
Foremen.....	3	900	\$405.74	2,881,999	3,202	\$0.5508	0.3123	\$0.1720
Scaler.....	1	250	85.00	2,881,999	11,528	.3400	.0867	.0295
Watchmen.....	3	843	225.24	2,881,999	3,419	.2672	.2925	.0782
Miscellaneous.....	2	575	118.35	2,881,999	5,012	.2058	.1995	.0411
Total.....	9	2,568	924.33	2,881,999	1,122	.3599	.8910	.3207
Felling and log making:								
Fellers.....	17	4,372½	1,369.91	2,881,999	659	.3133	1.5172	.4753
Buckers.....	21	5,287½	1,464.26	2,881,999	545	.2769	1.8347	.5081
Filers.....	2	510	182.86	2,881,999	5,051	.3535	.1770	.0634
Total.....	40	10,170	3,017.03	2,881,999	283	.2967	3.5288	1.0469
Skidding, yarding, and loading:								
Engineers.....	6	1,425	463.11	2,881,999	2,022	.3250	.4944	.1607
Firemen.....	4	1,057½	293.24	2,881,999	2,725	.2773	.3669	.1017
Wood bucks.....	5	1,397½	366.56	2,881,999	2,062	.2623	.4849	.1272
Signalmen.....	3	647½	160.68	2,881,999	4,451	.2482	.2247	.0558
Chaser.....	1	255	76.50	2,881,999	11,302	.3000	.0685	.0265
Riggers.....	9	2,303	803.59	2,881,999	1,251	.3459	.7991	.2788
Sniper.....	1	230	63.25	2,881,999	12,530	.2750	.0798	.0219
Blacksmiths.....	4	1,035	360.25	2,881,999	2,785	.3481	.3591	.1250
Repair men.....	2	302½	101.06	2,881,999	9,527	.3341	.1050	.0351
Choker men.....	7	1,862	534.19	2,881,999	1,548	.2869	.6461	.1834
Lever men.....	5	1,275	566.09	2,881,999	2,260	.4440	.4424	.1964
Hookers.....	5	1,200	423.36	2,881,999	2,402	.3528	.4104	.1469
Total.....	52	12,990	4,211.88	2,881,999	222	.3242	4.5073	1.4614

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

LOGGING—Continued.

Establishment No. 17—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Transportation and unloading:								
Engineers.....	2	603½	\$295.31	2,881,999	4,775	\$0.4893	0.2094	\$0.1625
Conductors.....	2	539	496.92	2,881,999	5,347	.9219	1.870	.1724
Firemen.....	2	549½	178.58	2,881,999	5,245	.3250	1.907	.0620
Brakemen.....	3	745	225.19	2,881,999	3,868	.3023	2.585	.0781
Unloaders.....	4	1,166	403.60	2,881,999	2,472	.3461	4.4046	1.400
Dump man.....	1	81	26.20	2,881,999	35,580	.3235	.0281	.0091
Total.....	14	3,684	1,625.80	2,881,999	782	.4413	1.2783	.5641
Maintenance of transportation:								
Repair men, log dump.....	4	961	336.25	2,881,999	2,999	.3499	.3334	1.167
Repair men, sluice gate.....	15	3,738½	1,208.65	2,881,999	771	.3233	1.2971	4.194
Repair men, railroad.....	36	8,925	1,164.95	2,881,999	323	.1905	3.0968	.4042
Total.....	55	13,624½	2,709.85	2,881,999	212	.1989	4.7274	.9403

Establishment No. 18.

[Number of logs hauled, 4,677 (no other output record); log scale, 7,595,870 board feet; kinds of timber: fir, 94 per cent; hemlock, 6 per cent.]

Foremen, scalers, general:								
Foremen.....	2	625	\$350.10	7,766,777	12,427	\$0.5602	0.0905	\$0.0451
Scaler.....	1	200	62.65	7,766,777	38,834	.3133	.0258	.0081
Watchman.....	1	244	70.90	7,766,777	31,831	.2906	.0314	.0091
Total.....	4	1,069	483.65	7,766,777	7,265	.4524	.1376	.0623
Felling and log making:								
Fellers.....	15	3,918	1,358.85	7,766,777	1,982	.3468	.5045	1.1750
Buckers.....	18	4,282	1,452.05	7,766,777	1,814	.3391	.5513	1.1870
Filers.....	3	608	298.20	7,766,777	9,612	.3691	1.040	.0334
Total.....	36	9,008	3,109.10	7,766,777	862	.3451	1.1598	4.003
Skidding, yarding, and loading:								
Engineers.....	10	2,656	940.65	7,766,777	2,924	.3542	.3420	1.1211
Firemen.....	10	2,459	638.05	7,766,777	3,159	.2595	.3166	.0822
Wood bucks.....	10	2,678	696.75	7,766,777	2,900	.2602	.3448	.0897
Snipers.....	6	1,514	415.85	7,766,777	5,130	.2747	1.1949	.0535
Chasers.....	12	2,932	911.50	7,766,777	2,649	.3109	.3775	1.1174
Signalmen.....	5	1,200	279.75	7,766,777	6,472	.2331	1.1545	.0360
Climber.....	1	104	52.00	7,766,777	74,681	.5090	.0134	.0067
Pump men.....	4	1,152	307.25	7,766,777	6,742	.2667	1.1483	.0396
Powder man.....	1	297	88.70	7,766,777	28,151	.2987	.0381	.0114
Hookers.....	6	1,693	837.90	7,766,777	4,588	.4949	2.130	1.079
Chokers.....	20	4,933	1,501.20	7,766,777	1,574	.3043	.6351	1.1933
Riggers.....	9	2,262	776.19	7,766,777	3,434	.3431	.2912	.0999
Chunkers.....	4	910	261.45	7,766,777	8,535	.2873	1.1172	.0337
Loaders.....	15	3,498	1,226.75	7,766,777	2,220	.3507	4.504	1.1579
Others.....	15	3,629	1,036.95	7,766,777	2,140	.2857	.4672	1.1335
Total.....	129	31,917	9,970.85	7,766,777	243	.3124	4.1084	1.2838
Transportation and unloading:								
Engineers.....	5	1,232	559.25	7,766,777	6,304	.4539	1.1586	.0720
Brakemen.....	10	2,521	970.30	7,766,777	3,081	.3849	.3246	1.1249
Pump man.....	1	140	35.00	7,766,777	55,477	.2500	0.0180	0.0045
Sandmen.....	2	346	59.30	7,766,777	22,447	.1728	.0445	0.0077
Dispatchers.....	2	350	87.50	7,766,777	22,191	.2500	0.0451	0.0113
Boom men.....	10	2,626	856.70	7,766,777	2,953	.3262	.3881	1.1103
Tug men.....	10	2,260	666.85	7,766,777	3,437	.2951	.2910	0.0859
Total.....	40	9,475	3,235.40	7,766,777	820	.3415	1.2199	.4166
Maintenance of transportation.....								
Shopmen.....	35	8,630	2,146.20	7,766,777	900	.2487	1.1111	.2763
Shopmen.....	9	2,105	756.85	7,766,777	3,690	.3585	.2710	.0974
Total.....	44	10,735	2,903.05	7,766,777	724	.2704	1.3821	.3737

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

LOGGING—Continued.

Establishment No. 19.

[Number of logs hauled, 53,793 (no other output record); log scale, 11,699,590 board feet; kind of timber: chiefly white pine.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Foremen, scalers, general:								
Foremen.....	4	1,080	\$600.00	11,864,540	10,986	\$0.5556	0.0910	\$0.0506
Scalers.....	3	710	201.54	11,864,540	16,711	.2839	.0598	.0170
Repair men, camp.....	2	580	175.04	11,864,540	20,456	.3018	.0489	.0148
Total.....	9	2,370	976.58	11,864,540	5,006	.4121	.1998	.0823
Felling and log making:								
Fellers.....	17	6,728	2,019.00	11,864,540	1,763	.3001	.5671	1.702
Buckers.....	49	12,186	3,286.62	11,864,540	974	.4697	1.0271	2.770
Filers.....	4	800	327.00	11,864,540	13,331	.3674	.0750	.0276
Total.....	70	19,804	5,632.62	11,864,540	599	.2844	1.6692	4.747
Skidding, yarding, and loading:								
Swampers.....	24	5,989	1,536.42	11,864,540	1,981	.2565	.5048	1.295
Limbers.....	26	6,672	1,734.85	11,864,540	1,778	.2600	.5623	1.462
Riggers.....	5	1,380	414.00	11,864,540	8,597	.3000	.1163	.0349
Teamsters.....	31	7,752½	2,322.66	11,864,540	1,530	.2996	.6534	1.958
Gophers.....	7	1,915	478.75	11,864,540	6,196	.2500	.1614	.0404
Hookers.....	12	3,002½	900.75	11,864,540	3,952	.3000	.2531	.0759
Hook tenders.....	6	1,561	429.26	11,864,540	7,601	.2750	.1316	.0362
Signalman.....	1	235	58.75	11,864,540	50,487	.2500	.0198	.0050
Pump man.....	1	270	65.00	11,864,540	43,943	.2407	.0228	.0055
Night watchmen.....	2	651	175.49	11,864,540	18,225	.2696	.0549	.0148
Cranemen.....	10	2,435	805.45	11,864,540	4,873	.3308	.2052	.0679
Wheel and cart loaders.....	4	954	262.35	11,864,540	12,437	.2750	.0804	.0221
Blacksmiths.....	5	1,207½	407.38	11,864,540	9,826	.3374	.1018	.0343
Landing man.....	1	212	58.30	11,864,540	55,965	.2750	.0179	.0049
Loaders.....	13	3,349	1,132.79	11,864,540	3,543	.3382	.2823	.0955
Engineers.....	3	862	368.09	11,864,540	13,764	.4270	.0727	.0310
Firemen.....	2	678	186.45	11,864,540	17,499	.2750	.0571	.0157
Wood bucks.....	2	555	145.50	11,864,540	21,378	.2622	.0468	.0123
Others.....	6	1,550	388.12	11,864,540	7,655	.2504	.1306	.0327
Total.....	161	41,230½	11,870.36	11,864,540	288	.2879	3.4751	11.000
Transportation and unloading:								
Engineers.....	2	629½	278.77	11,864,540	18,848	.4428	.0531	.0225
Firemen.....	2	585	175.50	11,864,540	20,281	.3000	.0493	.0148
Conductors.....	2	585	307.50	11,864,540	20,281	.5256	.0493	.0259
Brakemen.....	2	612	183.60	11,864,540	19,387	.3000	.0516	.0155
Watchman.....	1	310	75.00	11,864,540	38,273	.2419	.0261	.0063
Landing men.....	3	810	270.16	11,864,540	14,648	.3335	.0633	.0228
Total.....	12	3,531½	1,290.53	11,864,540	3,360	.3654	.2977	1.088
Maintenance of transportation..								
	13	3,195	944.98	11,864,540	3,713	.2958	.2693	.0796

Establishment No. 20.

[Number of logs felled, 248; number of feet felled, log scale, 217,508; number of logs bucked, 382; number of feet bucked, log scale, 335,063; number of logs loaded and transported, 433; number of feet loaded and transported, log scale, 331,971; kinds of timber: redwood, 90 per cent; white pine, 5 per cent; fir and spruce, 5 per cent.]

Foremen, scalers, general:								
Foremen.....	5	50	\$26.55	267,380	5,348	\$0.5310	0.1870	\$0.0993
Scalers.....	4	40	10.00	267,380	6,685	.2500	.1496	.0374
Total.....	9	90	36.55	267,380	2,971	.4061	.3366	1.367
Felling and log making:								
Fellers.....	46	455	123.00	152,256	335	.2703	2.9834	.8078
Buckers.....	53	525	145.75	234,559	447	.2776	2.2382	.6214
Peelers.....	30	295	76.25	234,559	795	.2585	1.2577	.3251
Total.....	129	1,275	345.00	234,559	108	.2706	6.4843	1.7543

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

LOGGING—Continued.

Establishment No. 20—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Skidding, yarding, and loading:								
Skid roadmen.....	36	352½	\$102.24	267,380	759	\$0.2900	1.3183	\$0.3824
Yardmen.....	139	1,390	404.18	267,380	192	.2908	5.1986	1.5116
Loaders.....	63	630	184.55	267,380	424	.2929	2.3562	.6902
Total.....	238	2,372½	690.97	267,380	113	.2912	8.8731	2.5842
Transportation and unloading..	14	182½	52.44	267,380	1,465	.2873	.6826	.1961
Maintenance of transportation..	2	160	39.25	267,380	1,671	.2453	.5984	.1468

Establishment No. 21.

[Number of logs hauled, 6,257 (no other output record); log scale, 7,886,129 board feet; kinds of timber: red-wood, 70 per cent; white pine, 28 per cent; fir, 2 per cent.]

Foremen, scalers, general:								
Foremen.....	2	540	\$317.20	5,938,255	10,997	\$0.5874	0.0909	\$0.0534
Scalers.....	5	1,170	332.80	5,938,255	5,075	.2844	.1970	.0560
Total.....	7	1,710	650.00	5,938,255	3,472	.3801	.2880	.1095
Felling and log making:								
Choppers.....	55	13,775	4,029.90	5,938,255	431	.2926	2.3197	.6786
Peelers.....	33	8,295	1,946.20	5,938,255	716	.2346	1.3969	.3277
Sawyers (buckers).....	20	5,060	1,366.15	5,938,255	1,174	.2700	.8521	.2301
Filers.....	2	550	220.00	5,938,255	10,797	.4000	.0926	.0370
Total.....	110	27,680	7,562.25	5,938,255	215	.2732	4.6613	1.2734
Skidding, yarding, and loading:								
Engineers.....	7	1,947½	730.30	5,938,255	3,049	.3750	.3280	.1230
Firemen.....	6	1,370	342.45	5,938,255	4,334	.2500	.2307	.0577
Wood bucks.....	10	2,472½	559.15	5,938,255	2,402	.2261	.4164	.0942
Chunk sawyers.....	3	675	168.70	5,938,255	8,797	.2499	.1137	.0284
Pump men.....	3	812½	183.25	5,938,255	7,309	.2255	.1368	.0309
Powder men.....	2	552½	165.75	5,938,255	10,748	.3000	.0930	.0279
Mucker.....	1	165	33.00	5,938,255	35,989	.2000	.0278	.0056
Splicers.....	2	515	154.50	5,938,255	11,531	.3000	.0867	.0260
Spool tenders.....	4	1,102½	361.45	5,938,255	5,386	.3278	.1857	.0669
Signalmen.....	4	1,185	238.75	5,938,255	5,011	.2015	.1996	.0402
Chasers.....	2	412½	123.75	5,938,255	14,396	.3000	.0695	.0208
Riggers.....	22	5,447½	1,710.60	5,938,255	1,090	.3140	.9174	.2881
Hook tenders.....	8	2,050	897.25	5,938,255	2,897	.4377	.3452	.1511
Hook tenders, landing.....	12	2,717½	863.50	5,938,255	2,185	.3178	.4576	.1454
Night watchmen.....	3	940	211.45	5,938,255	6,317	.2249	.1583	.0356
Machinists.....	2	590	221.60	5,938,255	10,065	.3756	.0994	.0373
Total.....	91	22,955	6,965.45	5,938,255	259	.3042	3.8656	1.1730
Transportation and unloading:								
Engineers.....	3	846	380.70	5,938,255	7,019	.4500	.1425	.0641
Firemen.....	3	856	231.10	5,938,255	6,937	.2700	.1442	.0389
Conductors.....	3	892	356.80	5,938,255	6,657	.4000	.1502	.0601
Brakemen.....	7	1,898	569.40	5,938,255	3,129	.3000	.3196	.0959
Hostler.....	1	310	85.00	5,938,255	19,156	.2742	.0522	.0143
Wiper.....	1	310	50.00	5,938,255	19,156	.1613	.0522	.0084
Lineman.....	1	270	94.50	5,938,255	21,994	.3500	.0455	.0159
Total.....	19	5,382	1,767.50	5,938,255	1,103	.3284	.9063	.2976
Maintenance of transportation.....	28	7,385	1,533.10	5,938,255	804	.2076	1.2436	.2582

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

LOGGING—Continued.

Establishment No. 23.

[Number of logs cut, 1,762 (no other output record); log scale, 53,622 board measure; kinds of timber: cypress, 80 per cent; gum, 20 per cent.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Foremen, scalers, general.....	2	310	\$92.65	543,080	1,752	\$0.2939	0.5708	\$0.1706
Felling and log making.....	15	2,060	498.95	543,080	264	.2422	3.7932	.9187
Skidding, yarding, and loading:								
Lever men.....	4	450	132.50	543,080	1,207	.2944	.8286	.2440
Riggers.....	4	597½	146.75	543,080	909	.2456	1.1002	.2702
Tong men.....	1	140	38.50	543,080	3,879	.2750	.2578	.0709
Trailer.....	1	92½	15.95	543,080	5,871	.1724	.1703	.0294
Firemen.....	2	230	40.25	543,800	2,361	.1750	.4235	.0741
Watchman.....	1	130	28.25	543,080	4,178	.2173	.2394	.0520
Pump man.....	1	130	26.00	543,080	4,178	.2000	.2394	.0479
Laborers.....	15	1,901	314.45	543,080	286	.1654	3.5004	.5790
Total.....	29	3,671	742.65	543,080	148	.2023	6.7596	1.3675
Transportation and unloading....	7	960	203.10	543,080	565	.2116	1.7677	.3740
Maintenance of transportation....	20	2,515	447.00	543,080	216	.1777	4.6310	.8231

Establishment No. 24.

[Number of logs skidded, 21,428; number of feet skidded, log scale, 2,442,806; number of logs loaded, 20,515; number of feet loaded, log scale, 2,951,581; kind of timber: short-leaf yellow pine.]

Foremen, scalers, general:								
Foreman.....	1	260	\$211.50	3,423,833	13,169	\$0.8135	0.0759	\$0.0618
Scaler.....	1	230	46.00	3,423,833	14,886	.2000	.0672	.0134
Total.....	2	490	257.50	3,423,833	6,987	.5255	.1431	.0752
Felling and log making:								
Sawyers.....	25	6,144	1,071.60	2,844,654	463	.1744	2.1598	.3767
Filer.....	1	240	54.00	2,844,654	11,853	.2250	.0844	.0190
Total.....	26	6,384	1,125.60	2,844,654	446	.1763	2.2442	.3957
Skidding, yarding, and loading:								
Swampers.....	16	4,108	574.44	2,844,654	692	.1398	1.4441	.2019
Teamsters.....	19	4,826	919.44	2,844,654	590	.1908	1.8944	.3232
Loaders.....	8	2,170	557.50	3,423,833	1,578	.2509	.6338	.1628
Total.....	43	11,098	2,051.38	3,423,833	276	.1848	3.7723	.6879
Transportation and unloading....	11	3,027	500.60	3,423,833	1,131	.1654	.8841	.1462
Maintenance of transportation....	10	2,483	542.12	3,423,833	1,379	.2183	.7252	.1583

Establishment No. 26.

[Number of logs felled, 570; number of feet felled, log scale, 97,921; number of logs skidded, 341; number of feet skidded, log scale, 85,273; number of logs loaded and hauled, 92; number of feet loaded and hauled, log scale, 25,796; kinds of timber: short-leaf yellow pine, 55 per cent; oak, 25 per cent; gum, 20 per cent.]

Foremen, scalers, general.....	10	103	\$21.10	105,595	1,025	\$0.2049	0.9754	\$0.1998
Felling and log making.....	26	260	58.66	105,595	406	.2256	2.4622	.5555
Skidding, yarding, and loading....	73	727	165.98	109,746	151	.2283	6.6243	1.5124
Transportation and unloading....	14	139	34.52	33,199	239	.2433	4.1869	1.0398
Maintenance of transportation....	16	160	28.10	33,199	207	.1631	4.8194	.7862

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

LOGGING—Concluded.

Establishment No. 27.

[Number of logs hauled, 3,059; log scale, 3,583,052 board feet; kind of timber, chiefly fir.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Foreman, scalers, general.....	1	270	\$223.25	4,299,662	15,925	\$0.8269	0.0628	\$0.0519
Felling and log making:								
Fellers.....	5	1,240	389.76	4,299,662	3,467	.3143	.2884	.0906
Buckers.....	7	1,982	594.60	4,299,662	2,169	.3000	.4610	.1383
Filer.....	1	270	108.00	4,299,662	15,925	.4000	.0628	.0251
Total.....	13	3,492	1,092.36	4,299,662	1,231	.3128	.8122	.2540
Skidding, yarding, and loading:								
Wood bucks.....	3	743	169.83	4,299,662	5,787	.2286	.1729	.0395
Signalmen.....	4	1,017	244.60	4,299,662	4,228	.2405	.2365	.0569
Engineers.....	8	2,190	723.50	4,299,662	1,963	.3304	.5092	.1683
Firemen.....	10	2,790	681.21	4,299,662	1,541	.2442	.6490	.1584
Hook tenders.....	5	1,326½	593.47	4,299,662	3,241	.4474	.3085	.1380
Spool tender.....	1	299	74.80	4,299,662	14,380	.2502	.0685	.0174
Riggers.....	2	482	179.65	4,299,662	8,920	.3727	.1121	.0418
Chasers.....	6	1,511½	461.11	4,299,662	2,845	.3051	.3515	.1072
Clamber.....	1	284	142.00	4,299,662	15,140	.5000	.0661	.0330
Pump man.....	1	307½	68.30	4,299,662	13,983	.2221	.0715	.0159
Choker men.....	18	4,437	1,340.23	4,299,662	969	.3021	1.0319	.3117
Deck man.....	1	326½	98.26	4,299,662	13,169	.3009	.0759	.0229
Loaders.....	3	817	314.83	4,299,662	5,263	.3853	.1900	.0732
Others.....	5	1,332	413.72	4,299,662	3,228	.3106	.3098	.0962
Total.....	68	17,883	5,505.51	4,299,662	241	.3082	4.1542	1.2304
Transportation and unloading.....	10	2,789	860.06	4,299,662	1,542	.3084	.6487	.2090
Maintenance of transportation.....	18	4,244	903.10	4,299,662	1,013	.2128	.9871	.2100

SAWMILL.

Establishment No. 1.

[Equipment.—Three single-cut band saws; 2 edgers; 1 trimmer. Material.—Number of logs, 16,984; log scale, 2,342,683 board feet; log average, 137.9 board feet; kind of timber: oak, 33 per cent; chestnut, 32 per cent; poplar, 12 per cent; maple, 9 per cent; hemlock, 7 per cent; basswood, 2 per cent; miscellaneous, 6 per cent. Product.—Lumber tally, 2,735,227 board feet: prevailing sizes, four quarter, 60 per cent; bills, 20 per cent; five to eight quarter, 12 per cent; other, 8 per cent.]

Sawmill foreman.....	1	250	\$200.00	2,735,227	10,941	\$0.8000	0.0914	\$0.0731
Log pond or yard.....	4	990½	168.11	2,735,227	2,761	.1697	.3621	.0615
Sawmill deck:								
Scaler.....	1	223½	50.28	2,735,227	12,238	.2250	.0817	.0184
Lever man.....	1	223½	44.70	2,735,227	12,238	.2000	.0817	.0153
Total.....	2	447	94.98	2,735,227	6,119	.2125	.1634	.0347
Band saw No. 1:								
Sawyer.....	1	223½	157.03	1,055,173	4,721	.7026	.2118	.1488
Setter.....	1	223½	67.05	1,055,173	4,721	.3000	.2118	.0635
Dogger.....	1	223½	50.28	1,055,173	4,721	.2250	.2118	.0477
Tail sawyer.....	1	223½	44.70	1,055,173	4,721	.2000	.2118	.0424
Total.....	4	894	319.06	1,055,173	1,180	.3569	.8473	.3024

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 1—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Band saw No. 2:								
Sawyer.....	1	213½	\$150.01	1,009,883	4,730	\$0.7026	0.2114	\$0.1485
Setter.....	1	213½	64.05	1,009,883	4,730	.3000	.2114	.0634
Dogger.....	1	213½	48.03	1,009,883	4,730	.2250	.2114	.0476
Tail sawyer.....	1	213½	42.70	1,009,883	4,730	.2000	.2114	.0423
Total.....	4	854	304.79	1,009,883	1,183	.3569	.8456	.3018
Band saw No. 3:								
Sawyer.....	1	223½	157.03	670,171	2,999	.7026	.3335	.2343
Setter.....	1	223½	67.05	670,171	2,999	.3000	.3335	.1000
Dogger.....	1	223½	50.28	670,171	2,999	.2250	.3335	.0750
Tail sawyer.....	1	223½	44.70	670,171	2,999	.2000	.3335	.0667
Total.....	4	894	319.06	670,171	750	.3569	1.3340	.4761
Total band saws:								
Sawyers.....	3	660½	464.07	2,735,227	4,141	.7026	.2415	.1697
Setters.....	3	660½	198.15	2,735,227	4,141	.3000	.2415	.0724
Doggers.....	3	660½	148.59	2,735,227	4,141	.2250	.2415	.0543
Tail sawyers.....	3	660½	132.10	2,735,227	4,141	.2000	.2415	.0483
Total.....	12	2,642	942.91	2,735,227	1,035	.3569	.9650	.3447
Edger No. 1:								
Edgerman.....	1	213½	64.05	1,009,883	4,730	.3000	.2114	.0634
Edgerman's helper.....	1	213½	42.70	1,009,883	4,730	.2000	.2114	.0423
Total.....	2	427	106.75	1,009,883	2,365	.2500	.4228	.1057
Edger No. 2:								
Edgermen.....	2	447	134.10	1,725,344	3,860	.3000	.2591	.0777
Edgerman's helper.....	1	223½	44.70	1,725,344	7,720	.2000	.1295	.0259
Total.....	3	670½	178.80	1,725,344	2,573	.2667	.3886	.1036
Total edging:								
Edgermen.....	3	660½	198.15	2,735,227	4,141	.3000	.2415	.0724
Edgerman's helpers.....	2	437	87.40	2,735,227	6,259	.2000	.1598	.0320
Total.....	5	1,097½	285.55	2,735,227	2,492	.2602	.4012	.1044
Trimming:								
Operator.....	1	223½	78.22	2,735,227	12,238	.3500	.0817	.0286
Operator's helper.....	1	223½	55.87	2,735,227	12,238	.2500	.0817	.0204
Total.....	2	447	134.09	2,735,227	6,119	.3000	.1634	.0490
Refuse—slasher, hog, burner....	1	223½	50.28	2,735,227	12,238	.2250	.0817	.0184
Filing.....	2	447	312.90	2,735,227	6,119	.7000	.1634	.1144
Power and oiling.....	6	1,468	462.80	2,735,227	1,863	.3153	.5367	.1692
Repair.....	10	2,185½	549.32	2,735,227	1,252	.2513	.7990	.2008
Night watch and fire protection.....	1	332	67.67	2,735,227	8,239	.2038	.1214	.0247
Clean-up and miscellaneous.....	3	790	153.50	2,735,227	3,462	.1943	.2888	.0561
Sorting green lumber:								
Grader.....	1	223½	85.00	2,735,227	12,238	.3803	.0817	.0311
Sorters and loaders.....	8	1,689	343.38	2,735,227	1,619	.2033	.6175	.1255
Total.....	9	1,912½	428.38	2,735,227	1,430	.2240	.6992	.1566
Yard—green lumber:								
Foreman.....	1	250	125.00	2,735,227	10,941	.5000	.0914	.0457
Transferring.....	8	1,976	353.38	2,735,227	1,384	.1788	.7224	.1292
Piling.....	16	3,906	768.35	2,735,227	700	.1967	1.4280	.2809

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 2.

[Equipment.—Three single-cut band saws; 2 edgers; 1 trimmer. Material.—Number of logs, 22,278; log scale, 2,217,453 board feet; log average, 99.5 board feet; kind of timber: oak, maple, and chestnut constitute 75 per cent; poplar, hemlock, basswood, and miscellaneous constitute 25 per cent. Product.—Lumber tally, 2,439,198 board feet; prevailing sizes, four quarter, 62 per cent; five to eight quarter, 30 per cent; miscellaneous, 8 per cent.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Sawmill foreman.....	1	273½	\$166.66	2,439,198	8,918	\$0.6094	0.1121	\$0.0683
Log pond or yard.....	5	1,352	253.42	2,439,198	1,804	.1874	.5543	.1039
Sawmill deck:								
Scaler.....	1	273½	85.00	2,439,198	8,918	.3108	.1121	.0348
Lever man.....	1	273½	47.76	2,439,198	8,918	.1746	.1121	.0196
Total.....	2	547	132.76	2,439,198	4,459	.2427	.2243	.0544
Band saw No. 1:								
Sawyer.....	1	272½	136.25	906,245	3,326	.5000	.3007	.1503
Setter.....	1	272½	68.12	906,245	3,326	.2500	.3007	.0752
Doggers.....	2	545	88.56	906,245	1,663	.1625	.6014	.0977
Tail sawyer.....	1	272½	54.50	906,245	3,326	.2000	.3007	.0601
Total.....	5	1,362½	347.43	906,245	665	.2550	1.5035	.3834
Band saw No. 2:								
Sawyer.....	1	270½	135.25	763,541	2,823	.5000	.3543	.1771
Setter.....	1	270½	74.40	763,541	2,823	.2750	.3543	.0974
Dogger.....	1	270½	50.04	763,541	2,823	.1850	.3543	.0655
Tail sawyer.....	1	270½	54.10	763,541	2,823	.2000	.3543	.0709
Total.....	4	1,082	313.79	763,541	706	.2900	1.4171	.4110
Band saw No. 3:								
Sawyer.....	1	273½	136.75	769,412	2,813	.5000	.3555	.1777
Setter.....	1	273½	75.21	769,412	2,813	.2750	.3555	.0977
Dogger.....	1	273½	55.60	769,412	2,813	.2033	.3555	.0723
Tail sawyer.....	1	273½	54.70	769,412	2,813	.2000	.3555	.0711
Total.....	4	1,094	322.26	769,412	703	.2946	1.4219	.4188
Total band saws:								
Sawyers.....	3	816½	408.25	2,439,198	2,987	.5000	.3347	.1674
Setters.....	3	816½	217.73	2,439,198	2,987	.2667	.3347	.0893
Doggers.....	4	1,089	194.20	2,439,198	2,240	.1783	.4465	.0796
Tail sawyers.....	3	816½	163.30	2,439,198	2,987	.2000	.3347	.0669
Total.....	13	3,538½	983.48	2,439,198	689	.2779	1.4507	.4032
Edger No. 1:								
Edgerman.....	1	272½	54.50	1,219,599	4,476	.2000	.2234	.0447
Edgerman's helper.....	1	272½	40.87	1,219,599	4,476	.1500	.2234	.0335
Total.....	2	545	95.37	1,219,599	2,238	.1750	.4469	.0782
Edger No. 2:								
Edgerman.....	1	273½	54.70	1,219,599	4,459	.2000	.2243	.0449
Edgerman's helper.....	1	273½	41.02	1,219,599	4,459	.1500	.2243	.0336
Total.....	2	547	95.72	1,219,599	2,230	.1750	.4485	.0785
Total edging:								
Edgermen.....	2	546	109.20	2,439,198	4,467	.2000	.2238	.0448
Edgerman's helpers.....	2	546	81.89	2,439,198	4,467	.1500	.2238	.0336
Total.....	4	1,092	191.09	2,439,198	2,234	.1750	.4477	.0783
Trimming:								
Operator.....	1	273½	61.54	2,439,198	8,918	.2250	.1121	.0252
Operator's helpers.....	2	547	102.56	2,439,198	4,459	.1875	.2243	.0420
Total.....	3	820½	164.10	2,439,198	2,973	.2000	.3364	.0673

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 2—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wage.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Refuse—slasher, hog, burner	2	558½	\$92.33	2,439,198	4,367	\$0.1633	0.2290	\$0.0379
Filing	3	750	250.00	2,439,198	3,252	.4667	.3075	.1435
Power and oiling	7	1,721	410.03	2,439,198	1,417	.2833	.7056	.1681
Repair	10	2,706	643.77	2,439,198	901	.2379	1.1094	.2639
Night watch and fire protection	1	360	63.00	2,439,198	6,776	.1750	.1476	.0258
Clean-up and miscellaneous	7	1,911½	304.08	2,439,198	1,276	.1591	.7837	.1247
Sorting green lumber:								
Graders	2	548	140.00	2,439,198	4,451	.2555	.2247	.0574
Tallyman	1	274½	54.99	2,439,198	8,836	.2000	.1125	.0225
Lever man	1	274	47.95	2,439,198	8,902	.1750	.1123	.0197
Sorters and loaders	6	1,444	246.38	2,439,198	1,689	.1706	.5920	.1010
Total	10	2,340½	489.23	2,439,198	960	.1926	1.0415	.2006
Yard—green lumber:								
Foreman	1	275	110.00	2,439,198	8,870	.4000	.1127	.0451
Transferring	5	1,348½	234.70	2,439,198	1,809	.1740	.5528	.0962
Filing	12	3,281	639.39	1,838,461	576	.1949	1.7374	.3386

Establishment No. 3.

[*Equipment.*—Two single-cut band saws; 1 horizontal band resaw; 2 edgers; 1 trimmer. *Material.*—Number of logs, 9,521; log scale, 1,190,456 board feet; log average, 125.0 board feet; kind of timber: hemlock, 95.5 per cent; all others 4.5 per cent. *Product.*—Lumber tally, 1,526,050 board feet; prevailing sizes, 74 per cent four and eight quarter.]

Sawmill foreman	1	130	\$55.00	1,526,050	11,739	\$0.4231	0.0852	\$0.0360
Log pond or yard	4	528	123.31	1,526,050	2,890	.2335	.3460	.0868
Sawmill deck	1	130	35.00	1,526,050	11,739	.2692	.0852	.0229
Band saws (2):								
Sawyers	2	250	112.50	1,526,050	6,104	.4590	.1638	.0737
Setters	2	250	82.75	1,526,050	6,104	.3310	.1638	.0542
Doggers	2	250	64.05	1,526,050	6,104	.2562	.1638	.0420
Tail sawyers	2	250	61.25	1,526,050	6,104	.2450	.1638	.0401
Total	8	1,000	320.55	1,526,050	1,526	.3206	.6553	.2101
Horizontal resaw:								
Resawyer	1	130	41.60	1,526,050	11,739	.3200	.0852	.0273
Resawyer's helpers	2	260	63.70	1,526,050	5,869	.2450	.1704	.0417
Total	3	390	105.30	1,526,050	3,913	.2700	.2556	.0690
Total sawing (head, resaw)	11	1,390	425.85	1,526,050	1,098	.3064	.9108	.2791
Edging (2 machines):								
Edgermen	2	260	78.00	1,526,050	5,869	.3000	.1704	.0511
Edgerman's helpers	2	260	54.60	1,526,050	5,869	.2190	.1704	.0358
Total	4	520	132.60	1,526,050	2,935	.2530	.3407	.0869
Trimming:								
Operators	2	260	71.50	1,526,050	5,869	.2750	.1704	.0469
Operator's helpers	2	260	67.37	1,526,050	5,869	.2591	.1704	.0441
Total	4	520	138.87	1,526,050	2,935	.2671	.3407	.0910
Refuse—slasher, hog, burner	4	407	84.10	1,526,050	3,750	.2066	.2667	.0551
Filing	3	396	143.60	1,526,050	3,854	.3753	.2595	.0974
Power and oiling	4	613	159.45	1,526,050	2,489	.2601	.4017	.1045
Repair	5	637	247.73	1,526,050	2,396	.3889	.4174	.1623
Night watch and fire protection	2	214	47.08	1,526,050	7,131	.2200	1.1492	.0309
Clean-up and miscellaneous	10	1,561	337.54	1,526,050	978	.2162	1.0229	.2212

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 3—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wage.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Sorting green lumber:								
Counter.....	1	130	\$32.50	1,526,050	11,739	\$0.2500	0.0852	\$0.0213
Sorters and loaders.....	8	1,068½	234.57	1,526,050	1,428	.2195	.7092	.1537
Total.....	9	1,198½	267.07	1,526,050	1,273	.2228	.7854	.1750
Yard—green lumber:								
Foreman.....	1	130	50.00	1,526,050	11,739	.3846	.0852	.0328
Transfer.....	7	920	208.40	1,526,050	1,659	.2265	.6029	.1366
Piling.....	14	1,963	466.48	1,526,050	777	.2376	1.2863	.3057

Establishment No. 4.

[Equipment.—One single-cut band saw; 1 edger; 1 trimmer. Material.—Number of logs, 4,937; log scale, 402,682 board feet; log average, 81.6 board feet; kind of timber: hemlock, 99.3 per cent, miscellaneous, 0.7 per cent. Product.—Lumber tally, 556,109 board feet; prevailing sizes, approximately 75 per cent four and eight quarter.]

Sawmill foreman.....	1	120	\$45.83	556,109	4,634	\$0.3819	0.2158	\$0.0824
Log pond or yard.....	2	205	45.10	556,109	2,713	.2200	.3686	.0811
Sawmill deck.....	1	120	29.40	556,109	4,634	.2450	.2158	.0529
Band saw:								
Sawyer.....	1	120	52.54	556,109	4,634	.4378	.2158	.0945
Setter.....	1	120	33.00	556,109	4,634	.2750	.2158	.0593
Dogger.....	1	120	33.00	556,109	4,634	.2750	.2158	.0593
Tail Sawyer.....	1	120	29.40	556,109	4,634	.2450	.2158	.0529
Total.....	4	480	147.94	556,109	1,159	.3082	.8631	.2660
Edging:								
Edgerman.....	1	120	32.95	556,109	4,634	.2746	.2158	.0593
Edgerman's helper.....	1	120	26.40	556,109	4,634	.2200	.2158	.0475
Total.....	2	240	59.35	556,109	2,317	.2473	.4316	.1067
Trimming:								
Operator.....	1	120	32.40	556,109	4,634	.2700	.2158	.0583
Operator's helper.....	1	120	29.40	556,109	4,634	.2450	.2158	.0529
Total.....	2	240	61.80	556,109	2,317	.2575	.4316	.1111
Refuse—slasher, hog, burner.....	2	247	54.34	556,109	2,251	.2200	.4442	.0977
Filing.....	1	144	82.20	556,109	3,862	.5708	.2589	.1478
Power and oiling.....	3	420	103.40	556,109	1,324	.2462	.7552	.1859
Repair.....	1	133	42.56	556,109	4,181	.3200	.2392	.0765
Night watch and fire protection.....	1	145	35.52	556,109	3,835	.2450	.2607	.0639
Clean-up and miscellaneous.....	2	160	37.30	556,109	3,476	.2331	.2877	.0671
Sorting green lumber:								
Counter.....	1	129	31.60	556,109	4,311	.2450	.2320	.0568
Sorters and loaders.....	4	471	99.53	556,109	1,181	.2113	.8470	.1790
Total.....	5	600	131.13	556,109	927	.2186	1.0789	.2358
Yard—green lumber:								
Transfer.....	2	384	88.57	556,109	1,448	.2307	.6905	.1593
Piling.....	8	958½	229.80	556,109	580	.2397	1.7236	.4132

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 5.

[Equipment.—Four single-cut band saws; 4 horizontal band resaws; 4 edgers; 4 trimmers. Material.—Number of logs, 9,601; log scale, not kept; kind of timber, practically all spruce. Product.—Lumber tally, 1,444,125 board feet; prevailing sizes, approximately 75 per cent four and eight quarter.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wage.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Sawmill foremen.....	2	130	\$60.00	1,444,125	11,109	\$0.4615	0.0900	\$0.0415
Log pond or yard.....	8	520	96.00	1,444,125	2,777	.1846	.3601	.0665
Sawmill deck:								
Dimension men.....	2	130	42.00	1,444,125	11,109	.2231	.0900	.0291
Lever men.....	2	130	27.00	1,444,125	11,109	.2077	.0900	.0187
Roll ons.....	2	130	25.50	1,444,125	11,109	.1962	.0900	.0177
Total.....	6	390	94.50	1,444,125	3,703	.2423	.2701	.0654
Band saw No. 1:								
Sawyer.....	1	65	33.00	367,007	5,646	.5077	.1771	.0899
Setter.....	1	65	16.50	367,007	5,646	.2538	.1771	.0450
Doggers.....	2	130	25.50	367,007	2,823	.1962	.3542	.0695
Tail sawyer.....	1	65	15.00	367,007	5,646	.2308	.1771	.0409
Total.....	5	325	90.00	367,007	1,129	.2769	.8855	.2452
Horizontal resaw No. 1:								
Resawyer.....	1	65	15.00	367,007	5,646	.2308	.1771	.0409
Total, band saw No. 1 and resaw No. 1.....	6	390	105.00	367,007	941	.2692	1.0627	.2861
Band saw No. 2:								
Sawyer.....	1	65	33.00	384,367	5,913	.5077	.1691	.0859
Setter.....	1	65	16.50	384,367	5,913	.2538	.1691	.0429
Doggers.....	2	130	27.00	384,367	2,957	.2077	.3382	.0702
Tail sawyer.....	1	65	15.00	384,367	5,913	.2308	.1691	.0390
Total.....	5	325	91.50	384,367	1,183	.2815	.8455	.2381
Horizontal resaw No. 2:								
Resawyer.....	1	65	15.00	384,367	5,913	.2308	.1691	.0390
Total, band saw No. 2 and resaw No. 2.....	6	390	106.50	384,367	986	.2731	1.0147	.2771
Band saw No. 3:								
Sawyer.....	1	65	33.00	362,659	5,579	.5077	.1792	.0910
Setter.....	1	65	16.50	362,659	5,579	.2538	.1792	.0455
Doggers.....	2	130	27.00	362,659	2,790	.2077	.3585	.0745
Tail sawyer.....	1	65	15.00	362,659	5,579	.2308	.1792	.0414
Total.....	5	325	91.50	362,659	1,116	.2815	.8962	.2523
Horizontal resaw No. 3:								
Resawyer.....	1	65	15.00	362,659	5,579	.2308	.1792	.0414
Total, band saw No. 3 and resaw No. 3.....	6	390	106.50	362,659	930	.2731	1.0754	.2937
Band saw No. 4:								
Sawyer.....	1	65	33.00	330,092	5,078	.5077	.1969	.1000
Setter.....	1	65	16.50	330,092	5,078	.2538	.1969	.0500
Doggers.....	2	130	27.00	330,092	2,539	.2077	.3938	.0818
Tail sawyer.....	1	65	15.00	330,092	5,078	.2308	.1969	.0454
Total.....	5	325	91.50	330,092	1,016	.2815	.9846	.2772
Horizontal resaw No. 4:								
Resawyer.....	1	65	15.00	330,092	5,078	.2308	.1969	.0454
Total, band saw No. 4 and resaw No. 4.....	6	390	106.50	330,092	846	.2731	1.1815	.3226

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 5—Continued.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wage.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Total band saws:								
Sawyers.....	4	260	\$132.00	1,444,125	5,554	\$0.5077	0.1800	\$0.0914
Setters.....	4	260	66.00	1,444,125	5,554	.2538	.1800	.0457
Doggers.....	8	520	106.50	1,444,125	2,777	.2048	.3601	.0737
Tail sawyers.....	4	260	60.00	1,444,125	5,554	.2308	.1800	.0415
Total.....	20	1,300	364.50	1,444,125	1,111	.2804	.9002	.2524
Total resaws:								
Resawyers.....	4	260	60.00	1,444,125	5,554	.2308	.1800	.0415
Total sawing (head, resaw).....	24	1,560	424.50	1,444,125	926	.2721	1.0802	.2939
Edger No. 1:								
Edgerman.....	1	65	18.00	367,007	5,646	.2769	.1771	.0490
Edgerman's helpers.....	2	130	28.50	367,007	2,823	.2192	.3542	.0777
Total.....	3	195	46.50	367,007	1,882	.2385	.5313	.1267
Edger No. 2:								
Edgerman.....	1	65	18.00	384,367	5,913	.2769	.1691	.0468
Edgerman's helpers.....	2	130	30.00	384,367	2,957	.2308	.3382	.0781
Total.....	3	195	48.00	384,367	1,971	.2462	.5073	.1249
Edger No. 3:								
Edgerman.....	1	65	18.00	362,659	5,579	.2769	.1792	.0496
Edgerman's helpers.....	2	130	33.00	362,659	2,790	.2538	.3585	.0910
Total.....	3	195	51.00	362,659	1,869	.2615	.5377	.1406
Edger No. 4:								
Edgerman.....	1	65	18.00	330,092	5,078	.2769	.1969	.0545
Edgerman's helpers.....	2	130	31.50	330,092	2,539	.2423	.3938	.0954
Total.....	3	195	49.50	330,092	1,693	.2538	.5907	.1500
Total edging:								
Edgermen.....	4	260	72.00	1,444,125	5,554	.2769	.1800	.0499
Edgerman's helpers.....	8	520	123.00	1,444,125	2,777	.2365	.3601	.0852
Total.....	12	780	195.00	1,444,125	1,851	.2500	.5401	.1350
Trimmer No. 1:								
Marker.....	1	65	18.00	367,007	5,646	.2769	.1771	.0490
Operator.....	1	65	13.50	367,007	5,646	.2077	.1771	.0368
Total.....	2	130	31.50	367,007	2,823	.2423	.3542	.0858
Trimmer No. 2:								
Marker.....	1	65	18.00	384,367	5,913	.2769	.1691	.0468
Operator.....	1	65	13.50	384,367	5,913	.2077	.1691	.0351
Total.....	2	130	31.50	384,367	2,957	.2423	.3382	.0820
Trimmer No. 3:								
Marker.....	1	65	18.00	362,659	5,579	.2769	.1792	.0496
Operator.....	1	65	13.50	362,659	5,579	.2077	.1792	.0372
Total.....	2	130	31.50	362,659	2,790	.2423	.3585	.0869
Trimmer No. 4:								
Marker.....	1	65	18.00	330,092	5,078	.2769	.1969	.0545
Operator.....	1	65	13.50	330,092	5,078	.2077	.1969	.0409
Total.....	2	130	31.50	330,092	2,539	.2423	.3938	.0954
Total trimming:								
Markers.....	4	260	72.00	1,444,125	5,554	.2769	.1800	.0499
Operators.....	4	260	54.00	1,444,125	5,554	.2077	.1800	.0374
Total.....	8	520	126.00	1,444,125	2,777	.2423	.3601	.0873

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 5—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wage.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Refuse—slasher, hog, burner.....	8	520	\$102.00	1,444,125	2,777	\$0.1962	0.3601	\$0.0706
Filing.....	6	390	145.00	1,444,125	3,703	.4231	.2701	.1143
Power and oiling.....	16	1,044	293.77	1,444,125	1,383	.2901	.7229	.1591
Repair.....	28	1,826½	388.76	1,444,125	791	.2128	1.2648	.2692
Night watch and fire protection.....	6	432½	84.23	1,444,125	3,337	.1946	.2997	.0583
Clean-up and miscellaneous.....	13	849	154.50	1,444,125	1,701	.1820	.5879	.1070
Sorting green lumber:								
Checkers.....	4	260	60.00	1,444,125	5,554	.2308	.1800	.0415
Sorters and loaders.....	15	962½	170.60	1,444,125	1,501	.1773	.6663	.1181
Total.....	19	1,222½	230.60	1,444,125	1,182	.1887	.8463	.1597
Yard—green lumber:								
Foreman.....	1	65	17.10	1,444,125	22,217	.2631	.0450	.0118
Transfer.....	7	467½	86.25	1,444,125	3,087	.1844	.3239	.0597
Filing.....	42	2,731½	494.25	1,444,125	529	.1809	1.8916	.3422

Establishment No. 6.

[Equipment.—Two double-cut band saws; 1 pony single-cut band saw; 3 edgers; 3 trimmers. Material.—Number of logs, 8,119; log scale, not kept; kind of timber, practically all spruce. Product.—Lumber tally, 832,455 board feet; prevailing sizes, two inches and under in thickness.]

Sawmill foreman.....	1	65	\$23.08	832,455	12,807	\$0.3551	0.0781	\$0.0277
Log pond or yard.....	4	260	48.00	832,455	3,202	.1846	.3123	.0577
Sawmill deck:								
Dimension man.....	1	65	24.00	832,455	12,807	.3692	.0781	.0288
Lever man.....	1	65	10.50	832,455	12,807	.1615	.0781	.0126
Roll downs.....	2	130	25.50	832,455	6,404	.1962	.1562	.0306
Total.....	4	260	60.00	832,455	3,202	.2308	.3123	.0721
Band saw, No. 1 (double-cut):								
Sawyer.....	1	65	33.00	357,229	5,496	.5077	.1820	.0924
Setter.....	1	65	21.00	357,229	5,496	.3231	.1820	.0588
Doggers.....	2	130	27.00	357,229	2,748	.2077	.3639	.0756
Tail sawyer.....	1	65	15.00	357,229	5,496	.2308	.1820	.0420
Total.....	5	325	96.00	357,229	1,099	.2954	.9098	.2657
Band saw, No. 2 (double-cut):								
Sawyer.....	1	65	33.00	365,512	5,623	.5077	.1778	.0903
Setter.....	1	65	21.00	365,512	5,623	.3231	.1778	.0575
Doggers.....	2	130	27.00	365,512	2,812	.2077	.3557	.0739
Tail sawyer.....	1	65	15.00	365,512	5,623	.2308	.1778	.0410
Total.....	5	325	96.00	365,512	1,125	.2954	.8892	.2626
Pony band saw:								
Sawyer.....	1	65	30.00	109,714	1,688	.4615	.5924	.2734
Roll on and dogger.....	1	65	15.00	109,714	1,688	.2308	.5924	.1367
Tail sawyer.....	1	65	13.50	109,714	1,688	.2077	.5924	.1230
Total.....	3	195	58.50	109,714	563	.3000	1.7773	.5332
Total band saws:								
Sawyers.....	3	195	96.00	832,455	4,269	.4923	.2342	.1153
Setters.....	2	130	42.00	832,455	6,404	.3231	.1562	.0505
Doggers.....	5	325	69.00	832,455	2,561	.2123	.3904	.0829
Tail sawyers.....	3	195	43.50	832,455	4,269	.2231	.2342	.0523
Total.....	13	845	250.50	832,455	985	.2964	1.0151	.3009

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 6—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wage.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Edger No. 1:								
Edgerman.....	1	65	\$19.50	357,229	5,496	\$0.3000	0.1820	\$0.0546
Edgerman's helper.....	1	65	15.00	357,229	5,496	.2308	.1820	.0420
Total.....	2	130	34.50	357,229	2,748	.2654	.3639	.0966
Edger No. 2:								
Edgerman.....	1	65	19.50	365,512	5,623	.3000	.1778	.0533
Edgerman's helper.....	1	65	15.00	365,512	5,623	.2308	.1778	.0410
Total.....	2	130	34.50	365,512	2,812	.2654	.3557	.0944
Edger No. 3:								
Edgerman.....	1	65	16.50	109,714	1,688	.2538	.5924	.1504
Edgerman's helper.....	1	65	13.50	109,714	1,688	.2077	.5924	.1230
Total.....	2	130	30.00	109,714	844	.2308	1.1849	.2734
Total edging:								
Edgerman.....	3	195	55.50	832,455	4,269	.2846	.2342	.0667
Edgerman's helpers.....	3	195	43.50	832,455	4,269	.2231	.2342	.0523
Total.....	6	390	99.00	832,455	2,135	.2538	.4685	.1189
Trimmer No. 1:								
Operator.....	1	65	18.00	357,229	5,496	.2769	.1820	.0504
Operator's helper.....	1	65	15.00	357,229	5,496	.2308	.1820	.0420
Total.....	2	130	33.00	357,229	2,748	.2538	.3639	.0924
Trimmer No. 2:								
Operator.....	1	65	19.50	365,512	5,623	.3000	.1778	.0533
Operator's helper.....	1	65	15.00	365,512	5,623	.2308	.1778	.0410
Total.....	2	130	34.50	365,512	2,812	.2654	.3557	.0944
Trimmer No. 3:								
Operator.....	1	65	18.00	109,714	1,688	.2769	.5924	.1641
Operator's helper.....	1	66	13.50	109,714	1,688	.2077	.5924	.1230
Total.....	2	130	31.50	109,714	844	.2423	1.1849	.2871
Total trimming:								
Operators.....	3	195	55.50	832,455	4,269	.2846	.2342	.0667
Operator's helpers.....	3	195	43.50	832,455	4,269	.2231	.2342	.0523
Total.....	6	390	99.00	832,455	2,135	.2538	.4685	.1189
Refuse—slasher, hog, burner.....	7	455	84.00	832,455	1,830	.1846	.5466	.1009
Piling.....	2	130	120.00	832,455	6,404	.9231	.1562	.1442
Power and oiling.....	6	400	109.20	832,455	2,081	.2730	.4805	.1312
Repair.....	6	423	105.25	832,455	1,968	.2488	.5081	.1264
Night watch and fire protection.....	1	76	15.75	832,455	10,953	.2072	.0913	.0189
Clean-up and miscellaneous.....	7	510	97.75	832,455	1,632	.1917	.6127	.1174
Sorting green lumber:								
Checkers.....	3	195	45.00	832,455	4,269	.2308	.2342	.0541
Sorting and loading.....	8	523	96.70	832,455	1,592	.1849	.6293	.1162
Total.....	11	718	141.70	832,455	1,159	.1974	.8625	.1702
Yard—green lumber:								
Foreman.....	1	76	24.60	832,455	10,953	.3224	.0913	.0294
Transfer.....	6	390	72.00	832,455	2,135	.1846	.4685	.0805
Piling.....	21	1,370	254.20	832,455	608	.1855	1.6457	.3054

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 7.

[Equipment.—One single-cut band saw; 1 horizontal band resaw; 1 edger; 1 trimmer. Material.—Number of logs, 3,315; log scale, not kept; kind of timber: 97 per cent spruce; 2 per cent hemlock; 1 per cent pine. Product.—Lumber tally, 345,957 board feet; prevailing sizes, 13 per cent timbers; 87 per cent two and four quarter.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wage.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Sawmill foreman	1	60	\$28.84	345,957	5,766	\$0.4807	0.1734	\$0.0834
Log pond or yard	2	120	21.00	345,957	2,883	.1750	.3469	.0607
Sawmill deck:								
Dimension	2	120	36.00	345,957	2,883	.3000	.3469	.1041
Roll on	1	60	18.00	345,957	5,766	.3000	.1734	.0520
Total	3	180	54.00	345,957	1,922	.3000	.5203	.1561
Band saw:								
Sawyer	1	60	42.00	345,957	5,766	.7000	.1734	.1214
Setter	1	60	18.00	345,957	5,766	.3000	.1734	.0520
Dogger	1	60	18.00	345,957	5,766	.3000	.1734	.0520
Tail sawyer	1	60	15.00	345,957	5,766	.2500	.1734	.0434
Total	4	240	93.00	345,957	1,441	.3875	.6937	.2688
Horizontal band resaw:								
Resawyer	1	60	21.00	345,957	5,766	.3500	.1734	.0607
Resawyer's helpers	3	180	40.50	345,957	1,922	.2250	.5203	.1171
Total	4	240	61.50	345,957	1,441	.2563	.6937	.1778
Total sawing (head, resaw)	8	480	123.00	345,957	721	.2563	1.3875	.3555
Edging:								
Edgerman	1	60	21.00	345,957	5,766	.3500	.1734	.0607
Edgerman's helper	1	60	13.50	345,957	5,766	.2250	.1734	.0390
Total	2	120	34.50	345,957	2,883	.2875	.3469	.0997
Trimming:								
Markers	2	120	43.50	345,957	2,883	.3625	.3469	.1257
Operator	1	60	15.00	345,957	5,766	.2500	.1734	.0434
Operator's helper	1	60	13.50	345,957	5,766	.2250	.1734	.0390
Total	4	240	72.00	345,957	1,441	.3000	.6937	.2081
Refuse—slasher, hog, burner.....	2	120	24.00	345,957	2,883	.2000	.3469	.0694
Filing	1	60	48.00	345,957	5,766	.8000	.1734	.1387
Power and oiling	3	192	55.06	345,957	1,797	.2860	.5564	.1592
Repair	3	227	60.37	345,957	1,521	.2654	.6576	.1745
Night watch and fire protection ..	2	140	33.25	345,957	2,471	.2375	.4047	.0961
Clean-up and miscellaneous	7	370	71.12	345,957	935	.1922	1.0695	.2056
Sorting green lumber:								
Checker	1	60	19.50	345,957	5,766	.3250	.1734	.0564
Sorters and loaders	5	300	69.00	345,957	1,153	.2300	.8672	.1994
Total	6	360	88.50	345,957	961	.2458	1.0406	.2558
Yard—green lumber:								
Transfer	4	240	60.00	345,957	1,441	.2500	.6937	.1734
Piling	6	360	81.00	345,957	961	.2250	1.0406	.2341

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 8.

[Equipment.—Six single-cut band saws; 1 sash gang saw; 2 horizontal band resaws; 6 edgers; 3 trimmers. Material.—Number of logs, 24,753; log scale, 1,605,460 board feet; log average, 64.9 board feet; kind of timber: chiefly white pine, some balsam, spruce, Norway pine, and tamarack. Product.—Lumber tally, 2,319,501 board feet; prevailing sizes, four to eight quarter.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wage.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Sawmill foreman.....	4	280	\$117.50	2,319,501	8,284	\$0.4196	0.1207	\$0.0507
Log pond or yard.....	13	946	229.34	2,319,501	2,452	.2424	.4078	.0889
Sawmill deck.....	4	280	74.21	2,319,501	8,284	.2650	.1207	.0320
Band saws (3):								
Sawyers.....	3	210	157.50	1,338,165	6,372	.7500	.1569	.1177
Setters.....	3	210	75.60	1,338,165	6,372	.3600	.1569	.0565
Doggers.....	4	280	88.85	1,338,165	4,779	.3173	.2092	.0664
Tail sawyers.....	3	210	55.65	1,338,165	6,372	.2650	.1569	.0416
Total.....	13	910	377.60	1,338,165	1,471	.4149	.6800	.2822
Band saws (3):								
Sawyers.....	3	210	157.50	981,336	4,673	.7500	.2140	.1605
Setters.....	3	210	75.60	981,336	4,673	.3600	.2140	.0770
Doggers.....	3	210	75.60	981,336	4,673	.3600	.2140	.0770
Tail sawyers.....	3	210	55.65	981,336	4,673	.2650	.2140	.0567
Total.....	12	840	364.35	981,336	1,168	.4338	.8560	.3713
Total band saws:								
Sawyers.....	6	420	315.00	2,319,501	5,523	.7500	.1811	.1358
Setters.....	6	420	151.20	2,319,501	5,523	.3600	.1811	.0652
Doggers.....	7	490	164.45	2,319,501	4,734	.3356	.2113	.0709
Tail sawyers.....	6	420	111.30	2,319,501	5,523	.2650	.1811	.0480
Total.....	25	1,750	741.95	2,319,501	1,325	.4240	.7545	.3199
Gang saw:								
Sawyer.....	1	70	22.05	1,338,165	19,117	.3150	.0523	.0165
Sawyer's helpers.....	2	140	40.60	1,338,165	9,558	.2900	.1046	.0303
Total.....	3	210	62.65	1,338,165	6,372	.2983	.1569	.0468
Resaw:								
Resawyer.....	1	70	20.65	981,336	14,019	.2950	.0713	.0210
Resawyer's helpers.....	2	140	34.30	981,336	7,010	.2450	.1427	.0350
Total.....	3	210	54.95	981,336	4,673	.2617	.2140	.0560
Total sawing (head, gang, resaw):	31	2,170	859.55	2,319,501	1,069	.3901	.9355	.3706
Edging (3 machines):								
Edgemen.....	5	350	126.00	1,338,165	3,823	.3600	.2616	.0942
Edgeman's helpers.....	6	420	102.60	1,338,165	3,186	.2443	.3139	.0767
Total.....	11	770	228.60	1,338,165	1,738	.2969	.5754	.1708
Edging (2 machines):								
Edgemen.....	4	280	100.80	981,336	3,505	.3600	.2853	.1027
Edgeman's helpers.....	4	280	67.55	981,336	3,505	.2413	.2853	.0688
Total.....	8	560	168.35	981,336	1,752	.3006	.5707	.1716
Total edging:								
Edgemen.....	9	630	226.80	2,319,501	3,682	.3600	.2716	.0978
Edgeman's helpers.....	10	700	170.15	2,319,501	3,314	.2431	.3018	.0734
Total.....	19	1,330	396.95	2,319,501	1,744	.2985	.5734	.1711
Trimming (2 machines):								
Operators.....	2	140	37.80	1,338,165	9,558	.2700	.1046	.0282
Operator's helpers.....	4	280	75.60	1,338,165	4,779	.2700	.2092	.0565
Total.....	6	420	113.40	1,338,165	3,186	.2700	.3139	.0847

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 8—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wage.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Trimming (1 machine):								
Operator.....	1	70	\$20.65	981,336	14,019	\$0.2950	0.0713	\$0.0210
Operator's helpers.....	2	141½	36.38	981,336	6,935	.2571	.1442	.0371
Total.....	3	211½	57.03	981,336	4,640	.2696	.2155	.0581
Total trimming:								
Operators.....	3	210	59.45	2,319,501	11,045	.2783	.0905	.0252
Operator's helpers.....	6	421½	111.98	2,319,501	5,503	.2657	.1817	.0483
Total.....	9	631½	170.43	2,319,501	3,673	.2699	.2723	.0735
Refuse—slasher, hog, burner.....	5	354½	93.97	2,319,501	6,543	.2651	.1528	.0405
Filing.....	8	560	331.31	2,319,501	4,142	.5916	.2414	.1428
Power and oiling.....	11	837	219.84	2,319,501	2,771	.2627	.3609	.0948
Repair.....	6	462	151.69	2,319,501	5,021	.3283	.1992	.0654
Night watch and fire protection..	4	288	58.08	2,319,501	8,054	.2017	.1242	.0250
Clean-up and miscellaneous.....	13	958½	224.38	2,319,501	2,420	.2341	.4132	.0967
Sorting green lumber:								
Foremen.....	2	140	49.00	2,319,501	16,568	.3500	.0604	.0211
Graders.....	3	220	59.40	2,319,501	10,543	.2700	.0948	.0256
Markers.....	3	215	51.88	2,319,501	10,788	.2413	.0927	.0224
Sorters and loaders.....	36	2,570	628.01	2,319,501	903	.2444	1.1080	.2708
Total.....	41	3,145	788.29	2,319,501	738	.2506	1.3559	.3399
Yard—green lumber:								
Foremen.....	2	140	68.75	2,319,501	16,568	.4911	.0604	.0296
Transfer.....	24	1,719½	378.98	2,319,501	1,349	.2204	.7413	.1634
Piling.....	52	3,671½	909.64	2,319,501	632	.2478	1.5829	.3922

Establishment No. 9.

[Equipment.—Two single-cut band saws; 1 sash gang saw; 1 horizontal band resaw; 2 edgers; 1 trimmer. Material.—Number of logs, 66,285; log scale, 4,166,700 board feet; log average, 62.9 board feet; kind of timber: white pine, 95 per cent; miscellaneous, 5 per cent. Product.—Lumber tally, 4,380,981 board feet; prevailing sizes, four to eight quarter in stock widths.]

Sawmill foreman.....	1	260	\$110.00	4,380,981	16,850	\$0.4231	0.0593	\$0.0251
Log pond or yard.....	3	750	183.75	4,380,981	5,841	.2450	.1712	.0419
Sawmill deck.....	2	351½	135.23	4,380,981	12,464	.3847	.0802	.0309
Band saws (2):								
Sawyers.....	2	520	390.00	4,380,981	8,425	.7500	.1187	.0890
Settlers.....	2	520	188.13	4,380,981	8,425	.3618	.1187	.0429
Doggers.....	2	520	187.20	4,380,981	8,425	.3600	.1187	.0427
Tail sawyers.....	2	520	137.89	4,380,981	8,425	.2650	.1187	.0315
Total.....	8	2,080	903.13	4,380,981	2,106	.4342	.4748	.2051
Gang saw:								
Sawyer.....	1	260	91.00	4,380,981	16,850	.3500	.0593	.0208
Sawyer's helpers.....	3	795	211.41	4,380,981	5,511	.2659	.1814	.0483
Total.....	4	1,055	302.41	4,380,981	4,153	.2866	.2408	.0690
Resaw:								
Resawyer.....	1	260	83.20	4,380,981	16,850	.3200	.0593	.0190
Resawyer's helpers.....	4	999	245.06	4,380,981	4,385	.2453	.2279	.0559
Total.....	5	1,259	328.26	4,380,981	3,480	.2607	.2874	.0749
Total sawing (head, gang, resaw).....	17	4,394	1,533.80	4,380,981	997	.3491	1.0030	.3501

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 9—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wage.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Edging (2 machines):								
Edgemen.....	4	1,040	\$350.00	4,380,981	4,212	\$0.3365	0.2374	\$0.0799
Edgerman's helpers.....	4	1,040	256.49	4,380,981	4,212	.2466	.2374	.0585
Total.....	8	2,080	606.49	4,380,981	2,106	.2916	.4748	.1384
Trimming (1 machine):								
Operators.....	2	520	153.40	4,380,981	8,425	.2950	.1187	.0350
Operator's helpers.....	2	520	145.60	4,380,981	8,425	.2800	.1187	.0332
Total.....	4	1,040	299.00	4,380,981	4,212	.2875	.2374	.0682
Refuse—slasher, hog, burner....	5	1,200	287.73	4,380,981	3,651	.2398	.2739	.0657
Filing.....	3	780	527.80	4,380,981	5,617	.6767	.1790	.1205
Power and oiling.....	4	1,357	353.67	4,380,981	3,228	.2606	.3097	.0807
Repair.....	2	616	181.37	4,380,981	7,112	.2944	.1406	.0414
Night watch and fire protection.....	5	1,499	374.85	4,380,981	2,923	.2501	.3421	.0856
Clean-up and miscellaneous.....	12	3,018	612.40	4,380,981	1,452	.2029	.6890	.1398
Sorting green lumber:								
Graders.....	2	515	139.05	4,380,981	8,507	.2700	.1176	.0317
Sorters and loaders.....	16	4,169	1,070.79	4,380,981	1,051	.2568	.9515	.2444
Total.....	18	4,684	1,209.84	4,380,981	935	.2583	1.0692	.2762
Yard—green lumber:								
Foreman.....	1	290	85.50	4,380,981	15,107	.2948	.0662	.0195
Transfer.....	7	1,986	441.84	4,380,981	2,206	.2225	.4533	.1009
Piling.....	20	5,592	1,451.88	4,380,981	783	.2596	1.2764	.3314

Establishment No. 10.

[Equipment.—Two single-cut band saws; 1 sash gang saw; 1 horizontal band resaw; 3 edgers; 2 trimmers. Material.—Number of logs, not kept; log scale, not kept; kind of timber: white pine, 70 per cent; Norway pine, 15 per cent; spruce, 12 per cent; tamarack, 3 per cent. Product.—Lumber tally, 5,026,488 board feet; prevailing sizes, four to eight quarter.]

Sawmill foremen.....	2	260	\$100.00	5,026,488	19,333	\$0.3846	0.0517	\$0.0199
Log pond or yard.....	14	1,874	465.95	5,026,488	2,682	.2486	.3728	.0927
Sawmill deck.....	6	769	219.21	5,026,488	6,536	.2851	.1530	.0436
Band saws (2, day and night):								
Sawyers.....	4	520	416.00	5,026,488	9,666	.8000	.1035	.0828
Setters.....	4	520	169.00	5,026,488	9,666	.3250	.1035	.0336
Doggers.....	4	520	169.00	5,026,488	9,666	.3250	.1035	.0336
Tail sawyers.....	4	520	130.00	5,026,488	9,666	.2500	.1035	.0259
Total.....	16	2,080	884.00	5,026,488	2,417	.4250	.4138	.1759
Gang saw (1, day and night):								
Sawyers.....	2	260	104.00	5,026,488	19,333	.4900	.0517	.0207
Sawyer's helpers.....	15	1,965½	481.28	5,026,488	2,357	.2449	.3910	.0957
Total.....	17	2,225½	585.28	5,026,488	2,259	.2630	.4428	.1164
Resaw (1, day and night):								
Resawyers.....	2	260	65.00	5,026,488	19,333	.2500	.0517	.0129
Resawyer's helpers.....	6	783	169.62	5,026,488	6,420	.2166	.1558	.0337
Total.....	8	1,043	234.62	5,026,488	4,819	.2249	.2075	.0467
Total sawing (head, gang, and resaw).....	41	5,348½	1,703.90	5,026,488	940	.3186	1.0641	.3390

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 10—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wage.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Edging (3 machines, day and night):								
Edgemen	10	1,300	\$172.24	5,026,488	3,867	\$0.1325	0.2586	\$0.0343
Edgerman's helpers	18	2,288	473.64	5,026,488	2,197	.2070	.4552	.0942
Total	28	3,588	645.88	5,026,488	1,401	.1800	.7138	.1285
Trimming (2 machines, day and night):								
Operators	4	520	130.00	5,026,488	9,666	.2500	.1035	.0259
Operator's helpers	8	1,040	260.00	5,026,488	4,833	.2500	.2069	.0517
Total	12	1,560	390.00	5,026,488	3,222	.2500	.3104	.0776
Refuse—slasher, hog, burner	7	961	216.22	5,026,488	5,230	.2250	.1912	.0430
Filing	5	650	429.00	5,026,488	7,733	.6600	.1293	.0853
Power and oiling	10	1,340	352.58	5,026,488	3,751	.2631	.2666	.0701
Repair	6	743	270.23	5,026,488	6,765	.3637	.1478	.0538
Night watch and fire protection	2	337	76.98	5,026,488	14,915	.2284	.0670	.0153
Clean-up and miscellaneous	11	1,430	358.70	5,026,488	3,515	.2508	.2845	.0714
Sorting green lumber:								
Graders	6	802	240.60	5,026,488	6,267	.3000	.1596	.0479
Sorters and loaders	27	3,563	863.72	5,026,488	1,411	.2424	.7088	.1718
Total	33	4,365	1,104.32	5,026,488	1,152	.2530	.8684	.2197
Yard—green lumber:								
Foreman	1	130	66.66	5,026,488	38,665	.5128	.0259	.0133
Transfer	16	2,070	525.19	4,040,150	1,952	.2537	.5124	.1300
Piling	37	4,862	1,545.32	4,040,150	831	.3178	1.2034	.3825

Establishment No. 11.

[Equipment.—Two single-cut band saws; 1 horizontal band resaw; 2 edgers; 1 trimmer. Material.—Number of logs, not kept; log scale, not kept; kind of timber: white pine, 71 per cent; Norway pine, 15 per cent; spruce, 10 per cent; tamarack, 4 per cent. Product.—Lumber tally, 2,918,229 board feet; prevailing sizes, four to eight quarter.]

Sawmill foremen	2	270	\$116.66	2,918,229	10,808	\$0.4321	0.0925	\$0.0400
Log pond or yard	6	768	197.50	2,918,229	3,800	.2572	.2632	.0677
Sawmill deck	3	370	95.75	2,918,229	7,887	.2588	.1268	.0328
Band saws (2, day and night):								
Sawyers	4	520	416.00	2,918,229	5,612	.8000	.1782	.1426
Setters	4	520	169.00	2,918,229	5,612	.3250	.1782	.0579
Doggers	4	520	169.00	2,918,229	5,612	.3250	.1782	.0579
Tail sawyers	4	520	130.00	2,918,229	5,612	.2500	.1782	.0445
Total	16	2,080	884.00	2,918,229	1,403	.4250	.7128	.3029
Resaw (1, day and night):								
Resawyers	2	260	65.00	2,918,229	11,224	.2500	.0891	.0223
Resawyer's helpers	4	550	121.50	2,918,229	5,306	.2209	.1885	.0416
Total	6	810	186.50	2,918,229	3,603	.2302	.2776	.0639
Total sawing (head, resaw)	22	2,890	1,070.50	2,918,229	1,010	.3704	.9903	.3668
Edging (2 machines, day and night):								
Edgemen	6	780	253.50	2,918,229	3,741	.3250	.2673	.0869
Edgerman's helpers	4	528	111.92	2,918,229	5,527	.2120	.1809	.0384
Total	10	1,308	365.42	2,918,229	2,231	.2794	.4482	.1252

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 11—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Trimming (1 machine, day and night):								
Operators.....	2	260	\$65.00	2,918,229	11,224	\$0.2500	0.0891	\$0.0223
Operator's helpers.....	6	776	187.60	2,918,229	3,761	.2418	.2659	.0643
Total.....	8	1,036	252.60	2,918,229	2,817	.2438	.3550	.0866
Refuse—slasher, hog, burner.....	6	784	176.39	2,918,229	3,722	.2250	.2687	.0604
Piling.....	4	520	299.00	2,918,229	5,612	.5750	.1782	.1025
Power and oiling.....	7	998	282.34	2,918,229	2,924	.2829	.3420	.0968
Repair.....	3	441½	142.39	2,918,229	6,610	.3225	.1513	.0488
Night watch and fire protection.....	2	220	49.37	2,918,229	13,265	.2244	.0754	.0169
Clean-up and miscellaneous.....	8	1,001	212.51	2,918,229	2,915	.2123	.3430	.0728
Sorting green lumber:								
Graders.....	4	532	153.10	2,918,229	5,485	.2878	.1823	.0525
Sorters and loaders.....	14	1,867½	439.71	2,918,229	1,563	.2355	.6399	.1507
Total.....	18	2,399½	592.81	2,918,229	1,216	.2471	.8222	.2031
Yard—green lumber:								
Foreman.....	1	130	41.66	2,918,229	22,448	.3205	.0445	.0143
Transfer.....	12	1,533	361.62	2,257,883	1,743	.2359	.6790	.1602
Piling.....	24	3,216	964.31	2,257,883	702	.2998	1.4243	.4271

Establishment No. 12.

[Equipment.—One single-cut band saw; 1 edger; 1 trimmer. Material.—Number of logs, 7,665; log scale, 2,019,240 board feet; log average, 263.4 board feet; kind of timber: yellow pine, 60 per cent; fir and larch, 20 per cent; white pine, 10 per cent; spruce, 10 per cent. Product.—Lumber tally, 2,726,944 board feet; prevailing sizes, 59.8 per cent under 2 inches in thickness.]

Sawmill foremen.....	2	500	\$291.66	2,726,944	5,454	\$0.5833	0.1834	\$0.1070
Log pond or yard.....	2	500	154.25	2,726,944	5,454	.3085	.1834	.0566
Sawmill deck.....	2	500	147.00	2,726,944	5,454	.2940	.1934	.0539
Band saw (day):								
Sawyer.....	1	260	231.40	1,446,795	5,565	.8900	.1797	.1599
Setter.....	1	260	101.40	1,446,795	5,565	.3900	.1797	.0701
Dogger.....	1	260	101.40	1,446,795	5,565	.3900	.1797	.0701
Tail sawyer.....	1	260	78.00	1,446,795	5,565	.3000	.1797	.0539
Total.....	4	1,040	512.20	1,446,795	1,391	.4925	.7188	.3540
Band saw (night):								
Sawyer.....	1	240	213.60	1,280,149	5,334	.8900	.1875	.1609
Setter.....	1	240	93.60	1,280,149	5,334	.3900	.1875	.0731
Dogger.....	1	240	93.60	1,280,149	5,334	.3900	.1875	.0731
Tail sawyer.....	1	240	78.00	1,280,149	5,334	.3250	.1875	.0609
Total.....	4	960	478.80	1,280,149	1,335	.4988	.7499	.3740
Total band saw:								
Sawyers.....	2	500	445.00	2,726,944	5,454	.8900	.1834	.1632
Setters.....	2	500	195.00	2,726,944	5,454	.3900	.1834	.0715
Doggers.....	2	500	195.00	2,726,944	5,454	.3900	.1834	.0715
Tail sawyers.....	2	500	156.00	2,726,944	5,454	.3120	.1834	.0572
Total.....	8	2,000	991.00	2,726,944	1,363	.4955	.7334	.3634
Edging (day):								
Edgerman.....	1	260	114.40	1,446,795	5,565	.4400	.1797	.0791
Edgerman's helper.....	1	260	71.50	1,446,795	5,565	.2750	.1797	.0494
Total.....	2	520	185.90	1,446,795	2,782	.3575	.3594	.1285

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 12—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Edging (night):								
Edgerman.....	1	240	\$99.60	1,280,149	5,334	\$0.4150	0.1875	\$0.0778
Edgerman's helper.....	1	240	66.00	1,280,149	5,334	.2750	.1875	.0516
Total.....	2	480	165.60	1,280,149	2,667	.3450	.3750	.1294
Total edging:								
Edgerman.....	2	500	214.00	2,726,944	5,454	.4280	.1834	.0785
Edgerman's helpers.....	2	500	137.50	2,726,944	5,454	.2750	.1834	.0504
Total.....	4	1,000	351.50	2,726,944	2,727	.3515	.3667	.1289
Trimming (day):								
Operator.....	1	260	87.10	1,446,795	5,565	.3350	.1797	.0602
Operator's helper.....	1	260	71.50	1,446,795	5,565	.2750	.1797	.0494
Total.....	2	520	178.60	1,446,795	2,782	.3050	.3594	.1096
Trimming (night):								
Operator.....	1	240	80.40	1,280,149	5,334	.3350	.1875	.0628
Operator's helper.....	1	240	66.00	1,280,149	5,334	.2750	.1875	.0516
Total.....	2	480	146.40	1,280,149	2,667	.3050	.3750	.1144
Total trimming:								
Operators.....	2	500	167.50	2,726,944	5,454	.3350	.1834	.0614
Operator's helpers.....	2	500	137.50	2,726,944	5,454	.2750	.1834	.0504
Total.....	4	1,000	305.00	2,726,944	2,727	.3050	.3667	.1118
Refuse—slasher, hog, burner.....	4	1,014	346.08	2,726,944	2,689	.3413	.3718	.1269
Filing.....	2	500	339.20	2,726,944	5,454	.6784	.1834	.1244
Power and oiling.....	6	1,563	608.92	2,726,944	1,745	.3896	.5732	.2233
Repair.....	1	102	41.50	2,726,944	26,735	.4069	.0374	.0152
Night watch and fire protection.....	2	350	104.00	2,726,944	7,791	.2971	.1283	.0381
Clean-up and miscellaneous.....	3	663½	207.73	2,726,944	4,110	.3131	.2433	.0762
Sorting green lumber:								
Graders.....	2	500	150.00	2,726,944	5,454	.3000	.1834	.0550
Sorters and loaders.....	7	1,934	553.74	2,726,944	1,410	.2863	.7092	.0231
Total.....	9	2,434	703.74	2,726,944	1,120	.2891	.8926	.2581
Yard—green lumber:								
Foreman.....	1	270	100.00	2,726,944	10,100	.3704	.0990	.0367
Transfer.....	6	1,514	475.43	2,726,944	1,801	.3140	.5552	.1743
Piling.....	6	1,525	736.27	2,726,944	1,788	.4328	.5592	.2700

Establishment No. 13.

[Equipment.—One double-cut band saw; 2 single-cut band saws; 3 edgers; 2 board trimmers; 2 timber trimmers. Material.—Number of logs, 77,054; log scale, 8,880,310 board feet; log average, 115.4 board feet; kind of timber: pine, 77.9 per cent; fir, 18.6 per cent; larch, 3.5 per cent. Product.—Lumber tally, 9,496,449 board feet; prevailing sizes, 3 inches and larger, 53.7 per cent; under 3 inches, 41.3 per cent.]

Sawmill foreman.....	2	493	\$350.00	9,496,449	19,263	\$0.7099	0.0519	\$0.0369
Log pond or yard.....	4	1,014	297.01	9,496,449	9,365	.2929	.1068	.0313
Sawmill deck:								
Scaler.....	4	986	328.66	9,496,449	9,631	.3333	.1038	.0346
Deckmen.....	2	493	136.94	9,496,449	19,263	.2778	.0519	.0144
Total.....	6	1,479	465.60	9,496,449	6,421	.3148	.1557	.0490

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 13—Continued.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wage.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Band saw No. 1:								
Sawyer.....	1	247	\$192.10	1,546,775	6,262	\$0.7777	0.1597	\$0.1242
Setter.....	1	247	96.06	1,546,775	6,262	.3889	.1597	.0621
Dogger.....	1	247	96.06	1,546,775	6,262	.3889	.1597	.0621
Tail sawyer.....	1	247	75.47	1,546,775	6,262	.3055	.1597	.0488
Total.....	4	988	459.69	1,546,775	1,566	.4653	.6387	.2972
Band saw No. 2:								
Sawyer.....	1	242	188.20	1,436,959	5,938	.7777	.1684	.1310
Setter.....	1	242	94.11	1,436,959	5,938	.3889	.1684	.0655
Dogger.....	1	242	94.11	1,436,959	5,938	.3889	.1684	.0655
Tail sawyer.....	1	242	73.94	1,436,959	5,938	.3055	.1684	.0515
Total.....	4	968	450.36	1,436,959	1,484	.4652	.6736	.3134
Band saw No. 3:								
Sawyer.....	1	243	189.00	1,320,265	5,433	.7778	.1841	.1432
Setter.....	1	243	101.25	1,320,265	5,433	.4167	.1841	.0767
Dogger.....	1	243	101.25	1,320,265	5,433	.4167	.1841	.0767
Tail sawyer.....	1	243	74.25	1,320,265	5,433	.3056	.1841	.0562
Total.....	4	972	465.75	1,320,265	1,358	.4792	.7362	.3528
Band saw No. 4:								
Sawyer.....	1	246	191.35	1,362,490	5,539	.7778	.1806	.1404
Setter.....	1	246	102.50	1,362,490	5,539	.4167	.1806	.0752
Dogger.....	1	246	102.50	1,362,490	5,539	.4167	.1806	.0752
Tail sawyer.....	1	246	75.15	1,362,490	5,539	.3055	.1806	.0552
Total.....	4	984	471.50	1,362,490	1,385	.4792	.7222	.3461
Band saw No. 5:								
Sawyer.....	1	243	189.00	1,806,720	7,435	.7778	.1345	.1046
Setter.....	1	243	94.50	1,806,720	7,435	.3889	.1345	.0523
Doggers.....	2	486	148.50	1,806,720	3,718	.3056	.2690	.0822
Tail sawyer.....	1	243	74.25	1,806,720	7,435	.3056	.1345	.0411
Total.....	5	1,215	506.25	1,806,720	1,487	.4167	.6725	.2802
Band saw No. 6:								
Sawyer.....	1	246	191.35	2,023,240	8,225	.7778	.1216	.0946
Setter.....	1	246	95.65	2,023,240	8,225	.3888	.1216	.0473
Doggers.....	2	492	159.30	2,023,240	4,112	.3055	.2432	.0743
Tail sawyer.....	1	246	75.15	2,023,240	8,225	.3055	.1216	.0371
Total.....	5	1,230	512.45	2,023,240	1,645	.4166	.6079	.2533
Total band saws:								
Sawyers.....	6	1,467	1,141.00	9,496,449	6,473	.7778	.1545	.1202
Setters.....	6	1,467	584.07	9,496,449	6,473	.3981	.1545	.0615
Doggers.....	8	1,956	692.72	9,496,449	4,855	.3542	.2010	.0729
Tail sawyers.....	6	1,467	443.21	9,496,449	6,473	.3055	.1545	.0472
Total.....	26	6,357	2,866.00	9,496,449	1,494	.4508	.6694	.3018
Edger No. 1:								
Edgerman.....	1	247	102.90	1,546,775	6,262	.4166	.1597	.0665
Edgerman's helpers.....	2	494	123.50	1,546,775	3,131	.2500	.3194	.0798
Total.....	3	741	226.40	1,546,775	2,087	.3055	.4791	.1463
Edger No. 2:								
Edgerman.....	1	242	100.83	1,436,959	5,938	.4167	.1684	.0702
Edgerman's helpers.....	2	484	121.00	1,436,959	2,969	.2500	.3305	.0842
Total.....	3	726	221.83	1,436,959	1,979	.3056	.5052	.1544

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 13—Continued.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Edger No. 3:								
Edgerman	1	243	\$101.25	1,320,265	5,433	\$0.4167	0.1841	\$0.0767
Edgerman's helpers	2	486	121.50	1,320,265	2,717	.2500	.3681	.0920
Total	3	729	222.75	1,320,265	1,811	.3056	.5522	.1687
Edger No. 4:								
Edgerman	1	246	102.50	1,362,490	5,539	.4167	.1806	.0752
Edgerman's helpers	2	492	123.00	1,362,490	2,769	.2500	.3611	.0903
Total	3	738	225.50	1,362,490	1,846	.3056	.5417	.1655
Edger No. 5:								
Edgerman	1	243	114.75	1,806,720	7,435	.4722	.1345	.0635
Edgerman's helpers	2	486	133.65	1,806,720	3,718	.2750	.2690	.0740
Total	3	729	248.40	1,806,720	2,478	.3407	.4035	.1375
Edger No. 6:								
Edgerman	1	246	116.15	2,023,240	8,225	.4722	.1216	.0574
Edgerman's helpers	2	492	135.30	2,023,240	4,112	.2750	.2432	.0669
Total	3	738	251.45	2,023,240	2,742	.3407	.3648	.1243
Total edging:								
Edgermen	6	1,467	638.38	9,496,449	6,473	.4352	.1545	.0672
Edgerman's helpers	12	2,934	757.95	9,496,449	3,237	.2583	.3090	.0798
Total	18	4,401	1,396.33	9,496,449	2,158	.3173	.4634	.1470
Trimmer No. 1:								
Operator	1	247	82.35	1,584,306	6,414	.3334	.1559	.0520
Operator's helpers	2	494	123.50	1,584,306	3,207	.2500	.3118	.0780
Total	3	741	205.85	1,584,306	2,138	.2778	.4677	.1299
Trimmer No. 2:								
Operator	1	246	82.00	1,879,509	7,640	.3333	.1309	.0436
Operator's helpers	2	492	123.00	1,879,509	3,820	.2500	.2618	.0654
Total	3	738	205.00	1,879,509	2,547	.2778	.3927	.1091
Trimmer No. 3:								
Operator	1	247	75.45	1,584,306	6,414	.3055	.1559	.0476
Operator's helper	1	247	61.75	1,584,306	6,414	.2500	.1559	.0390
Total	2	494	137.20	1,584,306	3,207	.2777	.3118	.0866
Trimmer No. 4:								
Operator	1	246	75.15	1,879,509	7,640	.3055	.1309	.0400
Operator's helper	1	246	61.50	1,879,509	7,640	.2500	.1309	.0327
Total	2	492	136.65	1,879,509	3,820	.2777	.2618	.0727
Timber trimmer (2 machines):								
Operators	2	494	150.90	1,505,148	3,047	.3055	.3282	.1003
Operator's helpers	6	1,482	355.68	1,505,148	1,016	.2400	.9846	.2303
Total	8	1,976	506.58	1,505,148	762	.2564	1.3128	.3366
Timber trimmer (2 machines):								
Operators	2	492	150.30	1,163,671	2,365	.3055	.4228	.1292
Operator's helpers	6	1,476	354.24	1,163,671	788	.2400	1.2634	.3044
Total	8	1,968	504.54	1,163,671	591	.2564	1.6912	.4336

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 13—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Total trimming:								
Operators.....	8	1,972	\$616.15	9,496,449	4,816	\$0.3124	0.2077	\$0.0649
Operator's helpers.....	18	4,437	1,079.67	9,496,449	2,140	.2433	.4672	.1137
Total.....	26	6,409	1,695.82	9,496,449	1,482	.2046	.6749	.1786
Refuse—slasher, hog, burner.....	2	493	150.60	9,496,449	19,263	.3055	.0519	.0159
Filing.....	6	1,324	1,104.00	9,496,449	7,173	.8333	.1394	.1163
Power and oiling.....	15	3,710	1,424.55	9,496,449	2,560	.3840	.3907	.1500
Repair.....	16	3,973	1,588.12	9,496,449	2,390	.3997	.4184	.1672
Night watch and fire protection.....	7	2,182	750.83	9,496,449	4,352	.3441	.2298	.0791
Clean-up and miscellaneous.....	4	986	298.93	9,496,449	9,631	.3032	.1038	.0315
Sorting green lumber:								
Tallymen.....	4	816	272.00	9,496,449	11,638	.3333	.0859	.0286
Graders.....	2	489	182.95	9,496,449	19,420	.3741	.0515	.0193
Sorters and loaders.....	55	13,382	3,628.85	9,496,449	710	.2712	1.4092	.3821
Total.....	61	14,687	4,083.80	9,496,449	647	.2781	1.5466	.4300
Yard—green lumber:								
Foreman.....	1	250	150.00	9,496,449	37,986	.6000	.0263	.0158
Transfer:								
Hauling.....	11	2,719	830.75	9,496,449	3,493	.3055	.2863	.0875
Tram repair.....	1	171	65.00	9,496,449	55,535	.3801	.0180	.0068
Stable.....	3	841	288.87	9,496,449	11,292	.3435	.0886	.0304
Total.....	15	3,731	1,184.62	9,496,449	2,385	.3352	.3929	.1247
Piling:								
Stacking.....	35	8,496	2,591.30	5,283,939	622	.3050	1.6079	.4904
Repair.....	4	1,067	380.33	9,496,449	8,900	.3564	.1124	.0400
Total.....	39	9,563	2,971.63	9,496,449	581	.3107	1.7203	.5304

Establishment No. 14.

[Equipment.—Two single-cut band saws; 2 edgers; 2 trimmers; 1 sash gang saw. Material.—Number of logs, 32,407; log scale, 3,015,410 board feet; log average, 93.0 board feet; kind of timber: chiefly white pine but some yellow pine, spruce, and cedar. Product.—Lumber tally, 3,415,050 board feet; prevailing sizes, approximately 80 per cent four quarter.]

Sawmill foremen.....	2	260	\$179.81	3,415,050	13,135	\$0.6916	0.0761	\$0.0527
Log pond or yard.....	9	1,105	358.35	3,415,050	3,091	.3243	.3236	.1049
Sawmill deck.....	6	767	230.27	3,415,050	4,452	.3002	.2246	.0674
Band saws (2, day):								
Sawyers.....	2	260	182.00	2,063,425	7,936	.7000	.1260	.0882
Setters.....	3	390	126.75	2,063,425	5,291	.3250	.1890	.0614
Dogger.....	1	130	35.75	2,063,425	15,873	.2750	.0630	.0173
Tail sawyers.....	2	260	71.50	2,063,425	7,936	.2750	.1260	.0347
Total.....	8	1,040	416.00	2,063,425	1,984	.4000	.5040	.2016
Band saws (2, night):								
Sawyers.....	2	260	182.00	1,351,625	5,199	.7000	.1924	.1347
Setters.....	2	260	84.50	1,351,625	5,199	.3250	.1924	.0625
Doggers.....	2	260	71.50	1,351,625	5,199	.2750	.1924	.0529
Tail sawyers.....	2	260	71.50	1,351,625	5,199	.2750	.1924	.0529
Total.....	8	1,040	409.50	1,351,625	1,300	.3938	.7694	.3030

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 14—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Total band saws:								
Sawyers.....	4	520	\$364.00	3,415,050	6,567	\$0.7000	0.1523	\$0.1066
Setters.....	5	650	211.25	3,415,050	5,254	.3250	.1903	.0619
Doggers.....	3	390	107.25	3,415,050	8,757	.2750	.1142	.0314
Tail sawyers.....	4	520	143.00	3,415,050	6,567	.2750	.1523	.0419
Total.....	16	2,080	825.50	3,415,050	1,642	.3969	.6091	.2417
Gang saw:								
Sawyer.....	1	130	65.00	2,063,425	15,873	.5000	.0630	.0315
Others.....	2	260	68.25	2,063,425	7,936	.2625	.1260	.0331
Total.....	3	390	133.25	2,063,425	5,291	.3417	.1890	.0646
Total sawing (head, gang).....	19	2,470	958.75	3,415,050	1,383	.3882	.7233	.2807
Edging (2 machines, day):								
Edgermen.....	4	520	170.70	2,063,425	3,968	.3283	.2520	.0827
Edgerman's helpers.....	6	724	187.50	2,063,425	2,850	.2590	.3509	.0909
Total.....	10	1,244	358.20	2,063,425	1,659	.2879	.6029	.1736
Edging (2 machines, night):								
Edgermen.....	2	260	91.00	1,351,625	5,199	.3500	.1924	.0673
Edgerman's helpers.....	2	250	56.25	1,351,625	5,407	.2250	.1850	.0416
Total.....	4	510	147.25	1,351,625	2,650	.2887	.3773	.1089
Total edging:								
Edgermen.....	6	780	261.70	3,415,050	4,378	.3355	.2284	.0766
Edgerman's helpers.....	8	974	243.75	3,415,050	3,506	.2503	.2852	.0714
Total.....	14	1,754	505.45	3,415,050	1,947	.2882	.5136	.1480
Trimming (2 machines, day):								
Operators.....	2	260	78.00	2,063,425	7,936	.3000	.1260	.0378
Operator's helpers.....	5	662	165.50	2,063,425	3,117	.2500	.3208	.0802
Total.....	7	922	243.50	2,063,425	2,238	.2641	.4468	.1180
Trimming (2 machines, night):								
Operators.....	2	260	68.50	1,351,625	5,199	.2635	.1924	.0507
Operator's helpers.....	2	211	41.77	1,351,625	6,406	.1950	.1561	.0309
Total.....	4	471	110.27	1,351,625	2,870	.2341	.3485	.0816
Total trimming:								
Operator.....	4	520	146.50	3,415,050	6,567	.2817	.1523	.0429
Operator's helpers.....	7	873	207.27	3,415,050	3,912	.2374	.2556	.0607
Total.....	11	1,393	353.77	3,415,050	2,452	.2540	.4079	.1036
Refuse—slasher, hog, burner.....	4	509	127.75	3,415,050	6,709	.2510	.1490	.0374
Filing.....	5	650	300.00	3,415,050	5,254	.6000	.1903	.1142
Power and oiling.....	8	1,190	343.71	3,415,050	2,894	.2913	.3455	.1006
Repair.....	4	528	255.27	3,415,050	6,468	.4857	.1546	.0747
Night watch and fire protection.....	3	369½	181.62	3,415,050	9,242	.4915	.1082	.0532
Clean-up and miscellaneous.....	4	520	136.63	3,415,050	6,567	.2628	.1523	.0400
Sorting green lumber:								
Graders.....	3	360	126.24	3,415,050	8,757	.3237	.1142	.0370
Tallymen.....	1	130	55.25	3,415,050	29,270	.4250	.0381	.0162
Sorters and loaders.....	24	3,077½	798.51	3,415,050	1,110	.2595	.9012	.2338
Total.....	28	3,597½	980.00	3,415,050	949	.2724	1.0534	.2870
Yard—green lumber:								
Foreman.....	1	130	57.50	3,415,050	26,270	.4423	.0331	.0168
Transfer.....	16	2,060	569.60	3,415,050	1,658	.2765	.6032	.1668
Piling.....	26	3,239½	1,144.30	3,415,050	1,054	.3532	.9486	.3351

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 15.

[Equipment.—One double-cut band saw; 1 single-cut band saw; 2 horizontal band resaws; 1 sash gang saw; 3 edgers; 3 trimmers. Material.—Number of logs, 10,842; log scale, 8,227,736 board feet; log average, 758.9 board feet; kind of timber: fir, 84.0 per cent; hemlock, 14.5 per cent; spruce, 1.5 per cent. Product.—Lumber tally, 9,134,246 board feet; prevailing sizes, four and eight quarter predominate.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Sawmill foremen	3	750	\$355.00	9,134,246	12,179	\$0.4733	0.0821	\$0.6389
Log pond or yard	9	2,227	681.03	9,134,246	4,102	.3058	.2438	.0746
Sawmill deck	3	741	209.94	9,134,246	12,327	.2833	.0811	.0230
Band saw:								
Sawyer	1	247	172.90	4,944,071	20,016	.7000	.0500	.0350
Setter	1	247	80.27	4,944,071	20,016	.3250	.0500	.0162
Doggers	2	494	142.02	4,944,071	10,008	.2875	.0999	.0287
Tail sawyer	1	247	80.27	4,944,071	20,016	.3250	.0500	.0162
Rock sawyer	1	247	67.95	4,944,071	20,016	.2751	.0500	.0137
Total	6	1,482	543.41	4,944,071	3,336	.3667	.2999	.1098
Band saw (double-cut):								
Sawyer	1	247	172.90	4,190,175	16,964	.7000	.0589	.0413
Setter	1	247	80.27	4,190,175	16,964	.3250	.0589	.0192
Doggers	2	494	135.84	4,190,175	8,482	.2750	.1179	.0324
Tail sawyer	1	247	74.10	4,190,175	16,964	.3000	.0589	.0177
Rock sawyer	1	247	61.75	4,190,175	16,964	.2500	.0589	.0147
Total	6	1,482	524.86	4,190,175	2,827	.3542	.3535	.1253
Total band saws:								
Sawyers	2	494	345.80	9,134,246	18,490	.7000	.0541	.0379
Setters	2	494	160.54	9,134,246	18,490	.3250	.0541	.0176
Doggers	4	988	277.86	9,134,246	9,245	.2812	.1082	.0304
Tail sawyers	2	494	154.37	9,134,246	18,490	.3125	.0541	.0169
Rock sawyers	2	494	129.70	9,134,246	18,490	.2626	.0541	.0142
Total	12	2,964	1,068.27	9,134,246	3,082	.3604	.3246	.1170
Resaws (2):								
Resawyers	2	494	172.90	9,134,246	18,490	.3500	.0541	.0189
Resawyer's helpers	4	988	231.50	9,134,246	9,245	.2343	.1082	.0253
Total	6	1,482	404.40	9,134,246	6,163	.2729	.1623	.0442
Gang saw:								
Sawyer	1	240	108.00	9,134,246	38,059	.4500	.0263	.0118
Sawyer's helpers	7	1,751	489.69	9,134,246	5,217	.2797	.1917	.0536
Total	8	1,991	597.69	9,134,246	4,588	.3002	.2180	.0654
Total sawing (head, gang, resaw):	26	6,437	2,070.36	9,134,246	1,419	.3216	.7047	.2267
Edging (3 machines):								
Edgermen	3	741	296.41	9,134,246	12,327	.4000	.0811	.0325
Edgerman's helpers	9	2,227	582.43	9,134,246	4,102	.2615	.2438	.0638
Total	12	2,968	878.84	9,134,246	3,078	.2961	.3249	.0963
Trimming (3 machines):								
Operators	3	741	246.99	9,134,246	12,327	.3333	.0811	.0270
Operator's helpers	9	2,319	649.73	9,134,246	3,939	.2802	.2539	.0711
Total	12	3,060	896.72	9,134,246	2,985	.2930	.3350	.0981
Refuse—slasher, hog, burner	3	741	191.42	9,134,246	12,327	.2583	.0811	.0210
Filing	6	1,435	746.90	9,134,246	6,365	.5205	.1571	.0818
Power and oiling	12	3,333	1,209.89	9,134,246	2,741	.3630	.3640	.1325
Repair	7	1,649	683.10	9,134,246	5,539	.4143	.1805	.0748
Night watch and fire protection	4	1,163	334.42	9,134,246	7,854	.2875	.1273	.0366
Clean-up and miscellaneous	20	5,253	1,318.83	9,134,246	1,739	.2511	.5751	.1444

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 15—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Sorting green lumber:								
Tallymen.....	2	414	\$120.19	9,134,246	22,063	\$0.2903	0.0453	\$0.0132
Markers.....	2	495	160.87	9,134,246	18,453	.3250	.0542	.0176
Sorters and loaders.....	22	5,391	1,582.28	9,134,246	1,694	.2935	.5902	.1732
Total.....	26	6,300	1,863.34	9,134,246	1,450	.2958	.6897	.2040
Yard—green lumber:								
Foreman.....	1	260	100.00	8,173,943	31,438	.3846	.0318	.0122
Transfer.....	11	2,827	779.80	8,173,943	2,891	.2758	.3459	.0854
Piling.....	27	6,939	2,408.07	7,028,055	1,013	.3470	.9873	.3426

Establishment No. 16.

[Equipment.—One single-cut band saw; 1 double-cut band saw; 1 horizontal band resaw; 2 edgers; 1 trimmer. Material.—Number of logs, 4,486; log scale, 4,283,970 board feet; log average, 954.9 board feet; kind of timber, chiefly fir. Product.—Lumber tally, 4,467,337 board feet; prevailing sizes, approximately 60 per cent, 2 inches and under.]

Sawmill foreman.....	1	230	\$150.00	4,467,337	19,423	\$0.6522	0.0515	\$0.0336
Log pond or yard.....	3	670	185.10	4,467,337	6,968	.2763	.1500	.0414
Sawmill deck.....	2	475½	188.28	4,467,337	9,395	.3900	.1064	.0421
Band saws (2):								
Sawyers.....	2	456	243.80	4,467,337	9,797	.5346	.1021	.0546
Setters.....	2	456	125.40	4,467,337	9,797	.2750	.1021	.0281
Doggers.....	4	912	228.00	4,467,337	4,898	.2500	.2041	.0510
Tail sawyers.....	2	456	102.60	4,467,337	9,797	.2250	.1021	.0230
Rock sawyers.....	2	456	102.60	4,467,337	9,797	.2250	.1021	.0230
Total.....	12	2,736	802.40	4,467,337	1,633	.2933	.6124	.1796
Resaws:								
Resawyers.....	2	462	144.37	4,467,337	9,670	.3125	.1034	.0323
Resawyer's helpers.....	5	1,161½	264.23	4,467,337	3,546	.2275	.2600	.0591
Total.....	7	1,623½	408.60	4,467,337	2,752	.2517	.3634	.0915
Total sawing (head, resaw).....	19	4,359½	1,211.00	4,467,337	1,025	.2778	.9759	.2711
Edging:								
Edgermen.....	2	462	161.69	4,467,337	9,670	.3500	.1034	.0362
Edgerman's helpers.....	8	1,852	465.19	4,467,337	2,412	.2512	.4146	.1041
Total.....	10	2,314	626.88	4,467,337	1,931	.2709	.5180	.1403
Trimming:								
Operator.....	1	231	75.07	4,467,337	19,339	.3250	.0517	.0168
Operator's helpers.....	6	1,461½	351.18	4,467,337	3,057	.2403	.3272	.0786
Total.....	7	1,692½	426.25	4,467,337	2,639	.2518	.3789	.0954
Refuse, slasher, hog, burner.....	4	1,009½	263.30	4,467,337	4,425	.2608	.2260	.0589
Piling.....	3	798	342.17	4,467,337	5,598	.4288	.1786	.0766
Power and oiling.....	5	1,377½	358.28	4,467,337	3,243	.2601	.3083	.0802
Repair.....	15	3,804	1,303.03	4,467,337	1,174	.3425	.8515	.2917
Night watch and fire protection.....	5	1,320	318.74	4,467,337	3,384	.2415	.2955	.0713
Clean-up and miscellaneous.....	9	2,276	435.87	4,467,337	1,963	.1915	.5095	.0976
Sorting green lumber:								
Markers.....	2	468½	262.86	4,467,337	9,535	.5611	.1049	.0588
Sorters and loaders.....	34	7,665	1,581.70	4,467,337	583	.2064	1.7158	.3541
Total.....	36	8,133½	1,844.56	4,467,337	549	.2268	1.8207	.4129
Yard—green lumber:								
Foreman.....	1	281½	84.45	4,467,337	15,870	.3000	.0630	.0189
Transfer.....	11	2,563	547.79	4,467,337	1,743	.2137	.5737	.1226
Piling.....	27	6,730	1,400.83	4,467,337	664	.2081	1.5065	.3136

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 17.

[Equipment.—One single-cut band saw; 1 double-cut band saw (used as a resaw); 1 vertical band roller resaw; 1 edger; 1 trimmer. Material.—Number of logs, 13,289; log scale, 8,832,369 board feet; log average, 668.4 board feet; kind of timber: fir, 71.8 per cent; cedar, 15.5 per cent; hemlock, 11.8 per cent; spruce, 0.9 per cent. Product.—Lumber tally, 9,331,817 board feet; prevailing sizes, four and eight quarter predominate.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Sawmill foremen.....	3	749	\$376.90	9,331,817	12,459	\$0.5032	0.0803	\$0.0404
Log pond or yard.....	12	3,064½	874.16	9,331,817	3,045	.2853	.3284	.0937
Sawmill deck.....	2	492½	115.99	9,331,817	18,938	.2854	.0528	.0124
Band saw (day):								
Sawyer.....	1	244	134.20	4,476,529	18,346	.5500	.0545	.0300
Setter.....	1	244	68.32	4,476,529	18,346	.2800	.0545	.0153
Doggers.....	2	488	114.68	4,476,529	9,173	.2350	.1090	.0256
Tail sawyer.....	1	244	61.00	4,476,529	18,346	.2600	.0545	.0136
Rock sawyer.....	1	244	56.12	4,476,529	18,346	.2300	.0545	.0125
Total.....	6	1,464	434.32	4,476,529	3,058	.2967	.3270	.0970
Band saw (night):								
Sawyer.....	1	248½	124.37	4,855,298	19,519	.5000	.0512	.0256
Setter.....	1	248½	69.81	4,855,298	19,519	.2806	.0512	.0144
Doggers.....	2	497½	114.42	4,855,298	9,759	.2300	.1025	.0236
Tail sawyer.....	1	248½	59.70	4,855,298	19,519	.2400	.0512	.0123
Rock sawyer.....	1	248½	52.24	4,855,298	19,519	.2100	.0512	.0108
Total.....	6	1,492½	420.54	4,855,298	3,253	.2818	.3074	.0866
Total band saw:								
Sawyers.....	2	492½	258.57	9,331,817	18,938	.5247	.0528	.0277
Setters.....	2	492½	138.13	9,331,817	18,938	.2803	.0528	.0146
Doggers.....	4	985½	229.10	9,331,817	9,469	.2325	.1056	.0246
Tail sawyers.....	2	492½	120.70	9,331,817	18,938	.2450	.0528	.0129
Rock sawyers.....	2	492½	108.36	9,331,817	18,938	.2199	.0528	.0116
Total.....	12	2,956½	854.86	9,331,817	3,156	.2891	.3168	.0916
Band saw (double-cut, day):								
Sawyer.....	1	244	114.67	4,476,529	18,346	.4700	.0545	.0256
Setter.....	1	244	65.88	4,476,529	18,346	.2700	.0545	.0147
Dogger.....	1	244	56.12	4,476,529	18,346	.2300	.0545	.0125
Tail sawyer.....	1	244	56.12	4,476,529	18,346	.2300	.0545	.0125
Total.....	4	976	292.79	4,476,529	4,587	.3000	.2180	.0654
Band saw (double-cut, night):								
Sawyer.....	1	248½	99.50	4,855,298	19,519	.4000	.0512	.0205
Setter.....	1	248½	67.16	4,855,298	19,519	.2700	.0512	.0138
Dogger.....	1	248½	57.21	4,855,298	19,519	.2300	.0512	.0118
Tail sawyer.....	1	248½	57.21	4,855,298	19,519	.2300	.0512	.0118
Total.....	4	995	281.08	4,855,298	4,880	.2825	.2049	.0579
Total band saw (double-cut):								
Sawyers.....	2	492½	214.17	9,331,817	18,938	.4346	.0528	.0230
Setters.....	2	492½	133.04	9,331,817	18,938	.2700	.0528	.0143
Doggers.....	2	492½	113.33	9,331,817	18,938	.2300	.0528	.0121
Tail sawyers.....	2	492½	113.33	9,331,817	18,938	.2300	.0528	.0121
Total.....	8	1,971	573.87	9,331,817	4,735	.2912	.2112	.0615
Roller resaws (day):								
Resawyer.....	1	244	82.96	4,476,529	18,346	.3400	.0545	.0185
Resawyer's helpers.....	7	1,670	365.28	4,476,529	2,681	.2187	.3731	.0816
Total.....	8	1,914	448.24	4,476,529	2,339	.2342	.4276	.1001
Roller resaws (night):								
Resawyer.....	1	248½	84.58	4,855,298	19,519	.3400	.0512	.0174
Resawyer's helpers.....	7	1,710½	369.27	4,855,298	2,839	.2159	.3522	.0761
Total.....	8	1,959	453.85	4,855,298	2,478	.2317	.4035	.0935

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 17—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Total roller resaws:								
Resawyers.....	2	492½	\$167.54	9,331,817	18,938	\$0.3400	0.0528	\$0.0180
Resawyer's helpers.....	14	3,380½	734.55	9,331,817	2,761	.2173	.3622	.0787
Total.....	16	3,873	902.09	9,331,817	2,409	.2329	.4150	.0967
Total sawing (head, resaw).....	36	8,800½	2,330.82	9,331,817	1,060	.2649	.9431	.2498
Edging (day):								
Edgerman.....	1	244	85.40	4,476,529	18,346	.3500	.0545	.0191
Edgerman's helpers.....	4	968½	210.77	4,476,529	4,622	.2176	.2164	.0471
Total.....	5	1,212½	296.17	4,476,529	3,692	.2443	.2709	.0662
Edging (night):								
Edgerman.....	1	248½	84.58	4,855,298	19,519	.3400	.0512	.0174
Edgerman's helpers.....	4	1,002½	233.34	4,855,298	4,843	.2328	.2065	.0481
Total.....	5	1,251½	317.92	4,855,298	3,880	.2541	.2577	.0655
Total edging:								
Edgermen.....	2	492½	169.98	9,331,817	18,938	.3450	.0528	.0182
Edgerman's helpers.....	8	1,971	444.11	9,331,817	4,735	.2253	.2112	.0476
Total.....	10	2,363½	614.09	9,331,817	3,948	.2598	.2533	.0658
Trimming (day):								
Operator.....	1	244	85.40	4,476,529	18,346	.3500	.0545	.0191
Operator's helpers.....	4	995	228.84	4,476,529	4,499	.2300	.2223	.0511
Total.....	5	1,239	314.24	4,476,529	3,613	.2536	.2768	.0702
Trimming (night):								
Operator.....	1	248½	82.09	4,855,298	19,519	.3300	.0512	.0169
Operator's helpers.....	5	1,171	265.43	4,855,298	4,146	.2267	.2412	.0547
Total.....	6	1,419½	347.52	4,855,298	3,420	.2448	.2924	.0716
Total trimming:								
Operators.....	2	492½	167.49	9,331,817	18,938	.3399	.0528	.0179
Operator's helpers.....	9	2,166	494.27	9,331,817	4,308	.2282	.2321	.0530
Total.....	11	2,658½	661.76	9,331,817	3,510	.2489	.2849	.0709
Refuse—slasher, hog, burner.....	7	1,792½	370.89	9,331,817	5,205	.2069	.1921	.0897
Filing.....	6	1,553	731.62	9,331,817	6,009	.4711	.1864	.0784
Repair.....	10	2,473½	712.57	9,331,817	3,773	.2381	.2850	.0764
Power and oiling.....	28	7,153½	2,087.98	9,331,817	1,305	.2919	.7666	.2237
Night watch and fire protection.....	10	2,736½	654.22	9,331,817	3,410	.2390	.2933	.0701
Clean-up and miscellaneous.....	12	3,245	704.04	9,331,817	2,876	.2170	.3477	.0754
Sorting green lumber:								
Markers.....	5	1,174	316.48	9,331,817	7,949	.2696	.1258	.0339
Tallymen.....	6	1,597	466.91	9,331,817	5,843	.2324	.1711	.0500
Sorters and loaders.....	60	14,685½	3,063.67	9,331,817	635	.2107	1.5737	.3315
Total.....	71	17,456½	3,877.06	9,331,817	535	.2221	1.8706	.4155
Yard—green lumber:								
Foreman.....	1	250	125.00	9,331,817	37,327	.5000	.0268	.0134
Transfer.....	17	4,207	930.45	7,921,484	1,883	.2212	.5311	.1175
Piling:								
Sorting.....	26	6,416½	1,439.37	9,331,817	1,454	.2243	.6876	.1542
Piling.....	11	2,720	670.03	1,869,225	687	.2463	1.4551	.3585
Clean-up and miscellaneous.....	18	2,947½	687.13	9,331,817	3,166	.2331	.3159	.0736
Total.....	55	12,084	2,796.53	9,331,817	407	.2314	2.4586	.5863

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 18.

[Equipment.—Two single-cut band saws; 1 sash gang saw; 1 band gang saw; 1 horizontal band resaw; 3 edgers; 3 trimmers. Material.—Number of logs, 3,930; log scale, 6,394,000 board feet; log average, 1,624.4 board feet; kind of timber: fir 94.1 per cent; hemlock 5.4 per cent; cedar, 0.5 per cent. Product.—Lumber tally, 6,394,802 board feet; prevailing sizes, four and eight quarter predominate.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Sawmill foreman.....	1	240	\$137.50	6,394,802	26,645	\$0.5729	0.0375	\$0.0215
Log pond or yard.....	5	1,313½	405.00	6,394,802	4,869	.3083	.2054	.0633
Sawmill deck.....	2	476	135.40	6,394,802	13,434	.2845	.0744	.0212
Band saw No. 1:								
Sawyer.....	1	239½	167.65	4,020,202	16,786	.7000	.0596	.0417
Setter.....	1	239½	77.82	4,020,202	16,786	.3249	.0596	.0194
Doggers.....	2	479	131.70	4,020,202	8,393	.2749	.1191	.0328
Tail sawyer.....	1	239½	62.27	4,020,202	16,786	.2600	.0596	.0155
Total.....	5	1,197½	439.44	4,020,202	3,357	.3670	.2979	.1093
Band saw No. 2:								
Sawyer.....	1	168½	103.85	2,374,600	14,093	.6163	.0710	.0437
Setter.....	1	168½	54.78	2,374,600	14,093	.3251	.0710	.0231
Doggers.....	2	337	92.70	2,374,600	7,046	.2751	.1419	.0390
Tail sawyer.....	1	168½	43.81	2,374,600	14,093	.2600	.0710	.0184
Total.....	5	842½	295.14	2,374,600	2,819	.3503	.3548	.1243
Total band saws:								
Sawyers.....	2	408	271.50	6,394,802	15,674	.6654	.0638	.0425
Setters.....	2	408	132.60	6,394,802	15,674	.3250	.0638	.0207
Doggers.....	4	816	224.40	6,394,802	7,837	.2750	.1276	.0351
Tail sawyers.....	2	408	106.08	6,394,802	15,674	.2600	.0638	.0166
Total.....	10	2,040	734.58	6,394,802	3,135	.3601	.3190	.1149
Band gang saw:								
Sawyer.....	1	239½	95.80	3,197,401	13,350	.4000	.0749	.0300
Sawyer's helpers.....	3	759	184.52	3,197,401	4,213	.2431	.2374	.0577
Total.....	4	998½	280.32	3,197,401	3,202	.2807	.3123	.0877
Sash gang saw:								
Sawyer.....	1	239½	105.78	3,197,401	13,350	.4417	.0749	.0331
Sawyer's helpers.....	2	596½	138.10	3,197,401	5,360	.2315	.1866	.0432
Total.....	3	836	243.88	3,197,401	3,825	.2917	.2615	.0763
Total gang saws:								
Sawyers.....	2	479	201.58	6,394,802	13,350	.4208	.0749	.0315
Sawyer's helpers.....	5	1,355½	322.62	6,394,802	4,718	.2380	.2120	.0505
Total.....	7	1,834½	524.20	6,394,802	3,486	.2857	.2869	.0820
Horizontal band resaw:								
Resawyer.....	1	182	72.80	2,374,600	13,047	.4000	.0766	.0307
Resawyer's helpers.....	6	1,189½	279.85	2,374,600	1,996	.2353	.5009	.1179
Total.....	7	1,371½	352.65	2,374,600	1,731	.2571	.5776	.1485
Total sawing (head, gang, resaw).	24	5,246	1,611.43	6,394,802	1,219	.3072	.8204	.2520
Edging (3 machines):								
Edgermen.....	6	1,130½	379.19	6,394,802	5,657	.3354	.1768	.0593
Edgerman's helpers.....	6	1,516	354.98	6,394,802	4,218	.2342	.2371	.0555
Total.....	12	2,646½	734.17	6,394,802	2,416	.2774	.4139	.1148
Trimming (3 machines):								
Operators.....	3	648	223.65	6,394,802	9,869	.3451	.1013	.0350
Operator's helpers.....	6	1,661	424.15	6,394,802	3,850	.2554	.2597	.0663
Total.....	9	2,309	647.80	6,394,802	2,770	.2806	.3611	.1013

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 18—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Refuse—slasher, hog, burner	2	689	\$171.60	6,394,802	9,281	\$0.2491	0.1077	\$0.0268
Filing	4	905	529.55	6,394,802	7,966	.5851	.1415	.0828
Power and oiling	9	2,314	713.40	6,394,802	2,764	.3083	.3619	.1116
Repair	20	5,199	1,789.15	6,394,802	1,230	.3441	.3190	.2798
Night watch and fire protection ..	1	310	80.00	6,394,802	20,628	.2581	.0485	.0125
Clean-up and miscellaneous	18	4,680	1,167.12	6,394,802	1,366	.2494	.7318	.1825
Sorting green lumber:								
Foreman	1	240	84.00	6,394,802	26,645	.3500	.0375	.0131
Tallyman	1	410	148.40	6,394,802	15,578	.3615	.0642	.0232
Marker	2	239½	83.85	6,394,802	26,701	.3501	.0375	.0131
Sorters and loaders	45	11,080	2,547.60	6,394,802	577	.2299	1.7327	.3984
Total	49	11,970	2,863.85	6,394,802	534	.2393	1.8718	.4478
Yard—green lumber:								
Foreman	1	260	100.00	6,394,802	24,595	.3846	.0407	.0156
Transfer	18	4,472½	1,171.20	6,394,802	1,430	.2619	.6994	.1831
Filing	35	8,177	1,930.20	6,394,802	782	.2361	1.2787	.3018

Establishment No. 19.

[Equipment.—Two single-cut band saws; 1 circular saw; 1 sash gang saw; 1 horizontal band resaw; 2 edger s 2 trimmers. Material.—Number of logs, 53,793; log scale, 11,699,600 board feet; log average, 217.5 board feet; kind of timber: white pine, fir, cedar, and redwood. Product.—Lumber tally, 11,864,540 board feet; prevailing sizes, practically all of product is 2 inches and under in thickness.]

Sawmill foremen	4	843½	\$360.26	11,864,540	14,066	\$0.4271	0.0711	\$0.0304
Log pond or yard	4	1,149	271.85	11,864,540	10,326	.2366	.0908	.0229
Sawmill deck	4	1,071	274.24	11,864,540	11,078	.2561	.0903	.0231
Band saw (day):								
Sawyer	1	260	182.00	2,895,684	11,137	.7000	.0898	.0629
Setter	1	260	91.00	2,895,684	11,137	.3500	.0898	.0314
Doggers	2	520	130.00	2,895,684	5,569	.2500	.1796	.0449
Tail sawyer	1	260	71.50	2,895,684	11,137	.2750	.0898	.0247
Total	5	1,300	474.50	2,895,684	2,227	.3650	.4489	.1639
Band saw (night):								
Sawyer	1	275	192.50	3,102,275	11,281	.7000	.0886	.0621
Setter	1	275	96.25	3,102,275	11,281	.3500	.0886	.0310
Doggers	2	550	137.50	3,102,275	5,641	.2500	.1773	.0443
Tail sawyer	1	275	75.62	3,102,275	11,281	.2750	.0886	.0244
Total	5	1,375	501.87	3,102,275	2,256	.3650	.4432	.1618
Total band saw:								
Sawyers	2	535	374.50	5,997,959	11,211	.7000	.0892	.0624
Setters	2	535	187.25	5,997,959	11,211	.3500	.0892	.0312
Doggers	4	1,070	267.50	5,997,959	5,606	.2500	.1784	.0446
Tail sawyers	2	535	147.12	5,997,959	11,211	.2750	.0892	.0245
Total	10	2,675	976.37	5,997,959	2,242	.3650	.4460	.1628
Circular saw (day):								
Sawyer	1	270	189.00	2,948,673	10,921	.7000	.0916	.0641
Setter	1	270	94.50	2,948,673	10,921	.3500	.0916	.0320
Doggers	2	540	162.00	2,948,673	5,461	.3000	.1831	.0549
Tail sawyer	1	270	74.25	2,948,673	10,921	.2750	.0916	.0252
Total	5	1,350	519.75	2,948,673	2,184	.3850	.4578	.1763

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 19—Continued.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Circular saw (night):								
Sawyer.....	1	265½	\$185.85	2,917,908	10,990	\$0.7000	0.0910	\$0.0637
Setter.....	1	265½	92.92	2,917,908	10,990	.3500	.0910	.0318
Doggers.....	2	531	159.30	2,917,908	5,495	.3000	.1820	.0546
Tail sawyer.....	1	265½	73.01	2,917,908	10,990	.2750	.0910	.0250
Total.....	5	1,327½	511.08	2,917,908	2,198	.3850	.4549	.1752
Total circular saw:								
Sawyers.....	2	535½	374.85	5,866,581	10,955	.7000	.0913	.0639
Setters.....	2	535½	187.42	5,866,581	10,955	.3500	.0913	.0319
Doggers.....	4	1,071	321.30	5,866,581	5,478	.3000	.1826	.0548
Tail sawyers.....	2	535½	147.26	5,866,581	10,955	.2750	.0913	.0251
Total.....	10	2,677½	1,030.83	5,866,581	2,191	.3850	.4564	.1757
Pony band saw (day):								
Sawyer.....	1	270	189.00	2,948,673	10,921	.7000	.0916	.0641
Setter.....	1	270	94.50	2,948,673	10,921	.3500	.0916	.0320
Dogger.....	1	270	94.50	2,948,673	10,921	.3500	.0916	.0320
Tail sawyer.....	1	270	67.50	2,948,673	10,921	.2500	.0916	.0229
Total.....	4	1,080	445.50	2,948,673	2,730	.4125	.3663	.1511
Pony band saw (night):								
Sawyer.....	1	265½	185.85	2,917,908	10,990	.7000	.0910	.0637
Setter.....	1	265½	92.92	2,917,908	10,990	.3500	.0910	.0318
Dogger.....	1	265½	92.92	2,917,908	10,990	.3500	.0910	.0318
Tail sawyer's.....	1	265½	66.27	2,917,908	10,990	.2496	.0910	.0227
Total.....	4	1,062	437.96	2,917,908	2,748	.4124	.3640	.1501
Total pony band saw:								
Sawyers.....	2	535½	374.85	5,866,581	10,955	.7000	.0913	.0639
Setters.....	2	535½	187.42	5,866,581	10,955	.3500	.0913	.0319
Doggers.....	2	535½	187.42	5,866,581	10,955	.3500	.0913	.0319
Tail sawyers.....	2	535½	133.77	5,866,581	10,955	.2498	.0913	.0228
Total.....	8	2,142	883.46	5,866,581	2,739	.4124	.3651	.1506
Horizontal band resaw (day):								
Resawyer.....	1	260	100.10	2,895,684	11,137	.3850	.0898	.0346
Resawyer's helper.....	1	260	55.83	2,895,684	11,137	.2147	.0898	.0193
Total.....	2	520	155.93	2,895,684	5,569	.2999	.1796	.0538
Horizontal band resaw (night):								
Resawyer.....	1	275	96.95	3,102,275	11,281	.3525	.0886	.0313
Resawyer's helper.....	1	275	61.87	3,102,275	11,281	.2250	.0886	.0199
Total.....	2	550	158.82	3,102,275	5,641	.2888	.1773	.0512
Total horizontal band resaw:								
Resawyers.....	2	535	197.05	5,997,959	11,211	.3683	.0892	.0329
Resawyer's helper.....	2	535	117.70	5,997,959	11,211	.2200	.0892	.0196
Total.....	4	1,070	314.75	5,997,959	5,606	.2942	.1784	.0525
Gang saw (day):								
Sawyer.....	1	270	108.00	2,948,673	10,921	.4000	.0916	.0366
Sawyer's helpers.....	2	540	135.00	2,948,673	5,461	.2500	.1831	.0458
Total.....	3	810	243.00	2,948,673	3,640	.3000	.2747	.0824
Gang saw (night):								
Sawyer.....	1	265½	86.28	2,917,908	10,990	.3250	.0910	.0296
Sawyer's helpers.....	2	531	132.75	2,917,908	5,495	.2500	.1820	.0455
Total.....	3	796½	219.03	2,917,908	3,663	.2750	.2730	.0751

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 19—Continued.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Total gang saw:								
Sawyers.....	2	535½	\$194.28	5,866,581	10,955	\$0.3628	0.0913	\$0.0331
Sawyers's helpers.....	4	1,071	267.75	5,866,581	5,478	.2500	.1826	.0456
Total.....	6	1,606½	462.03	5,866,581	3,652	.2876	.2738	.0788
Total sawing (head, gang, resaw).	38	10,171	3,667.44	11,864,540	1,167	.3606	.8573	.3091
Edger No. 1 (day):								
Edgerman.....	1	270	108.00	2,895,684	10,725	.4000	.0932	.0373
Edgerman's helpers.....	3	810	195.75	2,895,684	3,575	.2417	.2797	.0676
Total.....	4	1,080	303.75	2,895,684	2,681	.2813	.3730	.1049
Edger No. 1 (night):								
Edgerman.....	1	265½	102.22	3,102,275	11,685	.3850	.0856	.0330
Edgerman's helpers.....	3	796½	192.49	3,102,275	3,895	.2417	.2567	.0620
Total.....	4	1,062	294.71	3,102,275	2,921	.2775	.3423	.0950
Edger No. 2 (day):								
Edgerman.....	1	260	104.00	2,948,673	11,341	.4000	.0882	.0353
Edgerman's helpers.....	3	780	188.50	2,948,673	3,780	.2417	.2645	.0639
Total.....	4	1,040	292.50	2,948,673	2,835	.2813	.3527	.0992
Edger No. 2 (night):								
Edgerman.....	1	275	110.00	2,917,908	10,611	.4000	.0942	.0377
Edgerman's helpers.....	3	825	199.37	2,917,908	3,537	.2417	.2617	.0683
Total.....	4	1,100	309.37	2,917,908	2,653	.2812	.3770	.1060
Total edging:								
Edgermen.....	4	1,070½	424.22	11,864,540	11,083	.3963	.0902	.0358
Edgerman's helpers.....	12	3,211½	776.11	11,864,540	3,694	.2417	.2707	.0654
Total.....	16	4,282	1,200.33	11,864,540	2,771	.2803	.3609	.1012
Trimmer No. 1 (day):								
Operator.....	1	270	74.25	2,895,684	10,725	.2750	.0932	.0256
Operator's helpers.....	2	540	141.76	2,895,684	5,362	.2625	.1865	.0490
Total.....	3	810	216.01	2,895,684	3,575	.2667	.2797	.0746
Trimmer No. 1 (night):								
Operator.....	1	265½	73.01	3,102,275	11,685	.2750	.0856	.0235
Operator's helpers.....	2	531	139.38	3,102,275	5,843	.2625	.1712	.0449
Total.....	3	796½	212.39	3,102,275	3,895	.2667	.2567	.0685
Trimmer No. 2 (day):								
Operator.....	1	260	71.50	2,948,673	11,341	.2750	.0882	.0242
Operator's helpers.....	2	520	123.50	2,948,673	5,671	.2375	.1764	.0419
Total.....	3	780	195.00	2,948,673	3,780	.2500	.2645	.0661
Trimmer No. 2 (night):								
Operator.....	1	275	75.62	2,917,908	10,611	.2750	.0942	.0259
Operator's helpers.....	2	550	130.62	2,917,908	5,305	.2375	.1885	.0448
Total.....	3	825	206.24	2,917,908	3,537	.2500	.2827	.0707
Total trimming:								
Operators.....	4	1,070½	294.38	11,864,540	11,083	.2750	.0902	.0248
Operator's helpers.....	8	2,141	535.26	11,864,540	5,542	.2500	.1805	.0451
Total.....	12	3,211½	829.64	11,864,540	3,694	.2583	.2707	.0699

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 19—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Refuse—slasher, hog, burner	12	3,224	\$805.60	11,864,540	3,680	\$0.2499	0.2717	\$0.0679
Filing.....	9	2,362	1,101.50	11,864,540	5,023	.4663	.1991	.0928
Power and oiling.....	13	3,615	1,134.00	11,864,540	3,282	.3137	.3047	.0956
Repair.....	9	2,479½	1,200.65	11,864,540	4,785	.4842	.2090	.1012
Night watch and fire protection..	6	1,811	492.44	11,864,540	6,551	.2719	.1526	.0415
Clean-up and miscellaneous.....	16	4,194½	919.68	11,864,540	2,829	.2193	.3535	.0775
Sorting green lumber:								
Markers.....	5	1,255	397.25	11,864,540	9,454	.3165	.1058	.0335
Sorters and loaders.....	28	7,331	2,184.92	11,864,540	1,618	.2980	.6179	.1842
Total.....	33	8,586	2,582.17	11,864,540	1,382	.3007	.7237	.2176
Yard—green lumber:								
Foreman.....	1	270	125.00	9,736,310	36,060	.4630	.0277	.0128
Transfer:								
Hauling to piles.....	18	4,920	1,170.00	9,736,310	1,979	.2378	.5053	.1202
Stable.....	1	270	80.00	9,736,310	36,060	.2963	.0277	.0082
Tram repair.....	10	2,452	620.45	9,736,310	3,982	.2530	.2518	.0637
Total.....	29	7,642	1,870.45	9,736,310	1,274	.2448	.7848	.1921
Piling (contract).....	20	5,545	3,112.48	9,736,310	1,756	.5613	.5695	.3197
General labor.....	13	3,207	767.32	9,736,310	3,036	.2393	.3294	.0788

Establishment No. 20.

[Equipment.—Three single-cut band saws; 1 vertical band-roller resaw; 3 edgers; 2 trimmers. Material.—Number of logs, 7,497; log scale, 6,593,035 board feet; log average, 879.4 board feet; kind of timber: redwood, 90 per cent; white pine, 5 per cent; fir and spruce, 5 per cent. Product.—Lumber tally, 5,071,566 board feet; prevailing sizes, four and eight quarter in stock widths.]

Sawmill foreman.....	1	270	\$125.00	5,071,566	18,784	\$0.4630	0.0532	\$0.0246
Log pond or yard.....	7	1,818	482.00	5,071,566	2,790	.2651	.3585	.0950
Sawmill deck:								
Scaler.....	1	266½	66.60	5,071,566	19,030	.2499	.0525	.0131
Deckmen.....	3	799½	193.15	5,071,566	6,343	.2416	.1576	.0331
Drag saw man.....	2	533	126.55	5,071,566	9,515	.2374	.1051	.0250
Total.....	6	1,599	386.30	5,071,566	3,172	.2416	.3152	.0762
Band saw No. 1:								
Sawyer.....	1	266½	146.55	1,802,528	6,764	.5499	.1478	.0813
Setter.....	1	266½	73.25	1,802,528	6,764	.2749	.1478	.0406
Dogger.....	1	266½	59.95	1,802,528	6,764	.2250	.1478	.0333
Tall sawyer.....	1	266½	59.95	1,802,528	6,764	.2250	.1478	.0333
Total.....	4	1,066	339.70	1,802,528	1,691	.3187	.5912	.1885
Band saw No. 2:								
Sawyer.....	1	266½	146.55	1,873,676	7,031	.5499	.1422	.0782
Setter.....	1	266½	73.25	1,873,676	7,031	.2749	.1422	.0391
Dogger.....	1	266½	59.95	1,873,676	7,031	.2250	.1422	.0320
Tall sawyer.....	1	266½	59.95	1,873,676	7,044	.2254	.1420	.0320
Total.....	4	1,066	339.70	1,873,676	1,758	.3188	.5686	.1813
Band saw No. 3:								
Sawyer.....	1	266½	146.55	1,395,362	5,236	.5499	.1910	.1050
Setter.....	1	266½	73.25	1,395,362	5,236	.2749	.1910	.0525
Doggers.....	2	533	119.90	1,395,362	2,618	.2250	.3820	.0859
Tall sawyer.....	1	266½	59.95	1,395,362	5,236	.2250	.1910	.0430
Total.....	5	1,332½	399.65	1,395,362	1,047	.2999	.9550	.2864

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 20—Continued.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Total band saws:								
Sawyers.....	3	799½	\$439.65	5,071,566	6,343	\$0.5499	0.1576	\$0.0867
Setters.....	3	799½	219.75	5,071,566	6,343	.2749	.1576	.0433
Doggers.....	4	1,066	239.80	5,071,566	4,758	.2250	.2102	.0473
Tail sawyers.....	3	799½	179.85	5,071,566	6,343	.2250	.1576	.0355
Total.....	13	3,464½	1,079.05	5,071,566	1,464	.3115	.6830	.2128
Resaw:								
Resawyer.....	1	266½	93.30	5,071,566	19,030	.3501	.0525	.0184
Resawyer's helpers.....	2	533	109.25	5,071,566	9,515	.2050	.1051	.0215
Total.....	3	799½	202.55	5,071,566	6,343	.2533	.1576	.0399
Total sawing (head, resaw).....	16	4,265	1,281.60	5,071,566	1,189	.3005	.8410	.2527
Edger, resaw:								
Edgerman.....	1	266½	90.60	5,071,566	19,030	.3400	.0525	.0179
Edgerman's helpers.....	2	533	119.90	5,071,566	9,515	.2250	.1051	.0236
Total.....	3	799½	210.50	5,071,566	6,343	.2633	.1576	.0415
Edger No. 1:								
Edgerman.....	1	266½	90.60	1,802,528	6,764	.3400	.1478	.0503
Edgerman's helpers.....	2	533	119.90	1,802,528	3,382	.2250	.2957	.0665
Total.....	3	799½	210.50	1,802,528	2,255	.2633	.4435	.1168
Edger No. 2:								
Edgerman.....	1	266½	90.60	1,873,676	7,031	.3400	.1422	.0484
Edgerman's helpers.....	2	533	119.90	1,873,676	3,515	.2250	.2845	.0640
Total.....	3	799½	210.50	1,873,676	2,344	.2633	.4267	.1124
Edger No. 3:								
Edgerman.....	1	266½	90.60	1,395,362	5,236	.3400	.1910	.0649
Edgerman's helpers.....	2	533	119.90	1,395,362	2,618	.2250	.3820	.0859
Total.....	3	799½	210.50	1,395,362	1,745	.2633	.5730	.1508
Total edging:								
Edgermen.....	4	1,066	362.40	5,071,566	4,758	.3400	.2102	.0715
Edgerman's helpers.....	8	2,132	479.60	5,071,566	2,379	.2250	.4204	.0946
Total.....	12	3,198	842.00	5,071,566	1,586	.2633	.6306	.1660
Trimmer No. 1:								
Operator.....	1	266½	73.25	2,535,783	9,515	.2749	.1091	.0289
Operator's helpers.....	3	799½	186.50	2,535,783	3,172	.2333	.3153	.0735
Total.....	4	1,066	259.75	2,535,783	2,379	.2437	.4204	.1024
Trimmer No. 2:								
Operator.....	1	266½	73.25	2,535,783	9,515	.2749	.1051	.0289
Operator's helpers.....	3	799½	186.50	2,535,783	3,172	.2333	.3153	.0735
Total.....	4	1,066	259.75	2,535,783	2,379	.2437	.4204	.1024
Total trimming:								
Operators.....	2	533	146.50	5,071,566	9,515	.2749	.1051	.0289
Operator's helpers.....	6	1,599	373.00	5,071,566	3,172	.2333	.3153	.0735
Total.....	8	2,132	519.50	5,071,566	2,379	.2437	.4204	.1024
Refuse—slasher, hog, burner.....	6	1,599	317.12	5,071,566	3,172	.1983	.3153	.0625
Filing.....	3	799½	594.00	5,071,566	6,343	.7430	.1576	.1171
Power and oiling.....	15	4,432	1,088.37	5,071,566	1,144	.2456	.8759	.2146
Repair.....	5	1,375½	472.85	5,071,566	3,687	.3438	.2712	.0832
Night watch and fire protection.....	9	2,335	529.00	5,071,566	2,172	.2266	.4604	.1043
Clean-up and miscellaneous.....	9	2,380	477.51	5,071,566	2,131	.2006	.4693	.0942

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 20—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Sorting green lumber:								
Graders.....	2	523	\$156.35	5,071,566	9,697	\$0.2989	0.1031	\$0.0308
Sorters and loaders.....	30	8,176½	1,657.29	5,071,566	620	.2027	1.6122	.3268
Total.....	32	8,699½	1,813.64	5,071,566	583	.2085	1.7153	.3576
Yard—green lumber:								
Foreman.....	1	246	86.80	5,071,566	20,616	.3528	.0485	.0171
Transfer.....	2	540	135.00	5,071,566	9,392	.2500	.1065	.0266
Piling.....	58	15,515½	3,133.25	7,717,000	497	.2019	2.0106	.4060

Establishment No. 21.

[Equipment.—Two single-cut band saws; 1 double-cut band saw; 1 sash gang saw; 3 edgers; 3 trimmers. Material.—Number of logs, 4,623; log scale, 7,927,000 board feet; log average, 1,713.9 board feet; kind of timber: redwood, 64.1 per cent; white pine, fir, and spruce, 35.9 per cent. Product.—Lumber tally, 5,975,000 board feet; prevailing sizes, four and eight quarter in stock widths.]

Sawmill foreman.....	1	270	\$185.00	5,975,000	22,130	\$0.6852	0.0452	\$0.0310
Log pond or yard.....	9	2,464	652.90	5,975,000	2,425	.2650	.4124	.1093
Sawmill deck:								
Scalers.....	2	351	147.20	5,975,000	17,023	.4194	.0587	.0246
Splitter.....	1	296	88.80	5,975,000	20,186	.3000	.0495	.0149
Drag-saw men.....	2	536	131.35	5,975,000	11,147	.2451	.0897	.0220
Total.....	5	1,183	367.35	5,975,000	5,051	.3105	.1980	.0615
Band saw No. 1:								
Sawyer.....	1	266	125.00	1,877,055	7,057	.4699	.1417	.0666
Setter.....	1	266	73.15	1,877,055	7,057	.2750	.1417	.0390
Dogger.....	1	266	73.15	1,877,055	7,057	.2750	.1417	.0390
Tail sawyer.....	1	266	66.50	1,877,055	7,057	.2500	.1417	.0354
Total.....	4	1,064	337.80	1,877,055	1,764	.3175	.5668	.1800
Band saw No. 2:								
Sawyer.....	1	266	118.40	1,716,147	6,652	.4451	.1550	.0690
Setter.....	1	266	73.15	1,716,147	6,652	.2750	.1550	.0426
Dogger.....	1	266	59.85	1,716,147	6,652	.2250	.1550	.0349
Tail sawyer.....	1	266	66.50	1,716,147	6,652	.2500	.1550	.0387
Total.....	4	1,064	317.90	1,716,147	1,613	.2988	.6200	.1852
Band saw No. 3 (double-cut):								
Sawyer.....	1	270	162.00	2,381,798	8,821	.6000	.1134	.0680
Setter.....	1	270	74.25	2,381,798	8,821	.2750	.1134	.0312
Dogger.....	1	270	60.75	2,381,798	8,821	.2250	.1134	.0255
Tail sawyer.....	1	270	67.50	2,381,798	8,821	.2500	.1134	.0283
Total.....	4	1,080	364.50	2,381,798	2,205	.3375	.4534	.1530
Total band saws:								
Sawyers.....	3	802	405.40	5,975,000	7,450	.5055	.1342	.0678
Setters.....	3	802	220.55	5,975,000	7,450	.2750	.1342	.0369
Doggers.....	3	802	193.75	5,975,000	7,450	.2416	.1342	.0324
Tail sawyers.....	3	802	200.50	5,975,000	7,450	.2500	.1342	.0336
Total.....	12	3,208	1,020.20	5,975,000	1,863	.3180	.5369	.1707
Gang saw:								
Sawyer.....	1	270	81.00	5,975,000	22,130	.3000	.0452	.0136
Sawyer's helpers.....	4	1,080	222.75	5,975,000	5,532	.2063	.1808	.0373
Total.....	5	1,350	303.75	5,975,000	4,426	.2250	.2259	.0508
Total sawing (head, gang).....	17	4,558	1,323.95	5,975,000	1,311	.2905	.7628	.2216

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 21—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Edger No. 1:								
Edgerman.....	1	266	\$86.45	1,877,055	7,057	\$0.3250	0.1417	\$0.0461
Edgerman's helpers.....	2	532	113.05	1,877,055	3,528	.2834	.1062	.0602
Total.....	3	798	199.50	1,877,055	2,352	.2500	.4251	.1063
Edger No. 2:								
Edgerman.....	1	266	86.45	1,716,147	6,652	.3250	.1550	.0504
Edgerman's helpers.....	2	532	113.05	1,716,147	3,226	.2125	.3100	.0659
Total.....	3	798	199.50	1,716,147	2,151	.2500	.4650	.1162
Edger No. 3:								
Edgerman.....	1	270	87.75	2,381,798	8,821	.3250	.1134	.0368
Edgerman's helpers.....	2	540	114.75	2,381,798	4,411	.2125	.2267	.0482
Total.....	3	810	202.50	2,381,798	2,940	.2500	.3401	.0850
Total edging:								
Edgerman.....	3	802	260.65	5,975,000	7,450	.3250	.1342	.0436
Edgerman's helpers.....	6	1,604	340.85	5,975,000	3,725	.2125	.2685	.0570
Total.....	9	2,406	601.50	5,975,000	2,483	.2500	.4027	.1007
Trimmer No. 1:								
Operator.....	1	266	73.15	1,877,055	7,057	.2750	.1417	.0390
Operator's helper.....	1	266	62.51	1,877,055	7,057	.2350	.1417	.0333
Total.....	2	532	135.66	1,877,055	3,528	.2550	.2834	.0723
Trimmer No. 2:								
Operator.....	1	266	66.50	1,716,147	6,452	.2500	.1550	.0387
Operator's helper.....	1	266	53.20	1,716,147	6,452	.2000	.1550	.0310
Total.....	2	532	119.70	1,716,147	3,226	.2250	.3100	.0697
Trimmer No. 3:								
Operator.....	1	270	74.25	2,381,798	8,821	.2750	.1134	.0312
Operator's helper.....	1	270	54.00	2,381,798	8,821	.2000	.1134	.0227
Total.....	2	540	128.25	2,381,798	4,411	.2375	.2267	.0538
Total trimming:								
Operators.....	3	802	213.90	5,975,000	7,450	.2667	.1342	.0358
Operator's helpers.....	3	802	169.71	5,975,000	7,450	.2116	.1342	.0284
Total.....	6	1,604	383.61	5,975,000	3,725	.2392	.2685	.0642
Refuse—slasher, hog, burner.....	2	540	114.75	5,975,000	11,065	.2125	.0904	.0192
Filing.....	4	1,080	621.00	5,975,000	5,532	.5750	.1808	.1039
Power and oiling.....	22	5,965	1,757.35	5,975,000	1,002	.2946	.9983	.2941
Repair.....	5	1,382	505.60	5,975,000	4,323	.3658	.2313	.0846
Night watch and fire protection..	5	1,280	288.00	5,975,000	4,668	.2250	.2142	.0482
Clean-up and miscellaneous.....	10	2,767	498.44	5,975,000	2,159	.1801	.4631	.0834
Sorting green lumber:								
Foreman.....	1	270	100.00	5,975,000	22,130	.3704	.0452	.0167
Tallyman.....	1	270	87.75	5,975,000	22,130	.3250	.0452	.0147
Graders.....	4	1,060	304.50	5,975,000	5,637	.2873	.1774	.0510
Sorters and loaders.....	41	11,017	2,488.55	5,975,000	642	.2259	1.8438	.4165
Total.....	47	12,617	2,890.80	5,975,000	474	.2291	2.1116	.4838
Yard—green lumber:								
Foreman.....	1	270	115.00	5,975,000	22,130	.4259	.0452	.0192
Transfer.....	5	1,345	298.30	5,975,000	4,442	.2218	.2251	.0499
Piling.....	46	12,378	2,485.97	5,975,000	483	.2008	2.0716	.4161

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued

Establishment No. 22.

[Equipment.—Two single-cut band saws; 1 edger; 1 trimmer. Material.—Number of logs, 1,243; log scale, 314,791 board feet; log average, 253.3 board feet; kind of timber: cypress, 88.8 per cent; gum, 1.2 per cent. Product.—Lumber tally, 391,249 board feet; prevailing sizes, principally eight quarter and under.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Sawmill foreman	1	60	\$38.40	391,250	6,521	\$0.6400	0.1533	\$0.0681
Log pond or yard	4	208	41.50	391,250	1,881	.1995	.5316	.1061
Sawmill deck	3	144	31.20	391,250	2,717	.2167	.3681	.0797
Band saw No. 1:								
Sawyer	1	48	33.60	195,625	4,076	.7000	.2454	.1718
Setter	1	48	15.60	195,625	4,076	.3250	.2454	.0797
Doggers	2	96	20.40	195,625	2,038	.2125	.4907	.1043
Tail sawyer	1	48	9.60	195,625	4,076	.2000	.2454	.0491
Total	5	240	79.20	195,625	815	.3300	1.2268	.4049
Band saw No. 2:								
Sawyer	1	48	31.20	195,625	4,076	.6500	.2454	.1595
Setter	1	48	15.60	195,625	4,076	.3250	.2454	.0797
Doggers	2	96	20.40	195,625	2,038	.2125	.4907	.1043
Tail sawyer	1	48	9.60	195,625	4,076	.2000	.2454	.0491
Total	5	240	76.80	195,625	815	.3200	1.2268	.3926
Total band saws:								
Sawyers	2	96	64.80	391,250	4,076	.6750	.2454	.1656
Setters	2	96	31.20	391,250	4,076	.3250	.2454	.0797
Doggers	4	192	40.80	391,250	2,038	.2125	.4907	.1043
Tail sawyers	2	96	19.20	391,250	4,076	.2000	.2454	.0491
Total	10	480	156.00	391,250	815	.3250	1.2268	.3987
Edging:								
Edgermen	2	96	32.40	391,250	4,076	.3375	.2454	.0828
Edgerman's helpers	4	384	30.50	391,250	1,019	.0794	.9815	.0780
Total	6	480	62.90	391,250	815	.1310	1.2268	.1608
Trimming:								
Operator	1	48	13.25	391,250	8,151	.2760	.1227	.0339
Operator's helpers	2	96	16.80	391,250	4,076	.1750	.2454	.0429
Total	3	144	30.05	391,250	2,717	.2087	.3681	.0768
Refuse—slasher, hog, burner	4	196	31.80	391,250	1,996	.1622	.5010	.0813
Filing	2	96	48.00	391,250	4,076	.5000	.2454	.1227
Power and oiling	7	355	95.40	391,250	1,102	.2687	.9073	.2438
Repair	4	185	40.70	391,250	2,115	.2200	.4728	.1040
Night watch and fire protection	4	220	37.15	391,250	1,778	.1689	.5623	.0950
Clean-up and miscellaneous	6	277	55.50	391,250	1,412	.2004	.7080	.1419
Sorting green lumber:								
Tallyman	1	48	12.00	391,250	8,151	.2500	.1227	.0307
Grader	1	53	14.60	391,250	7,382	.2755	.1355	.0373
Sorters and loaders	8	405	60.00	391,250	966	.1481	1.0351	.1534
Total	10	506	86.60	391,250	773	.1711	1.2933	.2213
Yard—green lumber:								
Foreman	1	60	23.10	391,250	6,521	.3850	.1534	.0590
Transfer	8	453	72.50	391,250	864	.1601	1.1579	.1853
Piling	9	548	205.50	391,250	714	.3750	1.4004	.5252

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 23.

[Equipment.—Three single-cut band saws; 1 sash gang saw; 3 edgers; 2 trimmers. Material.—Number of logs, 11,452; log scale, 1,789,682 board feet; log average, 156.3 board feet; kind of timber: 35 per cent short-leaf yellow pine; 65 per cent long-leaf yellow pine. Product.—Lumber tally, 2,226,586 board feet; prevailing sizes, four and eight quarter predominate.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Sawmill foremen	2	260	\$162.50	2,226,586	8,564	\$0.6250	0.1168	\$0.0730
Log pond or yard	5	552	96.89	2,226,586	4,034	.1755	.2479	.0435
Sawmill deck	4	430	86.25	2,226,586	5,178	.2006	.1931	.0387
Band saw No. 1:								
Sawyer	1	110	77.00	615,682	5,597	.7000	.1787	.1251
Setter	1	110	27.50	615,682	5,597	.2500	.1787	.0447
Doggers	2	220	36.30	615,682	2,799	.1650	.3573	.0590
Tail Sawyer	1	110	18.15	615,682	5,597	.1650	.1787	.0295
Total	5	550	158.95	615,682	1,119	.2890	.8933	.2582
Band saw No. 2:								
Sawyer	1	110	77.00	894,842	8,135	.7000	.1229	.0860
Setter	1	110	27.50	894,842	8,135	.2500	.1229	.0307
Doggers	2	220	44.00	894,842	4,067	.2000	.2459	.0492
Tail Sawyer	1	110	19.25	894,842	8,135	.1750	.1229	.0215
Total	5	550	167.75	894,842	1,627	.3050	.6146	.1875
Band saw No. 3:								
Sawyer	1	110	77.00	716,062	6,510	.7000	.1536	.1075
Setter	1	110	28.00	716,062	6,510	.2545	.1536	.0391
Doggers	2	220	36.30	716,062	3,255	.1650	.3072	.0507
Tail Sawyer	1	110	18.15	716,062	6,510	.1650	.1536	.0253
Total	5	550	159.45	716,062	1,302	.2899	.7681	.2227
Total band saws:								
Sawyers	3	330	231.00	2,226,586	6,747	.7000	.1482	.1037
Setters	3	330	83.00	2,226,586	6,747	.2515	.1482	.0373
Doggers	6	660	116.60	2,226,586	3,374	.1767	.2964	.0524
Tail sawyers	3	330	55.55	2,226,586	6,747	.1683	.1482	.0249
Total	15	1,650	486.15	2,226,586	1,349	.2946	.7410	.2183
Gang saw:								
Sawyer	1	110	49.50	894,842	8,135	.4500	.1229	.0553
Others	4	440	85.25	894,842	2,034	.1938	.4917	.0953
Total	5	550	134.75	894,842	1,627	.2450	.6146	.1506
Total sawing (head, gang)	20	2,200	620.90	2,226,586	1,121	.2822	.9881	.2789
Edger, No. 1:								
Edgerman	1	110	33.00	716,062	6,510	.3000	.1536	.0461
Edgerman's helpers	2	220	35.75	716,062	3,255	.1625	.3072	.0499
Total	3	330	68.75	716,062	2,170	.2083	.4609	.0960
Edger, No. 2:								
Edgermen	2	220	66.00	615,682	2,799	.3000	.3573	.1072
Edgerman's helpers	2	220	36.30	615,682	2,799	.1650	.3573	.0590
Total	4	440	102.30	615,682	1,399	.2325	.7147	.1662
Edger No. 3:								
Edgermen	2	220	66.00	894,842	4,067	.3000	.2459	.0738
Edgerman's helpers	2	220	36.30	894,842	4,067	.1650	.2459	.0406
Total	4	440	102.30	894,842	2,034	.2325	.4917	.1143
Total edging:								
Edgermen	5	550	165.00	2,226,586	4,048	.3000	.2470	.0741
Edgerman's helpers	6	660	108.35	2,226,586	3,374	.1642	.2964	.0487
Total	11	1,210	273.35	2,226,586	1,840	.2259	.5434	.1228

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 23—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Trimmer No. 1:								
Operator.....	1	110	\$19.25	716,062	6,510	\$0.1750	0.1536	\$0.0269
Operator's helpers.....	2	220	24.75	716,062	3,255	.1125	.3072	.0346
Total.....	3	330	44.00	716,062	2,170	.1333	.4609	.0614
Trimmer No. 2:								
Operator.....	1	110	27.50	1,510,524	13,732	.2500	.0728	.0182
Operator's helpers.....	3	330	66.00	1,510,524	4,577	.2000	.2185	.0437
Total.....	4	440	93.50	1,510,524	3,433	.2125	.2913	.0619
Total trimming:								
Operators.....	2	220	46.75	2,226,586	10,121	.2125	.0988	.0210
Operator's helpers.....	5	550	90.75	2,226,586	4,048	.1650	.2470	.0408
Total.....	7	770	137.50	2,226,586	2,892	.1786	.3458	.0618
Refuse—slasher, hog, burner.....	6	660	117.95	2,226,586	3,374	.1787	.2964	.0530
Filing.....	4	440	225.50	2,226,586	5,060	.5125	.1976	.1012
Power and oiling.....	8	1,114	312.78	2,226,586	1,999	.2808	.5003	.1405
Repair.....	5	540	205.33	2,226,586	4,123	.3802	.2425	.0922
Night watch and fire protection.....	2	314	67.40	2,226,586	7,091	.2146	.1410	.0303
Clean-up and miscellaneous.....	10	1,102	183.54	2,226,586	2,020	.1666	.4949	.0824
Sorting green lumber:								
Graders.....	3	330	49.12	2,226,586	6,747	.1488	.1482	.0221
Sorters and loaders.....	11	1,209	240.11	2,226,586	1,842	.1986	.5430	.1078
Total.....	14	1,539	289.23	2,226,586	1,447	.1879	.6912	.1299
Yard—green lumber:								
Foreman.....	1	130	50.00	1,635,213	12,579	.3846	.0795	.0306
Transfer.....	10	1,137	172.98	1,635,213	1,438	.1521	.6953	.1058
Piling.....	29	3,176	605.59	1,635,213	515	.1907	1.9423	.3703

Establishment No. 24.

[Equipment.—One single-cut band saw; 1 sash gang saw; 3 edgers; 1 trimmer. Material.—Number of logs, 25,033; log scale, 2,481,147 board feet; log average, 99.1 board feet; kind of timber, all short-leaf yellow pine. Product.—Lumber tally, 2,878,131 board feet; prevailing sizes, four quarter.]

Sawmill foreman.....	1	309	\$125.00	2,878,131	9,314	\$0.4045	0.1074	\$0.0434
Log pond or yard.....	5	1,312	204.00	2,878,131	2,194	.1555	.4559	.0709
Sawmill deck.....	2	587	90.49	2,878,131	4,903	.1542	.2040	.0314
Band saw:								
Sawyer.....	1	270	189.00	2,878,131	10,660	.7000	.0938	.0657
Setter.....	1	270	72.24	2,878,131	10,660	.2676	.0938	.0251
Doggers.....	2	540	93.10	2,878,131	5,330	.1724	.1876	.0323
Tail sawyers.....	2	540	93.15	2,878,131	5,330	.1725	.1876	.0324
Total.....	6	1,620	447.49	2,878,131	1,777	.2762	.5628	.1555
Gang saw:								
Sawyer.....	1	260	78.00	2,878,131	11,070	.3000	.0903	.0271
Cant setter.....	1	260	50.70	2,878,131	11,070	.1950	.0903	.0176
Liner.....	1	260	42.90	2,878,131	11,070	.1650	.0903	.0149
Swampers.....	2	520	84.50	2,878,131	5,535	.1625	.1807	.0294
Total.....	5	1,300	256.10	2,878,131	2,214	.1970	.4516	.0890
Total sawing (head, gang).....	11	2,920	703.59	2,878,131	986	.2410	1.0145	.2445
Edging (3 machines):								
Edgemen.....	3	790	197.50	2,878,131	3,643	.2500	.2745	.0686
Edgerman's helpers.....	3	790	114.70	2,878,131	3,643	.1452	.2745	.0399
Total.....	6	1,580	312.20	2,788,131	1,822	.1976	.5490	.1085

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 24—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Trimming:								
Operator.....	1	270	\$47.25	2,878,131	10,660	\$0.1750	0.0938	\$0.0164
Operator's helpers.....	2	540	108.00	2,878,131	5,330	.2000	.1876	.0375
Total.....	3	810	155.25	2,878,131	3,553	.1917	.2814	.0539
Refuse—slasher, hog, burner.....	4	994	144.41	2,878,131	2,896	.1453	.3454	.0502
Filing.....	2	549	273.60	2,878,131	5,242	.4984	.1907	.0951
Power and oiling.....	3	1,161	245.80	2,878,131	2,479	.2117	.4034	.0854
Repair.....	4	877	204.25	2,878,131	3,282	.2329	.3047	.0710
Night watch and fire protection.....	2	504	106.20	2,878,131	5,711	.2107	.1751	.0369
Clean-up and miscellaneous.....	8	2,266	365.70	2,878,131	1,270	.1614	.7873	.1271
Sorting green lumber:								
Grader.....	1	259	45.32	2,878,131	11,112	.1750	.0900	.0157
Sorters and loaders.....	12	3,152	457.71	2,878,131	913	.1452	1.0952	.1590
Total.....	13	3,411	503.03	2,878,131	844	.1475	1.1852	.1747
Yard—green lumber:								
Foreman.....	1	260	100.00	2,878,131	11,070	.3846	.0903	.0347
Transfer.....	9	2,340	351.00	2,878,131	1,230	.1500	.8130	.1220
Piling.....	16	4,161	779.60	2,878,131	692	.1874	1.4457	.2709

Establishment No. 25.

[Equipment.—Three single-cut band saws; 1 sash gang saw; 3 edgers; 2 trimmers. Material.—Number of logs, 7,247; log scale, 1,322,125 board feet; log average, 182.4 board feet; kind of timber, chiefly long-leaf yellow pine. Product.—Lumber tally, 1,200,484 board feet; prevailing sizes, principally 1-inch boards; approximately 11 per cent timbers.]

Sawmill foremen.....	2	137	\$54.90	1,200,484	8,763	\$0.4007	0.1141	\$0.0457
Log pond or yard:								
Foreman.....	1	70	21.00	1,200,484	17,150	.3000	.0583	.0175
Pond men.....	7	443	64.90	1,200,484	2,710	.1465	.3690	.0541
Total.....	8	513	85.90	1,200,484	2,340	.1674	.4273	.0716
Sawmill deck:								
Scalers and haul ups.....	3	180	30.60	1,200,484	6,669	.1700	.1499	.0255
Band saw No. 1:								
Sawyer.....	1	60	39.00	401,894	6,698	.6500	.1493	.0970
Setter.....	1	60	15.00	401,894	6,698	.2500	.1493	.0373
Doggers.....	2	120	18.00	401,894	3,349	.1500	.2986	.0448
Tail sawyer.....	1	60	9.60	401,894	6,698	.1600	.1493	.0239
Total.....	5	300	81.60	401,894	1,340	.2720	.7465	.2030
Band saw No. 2:								
Sawyer.....	1	60	39.00	364,342	6,072	.6500	.1647	.1070
Setter.....	1	60	15.00	364,342	6,072	.2500	.1647	.0412
Doggers.....	2	120	18.00	364,342	3,036	.1500	.3294	.0494
Tail sawyer.....	1	60	9.60	364,342	6,072	.1600	.1647	.0263
Total.....	5	300	81.60	364,342	1,214	.2720	.8234	.2240
Band saw No. 3:								
Sawyer.....	1	60	30.90	434,248	7,237	.5150	.1382	.0712
Setter.....	1	60	15.90	434,248	7,237	.2650	.1382	.0366
Doggers.....	2	120	19.80	434,248	3,619	.1650	.2763	.0456
Tail sawyer.....	1	60	9.90	434,248	7,237	.1650	.1382	.0228
Total.....	5	300	76.50	434,248	1,447	.2550	.6908	.1762

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 25—Continued.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Total band saws:								
Sawyers	3	180	\$108.90	1,200,484	6,669	\$0.6050	0.1499	\$0.0907
Setters	3	180	45.90	1,200,484	6,669	.2550	.1499	.0382
Doggers	6	360	55.80	1,200,484	3,335	.1550	.2999	.0465
Tail sawyers	3	180	29.10	1,200,484	6,669	.1617	.1499	.0242
Total	15	900	239.70	1,200,484	1,334	.2663	.7497	.1997
Gang saw:								
Sawyer	1	60	16.50	798,590	13,310	.2750	.0751	.0207
Band setters	4	240	33.90	798,590	3,327	.1413	.3005	.0424
Craneman	1	60	11.10	798,590	13,310	.1850	.0751	.0139
Helpers	5	306	44.15	798,590	2,610	.1443	.3832	.0553
Total	11	666	105.65	798,590	1,199	.1586	.8340	.1323
Total sawing (head, gang)	26	1,566	345.35	1,200,484	767	.2205	1.3045	.2877
Edger No. 1:								
Edgerman	1	60	15.00	401,894	6,698	.2500	.1493	.0373
Edgerman's helpers	3	180	19.50	401,894	2,233	.1083	.4479	.0485
Total	4	240	34.50	401,894	1,675	.1438	.5972	.0858
Edger No. 2:								
Edgermen	2	120	28.50	364,342	3,036	.2375	.3294	.0782
Edgerman's helper	1	60	8.50	364,342	6,072	.1417	.1647	.0233
Total	3	180	37.00	364,342	2,024	.2056	.4940	.1016
Edger No. 3:								
Edgermen	2	120	27.00	434,248	3,619	.2250	.2763	.0622
Edgerman's helpers	2	120	18.00	434,248	3,619	.1500	.2763	.0415
Total	4	240	45.00	434,248	1,809	.1875	.5527	.1086
Total edging:								
Edgermen	5	300	70.50	1,200,484	4,002	.2350	.2499	.0587
Edgerman's helpers	6	360	46.00	1,200,484	3,335	.1278	.2999	.0383
Total	11	660	116.50	1,200,484	1,819	.1765	.5498	.0970
Trimmer No. 1:								
Operator	1	60	9.00	401,894	6,698	.1500	.1493	.0224
Operator's helpers	2	120	18.00	401,894	3,349	.1500	.2986	.0448
Total	3	180	27.00	401,894	2,233	.1500	.4479	.0672
Trimmer No. 2:								
Operators	2	120	27.00	798,590	6,655	.2250	.1503	.0338
Operator's helpers	2	120	22.20	798,590	6,655	.1850	.1503	.0278
Total	4	240	49.20	798,590	3,327	.2050	.3005	.0616
Total trimming:								
Operators	3	180	36.00	1,200,484	6,669	.2000	.1499	.0300
Operator's helpers	4	240	30.20	1,200,484	5,002	.1258	.1999	.0252
Total	7	420	66.20	1,200,484	2,858	.1576	.3499	.0551
Refuse—slasher, hog, burner	4	247	36.44	1,200,484	4,860	.1475	.2058	.0304
Filing	4	240	127.20	1,200,484	5,002	.5300	.1999	.1060
Power and oiling	17	1,076	214.65	1,200,484	1,116	.1985	.8963	.1788
Repair	4	282	82.70	1,200,484	4,257	.2933	.2349	.0689
Night watch and fire protection	1	70	18.50	1,200,484	17,150	.2643	.0583	.0154
Clean-up and miscellaneous	8	525	74.75	1,200,484	2,287	.1424	.4373	.0623

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Continued.

Establishment No. 25—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Sorting green lumber:								
Foreman.....	1	60	\$19.50	1,200,484	20,008	\$0.3250	0.0500	\$0.0162
Graders.....	2	120	20.40	1,200,484	10,004	.1700	.1000	.0170
Sorters and loaders.....	23	1,341	186.74	1,200,484	895	.1393	1,1170	.1556
Total.....	26	1,521	406.64	1,200,484	789	.2674	1.2670	.3387
Yard—green lumber:								
Foreman.....	1	60	19.50	1,039,445	17,324	.3250	.0577	.0188
Transfer.....	15	888	102.55	1,039,445	1,171	.1155	.8543	.0987
Piling.....	31	1,855	269.32	1,039,445	560	.1452	1.7846	.2591

Establishment No. 26.

[Equipment.—Two band saws; 1 gang saw; 2 edgers; 1 trimmer. Materials.—Number of logs, 1,249; log scale, 126,589 board feet; log average, 101.3 board feet; kind of timber, chiefly short-leaf yellow pine. Product.—Lumber tally, 164,565 board feet; prevailing sizes, principally four and eight quarter.]

Sawmill foremen.....		10	\$5.83	164,565	16,457	\$0.5830	0.0608	\$0.0354
Log pond, or yard.....		50	10.25	164,565	3,291	.2050	.3038	.0623
Sawmill deck.....		20	5.25	164,565	8,228	.2625	.1215	.0319
Band saw No. 1:								
Sawyer.....	1	10	7.00	100,938	10,094	.7000	.0991	.0693
Setter.....	1	10	2.75	100,938	10,094	.2750	.0991	.0272
Doggers.....	3	30	6.25	100,938	3,365	.2083	.2972	.0610
Tail sawyer.....	1	10	2.00	100,938	10,094	.2000	.0991	.0198
Total.....	6	60	18.00	100,938	1,682	.3000	.5945	.1782
Band saw No. 2:								
Sawyer.....	1	10	7.00	63,627	6,363	.7000	.1572	.1100
Setter.....	1	10	2.25	63,627	6,363	.2250	.1572	.0354
Doggers.....	2	20	4.00	63,627	3,181	.2000	.3143	.0629
Tail sawyer.....	1	10	2.00	63,627	6,363	.2000	.1572	.0314
Total.....	5	50	15.25	63,627	1,273	.3050	.7858	.2397
Total band saws:								
Sawyers.....	2	20	14.00	164,565	8,228	.7000	.1215	.0851
Setters.....	2	20	5.00	164,565	8,228	.2500	.1215	.0304
Doggers.....	5	50	10.25	164,565	3,291	.2050	.3038	.0623
Tail sawyers.....	2	20	4.00	164,565	8,228	.2000	.1215	.0243
Total.....	11	110	33.25	164,565	1,496	.3023	.6683	.2021
Gang saw:								
Sawyer.....	1	10	4.00	164,565	16,457	.4000	.0608	.0243
Sawyer's helpers.....	8	80	15.45	164,565	2,057	.1931	.4861	.0939
Total.....	9	90	19.45	164,565	1,828	.2161	.5469	.1182
Total sawing (head, gang).....	20	200	52.70	164,565	823	.2635	1.2153	.3203
Edger No. 1:								
Edgerman.....	1	10	2.75	100,938	10,094	.2750	.0991	.0272
Edgerman's helpers.....	2	20	4.00	100,938	5,047	.2000	.1981	.0396
Total.....	3	30	6.75	100,938	3,364	.2250	.2972	.0669
Edger No. 2:								
Edgerman.....	1	10	2.50	63,627	6,363	.2500	.1572	.0393
Edgerman's helpers.....	2	20	3.75	63,627	3,181	.1875	.3143	.0589
Total.....	3	30	6.25	63,627	2,121	.2083	.4715	.0982

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

SAWMILL—Concluded.

Establishment No. 26—Concluded.

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Total edging:								
Edgemen.....	2	20	\$5.25	164,565	8,228	\$0.2625	0.1215	\$0.0319
Edgeman's helpers.....	4	40	7.75	164,565	4,114	.1938	.2431	.0471
Total.....	6	60	13.00	164,565	2,743	.2167	.3646	.0790
Trimming:								
Operator.....	1	10	2.25	164,565	16,457	.2250	.0608	.0137
Operator's helpers.....	3	30	4.80	164,565	5,484	.1600	.1823	.0292
Total.....	4	40	7.05	164,565	4,114	.1763	.2431	.0428
Refuse—slasher, hog, burner.....		25	3.90	164,565	6,583	.1560	.1519	.0237
Filing.....		30	20.00	164,565	5,485	.6667	.1823	.1215
Power and oiling.....		120	39.23	164,565	1,371	.3273	.7292	.2387
Repair.....		43	11.90	164,565	3,827	.2768	.2613	.0723
Night watch and fire protection.....		47	7.00	164,565	3,501	.1489	.2856	.0425
Clean-up and miscellaneous.....		82	13.07	164,565	2,006	.1594	.4983	.0794
Sorting green lumber.....		237	41.00	164,565	694	.1729	1.4402	.2491
Yard—green lumber:								
Foreman.....	1	10	2.75	164,565	16,457	.2750	.0608	.0167
Transfer.....	8	122	21.43	164,565	1,349	.1737	.7413	.1302
Filing.....	15	160	29.50	114,000	713	.1844	1.4035	.2583

DRY KILN.

Establishment No. 1.

[Output, 446,740 board feet.]

Dry kiln:								
Foreman.....	1	250	\$75.00	446,740	1,787	\$0.3000	0.5596	\$0.1679
Grader.....	1	250	70.00	446,740	1,787	.2800	.9248	.1567
Loaders.....	2	510	102.00	446,740	876	.2000	1.1416	.2283
Total.....	4	1,010	247.00	446,740	442	.2446	2.2608	.5529

Establishment No. 15.

[Output, 3,140,000 board feet.]

Dry kiln:								
Foremen.....	2	592	\$179.10	3,140,000	5,304	\$0.3025	0.1885	\$0.0570
Stacker.....	11	2,904	725.57	3,140,000	1,081	.2499	.9248	.2311
Unstackers.....	10	2,653	675.85	3,140,000	1,184	.2547	.8449	.2152
Total.....	23	6,149	1,580.52	3,140,000	511	.2870	1.9582	.5033

Establishment No. 17.

[Output, 2,316,100 board feet.]

Dry kiln:								
Truckers.....	2	410	\$101.96	2,316,100	5,649	\$0.2487	0.1770	\$0.0440
Stackers and unstackers.....	30	7,822½	1,760.41	2,316,100	296	.2250	3.3776	.7601
Total.....	32	8,232½	1,862.37	2,316,100	281	.2262	3.5546	.8041

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

DRY KILN—Concluded.

Establishment No. 19.

[Output, 1,860,071 board feet.]

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Dry kiln.....	22	5,582½	\$1,465.63	1,860,071	333	\$0.2625	3.0012	\$0.7879

Establishment No. 21.

[Output, 2,566,481 board feet.]

Dry kiln:								
Foreman.....	1	270	\$87.75	2,566,481	9,505	\$0.3250	0.1052	\$0.0342
Transfermen.....	2	664	126.90	2,566,481	4,550	.2250	.2198	.0494
Stackers.....	24	6,449	1,316.50	2,566,481	398	.2041	2.5128	.5130
Total.....	27	7,283	1,531.15	2,566,481	352	.2102	2.8377	.5066

PLANING MILL.

Establishment No. 8.

[Output, 1,090,014 board feet.]

Planing mill:								
Foreman.....	1	70	\$31.25	1,090,014	15,572	\$0.4464	0.0642	\$0.0287
Engineers.....	2	140	43.75	1,090,014	7,786	.3125	.1254	.0401
Filer.....	1	76	20.52	1,090,014	14,342	.2700	.0697	.0188
Truckers.....	3	231	56.59	1,090,014	4,719	.2450	.2119	.0519
Feeders.....	10	720	199.54	1,090,014	1,514	.2771	.6605	.1831
All others.....	10	739	177.12	1,090,014	1,475	.2397	.6780	.1625
Total.....	27	1,976	528.77	1,090,014	552	.2676	1.8127	.4851

Establishment No. 10.

[Output, 2,756,182 board feet.]

Planing mill:								
Foreman.....	1	130	\$66.66	2,756,182	21,901	\$0.5128	0.0472	\$0.0242
Filers.....	3	422½	119.59	2,756,182	6,524	.2831	.1533	.0434
Engineer.....	1	150	41.25	2,756,182	18,375	.2750	.0544	.0150
Fireman.....	1	150	33.75	2,756,182	18,375	.2250	.0544	.0122
Feeders.....	10	1,277	326.48	2,756,182	2,158	.2557	.4633	.1185
All others.....	14	1,827	432.35	2,756,182	1,509	.2366	.6629	.1569
Total.....	30	3,956½	1,020.08	2,756,182	697	.2578	1.4355	.3702

Establishment No. 11.

[Output, 1,286,857 board feet.]

Planing mill:								
Foreman and assistant.....	2	273½	\$100.80	1,286,857	4,705	\$0.3686	0.2125	\$0.0783
Feeders.....	5	615½	169.10	1,286,857	2,091	.2747	.4783	.1314
All others.....	8	1,022½	129.36	1,286,857	1,259	.1265	.7946	.1095
Total.....	15	1,911½	399.26	1,286,857	673	.2083	1.4854	.3102

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Continued.

PLANING MILL—Continued.

Establishment No. 13.

Output:	Board feet.
Surfaced on one side.....	42, 263
Surfaced on two sides.....	2, 543, 508
Surfaced on two sides and one edge.....	9, 809
Surfaced on two sides and two edges.....	123, 226
Dressed and matched.....	827, 056
Rip sawed.....	596, 814
Resawed.....	262, 593
Total.....	4, 405, 269

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Planing mill:								
Foreman.....	1	284	\$172.04	4, 405, 269	15, 512	\$0.6058	0.0645	\$0.0391
Feeders.....	10	2, 894	990.90	4, 405, 269	1, 522	.3424	.6560	.2249
Tallyman.....	1	299	107.95	4, 405, 269	14, 733	.3610	.0670	.0245
Knife grinder.....	1	243	87.75	4, 405, 269	18, 129	.3611	.0552	.0199
Repair men.....	5	1, 204	472.59	4, 405, 269	3, 659	.3925	.2733	.1073
Others.....	6	1, 583	395.58	4, 405, 269	2, 783	.2499	.3593	.0898
Total.....	24	6, 507	2, 226.81	4, 405, 269	677	.3422	1.4771	.5055

Establishment No. 14.

[Output, 2,925,266 board feet.]

Planing mill:								
Foreman.....	1	130	\$75.00	2, 925, 266	22, 502	0.5769	0.0444	\$0.0256
Engineer.....	1	150	60.00	2, 925, 266	19, 502	.4000	.0513	.0205
Fireman.....	1	150	45.00	2, 925, 266	19, 502	.3000	.0513	.0154
Filer.....	1	130	52.00	2, 925, 266	22, 502	.4000	.0444	.0178
Graders.....	6	758	225.15	2, 925, 266	3, 859	.2970	.2591	.0770
Machine men.....	9	1, 157½	341.06	2, 925, 266	2, 527	.2947	.3957	.1166
Transfer men.....	5	630	151.00	2, 925, 266	4, 643	.2397	.2154	.0516
Others.....	7	868	211.75	2, 925, 266	3, 370	.2440	.2967	.0724
Total.....	31	3, 973	1, 160.96	2, 925, 266	736	.2922	1.3582	.3969

Establishment No. 15.

[Output, 9,872,815 board feet.]

Planing mill:								
Foreman.....	1	250	\$175.00	9, 872, 815	39, 491	\$0.7000	0.0253	\$0.0177
Electrician.....	1	275	82.50	9, 872, 815	35, 901	.3000	.0279	.0084
Oiler.....	1	250	68.75	9, 872, 815	39, 491	.2750	.0253	.0070
Filer.....	1	251	125.50	9, 872, 815	39, 334	.5000	.0254	.0127
Belts.....	1	257	89.95	9, 872, 815	38, 416	.3500	.0260	.0091
Set-ups.....	2	546	199.87	9, 872, 815	18, 082	.3661	.0553	.0202
Clean-ups.....	3	744	180.07	9, 872, 815	13, 270	.2420	.0754	.0182
Transfer.....	2	393	83.65	9, 872, 815	25, 122	.2128	.0398	.0085
Feeders.....	18	4, 639	1, 303.17	9, 872, 815	2, 128	.2809	.4699	.1320
Feeders, helpers, and off-bearers.....	14	3, 332	813.77	9, 872, 815	2, 963	.2442	.3375	.0824
Repair.....	4	1, 186	421.47	9, 872, 815	8, 324	.3554	.1201	.0427
General.....	4	915	250.89	9, 872, 815	10, 790	.2742	.0927	.0254
Total.....	52	13, 038	3, 794.59	9, 872, 815	757	.2910	1.3206	.3843

TABLE 16.—PRODUCTIVITY AND COST OF LABOR, BY OCCUPATIONS AND ESTABLISHMENTS—Concluded.

PLANING MILL—Concluded.

Establishment No. 17.

Output:	Board feet.
Tongued and grooved	1,998,228
Surfaced, clear	577,177
Surfaced, common	3,532,285
Resawed	4,253,609
Ripsawed and cut off	1,221,048
Total	11,582,347

Occupation, process, or machine.	Full-time positions.	Total one-man hours.	Total wages.	Total output in board feet.	Output in board feet per one-man hour.	Wage cost per one-man hour.	Cost per 1,000 board feet produced.	
							One-man hours.	Wages.
Planing mill:								
Foreman and assistant	2	505½	\$239.51	11,582,857	22,902	\$0.4736	0.0437	\$0.0207
Filers	4	1,048½	423.73	11,582,857	11,047	.4041	.0905	.0366
Truckers	4	9,952	2,230.88	11,582,857	1,164	.2242	.8592	.1926
Tallymen and markers	4	959½	233.71	11,582,857	12,072	.2436	.0828	.0202
Repair man	1	145½	40.87	11,582,857	79,607	.2809	.0126	.0035
Feeders	10	2,688½	670.33	11,582,857	4,308	.2493	.2321	.0579
Others	76	18,953½	3,985.75	11,582,857	611	.2103	1.6363	.3441
Total	101	34,253½	7,824.78	11,582,857	338	.2284	2.9572	.6755

Establishment No. 21.

Delivered to planing mill	Board feet.
Output:	2,713,577
Surfaced	419,580
Surfaced, tongued, and grooved	250,519
Tongued and grooved	35,761
Shiplap	38,257
Sizing, ripping, battens, trimming, and resawing	1,005,554
Drop bevel siding	772,891
Trimming, clear	87,400
Trimming, rough	103,615
Total	2,713,577

Planing mill:								
Delivering lumber—								
Foreman	1	270	\$94.50	2,713,577	10,050	\$0.3500	0.0995	\$0.0348
Tallymen	2	312	85.90	2,713,577	8,697	.2753	.1150	.0317
Teamsters	3	892	200.70	2,713,577	3,042	.2250	.3287	.0740
Stackers	11	2,909	570.35	2,713,577	933	.1961	1.0720	.2102
Total	17	4,383	951.45	2,713,577	619	.2171	1.6152	.3506
Dressing lumber—								
Foremen	2	549	262.65	2,713,577	4,943	.4784	.2023	.0668
Filer	1	270	114.75	2,713,577	10,050	.4250	.0995	.0423
Feeders	8	1,609	400.85	2,713,577	1,686	.2491	.5929	.1477
Graders	2	676	165.60	2,713,577	4,014	.2450	.2491	.0610
All others	18	4,724	870.85	2,713,577	574	.1843	1.7409	.3209
Total	31	7,828	1,814.70	2,713,577	347	.2318	2.8848	.6687
Total	48	12,211	2,766.15	2,713,577	222	.2265	4.5000	1.0194

DESCRIPTION OF PROCESSES AND OCCUPATIONS IN THE LUMBER INDUSTRY.

BY BENJAMIN M. SQUIRES.

PROCESSES AND OCCUPATIONS IN LOGGING OPERATIONS.

While logging is a part of the lumber industry as a whole and is intimately connected with sawmilling, the conditions under which logging is carried on differ much more widely in different sections of the country than do the conditions at the sawmill. Sawmill operations may differ in the extent of equipment and volume of output, but log making and transportation vary also with topography, climate, and kind and size of timber. In the Northern States, where transportation is by water or by sled, felling and log making may be restricted to the fall and early winter months. If transportation, however, is largely by railroad, felling may continue throughout the year. In the southern pine areas and on the Pacific coast the weather permits logging operations to be carried on the entire year. Some species of hardwood are damaged by fungi which develop more rapidly in summer; consequently the felling of such timber is restricted to the winter months. Oak and hemlock, the bark of which is a valuable by-product, must be cut in the early summer months.

The size of the timber as well as the climate and the topography of the forest area and the scale of logging operations determines the method of handling logs. Power-driven machinery is used almost exclusively on the Pacific coast and in swampy or mountainous regions for moving the logs to an assembling point for transportation to the sawmill. Railroads are now used extensively in all forest regions for transporting logs considerable distances, animal power being restricted to small-scale operations or to moving logs short distances and water transportation being much less used than in former years.

Labor in the woods, for the most part, is extremely shifting, an entire change of crews from two to five times a year being not uncommon. In some sections, notably the Appalachian and southern, native labor is relied upon chiefly. In other sections much of the labor is foreign.

The management of logging operations is quite as varied as the operations, ranging from an independent logging company—the logs being sold in the open market—to a central management of everything connected with the industry, and even including many of the utilities of the town in which the sawmill plant is located. Contract cutting is quite common, the tools and equipment being furnished either by the contractor or by the logging company.

Logging, as distinct from sawmill operations, begins at the tree and ends at the log pond or yard of the sawmill. Although, as previously stated, methods differ widely, operations may be grouped as follows:

1. Camp and general activities.
2. Felling and log making.
3. Skidding, yarding, and loading.
4. Construction and maintenance of skidding, yarding, and loading facilities.
5. Transportation and unloading.
6. Construction and maintenance of transportation and unloading facilities.

In a brief description of logging operations it would be impossible to include all the terms in use in different forest areas or to describe in detail operations peculiar to a limited area. Emphasis has been placed, therefore, upon methods and occupations in general use. Continuity of process has been given precedence over occupations which in the explanation have been incorporated as a part of such process. In order to explain briefly, however, the occupation terms appearing in the wages and hours study of this report, a glossary of terms thus used is appended to this description of logging operations. In preparing the glossary use has been made, whenever possible, of Bulletin No. 61 of the United States Bureau of Forestry, Terms Used in Forestry and Logging.

CAMP AND GENERAL ACTIVITIES.

Inasmuch as logging camps are so generally a prerequisite to other logging operations, they may be taken as a starting point in logging.

The functions of a camp are twofold: Feeding, housing, and otherwise caring for men and animals; and the maintenance of equipment.

The location of a camp is dependent chiefly upon accessibility to timber and supplies. Drainage and available pure water are other factors determining the location.

The arrangement of the camp varies with the location and the scope of the logging operations, but in general the camp consists of the following buildings—most frequently built of logs and one-storied:

1. An office, or store and office, with sleeping quarters for foremen, clerks, and scalers, though a separate bunk house may be provided for this purpose. The store is stocked with clothing and other personal supplies used by woodsmen.

2. A cookhouse with dining room for the men, provided with long tables and benches for seats, and a sleeping room or bunks for the cook and helpers.

3. A bunk house or room in which the men may sleep. This usually includes a lounging room. Ventilation is most frequently provided for by an opening in the roof, fitted with an adjustable cover. Stoves

are used to heat the room and wires or poles are put up to dry clothing. A sink or other place for the men to wash is a part of the equipment. Bunks are usually double-decked and provided with mattresses or, in lieu thereof, with hay or straw. Blankets may be furnished by the men or provided by the company. Benches, sometimes called "deacons' seats," are placed in front of the bunks.

4. Stables for teams. These are rough shelters with bins for grain, stalls for horses, and hooks for harnesses.

5. Storehouses for quantities of food.

6. A blacksmith shop with tools for the maintenance of equipment. A grindstone for sharpening axes is sometimes placed here, but is more often in the bunk room.

Floating camps, portable camps, car camps, and permanent camps are some of the types used, depending upon location, needs, and the permanence of operations.

Camp employees.—The location, building, and repair of camp buildings are indirectly supervised by the woods foreman or superintendent, but are in the direct charge of an improvement man.

The camp employees having to do with the feeding and housing of the men consist of a cook, a second cook, one or more cookees, flunkeys, and bull cooks, the last named being called variously, porter, flunkey, roustabout, chore boy, and lobby hog. The cook has entire charge of the feeding of the men and is boss of the kitchen force. He must be efficient, know how to cook well and economically, and is a high-paid employee. The second cook is the first assistant, and the cookee might be considered a second assistant to the cook. The flunkey washes dishes and does odd jobs about the kitchen and dining room. The bull cook scrubs the floors, carries water, and takes care of the bunk house. In small camps there may be only a cook and flunkey, or a cook, cookee, and flunkey or bull cook. With most companies these employees are given board in addition to their wages. Their hours are long and the work is somewhat exacting.

The stable is in direct charge of a stable boss, who, with his assistants, sees that the teams are properly cared for. Usually the teams are fed, watered, cleaned, and harnessed in the morning by the stable employees but are cared for at night by the teamsters. A harness man keeps the harness in repair, unless this is done by the barn employees.

At the blacksmith shop a smith and helper repair equipment. If a horseshoer is not employed, the smith and helper attend as well to the shoeing of the horses. Here, or in a room set apart for this purpose, a saw filer fits the saws used in the woods by sharpening the teeth and adjusting the cutting angle to prevent binding.

One or more timekeepers keep a record of the time worked by each employee. A scaler keeps records of the number and kind of logs

and the number of board feet contained therein. The measure of board feet in a log is termed the log scale, and the record is usually made when logs are skidded or loaded for transportation. Some companies dispense with the scale in the woods and scale at the log pond or yard or on the deck of the sawmill, or the log scale may be dispensed with altogether and only a lumber tally used.

FELLING AND LOG MAKING.

The operations of felling and log making include cutting down the standing tree, removing knots and limbs, and clearing away the brush about the tree for convenience in bucking and skidding. Deadening as preliminary to felling may be resorted to for timber that will not float when green or that binds the saw when lumber is manufactured from green logs. The operation consists in removing a ring of outer bark near the base of the tree, cutting in so far as to penetrate the heartwood. It usually precedes felling by several months.

A subforeman or saw boss designates the territory, specifies log lengths, and has general supervision over the sawing and felling crews. In the Pacific coast region log-making operations and skidding are performed by separate crews, all under one foreman. Whether performed by distinct crews or by one crew, the work of log making is essentially the same.

Notching.—In order to direct the fall of the tree and prevent splitting, a wedge-shaped notch or undercut is made on the trunk. This is cut so that a horizontal base extends slightly beyond the center of the tree—if felling is entirely by means of an ax—or less if the remainder of the cut is by means of a saw. The lean of the tree is also a factor in determining the depth of the undercut. The slope of the undercut may be from below in order to avoid waste of timber. The height of the undercut is determined by the butt of the tree and on some of the Pacific coast timber it is made several feet above the ground, spring boards or scaffolding being used to elevate the notcher to the desired height.

Notching requires considerable skill and is done either by the felling crew or by a distinct notching crew. The following factors must be kept in mind:

1. The lean of the tree.
2. Avoidance of rocks and trees in falling.
3. Convenience for skidding after being felled.

An ax is the chief tool used in notching, though a saw may be used for the horizontal base.

Felling.—Felling is sometimes done with the ax alone after the undercut is made, but more frequently with a crosscut saw.

The cut is made on the side opposite and on a level with or a little above the undercut. Sawyers work in pairs, pulling the saw alter-

nately back and forth. If a stump of considerable height is to be left, springboards or platforms must be used as in notching. Metal or hardwood wedges are used to drive into the saw cut, directing the fall of the tree and preventing the binding of the saw.

The work is considered hazardous, as rotten timber, timber leaning heavily, or high winds may change the direction of the fall, cause the tree to split or otherwise endanger the workmen. Skill and judgment on the part of the fellers may prevent accident and avoid a waste of timber.

Bucking.—When the tree has been felled, that portion—called the bole—to be used for logs must be freed from limbs and knots and marked into log lengths. The former may be done by one known as a knot bumper, or knotter, who works with an ax similar to the one used for notching. The latter, requiring a knowledge of market conditions and how best to utilize all of the tree and avoid defects such as knots and crooks, is done by the foreman, by a marker, or by the buckers.

The next step consists in cutting the tree into the lengths indicated, and the work is called bucking. This may be done by men working in pairs with a crosscut saw or by one man working with a slightly stiffer one-handled saw. Sometimes with large logs a platform must be built for the buckers to stand upon, but this is more often avoided by using only one man, who may stand on the ground and saw at an angle.

Several things are to be taken into consideration in bucking up a tree, chief among which are: The use of wedges at the proper time to prevent binding the saw and removing the “set”; the placing of supports under the tree where the bole is supported at one end, to avoid splitting; the exercise of care, when felled trees are sprung between stumps or standing trees, to prevent their breaking with force when bucked and possibly injuring workmen.

For both felling and bucking, power machines have been used. These, in the main, have been unpractical on account of inconvenience in moving about. The most common in use are the drag or crosscut saw and the endless-chain saw operated by steam or gasoline engines. The bole may be left as long as can be skidded conveniently and bucked into desired log lengths with a drag saw at the landing or at the deck of the sawmill.

SKIDDING, YARDING, AND LOADING.¹

After felling and bucking, logs are moved either directly to the mill or to a skidway or landing readily accessible by whatever transportation agency is used. The term “skidding and yarding” is applied to the work of moving the logs to a skidway or landing. Loading is usually performed by skidding and yarding crews, and for that reason has not been described as a distinct process.

¹ Including the construction and maintenance of skidding, yarding, and loading facilities.

In actual operation the work of skidding, yarding, and loading is rather inseparably connected, both in point of time and in employees involved, with the construction and maintenance of such facilities. In order, therefore, to preserve a continuity of process, a brief description of construction and maintenance will be incorporated in the description of skidding, yarding, and loading operations.

Swamping.—The road work preparatory to skidding depends upon the method by which logs are to be moved to the skidway, landing, or assembling place, and upon the topography. The roads may be mere trails over which logs are snaked and may range from these to expensively constructed chutes and roads more or less permanent in character. Common to all operations, however, is the work of swamping, which consists essentially in clearing away the brush about the tree or along the line of skidding. A head or buck swamper directs the work, which is low-grade labor, performed generally by men inexperienced in the woods. The term "swampers" may also be used to designate road builders and those clearing the right of way for a railroad. Those repairing skid roads are termed road "monkeys."

Rossing, barking, peeling.—Large logs when skidded over dry ground offer considerable friction. To reduce this, the bark is frequently removed from one side of the log and it may be necessary also to straighten small crooks by cutting away enough wood to flatten the log. Redwood logs are entirely peeled because, in the manufacture of lumber, fine particles of bark would be drawn into the cut and tend to bind the saw or retard its speed. They are peeled before being bucked into log lengths for skidding, in order that the thick bark may not interfere with log making or with the attachment of skidding devices. The bark is removed with a broadax, a spud, or a peeler, and the employee is known as a barker, a rosser, or a peeler.

Sniping.—In order to prevent the log from catching on obstructions while being skidded, the front end is sniped or nosed. This means rounding off the under side or entire front end of the log. The work is done with an ax slightly heavier than the notching or bumping ax, and the employee is called a sniper. Swampers sometimes do this work, however, as may one of the felling or bucking crews.

Skidding and yarding methods.—The work of skidding and yarding varies more widely than any other of the logging operations. In some sections it is done entirely by animal power, to supply which mules, horses, and oxen are used. In the northern forests, horses are used. In the southern and in mountainous forests, oxen and mules are used. Employees driving the animals may be called teamsters, drivers, or by some term that will more specifically designate the

work, such as ox driver, wheel-cart driver, four-horse driver. The work is considered more difficult than ordinary labor, and to require a peculiar "knack" not possessed by all employees.

Manual labor, power-driven machinery, overhead tramways, inclined railways, and log slides are other forms of skidding in use in different forest areas.

Hand skidding.—More or less handwork is necessary in moving logs about preparatory to applying animal or other power. A cant hook or a peavey is the tool used in handling logs by human power. This consists of a curved hook attached to or near one end of a handle 5 to 8 feet in length. In use it is hooked about the log and the handle is used as a lever for turning or moving the log. The peavey has a sharp pike driven into the lower end of the handle or attached to a socket into which the handle is fitted. It is used chiefly in handling logs. The cant hook, used for handling timbers at the mill as well as for handling logs in the woods, has a metal clip or toe instead of the pike. Only in mountainous regions, such as the Appalachian forests; and with small timber are logs moved considerably by hand. It is sometimes necessary to work the logs down steep slopes to a point accessible by animal or other power. This is called "brutting" or "ballhooting," and the men are termed "brutters" or "ballhooters." It is low-grade work, requiring considerable strength and endurance.

Skidding with animal power.—Animal snaking is practiced in many sections where power machinery is not in use and where the timber is not excessively large. Logs are snaked down trails 6 to 8 feet in width which have been cleared of obstructions and banked with logs and poles on the edges. In crossing swamps, a corduroy road—logs laid close together crosswise—is used, and streams are bridged. Other forms of snaking where snow forms the hauling base involve the use of a sled, with two runners, called a "go-devil," upon which the front end of the log is placed. This is a crude affair, made by the camp blacksmith. For snaking over soft ground a similar type of sled, called the "lizard," is used. A yarding sled for hauling several logs at a time is a modification of the go-devil, as is also the "jumbo," which latter is equivalent to two go-devils fastened together. The essential advantage of this type of sled is that little road work is necessary and the logs are moved more readily than when they rest entirely upon the ground.

Wheeled vehicles take the place of the above where snow is not available as a hauling base. In the South a low, two-wheeled vehicle, called a "bummer," is used much as the go-devil of the North. It is operated as a self-loader by means of a chain extending over the end of a V-shaped tongue. In operation the tongue is elevated and tongs at the end of a chain are hooked about the log. When

the tongue is lowered, the log is elevated and may be placed readily on the bunk by swinging the tongue about. Other types of wheeled vehicles have larger wheels and the end of the log is swung below the curved axle.

Various devices are in use for fastening chains or cables on the logs. A choker is a chain or cable for passing around the log to be handled and has a hook on one end for making a loop. The man who adjusts this device may be called a choker man. Instead of the hook, a ring or a hook that grips the chain may be used for completing the loop. Tongs, somewhat resembling ice tongs, may take the place of the chokers, the operator being called a tong man. Several types of grab-hooks are also used, the essential principle being hooks for driving into the log, so arranged that the pull tightens their hold. The term "grabhook man" designates the one who adjusts these hooks. A wooden maul or sledge hammer is used for driving the grabs into the log and a pointed sledge, often known as the "skipper," is used for removing them.

Power skidding.—Wherever logging is done on an extensive scale power furnished by some type of engine is used. Roads for power skidding are expensive, though machinery, increasingly powerful, lessens the amount of road building. As much as possible hand labor is replaced by donkey engines in filling ravines, leveling hills, or removing débris. In general power skidding follows one of the three methods: Cableway, snaking, slack rope. The power in any case is furnished by a steam or gasoline engine mounted on a sled or car, capable of being anchored securely and having from one to four drums or spools of different sizes which, in revolving, wind up or pay out steel cable to which rigging devices are attached for handling the logs.

The cableway system.—In the cableway system an elevated wire cable extends from a "head spar" tree along the logging railroad to "tail" trees from 600 to 1,500 feet distant. A cableway skidder with a heavy steel spar is sometimes used. This skidder is mounted on a car, may be readily moved from one point to another on the railroad, and obviates the need of a "head spar" tree. A smaller skidding cable extends from a trolley running on the main cable to the drum of the skidding engine. Tongs or other rigging devices are fastened to the logs to be skidded, after which the logs are elevated to the carrying cable and drawn to the railroad. A circular area of ground, approximating 25 to 30 acres, may be skidded from one central point. Extra drums on the skidder car, operated by another engine, may be used for loading the skidded logs onto log cars.

Snaking system.—Power snaking differs from animal snaking in that the logs are dragged over the ground by means of a donkey engine having usually but one drum. The cables are dragged out to the logs

by animals or by men. Less work is required in road building and heavier loads may be drawn than with animals.

Slack-rope system.—The slack-rope system is used most extensively in power skidding, and will be described in greater detail. Different types of machines are in use. In the South, in marshy regions, a "pull boat" is anchored in canals or lakes from which roads radiate in a half circle. Engines for pulling the logs are placed on the pull boat. On the Pacific coast two machines are in common use—a yarder and a roader. The former is used to skid logs to a central point, the latter to bring them from the yarder to a point where they may be reached by a loader. For distances not exceeding 1,000 feet a yarder may be all that is necessary, and in either case spools and derricks used in connection with the yarder or roader may be used for loading. The roader is the heavier and more powerful engine, and capable of operating at greater distances than the yarder. The yarder is a donkey engine equipped with two drums of unequal size. The larger drum is used to carry the trip line for pulling the main cable back to the logs to be skidded, the smaller for hauling in the logs. Cable and trip line are fastened together to make a continuous line from the yarder to the skidding area. Except for greater weight, larger boilers, and possibly more drums, the roader does not differ essentially from the yarder. Both may be moved by their own power by the use of cables and blocks.

Skidding and yarding crews.—Assuming a crew of the following for felling, bucking, swamping, and sniping or rossing—

4 fellers,	1 knotter,
5 buckers,	1 swamper,
1 sniper or rosser,	

a well-balanced skidding and yarding crew, to keep up with the output of the above, would consist of the following:

1 side boss,	1 chaser,
1 hook tender,	1 signalman,
2 choker men,	1 spool tender,
1 rigging slinger,	1 engineer,
1 watchman,	1 fireman,
1 landing man,	1 wood buck.
1 block maker,	

In case the distance to be skidded necessitates a roader there would be added to this crew another engineer, fireman, and wood buck, with possibly another chaser and signalman. Road conditions might necessitate one or more water bucks, a pump man, a water slinger, and a block man.

The side boss in such an operation is the foreman of the felling and yarding crews, and has general supervision over felling and bucking as well as skidding.

The hook tender is boss of the yarding crew, directs the swampers in the clearing of roads, indicates logs to be skidded, and directs the rigging slingers. Upon him more than upon any other man of the crew depends the amount of work done.

The rigging slinger is assistant to the hook tender. He places the blocks or devices for carrying the cables where the hook tender directs.

The choker men put the chokers or other rigging devices about the logs and attach them to the butt or end of the main cable.

Inasmuch as a slack cable may cause grabs, tongs, or chokers to loosen, some loggers prefer to bore holes in the ends of the logs and insert cylindrical plugs, called "puppies," to which chains may be fastened securely. These, as other of the rigging devices, may be used for fastening several logs together, end to end. For such work a couple-up man or hooker is employed. Considerable skill is required to adjust chokers and other rigging devices so they will not slip or give way under the tremendous strain of power skidding.

The chaser follows the logs to the landing or yard, sees that they are not hung up on the way, and signals the engineer in case there is need to stop the engine. He usually rides in a rigging sled behind the logs. Wherever an angle is made in the pull a block is anchored for carrying the cable. The chaser must signal the engineer to stop when such a block is reached, detach the choker from the line and attach it again ahead of the block. At the landing the chaser aids in removing grabs and chokers, places them in the sled, and returns with them to the skidding point. He must be active and exercise care in preventing logs from fouling.

One or more landing men are employed at the point where the logs are delivered by the skidder. They help to remove the rigging and may assist in loading.

A signalman stands near the hook tender and—usually by means of a wire attached to the whistle of the engine—signals to the engineer the orders of the hook tender. This work is not strenuous but calls for attentiveness.

When engines are located some distance from a water supply it becomes necessary to transport water for their use and for wetting the skid roads to make them slippery. If the water can be piped a pump is installed, operated by steam from the engine, and is in charge of a pump man. Water for wetting the road may be placed in barrels and water slingers use buckets to throw water upon the road. If it is not feasible to pump the water, it is carried in canvas sacks on mules driven by water bucks. Boys usually serve as drivers.

Employees about the engine are engineer, fireman, wood buck, spool tender, watchman, head loaders, and loaders.

The engineer has charge of the operation of the engine. Levers controlling the movement of the drums are usually operated by the engineer, and he must be responsive to signals.

On smaller engines the engineer may do his own firing, but on large engines a fireman does this work and, by familiarity with the engine, becomes eligible for the position of engineer.

The wood buck, as the name implies, cuts wood for the engine. Defective logs are used for this purpose.

A watchman may be employed to guard the engine at night and to keep up fire if necessary.

Miscellaneous forms of skidding.—Aerial tramways are in use for bringing logs up or down steep slopes. The essential features are main cables, upon which run trolleys carrying the loads, drums for controlling the speed, and power for hauling. Gravity is made use of wherever possible for moving the load. For attaching the cables or rigging to trees men called squirrels use climbers similar to those used by telegraph linemen. The work is attended with some danger.

Both earth and timber slides are in use for skidding logs in mountainous regions and are used occasionally for moving logs short distances in flat areas. Earth slides are simply furrows in the earth. Timber slides are troughs made of timbers supported on cross skids and are built by chute men or chute builders. Logs are moved by gravity or by animal power.

To a limited extent inclined railways are used for removing timber from valleys. A stationary engine at the top pulls up the loaded car or lowers it to an accessible point on the other side of the divide.

Landings and skidways.—Where logs are not moved directly to the mill a storage point is necessary, the kind and place of which must be determined by the method of handling and by the topography. Foremen generally select these points at the time log roads are laid out. If the transport is by water, they may be simply landings on the edge of a stream or lake or, in cold areas, on the ice. When floods are relied upon, the logs may be dumped into the stream and left there until high water.

If the logs are to be loaded by animal power and hauled by railroad, they are usually placed parallel with the railroad track on a skidway. If a power loader is used, they may be dumped promiscuously within reach of the loader. For animal power loading logs are usually decked to a height of 20 feet or more. Four or five men and one team constitute a decking crew for animal loading. In elevating logs onto the deck they are brought to the rear of the skidway and rolled by hand to the base of the logs already decked. Skid poles are placed against the deck, a chain with a grab hook is passed around the center of the log, and the hook fastened to a deck log near which the new log is to be placed. The free end of the chain

is passed over the skidway and attached to the doubletree either directly or by means of block and tackle. Ground loaders direct the log up the skids, using cant hooks. A top loader stands on the pile of logs and directs the teamster. He designates the position of the log and frees the grabhook if necessary.

Loading.—Power loading is in use in more extensive operations, generally where logs are loaded on cars. A special engine, a yarder, or a roader may furnish the power. A spool-shaped device on the end of the engine shaft is used chiefly in loading. Unlike the drums, the movement of which is controlled by levers, the spool revolves whenever the engine is running. The spool tender wraps the cable about the spool and controls the speed of the cable and the pull of the spool by slacking or reducing the number of turns, thus permitting the cable to slip. The spool tender, as well as the loading men, may assist the loaders in their work. A choker, tong, or other device is attached to the log. The cable runs from this over a crane derrick to the spool of the engine. The log is hoisted and swung on to the car. Logs must be chained on so they will not slip in transit. A second and third layer may be placed on the first. Top loaders and loaders, who usually work in pairs, place the logs in position and bind them in place. The work is dangerous, especially that of top loading, and calls for skill and dexterity.

Landings are not always used, their places sometimes being taken by artificial ponds into which the logs are dumped, a car being run into the pond until it is submerged. The logs are then floated over the car bunks, and fastened, and the car is pulled out.

Donkey engines are also used in loading by the crosshaul, and in some sections a chute similar to the log chute at the sawmill is used to elevate the logs to the car.

Block makers are engaged in making stakes for holding the logs on the logging cars.

TRANSPORTATION AND UNLOADING.¹

The term "transportation" is applied to the work of moving logs, by whatever method, from a skidway, landing, or assembling place, to the log pond or yard of the sawmill. Unloading is usually performed in part by the transportation crews and is described in connection with transportation. Transportation by rail is not peculiar to the logging industry, and no attempt has been made to describe in detail the construction and maintenance of railroads or the operation of trains. For transportation by other agencies than rail a brief description of construction and maintenance accompanies the explanation of transportation method.

For animal-power hauling from the landing or skidway to the sawmill two heavy bobsleds or wagons are used. Roads are

¹ Including the construction and maintenance of transportation facilities.

constructed with considerable care as to grade, an upgrade being carefully avoided for the loaded wagon or sled. In the northern woods the roads are grooved for runners and iced. On such roads a four-horse team may haul as much as 8,000 feet at one load. For wagon roads 600 to 800 feet may constitute a load for a four-horse team. For both wagon and sled roads tractors are in use in some logging operations, and much larger loads may be hauled than where animals are used.

Tram roads have been used with animal tractive power, but the grade is limited to 3 per cent for loaded cars drawn by eight horses and to $1\frac{1}{2}$ per cent for loaded cars with two horses.

Tram roads or spurs for locomotive tractive power are now built as far into the large forest tracts as grades will permit. This work, as well as main-line construction, is under the direction of an engineer, under whom grading, steel, and bridge crews work with their respective foremen. Either curves or switchbacks are used to lessen the grade of inclines. A peculiarity of logging-railroad construction is that after a maximum grade has been determined upon and reached at any point in the survey, fills to reduce the grade at any other point are an unnecessary expense, since a maximum load is determined by the maximum grade at any one point. Except for engineers, foremen, and bosses the labor required in railroad construction is largely unskilled. The maintenance of logging railroads calls for the usual section crews, and the maintenance of equipment requires shops, roundhouse men, and hostlers. Several types of rod and geared engines are in use on logging railroads, and with these it is possible to make grades as steep as 7 per cent with loaded cars. A regular train crew of engineer, fireman, conductor, and one or more brakemen is used for the logging train.

When timber is located near a stream, lake, or other body of water, rafting and floating are still common methods of transporting logs, which may be floated singly as in a drive, loaded on a raft, or inclosed in a cigar-shaped framework of timbers called a cradle. The current of the stream or a tugboat furnishes the motive power. Peavies (previously described) and pike poles are used for handling logs in a boom or drive. A pike pole consists of a light but strong wooden handle from 10 to 20 feet long, on one end of which a screw pike and hook is attached. Employees directing the course of the logs are known as drivers, boom men, river men, or rafters, according to the work done.

It is sometimes most practicable to build flumes to carry logs to mills or to a point otherwise accessible. The essential feature of a flume is a box through which a stream of water will run, so constructed as to avoid excessive curves. Crews are stationed along the flume to feed in water and prevent jams. Sluices are larger than flumes, and are used chiefly to aid stream transport through gorges

or over streams where low banks cause logs to scatter over the lowlands during floods.

If transportation of logs is by water, the boom, raft, or drive is left at a point from which the logs may be sorted and worked into the log pond of the sawmill as needed. If the transportation is by land, both power and hand unloading methods are used. In railroad transportation cars are run on an incline to facilitate unloading, and logs are dumped directly into a pond. The transportation crews do most of the unloading, but they may be aided by the pond men.

GLOSSARY OF OCCUPATION TERMS USED IN LOGGING OPERATIONS.

Air-saw man.—One who operates a saw driven by compressed air to cut logs into shorter lengths.

Arman.—One who cuts logs with an ax. Specifically, one who works at the construction of a chute or slide used in moving logs.

Baker.—One who does the baking at the camp cookhouse. In small camps the work is done by the cook.

Banker, yard.—One who piles the logs at the landing, log yard, or storage place.

Barker (peeler, spudder).—One who peels the bark from trees, the bark of which may be used for tanning purposes.

Bark fitter (ringer).—One who girdles or cuts a ring around the log to mark the length for the tanbark to be removed.

Bark scaler.—One who measures the tanbark removed from the logs.

Barn boss (corral man, feeder, hostler, lot man).—One who has charge of the stables in a logging camp.

Barn man (feed mixer, horse tender, team tender, stableman, oxman, ox tender).—One whose duty is to aid in feeding and caring for the teams used in logging operations.

Bell boy. (See Signalman.)

Blacksmith (shoer).—One who does general metal repair work at the camp blacksmith shop and who may shoe horses if a horseshoer is not employed for this purpose.

Blaster. (See Dynamiter.)

Blazer.—One who indicates the location of a chute or skidding road by means of blazes or marks made on trees with an ax.

Block greaser.—One who greases the skidding tackle.

Boat tender.—One who operates a supply boat between the log camp and the sawmill in sections where log canals form a part of logging operations.

Boom man.—One who binds logs together to be towed to the sawmill or releases them at the log pond of the sawmill.

Brakeman (trainman).—One who operates the brakes on the log train.

Bridge builder (carpenter, bridge, bridgeman).—A mechanic engaged in bridge construction work.

Bridgeman. (See Bridge builder.)

Brush burner (bush burner).—One who burns the brush and the branches removed from felled trees as a protection against forest fires, for greater convenience in handling logs, or to clear the land for agricultural purposes.

Brush cutter. (See Swamper.)

Brutter.—One of a crew which rolls logs down slopes too steep for teams.

Bucker (log maker, crosscutter).—One who saws felled trees into logs.

Bucker, head.—The foreman of men who saw the felled trees into logs.

Bull cook (chore boy, chore man, cleaner, clean up, flunkey, janitor, lobby hog, lobby man, porter, shanty boss).—One who cleans the sleeping quarters and stable in a logging camp, cuts firewood, builds fires, and carries water.

- Burner.* (See Brush burner.)
- Bush cutter.* (See Swamper.)
- Camp man.* (See Improvement man.)
- Canter.*—One who uses the cant hook in handling logs.
- Car builder.*—One who builds cars used in the transportation of logs.
- Car checker.*—One who keeps a record of logging cars. (See Inspector.)
- Car greaser.*—One who supplies grease to the bearing boxes of the log cars.
- Car inspector (car checker).*—One who inspects and reports upon the condition of logging cars.
- Car knocker.* (See Car repairer.)
- Car loader.*—One who loads cars for transportation to the sawmill.
- Carpenter.* (See Improvement man.)
- Carpenter, bridge.* (See Bridge builder.)
- Car repairer (car knocker).*—One who repairs damaged cars.
- Carrier, rails and ties.*—A laborer placing railroad ties at points where they are to be used.
- Chainer.* (See Chainman.)
- Chainman (chainer).*—One who adjusts chains to logs preparatory to skidding.
- Chainman, surveying.*—One who, by the use of a chain, measures distances laid out by the surveyor.
- Chain puller.* (See Rider.)
- Chain tender.* (See Sled tender.)
- Chain tender, second.*—One who assists the chain tender.
- Chaser.* (See Sled tender.)
- Choker.* (See Choker man.)
- Choker, head.* (See Hook tender.)
- Choker hooker.* (See Choker man.)
- Choker man (choker, choker hooker).*—The member of a yarding or skidding crew who fastens the choker on the logs.
- Choker, second.*—One who assists the choker.
- Chopper (chopper, second; cutter).*—One who makes the undercut or notch to direct the felling of the tree or fells the tree when this work is done entirely with an ax.
- Chopper, head.*—Foreman of a chopping crew.
- Chopper, second.* (See Chopper.)
- Chore boy.* (See Bull cook.)
- Chore man.* (See Bull cook.)
- Chunk buncher.*—One who aids in clearing the skid road.
- Chunk sawyer.*—1. (See Wood buck); 2. One who clears the skidding way of obstructions.
- Chute builder (chute peeler).*—One who builds a trough of logs or timber used to transport logs down a slope.
- Chute peeler.*—One engaged in the work of chute building. Specifically, one who peels the logs used in the chute. (See Chute builder.)
- Chute tender.*—One who keeps the chute in repair.
- Civil engineer helper.*—One who assists the civil engineer in making profiles for the construction of logging roads and in making plans and specifications for camp buildings.
- Cleaner.*—One doing miscellaneous cleaning in the camp. (See Bull cook.)
- Climber.*—One who fastens skidding cable to trees; sometimes called squirrel man.
- Commissary man (cook, camp manager, steward, warehouseman).*—One who has charge of the food supply of the camp and in some instances manages the camp supply store.
- Conductor.*—One who has charge of the operation of the log train.
- Cook.*—One who prepares the food for logging employees.

- Cook, first.* (See *Cook*, head.)
- Cook, head (cook, first).*—One in charge of the cooking for logging employees.
- Cook, second.* (See *Cookee*.)
- Cook, third.* (See *Cookee*.)
- Cookee (cookhouse employee, cookhouse man, hasher).*—An assistant cook and dishwasher in a logging camp.
- Cookhouse employee (cookhouse man).* (See *Cookee*.)
- Corral man.* (See *Barn boss*.)
- Counter.* (See *Tallyman*.)
- Coupler.* (See *Grab driver*.)
- Craneman.*—A lever man operating a crane in grading for railroad construction or in elevating logs.
- Cruiser (timber man, timber rider).*—One who estimates land and timber values.
- Cutter.* (See *Chopper*.)
- Cutter, piling (sawyer, piling).*—One who fells the trees and cuts them into lengths for piling to be used in railroad or pond construction.
- Deck builder.*—One who builds the log deck or skidway at the landing or storage place.
- Decker (deck man).*—One who rolls logs upon a skidway or log deck.
- Deck man.* (See *Decker*.)
- Dishwasher (washer).*—One who washes the dishes in a logging camp.
- Dogger.*—One who attaches the dogs or barbs to a log to secure the skidding cable.
- Donkey tender.*—One who supplies fuel and water for the donkey engine.
- Driver (driver, team; driver, wagon; hauler; snaker; teamster).*—One who drives animals in logging operations.
- Driver, line horse.* (See *Rider*.)
- Driver, loading.*—One who drives a team in loading logs for transportation.
- Drum man (drum tender).*—One who operates a power driven drum for skidding logs.
- Drum puller.*—One who returns a cable after a log has been skidded.
- Drum tender.* (See *Drum man*.)
- Dumper.*—The laborer who dumps the scraper used in railroad construction.
- Dynamiter (powder man, blaster).*—One who uses dynamite to remove obstructions along the line of skidding or railroad construction.
- Dynamo man.*—One in charge of the operation of a dynamo where electric light is used at the logging camp.
- Engineer.*—An operator of any one of the various types of locomotive or donkey engines used in logging.
- Engineer, crane.*—One operating a crane used in loading logs or in railway construction work.
- Engineer, head.*—One in charge of engineers.
- Extra man.*—One who is competent to take the place of employees who may be temporarily absent from their work.
- Faller (chopper, feller, sawyer).*—One who fells trees.
- Faller, second.*—The subordinate in a crew of fallers.
- Feeder.* (See *Barn boss*.)
- Feed mixer.*—One who prepares the feed for the animals used in logging. (See *Barn boss*.)
- Feller.* (See *Faller*.)
- Filer (fitter).*—One who files the crosscut saws used in the woods and adjusts the angle of the cutting edge to prevent binding.
- Fireman.*—The stoker of the furnace of any one of the various types of donkey or locomotive engines used in logging operations.
- Fitter.*—1. One who notches the tree for felling and after it is felled marks the log lengths into which it is to be cut; 2. One who cuts limbs from felled trees and rings and slits the bark preparatory to peeling tan bark; 3. One who adjusts the cutting teeth of saws. (See *Filer*.)

Flagman.—1. The trainman who transmits signals to the locomotive engineer; 2. (See Signalman.)

Flunkey.—1. An assistant usually either to the engineer of a donkey engine or to the cook in a logging camp; 2. (See Bull cook.)

Foreman.—The overseer of a body of workmen.

Foreman, assistant.—One who aids the foreman and works under his direction.

Foreman, general.—One who is in charge of all logging operations.

Fuel man.—One who prepares and supplies fuel for the various machines and for the camp. (See Wood buck.)

Gopher.—One who removes the earth from beneath the log at a point where the skidding cable or chain is to be passed around the log.

Grab driver (grab setter, coupler).—One who couples logs together end to end, by means of a short chain having in each end a dog which is driven into the log.

Grabhooker (hooker, hook-on man).—One who hooks the skidding or loading chain about the log and fastens it with a grabhook.

Grab setter. (See Grab driver.)

Grade man. (See Grader.)

Grader (grade man).—One who works at fills and cuts in railroad construction.

Greaser (road monkey).—One whose duty is to keep a logging road in proper condition.

Groundman.—One who remains on the ground and assists in the placing of telephone wires and overhead skidding cables.

Handy man.—One who has experience or is handy at various kinds of work.

Harness maker (harness man).—One who makes and repairs harness for the logging teams.

Harness man. (See Harness maker.)

Hasher, cookhouse.—A general helper in the cook house. (See Cookee.)

Hauler. (See Driver.)

Hauling crew.—A body of men who use teams to assemble logs at a skidway or landing; sometimes applied to the transportation crew of a railroad.

Helper (assistant, second, third).—One who aids in work of any kind under the direction of another employee.

Hoister. (See Loader.)

Hooker. (See Grabhooker; also Tong hooker.)

Hook-on man. (See Grabhooker; also Tong hooker.)

Hook tender (choker, head, yard boss, yarder boss).—The foreman of a yarding crew; specifically, one who directs the attaching of the cable to the log preparatory to skidding.

Horse tender. (See Barn man.)

Hostler. 1. (See Barn boss); 2. One who works in the roundhouse inspecting and repairing logging locomotives.

Hostler, assistant (roundhouse employee, wiper).—A helper at the roundhouse.

Improvement man (camp man; carpenter; repairer, camp).—One doing general repair work about the camp buildings.

Inspector.—One who examines property and reports on the quantity or value of the same. (See Inspector, land.)

Inspector, land.—One who examines and estimates the value of timber land.

Inspector, ties and wood.—One who grades railroad ties and measures wood.

Jackscrew man.—One who operates a jackscrew in lifting or moving heavy objects.

Jammer.—One who operates an improved form of gin mounted on a movable framework used to load logs on sleds and cars by horse power.

Janitor. (See Bull cook.)

Knot bumper. (See Limber.)

Knottter. (See Limber.)

Laborer.—One doing miscellaneous unskilled work in connection with logging operations.

Landing man (rollway man).—One who arranges logs at the landing preparatory to loading for transportation.

Lever man.—One who controls the operation of a donkey engine or other mechanical device by means of a lever.

Lever man, first.—One who is in charge of other lever men.

Limber (knot bumper, knotter).—One who cuts the limbs from felled trees.

Lineman (line setter).—One who puts the logs, blocks, and cables in place preparatory to skidding.

Lineman, telephone (telephone man).—One who constructs telephone lines and keeps them in repair.

Line puller. (See Rider.)

Line setter. (See Lineman.)

Loader man (loader).—One who loads logs on sleds, wagons, or cars, or in slides or chutes by hand or machine power.

Loader man, head.—Foreman of a loading crew.

Loader, second.—An assistant loader.

Loading crew (loading employees).—Employees at the skidway loading logs by steam or animal power.

Loading employees. (See Loading crew.)

Loading men. (See Loading crew.)

Lobby hog. (See Bull cook.)

Lobby man. (See Bull cook.)

Log buncher.—One who collects logs in one place for loading.

Log maker. (See Bucker.)

Log rigger.—One who cuts the tops from trees to which guy lines are attached in overhead skidding.

Log roller.—One who places logs in position for skidding or loading.

Logway man. (See Skidway man.)

Lot man. (See Barn boss.)

Mechanic. (See Machinist.)

Machine-shop employee. (See Machinist.)

Machine-shop man. (See Machinist.)

Machinist (machine-shop employee, machine-shop man, mechanic, repair man).—One who makes or repairs machines and is experienced in the use of metal-working tools.

Manager, cook camp.—One who is in charge of buying, preparing, and supplying food to the logging employees. (See Commissary man.)

Marker.—One who marks felled trees for cutting into log lengths.

Mucker.—One who keeps the log landing free from bark or other débris to facilitate loading the logs for transportation to the mill.

Notcher (timber fitter, undercutter).—One who makes a notch or an undercut in a tree preparatory to felling.

Office man.—Bookkeeper, clerk, or other employee in the camp office.

Oil boy.—One who carries oil to the sawyers for use on the saws to prevent binding.

Oiler.—A workman employed to oil engines or machinery.

Ox feeder. (See Barn man.)

Oxman. (See Barn man.)

Ox tender. (See Barn man.)

Pack boy. (See Packer.)

Packer.—One who drives a pack animal in transporting supplies for logging operations.

Painter.—One who paints the camp buildings. (See Improvement man.)

Path cutter. (See Swamper.)

- Pattern maker.*—One who makes patterns for molds in the repair shop.
- Peeler.* (See *Barker.*)
- Pick-up.*—One who collects logs which have broken away from a raft or boom.
- Pile driver.*—One engaged in the work of driving piles for foundations, or to inclose an area of water in which to store logs.
- Piler.*—One who assembles logs along the line of skidding or piles them at the log landing.
- Pipe fitter.*—One who cuts, fits, and installs iron pipes for steam or water.
- Pipeman.*—One who lays water pipe.
- Poler (road poler).*—One engaged in building corduroy roads over which logs are to be skidded.
- Porter.* (See *Bull cook.*)
- Porter, warehouse.*—A laborer about the warehouse or commissary.
- Pulp piler.*—One who piles pulp wood.
- Pumper.* (See *Pump man.*)
- Pump man (pumper, water pumper).*—One who takes care of a pump and its operation.
- Rafter (raftman).*—A workman engaged in assembling logs for shipment by water.
- Raftman.* (See *Rafter.*)
- Repair man.* (See *Machinist.*)
- Repair man, log equipment.*—One making general repairs to logging equipment. (See *Machinist.*)
- Repair man, trestle.*—A mechanic engaged in repair work on trestles.
- Repairer, camp.*—One who repairs camp buildings. (See *Improvement man.*)
- Rider (chain puller; driver, line horse; line puller; mule rider; rigging puller; skinner; slack man).*—One who rides a horse or mule used to draw the skidding chains back to the skidding area after a log is delivered at the landing.
- Rider, mule.* (See *Rider.*)
- Rigger (rigging man, rigger man, log rigger).*—One who is skilled in the work of installing skidding apparatus.
- Rigger, first (rigger, head).*—A foreman rigger.
- Rigger, head.* (See *Rigger, first.*)
- Rigger man.* (See *Rigger.*)
- Rigger, second.*—An assistant to the rigger.
- Rigging man.* (See *Rigger.*)
- Rigging puller.* (See *Rider.*)
- Rigging puller, head.*—One who has charge of the work of returning the rigging device and cables to the skidding area. (See *Rider.*)
- Rigging slinger.*—1. A member of a yarding crew whose chief duty is to place chokers or grabs on logs. 2. One who attaches the rigging to trees in steam skidding. (See *Rigger.*)
- Right of way man.*—One who works at clearing bushes and trees preparatory to building log roads.
- Ringer.* (See *Bark fitter.*)
- Road builders (road men).*—That portion of the crew of a logging camp who cut out logging roads and keep them in repair.
- Road cutter.*—One who clears away brush and trees for a skid road or path. (See *Swamper.*)
- Roader splitter.*—One who splits wood for the roader engine used in skidding. (See *Wood buck.*)
- Roadman.* (See *Road builder.*)
- Roadmaster.*—One who is in charge of the maintenance of logging roads.
- Road monkey.* (See *Greaser.*)
- Road poler.* (See *Poler.*)

- Rodman*.—One who carries a surveyor's leveling rod.
- Rollway man*. (See Landing man.)
- Rope man*.—One who returns the cable and tongs after each delivery of the logs at the landing. (See Rider.)
- Roper*. (See Tong hooker.)
- Roundhouse employee*. (See Hostler, assistant.)
- Roustabout*.—A common laborer.
- Run back*.—One who hooks the tongs to the log in the operation of loading the same on logging cars.
- Run cutter*. (See Swamper.)
- Sand burner*. (See Sand drier.)
- Sand drier (sand burner)*.—One who dries sand for use in the sand box of a locomotive.
- Sand hauler*.—One who hauls sand for use in the sand box of a logging locomotive.
- Sawyer*.—One who uses a crosscut saw in felling trees or cutting logs. (See Faller.)
- Sawyer, head*.—The foreman of a sawing crew.
- Sawyer, piling*. (See Cutter, piling.)
- Scaler (log scaler)*.—One who determines the volume of logs.
- Scavenger*.—One who gathers and removes dirt from the streets and vaults about camp buildings.
- Scraper man*.—The man who holds the scraper used in grading while it is being loaded.
- Section hand (section man)*.—A laborer in railroad maintenance.
- Section man*. (See Section hand.)
- Setter, piling*.—One who is engaged in setting pilings for the pile driver. (See Pile driver.)
- Shoer*.—One whose work is that of shoeing horses for use in logging operations. (See Blacksmith.)
- Shovelman*.—One who holds a hand scraper or who operates a power grader in the work of grading for railroad construction. (See Lever man.)
- Signalman (flagman, bell boy, whistle boy, whistle punk)*.—One who transmits orders from the foreman of a yarding crew to the engineer of the yarding donkey in skidding and yarding operations.
- Skid adzer*.—One who uses an adz to fit timbers in constructing log chutes or other skidding devices.
- Skidder*. (See Skidder man.)
- Skidder crew (skidding employees)*.—The entire body of men who work in connection with the skidding machine.
- Skidder man*.—1. One who skids logs; 2. One who operates a donkey engine, usually from a railroad track, which skids logs by means of a cable; 3. The foreman of a crew which constructs skid roads.
- Skidding employees*. (See Skidder crew.)
- Skid-road man*.—One who works at the construction and maintenance of skid roads.
- Skid sawyer*.—One who saws skids over which logs are to be moved.
- Skidway man (logway man)*.—One who works at the log skidway where logs are stored preparatory to moving to the sawmill.
- Skinner*. (See Rider.)
- Slack man*.—1. One who prevents the cable from becoming slack, and thus allowing skidding chains to fall from the logs; 2. (See Rider.)
- Sled tender (chain tender, chaser, trailer, zoogler)*.—1. One who assists in loading and unloading logs or skidding with a dray; 2. A member of the hauling crew who accompanies the turn of logs to the landing, unhooks the grabs, and sees that they are returned to the skidding area.
- Slip driver*.—One who drives the animals attached to a scoop used in grading for railway construction.

Slip dumper.—One who dumps the earth from the scoop used in grading for railway construction.

Slip filler. (See Slip man.)

Slip man (slip filler).—One who operates the scoop used in grading for railway construction.

Smitter.—One who keeps the logs moving straight on the skids when loading is done by animal power.

Snaker.—One who draws logs to the skidding path or to the landing by means of animal power. (See Driver.)

Sniper.—One who noses or rounds off the ends of logs, so they will skid more easily.

Snubber.—One who checks, usually by means of a snub line, the speed of logging sleds or logs on steep slopes.

Spike peddler.—One who delivers spikes to the spikers or places them at points on the railroad where they are to be used.

Spiker.—One who drives the spikes which hold the rails to the cross-ties of a logging railroad.

Splicer.—One who mends the skidding cables.

Spool runner. (See Spool wright.)

Spool tender.—One who operates the spool of a donkey engine in loading logs. The work consists in placing several turns or wraps of the logging cable around the spool when it is desired to make a pull.

Spool wright.—One who hews or adzes out a place on stumps or logs along a skid road on which to place a spool for the purpose of guiding the main skidding line.

Spudder. (See Barker.)

Stableman. (See Barn man.)

Stake cutter.—One who prepares the stakes to hold the logs on logging cars.

Staker (staker, right of way).—One who sets stakes to indicate the limits of the right of way.

Staker, right of way. (See Staker.)

Stave-block loader.—One who loads blocks from which staves are to be manufactured at the sawmill.

Stave-block roller.—One who rolls and stacks stave blocks preparatory to loading.

Stave-block splitter.—One who splits stave blocks for greater convenience in handling at the sawmill.

Steam-shovel man.—The lever man who operates a steam shovel. (See Lever man.)

Steel man.—A laborer in the steel crew in railroad construction.

Steward. (See Commissary man.)

Straw boss.—A subforeman in a logging camp, sometimes called the head push.

Stripper.—A laborer engaged in the construction of roads for steam skidding.

Stull hewer.—One who hews stulls or timbers which are used in mines.

Stumper.—One who removes stumps from the skid road or landing place.

Supply-house man.—One who is in charge of the tools used in logging operations.

Swamper (brush cutter; bush cutter; path cutter; road cutter; swamper, second).—One who clears ground or underbrush, fallen trees, and other obstructions preparatory to constructing a logging road.

Swamper, buck.—The foreman of a stumping crew.

Swamper, head. (See Swamper, buck.)

Swamper, second. (See Swamper.)

Switchman.—The trainman who has charge of the switches in railroad operation.

Tail down.—One who rolls the logs on the skids to a point where they can be reached by the loading crew.

Tallyman (counter).—One who records or tallies the measurements of logs as they are called off by the scaler.

Teamster. (See Driver.)

Teamster, loading.—The driver of a loading team at the yard or landing. (*See Driver.*)

Team tender. (*See Barn man.*)

Telephone man. (*See Lineman, telephone.*)

Tie distributor.—A laborer engaged in placing ties along the right of way of the railroad.

Timber fitter. (*See Notcher.*)

Timber hewer.—One who shapes timbers with an ax for log chutes or landings.

Timberman. (*See Cruiser.*)

Timber rider. (*See Cruiser.*)

Timekeeper.—One who keeps a record of the time worked by the logging employees.

Toggle knocker.—A yarding man who detaches the tackle chains when the logs are unloaded.

Toggler.—One who fastens chains over the logs loaded for transportation to hold them in place during transit.

Tommie.—One who adjusts the block through which the cable runs where an angle is made in skidding.

Tonger. (*See Tong hooker.*)

Tong hooker (hooker, hook-on man, tong man, tong setter, roper).—One who sets the tongs on the log preparatory to either skidding or loading.

Tong hooker, second.—One who assists the tong hooker.

Tong man. (*See Tong hooker.*)

Tong puller. (*See Rider.*)

Tong setter. (*See Tong hooker.*)

Tong shaker.—One who detaches the tongs from the log after it is delivered.

Top loader.—That member of a loading crew, sometimes called a sky hooker, who stands on the top of a load and places the logs as they are sent up.

Top man, jammer.—One who places the logs on a skidding sled when the loading is done by means of a jammer or horse loader.

Topper.—One who cuts the tops from felled trees.

Track dresser.—A laborer engaged in ballasting a railroad track.

Trackman.—A laborer on the maintenance of way.

Trackmaster.—The foreman of a crew repairing logging roads. (*See Roadmaster.*)

Trackwalker.—A watchman who examines the railroad tracks to locate defects which might result in wrecks.

Trail cutter. (*See Swamper.*)

Trailer. (*See Sled tender.*)

Train loader.—One who loads logs on logging cars for railroad transportation.

Trainman. (*See Brakeman.*)

Train master.—One who directs the movements of logging trains.

Transfer crew (transfer men).—A body of men transferring logs from narrow gauge to standard gauge cars.

Transfer man. (*See Transfer crew.*)

Tripper, ditcher. (*See Lever man.*)

Undercutter.—A skilled woodman who chops the undercut in trees so that they will fall in the proper direction. (*See Notcher.*)

Unloader (unloader, landing; yard man).—One who unloads logs either at the log pond or yard of the sawmill or at the landing where logs are stored preparatory to being transported to the sawmill.

Unloader, coal.—One who unloads cars of coal for use at the camps.

Unloader, landing. (*See Unloader.*)

Wagon crew (wagoners, wagon men).—The entire body of men working in connection with skidding wagons. (*See Driver.*)

Wagoner. (*See Driver.*)

Wagon man. (See Driver.)

Waiter.—A male employee who places food on the table at the logging camps.

Waitress.—A female employee who places the food on the table at the logging camps.

Warehouseman.—One who is in charge of supplies at a camp warehouse. (See Commissary man.)

Washer. (See Dish washer.)

Watchman.—One who guards logging equipment.

Watchman, bridge.—One who guards bridges used in logging operations.

Watchman, tower.—A signal man at a railroad crossing.

Water boy. (See Water buck.)

Water buck (water boy).—One who carries water.

Water hauler.—One who transports water when the source of supply is at a distance from the camp.

Water pumper. (See Pump man.)

Water slinger.—One who throws water on the skid roads to make them slippery and to prevent wear.

Whistle boy. (See Signalman.)

Whistle punk. (See Signalman.)

Winch man.—One who operates a winch or small drum used in loading logs.

Wiper. (See Hostler, assistant.)

Wood boy. (See Wood buck.)

Wood buck (chunk sawyer, roader splitter, yarder splitter, wood boy, wood chopper, wood cutter, wood getter, wood man, fuel man).—One who cuts and carries wood for use at the camp or in donkey engines.

Woodchopper. (See Wood buck.)

Woodcutter. (See Wood buck.)

Wood getter. (See Wood buck.)

Wood hauler.—One who transports wood by team for camp use.

Wood loader.—One who loads wood for transportation, either for camp or for commercial use.

Woodman. (See Wood buck.)

Yard boss. (See Hook tender.)

Yarder boss. (See Hook tender.)

Yarder splitter. (See Wood buck.)

Yardman. (See Unloader.)

Zoogler. (See Sled tender.)

PROCESSES AND OCCUPATIONS IN SAWMILL OPERATIONS.

For the purposes of this study sawmill operations will be considered as beginning at the log pond or yard where the logs have been deposited by railroad, sled, truck, scow, or other log transportation agency, and as ending with the loading of the finished product for shipment. A consideration of the sawmill plant as a whole will simplify the description of detailed processes of manufacture.

Essentially the plant consists of a place to store logs, buildings to house the sawmill machinery, and a yard to store the lumber. A power plant, although not peculiar to a sawmill, is a necessary part of its operations.

The log pond or yard may be defined as a place immediately adjacent to the sawmill, so arranged that logs stored therein are

readily accessible. It may be a pond or yard, as indicated by the name, or it may be part of the surface of a river or lake set off as a pond. Where water is used as a storage place the logs are easily sorted, the dirt collected during skidding is washed off, and, if the pond is limited in size and steam is used for power, the steam from the exhaust pipe is sometimes turned into the pond in cold weather to keep timber from freezing or thaw to frozen timber. Large stationary mills generally use a pond, and, with due consideration to the more important factors of accessibility to timber and to shipping facilities, water available for a pond is one of the factors determining the location of the mill.

Facilities for the housing of sawmill machinery range from a mere shelter to a modern fire-proof building, in which the employees are well protected from the extremes of weather and climate.

The range in equipment and in the methods of handling material is quite as varied. In the smallest mills the equipment is limited to a small circular saw and one cut-off saw used as a trimmer. Except for the power necessary to run the saws all the work is performed by manual labor, and the output of such a mill will not exceed 3,000 feet of lumber per day. In modern plants power-driven mechanical devices are used to handle the material, so that the manual labor involved consists chiefly in operating such devices. Thus, the product is transferred from one machine to another by power-driven rolls and chains. Even the transferring of the product from the mill and the work of stacking it for yard or dry kiln may be accomplished through power-driven equipment. Large band or circular head saws, supplemented by gang saws and resaws, replace the small circular saw of the elementary mill, and the daily output of each head saw may exceed 100,000 board feet.

In this description only the modern mill will be considered in detail. In such a mill the building which houses the machinery is usually a two-story structure, but in some instances a third story is added for the purpose of housing a filing room. The lower story is given over to the bases for the heavier machines and to various belts, driving rods, and other mechanisms for the transmission of power to the machines on the sawmill floor and for the removal of waste material. The second story is known as the sawmill floor, and is usually from 10 to 20 feet above the ground or pond level. A "V" or "U" shaped trough, known as the log slip or chute, leads from the pond to one end of this story. If the mill has two head saws the chute is in the center; if but one head saw, the chute is at the side. In either case the end of the mill to which the chute leads is called the log deck and is raised a few feet above the level of the floor on which the machines rest. A continuous chain, called the bull chain, runs lengthwise of the slip. This chain has projections on its outer side

for holding the logs as they are elevated, or hooks for the attachment of a cable and tongs in elevating very large logs.

The log deck is constructed so that it slopes toward the head saw, or if two head saws are used it slopes toward each side. At its highest point is a trough-like depression, in reality a continuation of the log slip or chute, which serves as a receptacle for the logs as they are brought up from the pond. The rest of the sawmill floor is given over to machinery for converting the logs into lumber and for removing waste. Although such machinery varies with the size of the mill, the size and class of logs, and the nature of the output, that is, whether mainly boards or timbers, or a general mill run of various sizes, it consists essentially of saws and their operating mechanism for reducing the log to lumber, removing rough edges from boards or reducing them to desired widths and thicknesses, squaring the ends of boards or reducing them to desired lengths, cutting slabs and worthless product into lengths convenient for handling as by-products or waste, and mechanism for automatically transferring the product from one machine to another. A brief description of these machines is given in preparation for a more complete description of work performed.

For converting the log into boards or timbers of desired thicknesses head saws, alone or supplemented by resaws and gang saws, are used. Either band or circular saws are used for head saws. The band saw is a thin steel band or belt with a cutting edge. In what is known as a double-cut band each edge is a cutting edge. The saw is operated over two large pulleys, one above and the other below the sawmill floor. It is held firmly in place by saw guides which may be adjusted to accommodate different diameters of logs. The circular saw is a disk with the cutting teeth on the perimeter. It is thicker than the band saw, the waste in sawdust is greater, and it is too limited in size for extensive use, being more frequently placed in small mills or used other than as a head saw. It is sometimes fitted with removable teeth, and the skill and expense required for upkeep are less than for a band saw. If large logs are cut with a circular head saw, a second saw is sometimes set above the first.

The resaw is generally a vertical or horizontal band saw, smaller than the head saw, and is used for sawing thick planks into boards of desired thickness, reducing irregular boards to standard thickness, or sawing boards from thick slabs. The horizontal saw is used for slabs, the vertical saw for resawing planks, though circular saws may be used for this latter purpose. Heavy rolls hold the plank or slab in position. The purpose of the resaw is to increase the capacity of the mill, and when used less care need be exercised to avoid waste in slabs removed by the head saw.

The gang saw may be one of two types. In what is known as the sash gang, a set of parallel straight saws is placed in a vertical frame which operates up and down. Like the resaw it is used only in connection with the head saw, and for the purpose of increasing the output of the mill. The saws are adjustable for desired thicknesses of boards, and as many as 40 boards may be cut at one time. The other type of gang saw is in less general use and is known as the band gang. It consists of two or three band saws arranged one in front of the other, and with sidewise adjustment to give the thickness of board desired. To take the place of the gang saw or the resaw a single or double cut band saw, smaller than the head saw, is sometimes used and the portion of the log to be reduced to smaller sizes is moved repeatedly against the cutting edge.

For removing the rough edges from boards and reducing them to standard widths a machine called the edger is used. The edger consists of a number of small circular saws adjustable as to distance between them and having heavy rollers for holding the board in position. Both single and double edgers are used, the double edger consisting essentially of two single edgers placed side by side.

Boards are cut into specified lengths, the ends are squared and imperfections cut out by means of a set of small circular saws known as trimmer saws. These saws are set at intervals of two feet in a horizontal line. With the exception of the two end saws, which always remain in a cutting position, the saws are placed just below or above a trimmer table over which the product to be trimmed is carried by transfer chains. The length of the table and the number of saws depend upon the longest board which it is desired that the mill shall produce. By means of ropes, levers, or compressed air, the saws are raised or lowered to cut desired board lengths. When released the saws return automatically to a noncutting position.

In order to convert slabs and other waste into lengths convenient for handling, a set of circular saws similar to trimmer saws is used. These are placed at intervals of four feet, and their position is fixed. Collectively they are known as the slasher.

For transferring the product from one machine to another live rolls and transfer chains are used. The transfer chains are endless, and are used for the transverse or sidewise carrying of product, whereas live rolls are used for endwise carrying. Both live rolls and transfer chains are power driven, and are adjustable to different speeds to accommodate the quantity of material to be carried.

It is customary to speak of each head saw as a "side." Gang saws and resaws are considered as supplements of the head saws, and a head saw, with its complements of edger and trimmer, constitutes a **unit**.

All the operations of the sawmill and yard should be regarded in the light of a continuous process, with machines so arranged in number and position, and the working force of men so organized that operations at any point need not wait upon the removal of product. Indeed, so closely coordinated are the processes that a breakdown of machinery at any point halts the greater part of the entire operation.

The following summary of subprocesses and occupations connected therewith has been arranged as nearly as may be in process order and will serve as an outline for the more detailed description. In the larger plants each process group has its foreman, subforeman, or assistant foreman. To the extent that the work of such men is supervisory in character it has not been given consideration in the description, and the occupations have not been included in the outline.

GENERAL.

Supervision, buildings, and repairs:

Superintendent.
Sawmill foreman.
Millwright and helper.
Carpenter and helper.
Machinist and helper.
Blacksmith and helper.

Power, light, and oiling:

Engineer.
Fireman.
Oiler.
Electrician and helper.

Fire protection:

Night watchman.
Hydrant man.
Water carter.

LOG POND OR YARD.

Pond or boom man.
Slip man.
Yardman.

SAWMILL.

Log deck:

Lever man.
Scaler.
Deck man.
Dimension cutter.

Head sawing, band or circular:

Head sawyer.
Dogger.
Setter.
Rock sawyer.
Tail sawyer.

Live rolls and transfer chains:

Transfer man, live-roll man or lever man.

Resawing:

Resawyer.
Resawyer's helper.
Resaw tailer.

Gang sawing:

Cant setter or gang helper.
 Gang sawyer.
 Gang tailer.
 Gang oiler.
 Gang engineer.

Edging:

Edgerman.
 Edgerman's helper.
 Edger tailer.

Trimming:

Trimmer loader or helper.
 Trimmer operator.
 Timber trimmer.

Refuse—slasher, hog, and burner:

Slasher man and helper.
 Hog man.
 Conveyor man.

Cleaning, oiling, and miscellaneous sawmill work:

Cleaner or sweeper.
 Mill oiler.
 Extra or spare man.

Filing:

Filer.
 Filer's helper.

SORTING GREEN LUMBER.

Grader.
 Grader's helper.
 Tallyman.
 Transfer man.
 Sorter, puller, and loader.

GREEN-LUMBER YARD.

Trucker.
 Tipper.
 Stacker or piler.

DRY-LUMBER YARD.

Unstacker.
 Trucker.
 Stacker.

SUBSIDIARY OR SUPPLEMENTARY PROCESSES.

Dry kiln:

Sorter.
 Stacker.
 Trucker.
 Unstacker, sorter, and loader.
 Grader.

Planing mill:

Trucker.
 Machine setter.
 Feeder.
 Feeder's helper.
 Tailer.
 Grader.
 Bundler, tier, and loader.

Lath, stove, and heading mills:

Picker.
Bolter.
Puller.
Feeder.
Off bearer and tier.

*Shingle mill.**Clapboard mill.***SHIPPING.**

Unstacker.
Trucker.
Timber sizer.
Grader.
Tallyman.
Loader.

GENERAL.**SUPERVISION, BUILDINGS, AND REPAIR.**

All of the operations in the manufacture of lumber are under the direction of a superintendent, but the immediate personal supervision of the sawmill is in the hands of a sawmill foreman, who must be a practical mill man.

Millwrights have charge of the installation and repair of equipment, and must be familiar with sawmill machinery and with the construction and alteration of sawmill buildings.

Carpenters, blacksmiths, and machinists do general repair and construction work about the plant and are assisted by helpers.

POWER, LIGHT, AND OILING.

In most sawmill operations the machinery is driven by steam power, and the power plant is a necessary part of such operations. A number of large mills convert the steam into electric power and attach motors to the various machines. A few mills purchase electric power but use boilers to generate steam for dry kilns. Sawmill refuse is used for fuel in power plants and is usually ground into pieces small enough to be used in mechanical firing devices.

Nearly all power plants are equipped with dynamos to supply light to the mills and yard and sometimes to the town in which the plant is located.

The duties of engineers, firemen and oilers, dynamo men, electricians, and helpers employed in the operation of the sawmill power plant are identical with the duties of such employees in the power or electric light plants of other industries.

FIRE PROTECTION.

The large amount of combustible material about a sawmill plant makes it imperative that some sort of fire protection be provided. The prevailing method is to place barrels conveniently about the

yard and employ water carriers to keep them filled with water. If the operation is near a water-works system, or sufficiently large to warrant the installation of a pressure system, hydrants are installed and inspected by hydrant men. All companies employ one or more watchmen to make the rounds of the plant at night and guard against fires and trespassers.

LOG POND OR YARD.

Pond men.—One or more men, known as pond or boom men, release the logs in the pond, sort and move them to the foot of the slip or chute, and start them on the chain which carries them to the log deck of the sawmill. They stand on a board walk barely above the surface of the pond, on a small flatboat or raft, or even on the floating logs themselves, which requires considerable agility. For hand moving and sorting a pike pole is used. The pike pole consists of a long, light pole, with a screw spike inserted in one end. For the purpose of raising sunken logs a rowboat or a small raft may be used. Sometimes a small donkey engine is stationed at the foot of the slip and is used for raising "sinkers," towing them to the foot of the slip, raising large logs so they may be started up the slip, and for releasing logs that have become jammed in the pond. The man operating the engine is known as the hoister.

Slip man.—The man who "noses" the logs up to the chain, or starts them up the slip, is sometimes called the slip man. He may also operate the donkey engine and assist the pond men with the logs, or, if a cable is used in pulling large logs up the slip, he assists in hooking the tongs onto the logs.

Yardman.—If a yard is used instead of a pond, logs are rolled onto a moving car or rolls, snaked by means of a cable and drum, or rolled on a skidway directly to the saw carriage. Men thus employed use cant hooks or peavies, and are called yardmen, log handlers, and skidway men.

SAWMILL.

LOG DECK.

Deck man.—One or more men are employed on the log deck. The work involves elevating the logs over the slip or chute and so placing them on the incline of the deck that they may be readily moved into position for sawing. The bull chain used to elevate the logs is power driven, and one deck man, sometimes called a lever man, operates a lever controlling the movement of the chain. The deck man may also operate a mechanical kicker for rolling the logs to the incline of the deck, or a bull wheel and cable for turning the logs. An ax is used to cut out rocks which have become embedded in the bark during the process of skidding and which might damage the saw if not removed. On logs with deep bark fissures a pick is used to

locate embedded rocks. Some mills have an arrangement for directing a stream of water at high pressure against the log while it is being pulled up the chute, and in this way clear the log of much stone and grit. A cut-off saw may be used to cut long logs into shorter lengths, and an upright saw may be used to "split" large logs for greater convenience in handling. Logs must be kept straight on the incline of the deck, cant hooks and peavies being used for rolling or sliding the logs down the incline. The work of the deck man calls chiefly for agility and strength.

Scaler.—It is the practice in most sawmill operations to measure the logs as they reach the log deck, to determine diameter, length, and board feet. This measure is termed the log scale, and is made by one of the deck men or by a scaler. In the log scale an allowance is made for waste in manufacture, which allowance is usually higher than the actual waste. As a consequence the log scale is less than the lumber tally, and the difference is known as the overrun. Redwood is an exception to the rule, and because of imperfections which can not be predetermined the lumber tally is less than the log scale. When accuracy is required the work of the scaler requires judgment, a knowledge of timber, and carefulness in measurements. Often, however, the scale is only a mental estimate, little relied upon in larger mills as a basis for computing costs.

Dimension cutter (bed sawyer).—In some operations a dimension man, who is experienced in lumber manufacture and grades, is employed at the log deck to examine the logs and indicate the product into which they shall be cut. In this way a higher grade of product can be obtained with less waste of time, because defects are more readily observed when the log is on the deck than after it is placed in position for sawing into lumber.

HEAD SAWING.

At the foot of the incline of the log deck are iron log checks, which are lowered to release one log, returning automatically to hold back the other logs. A mechanical kicker, called the "nigger," is used to push and turn the logs forward into position for sawing, and a "grab arm" is used to turn the logs back toward the deck. Parallel to the log deck, and on a line with the head saw, is a steel track upon which runs a power-driven car called the saw carriage. This carriage is for the purpose of moving the log endwise against the cutting edge of the saw, and is constructed with a movable top fitted with steel blocks, adjustable sidewise, so that the log may be moved to any width of cut desired. The log is held firmly against the blocks by dogs or barbs which form a part of the blocks. A downward movement of a lever forces the dog into the log, and an upward movement releases the dog when the log is to be turned. With the single-cut saw

a cut is made only in the forward movement of the carriage, an automatic setback being used to move the log slightly away from the saw when the carriage is returned. With the double-cut saw a cut is made during both the forward and the backward movements of the carriage.

The operation of a head saw necessitates a head sawyer, a setter, a dogger, and a tail sawyer. To these must be added a rock sawyer in some operations and, when long logs are cut, a second dogger. The head sawyer, rock sawyer, and tail sawyer are stationed near the saw. The doggers and setters, sometimes called carriage men or carriage riders, ride on the carriage.

Head sawyer.—By means of a lever, usually operated by a foot treadle, the head sawyer releases the check holding the logs in place on the log deck. The weight of the released log reverses the check, permitting but one log to roll onto the carriage. The movement of the nigger and grab arm and the forward and reverse movement of the carriage are controlled by levers operated by the head sawyer. A deck man, or "roll-on" man, or the dogger may assist in handling a log that can not be put in position with the nigger and grab arm. It is essential that the manipulation of the log check, nigger, and grab arm be timely and certain and the movement of the carriage prompt and uniform. Upon his ability to do this, as well as to get from a log the most lumber of the highest marketable quality, depends the efficiency of the sawyer. By means of signals he indicates to the setter the width of cut desired, and to both dogger and setter the disposition he intends to make at any time of the remaining portion of the log.

The head sawyer must think and act quickly, be able to cut for special sizes, and to regulate the movement of the carriage in accordance with the cutting capacity of the saw. Except for the filer, he is the highest paid employee of the sawmill. He generally serves several years in the capacity of setter before being promoted to sawyer.

Dogger.—When the log has been placed in such a position on the carriage that the side from which the sawyer desires the first slab to be cut is turned toward the deck, the dogger sees to it that the blocks are against the log and operates the lever which forces the dogs into the log. Whenever the remaining portion of the log is to be turned, in order to cut from different sides of the log, he releases the dog to permit turning and may need to assist with a cant hook or peavey in adjusting the log on the carriage, after which the blocks are again moved to the log and secured with the dogs. In cutting long logs two doggers may be employed. The position of dogger requires strength, dexterity, and attentiveness to the signals of the sawyer, and the work is considered a training for the position of setter.

Setter.—After the dogger has inserted the dogs which fasten the log to the blocks, the setter operates the lever which moves blocks and log sidewise toward the saw to the width of cut indicated by the sawyer. In order that the distance moved may conform accurately to the width of cut indicated, the lever is attached to a ratchet device with graduated dial and indicator, which is connected with the blocks by a shaft and cogs. If the logs rest securely on the carriage and against the blocks, the sidewise adjustment may precede or be simultaneous with the insertion of the dogs. The work is usually performed by hand, but in some mills the ratchet is moved by steam power, the setter controlling the movement by means of a lever. Sometimes the setter does the work of the dogger at the front end of the carriage, or the setter and dogger may work interchangeably.

The setter is not subjected to severe physical strain, but he must be alert to interpret and carry out the signaled directions of the sawyer. An experienced setter frequently substitutes for the sawyer and may be promoted to that position.

Rock sawyer.—Small stones which have become embedded deep in the bark of large logs during the process of skidding are not easily located by the deck men and if not removed are a source of possible damage to the head saw. Moreover, the thick bark is apt to be dragged into the cut and bind the saw. To avoid damage to the more expensive band and circular head saws, a small circular saw, called the rock saw, is placed just in front of and in line with the head saw. Its position is adjusted vertically by means of a lever, operated sometimes by a head sawyer, but more often by a rock sawyer, so that it will cut a groove through the bark on the upper side of the log directly in front of the head saw. Stones on the under side of the log do not damage the saw, since they are thrown out rather than forced in by the teeth. The work of the rock sawyer is not strenuous and but little skill is required.

Tail sawyer.—All the product of the head saw is removed over a series of live rolls. A tail sawyer or off-bearer has a place where the product drops from the head saw, and it is his duty to see that the material is started straight on the rolls and so placed that it will move smoothly. A sharp-pointed hook attached to a short handle is used to turn the slab or board. Slabs do not run well with the bark side down and the tail sawyer using this hook gives the slab a quick pull from the lower edge just as it is cut off, causing it to fall sawed side down on the rolls. Very wide boards are apt to split in falling on the rolls, and in some operations mechanical arms are used to lower the boards to the rolls. In moving large timbers to the rolls the tail sawyer is assisted by the carriage man and by the rock sawyer. In band head-saw operations the saw tailer usually

adjusts the saw guides to accommodate the log. He may also operate levers to shunt the product to a particular machine, but this is usually done by other employees. The work of the tail sawyer requires constant attention, but the physical demand is not severe.

LIVE ROLLS AND TRANSFER CHAINS.

Prompt disposition must be made of the head-saw product, the method of disposition and also the nature of the product depending upon the equipment of the mill. If a horizontal resaw is used the log will be slabbed rather heavily, and the slabs will pass over the resaw. If a gang saw forms part of the equipment, slabs and several boards may be cut from two sides of the log by the head saw, and the remaining portion, called the "cant," be passed on to the gang saw. Assuming a mill equipped with both resaw and gang saw, the product of the head saw will be transferred as follows: Slabs from which boards can be cut to the resaw; slabs suitable only for fuel or for by-products to the slasher saws; boards to be edged or ripped into narrower widths to the edger; boards that do not need to be edged directly to the trimmer saws; cants to the gang saw; and timbers may be sent to timber trimmers and sizers.

Transfer man (live-roll man, lever man).—The line of live rolls extending from the head saw is usually so arranged that the product, if undisturbed, passes directly to the trimmer or to rolls which carry it from the mill. In order that the product may reach any other machine, transfer chains must be lifted to remove it from the rolls. Levers are used for this purpose and chains are elevated directly, or a stop block is raised which bars the progress of the slab, board, or other product, the force of the impact elevating the chains sufficiently to lift the product from the rolls. In operations where most of the product is edged, however, a stop block is so arranged that all product is automatically shunted to the edger unless the block is lowered. The location of levers for the transfer of product, as well as their operation, depends largely upon the arrangement of the mill and the organization of the working force. In some operations a lever man occupies an elevated position and has levers at his command for all transfer chains. In other operations the tail sawyer operates the lever shunting products to the edger. The usual practice, however, is to have levers located within reach of the operators of each machine and to station helpers, called live-roll or transfer men, at intervals along the rolls.

RESAWING.

Resawyer.—Whether horizontal band, vertical band, or circular resaws are used the work of the resawyer is essentially the same, and consists in feeding the slabs from which boards are to be cut, or plank

to be reduced in thickness, through rollers designed to hold the product in position until it is sawed. The work of the resawyer is not difficult, but acquaintance with timber is necessary, and a degree of intelligence higher than for ordinary labor is required.

Resawyer's helper (line-up man, transfer man).—One or more helpers to the resawyer are sometimes necessary to place the slabs or other product in position on the resaw table. The term "line-up man" or "transfer man" may be used to designate more specifically the work performed. The requirements of a resawyer's helper are slightly above those of a common laborer.

Resaw tailer.—As the product comes from the resaw it falls upon live rolls which automatically carry it to transfer chains leading to the trimmer saws. Waste product must be pushed from these rolls to conveyor chains leading to the slasher saws. If the resawyer indicates that another board can be cut from the slab, it is placed on a conveyor and returned to the front of the resaw. The resaw tailer stands behind the resaw and, usually by means of a short pike pole, pushes the product not to be trimmed from the rolls. Dexterity and the physical requirements of a common laborer are necessary.

GANG SAWING.

Cant setter.—Cants and timbers to be cut into boards by the gang saw are transferred from the line of rolls leading from the head saw, usually over dead rolls, into position for the gang saw. Cant hooks and peavies are used when the work is done by hand and a steam or electric crane if power is used. The operator of a crane is called a crane man. Men placing the cants in position are called cant setters. The term "gang helpers" may be applied to the cant setters or to others assisting in moving the cant into position. If the cants are small they may be piled one on top of another and side by side to the full capacity of the machine. The work is considered slightly above common labor.

Gang sawyer.—Two sets of rolls form part of the gang-saw equipment. At the lower part of the frame which holds the saws is a set of feed rolls used to force the cants toward the cutting edges of the saws; near the top of the frame is another set of rolls used to press firmly on the top of the cants and hold them in position during the sawing. It is the duty of the gang sawyer to adjust the pressure rolls and to regulate the feed of the machine, which he does by means of levers. He must be able to gauge the cutting capacity of the saws and he has immediate supervision over all the operations of the gang sawing.

Gang-saw tailer.—The men who work behind the gang saw and dispose of the output as it comes from the machine are called gang tailers. They sort out the shims, bark, and other waste material, pushing it to conveyor chains leading to the slasher or to chains that

carry it from the mill, and keep the boards in position as the cant is fed through the machine. After the cant is sawed the boards are transferred from live rolls to the edger. Common labor is required for the work of gang tailing.

Gang oiler.—One man about the gang saw may be designated the gang oiler, and it is his duty to keep the oil cups filled with oil.

Gang engineer.—The gang saw, in infrequent instances, may be operated by a distinct engine placed on the floor below the saw, and a gang engineer be employed to operate the engine.

EDGING.

Edgerman's helper (edger liner, line-up man).—Boards from the head saw, resaw, and gang saw that require edging are transferred from live rolls to chains which carry them to an edger table in front of the edger. One or more edger helpers place the boards in position on the edger table so that the edgerman may inspect them and determine widths. The work calls chiefly for manual labor, but there is an opportunity for promotion to the position of edgerman.

Edgerman.—The duties of the edgerman are to inspect the boards to determine the widths into which they may economically be cut, to operate levers adjusting the saws laterally to the width determined upon, and to feed the boards into the edger. The boards are held in position as they pass through the machine by feed and pressure rolls, subject to lever control. The edgerman must know something of lumber grades and be able to estimate accurately the widths of boards.

Edger tailer (edging catcher, strip picker).—The product from the edger consists of boards to be trimmed and strips or edgings to be passed to the slasher saws or disposed of as waste. Edger tailers direct the progress of the boards along the rolls and push the edgings onto conveyor chains. The work is not strenuous but it requires dexterity.

TRIMMING.

Trimmer loader (trimmer helper, line-up man).—Practically all of the output of the mill needs to be cut into standard lengths, or to be squared at the ends by the trimmer saws. Trimmer loaders, sometimes called trimmer helpers or line-up men, are stationed at the front of the trimmer and place the lumber in such a position on the trimmer table that it will be carried against the trimmer saws at a right angle to their cutting edge. The capacity of the trimmer is limited only by the quantity of lumber that trimmer loaders and operators can handle. If not more than two head saws are used one trimming machine may take care of the entire product, and in this case the work of the trimmer loaders is strenuous. On the

other hand, if a trimming machine is used for each head saw, the work of the trimmer loaders is not exacting.

Trimmer operator.—It is the duty of the trimmer operator to bring into position the proper saw for cutting each board as it is carried over the trimmer table. Many boards need only to be squared at both ends but some boards may have knots or other imperfections which, if not removed, would affect the grade of the board. By trimming out a portion of the board two shorter boards of higher grade are produced. The work of the trimmer operator requires a knowledge of lumber grades and the demands of the market as well as a quick judgment in the manipulation of the saws. In some operations men of equal grade work interchangeably at trimming and loading.

Timber trimmer.—If timbers form a considerable part of the product of the mill a timber trimmer may be used to square the ends or to cut timbers to specified lengths. The trimmer consists usually of one or two circular saws arranged opposite dead rolls over which the timbers are pushed by hand; or a circular saw, called a jump saw, may be so placed below the rolls that it can be raised by a lever. If timbers form but a small part of the output a cross-cut saw, pulled by hand, may be used to trim them. Timber may be trimmed in the mill, but more often the work is done in the yard or at the dock. The operators are known as timber trimmers, jump-saw men, and cut-off men.

REFUSE—SLASHER, HOG, AND BURNER.

The manufacture of lumber results in a large amount of refuse or waste product in the form of sawdust, slabs, bark, edgings, and ends of boards or defective parts removed by the trimmer. It is important that this refuse be removed promptly from different machines and from the rolls or transfer chains used to convey the lumber and that it be disposed of when thus removed. It is removed by being pushed onto transfer chains, as stated previously, by men stationed at or near each machine, or, in the case of sawdust and ends from trimming boards, it may fall into a chute and be carried along by a chain having block-like projections. It is disposed of in four ways: by being used as fuel in the power plant, by being burned as refuse, by being cut into stove lengths and sold as wood, and by being utilized as a by-product, which will be described later, under "Lath, stave, and heading mills."

Slasher man.—Slabs and edgings to be used for power-house fuel, or for wood and other by-products, are carried transversely by chains over the slasher saws and cut into 4-foot lengths. A slasher man is stationed near the saws and keeps the material moving evenly

along the chains. He may have a helper in large operations, but the work of either slasher man or helper is that of a common laborer.

Hog man.—All the fuel for the power plant is supplied from the waste of the sawmill or subsidiary plants. All modern power plants in sawmill operations are provided with automatic feeding devices, and it is necessary that the fuel be reduced to particles small enough to be fed in this way. Sawdust is carried directly to the furnaces, but other sawmill waste used for the furnaces is ground in a machine called the hog. The hog man must see that the waste is fed evenly into the hopper and that nothing is put in which might choke the machine.

Conveyor man.—Waste that is not used for any other purpose is carried over a conveyor chain to a point some distance from the mill and burned, usually in a tall cylindrical sheet-iron burner fitted with a wire-mesh top to prevent the escape of sparks. The quantity of refuse burned in this way depends upon the extent to which waste is utilized in by-products, but it is always considerable. One or more conveyor men are stationed along the conveyor chains leading to the burner or to the hog, to keep the waste from clogging the chains.

CLEANING, OILING, AND MISCELLANEOUS SAWMILL LABOR.

Cleaner or sweeper.—Common laborers, called sweepers or cleaners, are employed to prevent the accumulation of dust and small particles of bark and wood about the machines and on the sawmill floor. Most of the work is done at night or between shifts, but some cleaning is necessary while the mill is running.

Mill oiler.—It is the duty of the mill oilers to oil the bearings not supplied with automatic lubricators, to keep lubricator cups filled with oil, and to examine all bearings at regular intervals to see that they do not become heated. The oiler must have a knowledge of sawmill machinery, but he is not a skilled employee.

Extra or spare man.—Most mills employ several extra or spare men to do miscellaneous work about the sawmill and to fill positions temporarily vacated by regular employees. Thus, if an edgerman is not working, an edger helper may take his place and an extra man will be used to fill the helper's place.

FILING.

Filer.—The work of the filer is highly skilled, and usually the highest paid of mill labor. Upon him more than upon any other employee depends the uninterrupted operation of the mill and the quality of the output. The teeth of saws must be ground and fitted or widened at the cutting point to prevent binding; the entire saw must be hammered to give it the tension necessary to stand the strain of operation and to cause it to run true. If a band saw breaks

or is damaged, it may be repaired for further use by grinding the broken ends at an angle and brazing them together, or by cutting out the damaged portion and brazing in another piece. A considerable part of the filing-room work is done by machinery, but some hand-work is necessary. It may be necessary to change band head saws as often as four times a day in the usual course of sawmill operations, and for convenience in changing the filing room is directly above the head saw. The head-saw crew usually assist in changing saws.

Filer's helper.—In some operations filing is done by contract, the head filer employing and paying his helpers or assistants. In other operations helpers are paid by the company, and may be designated as round-saw filers or lath-mill filers, but the work is that of a helper and is a necessary training for the position of head filer.

SORTING GREEN LUMBER.

The chains which carry the product over the trimmer saws deposit it outside the mill on another set of transfer chains running lengthwise of a platform called the sorting table. The table is the width of the trimmer saws, and from 50 to 100 feet or more in length, depending on the quantity of product to be handled. It has a roof over it, for protection from the weather, but the sides are not inclosed.

Grader.—The grader stands at the head of the sorting table and marks the boards with chalk or pencil to indicate the grade and disposition to be made of them. He must know lumber grades and be able to inspect and decide quickly upon the grade of each board. A marker may be employed whose duty it is to mark the grades indicated by the grader, but this work is more often done by the grader or by a helper. If an output record is kept of lumber passing over the chains, the grader measures the boards for lumber feet contents. This is called the lumber measure or tally, as distinct from the log scale at the log deck. It is a more correct measure of the quantity of output than the log scale, but the rapidity with which boards must be measured is apt to result in a mental estimate instead of an accurate measurement.

Grader's helper.—Sometimes a grader's helper is provided whose duty is to turn the board when necessary for inspection by the grader, or to mark the designated grades. This work may be strenuous if much of the product is low-grade stock, requiring an inspection of both sides of the boards.

Tallyman.—If lumber is measured at the chains, a tallyman is employed to record the grades and sizes of boards as indicated by the grader.

Transfer man (camel-back man, lever man).—In some operations the sorting table is so arranged that a device called the camel back

can be elevated by means of a lever and the product shunted to another sorting table. The operator is called a camel-back man, lever man, or transfer man.

Sorter and loader.—Men known as sorters and loaders are stationed along the table to pull the product from the chains and load it on trucks, dollies, or other transportation agency for transfer to the yard, dry kiln, planing mill, or shipping platform. Each sorter is responsible for but one grade, which has been previously indicated by the grader.

GREEN-LUMBER YARD.

Trucker (teamster, driver, electrician, engineer).—The disposition made of the green lumber after sorting and loading at the sorting table will depend upon the nature of the product, the scope of operations, the method of shipment, and market conditions. In practically all operations, however, use is made of a green-lumber yard, to which some portion of the product is transferred for air drying.

The transfer of lumber to the green-lumber yard is but a part of a general transfer system for moving green or dry lumber to any part of the yard, to the dry kiln, planing mill, shed, or shipping platform. The point to which the product is moved is seldom a matter of pay-roll record, all such work being charged to lumber transfer. Methods of transfer vary widely. In most common use, however, is a tramway system, and lumber is moved on tramcars over steel or wooden rails. In such a system the vicinity of the sorting table is a miniature railroad yard. Tracks radiate from switching centers and run at right angles to the sorting table. These tracks are sufficient in number so that enough cars to receive the different grades of lumber are within reach of the sorters and loaders. In some operations a break is made in the tracks by a troughlike depression a short distance from the sorting table and parallel to it. Tracks are placed at the bottom of this depression, upon which a transfer car, carrying a short connecting track, is moved by transfer men in order to place an empty car carried on it in position at the table or to remove a loaded car.

Other methods of transfer involve the use of plank or dirt drive-ways, tracks for locomotive cranes, or framework for overhead monorails. A series of dead rolls may be used for the moving of heavy timbers.

Hand, animal, and electric power is used to move the cars, trucks, or loads away from the sorting table. Hand trucking is in use where labor is cheap or the distance to be moved is not great. Two-wheeled carts are commonly used in hand trucking. In some operations the tramway system is built on an inclined plane leading from the mill to the yard and the tramcars are pushed by hand. Animals

may be used to pull the empty cars back to the sorting chains or to pull loaded cars on tramways which are not constructed on the gravity system. Two-wheeled animal-drawn vehicles are in common use for trucking lumber in operations where there is no tramway system. Teamsters or drivers in animal trucking may care for the teams at the barn, or a barn man may be employed for this purpose.

In large operations an electric tractor, a locomotive crane, an electric locomotive, or a monorail system is used for transferring lumber. The electric tractor and electric locomotive take the place of hand or animal power in hauling loads. In using the locomotive crane, and in the monorail system, large loads are first stacked at the sorting chains, then lifted, transferred, and deposited in a pile without further work of unloading or piling.

Tipper, stacker, or piler.—For air drying boards are placed in layers with strips between the layers to permit the circulation of air. Lumber stacks or piles vary in size, but approximate eight feet in width, and are built as high as it is convenient to pass the lumber, usually not exceeding 20 feet. The foundations for outdoor stacks are permanent and are constructed on an incline, so that the top of the stack will shed water. A covering of low-grade lumber is placed over the top of the stack for protection to the lumber beneath. Stacks are arranged in rows, with sufficient space between alternate rows for driveways, tramways, or railroad. Lumber may also be stacked on end, at a slight angle from the perpendicular. For hand stacking in the yard men work in pairs. One man, called the tipper, stands on the ground and, using one end of the board as a lever and a cart wheel or a pyramid shaped device as a fulcrum, tips the other end of the board up to the pile, where it is put in place by the piler. Pilers and tippers are usually paid more than hand truckers, but the work is considered common labor. In many operations piling is done by contract, the contractors employing their own helpers.

DRY-LUMBER YARD.

Unstacker.—Lumber in drying often discolors or checks so that regrading is necessary. Unstackers tear down piles for such regrading, or for the purpose of combining two or more small piles.

Trucker.—Lumber which has been air dried is sometimes transferred to dry-lumber sheds or to other points in the yard. This work, and also the transfer of dry-kiln and planing-mill product to the dry sheds, is termed dry-lumber trucking.

Stacker.—Outdoor stacking of dry and green lumber is identical in method. When dry lumber is stacked in sheds, however, strips are not used between the layers of boards and the boards are frequently stacked on end.

SUBSIDIARY OR SUPPLEMENTARY PROCESSES.

DRY KILN.

In every sawmill operation some of the product must be shipped very soon after manufacture and, if the shipment is by rail, the greater weight of green lumber due to the presence of sap is a considerable item in freight charges. Moreover, some kinds of lumber will discolor or check in the slow process of air drying. To avoid unnecessary freight charges and depreciation in grade by air drying, kilns are used in many operations for the rapid drying of lumber by artificial heat. Different materials are used in dry-kiln construction, but the essential principle is to retain the heat used in drying. The kilns are usually divided lengthwise by one or more walls, and car tracks run through each section. Steam pipes connected with the power plant are placed below the tracks.

Sorter.—With the exception of lumber that may be partly air dried before kiln-drying, lumber for the dry kiln is sorted as it comes from the trimmer saws of the sawmill. Sorting for the dry kilns differs from green-lumber sorting for yarding or shipping in that the lumber is not graded before sorting. Mechanical devices are in common use, however, in operations where all the product is kiln-dried. In all such devices bins are used into which the different lengths of boards are dropped either directly from transfer chains or through slots in the sorting table.

Stacker.—Stacking for the kiln is done either by hand or by a mechanical stacker, but in both methods the boards are placed in layers with cross strips between successive layers as in yard stacking. In the mechanical stacker the boards are carried sidewise over a transfer chain and dropped into a perpendicular groove the width of which corresponds to the thickness of the board. When the groove is filled the machine is stopped, strips are laid, and the layer of boards is pushed over by means of a lever to make room for another layer of boards. This process is repeated until the stack is completed, when it is placed on a car for the kiln. In hand stacking men work in pairs and the stack is built on a truck or tramcar.

Trucker.—Trucking to or from the dry kiln is similar to yard trucking. The cars upon which the stacks are placed are pushed into the kiln by hand or drawn by animal power. In the monorail system a stack is lifted bodily and transferred to the kiln. The lumber remains on the car or in the stack until removed from the kiln.

Unstacker.—When the cars have been removed from the kilns the lumber is unstacked preparatory to storing in the shed, transferring to the planing mill, or delivery on cars for shipment. If done by hand, two or more men work at one car. The lumber is placed directly on trucks or dollies, or it is put on transfer chains and sorted in the same manner as green lumber. A mechanical unstacker which reverses the action of the stacker is sometimes used.

Grader.—In the process of kiln-drying the grade of lumber may be altered, and for that reason lumber is graded when unstacked from the kiln. The work involved is the same as in green-lumber grading.

PLANING MILL.

The planing mill varies in scope from a single machine used to surface low-grade and common stock to a plant more properly described as a factory, in which a considerable portion of the output of the sawmill is used in filling orders for special sizes and shapes. Usually a planing mill is housed in a separate building. Power for operation is supplied by the sawmill power plant or by a distinct plant. In either case planing-mill refuse, most of which is in the form of fine shavings or dust, is used for power-house fuel. Hoods are placed over the machines to catch the dust, which is removed through pipes by a vacuum process and blown to the power plant. One or all of the following machines, depending on the scope of operation, are used in the planing mill: Green-lumber and dry-lumber surfacers, cut-off saws, edgers, rip-saws, resaws, tonguing-and-grooving machines, and molding machines. Employees may be classed as truckers, machine setters, feeders and helpers, tailers, bundlers, tiers, and graders. To these should be added a filer, if such work is not done in the filing room of the sawmill.

Trucker.—Trucking to the planing mill may be from dry kiln, yard, dry shed, or sorting chains. The work is similar to yard or kiln trucking.

Machine setter.—One or more machinists, known as machine setters or machine men, keep the machines in repair, remove, sharpen, and replace planer knives, and adjust the machines.

Feeder.—The term "feeder" may be applied to any employee who directs the product through a machine, but it is more often used to denote one who operates a surfacer, a tonguer and groover, or a molder. Some machines are equipped with automatic feeding devices so that the feeder simply takes the material from the truck or dolly and places it in line for the machine. The work necessitates a knowledge of lumber grades in order to work up the boards to the best advantage in filling orders.

Feeder's helper.—When heavy stock is being surfaced, or a fast machine is used, the feeder may have an assistant called a helper. The helper aids the feeder in placing the lumber in position for the machine, and by familiarity with the machine may succeed to the position of feeder.

Tailer (off-bearer).—The tailer or off-bearer stands behind the machine and removes the product.

Grader.—When the material is to be graded after passing through the machine, the grader stands behind the machine and marks the boards for separation into grades, or he may himself sort the grades.

Bundler, tier, and loader.—If the work of sorting is not done by the grader, a bundler sorts such material as molding, ceiling, siding, and flooring and places it in racks in the desired quantity for a bundle. A tier secures it with pieces of tarred cord and places it on a truck for transfer to the shed or to the shipping platform. The work of loading the product on the trucks may be done by an employee called a loader.

LATH, STAVE, AND HEADING MILLS.

A considerable portion of what would otherwise be waste in the manufacture of lumber may be converted into salable by-products in the form of laths, pickets, table squares, staves, and barrel heads. Slabs, edgings, and cull boards are thus used after being cut into 4-foot lengths by the slasher as previously described in sawmill operations. In some sections such by-product is called dimension stock, and the place of manufacture, which is usually beneath the sawmill floor, is called the dimension mill. The work may be done under the direction of a foreman employed by the company, or it may be managed by a contractor who pays his own employees and receives a gross amount from the company. Machines used in the manufacture of these by-products are not identical for all products, but the processes of manufacture are similar.

Picker (stock picker, conveyor man).—Men known as pickers, stock pickers, or conveyor men are stationed along the conveyor chain leading from the slasher saws of the sawmill to pick out material suitable for by-product. This material is piled beside lath and other by-product machines or placed in chutes or on conveyor chains that carry it to a point readily accessible to the operators of such machines.

Bolter.—A bolting saw is used to reduce the material to “bolts” or blocks of a width and thickness suitable for conversion into the desired by-product. The employee who pushes the material over this saw is called a bolter.

Puller.—Off-bearers or tailers of the bolting machines are called pullers. They remove the bolts as they are sawed and see that waste does not accumulate.

Feeder.—Bolts are pushed over small circular or band saws and cut into laths or other by-product. A cylinder-shaped saw, with the teeth on one circular edge, is used to cut barrel staves. Operators of machines are called feeders.

Off-bearer and tier.—Men behind the saws are called off-bearers or tailers. Laths and other product to be handled in bundles is bunched, usually by a machine, and tied by the off-bearer or by a tier.

SHINGLE MILL.

In manufacturing shingles on a large scale an entire plant is devoted to that purpose. Many companies, however, operating

plants intended primarily for the manufacture of lumber find it profitable to install shingle-making machinery in order to utilize butts of logs or entire logs, the timber of which is more valuable in the form of shingles than in the form of lumber. Although such machines vary in type to suit the kind and size of logs used, all are adapted to the following processes: Cutting the logs into blocks 16 inches in length, the blocks being called stock; removing the bark from the blocks with a barking machine; slabbing the blocks and cutting slabbed blocks into shingles by means of circular or upright saws; and sorting and bunching the shingles for the market. Cutting the slabbed blocks into shingles and bunching them for the market are the processes most peculiar to the shingle mill. In cutting shingles the block is held at either end by a ratchet so constructed that it automatically sets over first the top and then the bottom of the block, giving the familiar wedge shape to the shingle. The bunching of shingles is a weaving process, the shingles being placed in layers or courses so that the ends of the bunch expose the butts or thickened base of the shingles, the thinner ends of alternate layers overlapping in the middle. The employees are called shingle weavers or packers, and usually work at piece rates.

CLAPBOARD MILL.

The manufacture of clapboards is peculiar to New England mills, and is usually carried on as a process supplementary to sawmill operation.

Selected spruce and hemlock logs are used for stock, and butts or entire logs are cut into lengths of 49 inches. The usual practice is to make the selection of stock from logs brought to the sawmill deck in the manufacture of other lumber. The blocks are conveyed to the clapboard mill, which is usually beneath the sawmill floor, and permitted to accumulate until the quantity is sufficient for several weeks' operation. The clapboard mill may be operated by a clapboard sawyer who employs his own crew and goes from mill to mill, or by employees of the sawmill company who perform other work during the accumulation of stock.

Unlike the manufacture of other lumber, the blocks are not slabbed prior to being sawed into boards. Instead, the bark is removed, leaving a cylindrical block which is sawed lengthwise into wedge-shaped sections radiating from a central core, the block being fastened at the ends and turned on its longitudinal axis for successive cuts.

When the block has been revolved completely, it is removed from the machine, the boards are pried and split loose from the core, dressed on the thick edge and one side, trimmed at the ends, and tied in bundles. The finished clapboard is 48 inches long, 7 inches wide, one-half inch thick at one edge, and tapers to the other edge.

SHIPPING.

Some of the output of the sawmill and subsidiary plants is often sold locally, and the company may maintain a retail yard with salesmen and graders and facilities for local delivery. The term "shipping," as distinct from local delivery, is applied to the transportation of the product either by railroad or water to a point outside the city or town in which the sawmill is located.

The method of handling the product for shipping is determined somewhat by the means of transportation. In either railroad or water shipments, however, the lumber must be transferred to a shipping platform or to a dock, from which it is loaded.

Unstacker.—Green lumber shipped from the sorting chains is loaded at the chains for transfer to the dock or shipping platform. If lumber is shipped from yard piles or dry sheds, it must be unstacked and loaded upon trucks or cars for transfer to a point from which it may be loaded for shipping.

Trucker.—The transfer of the product for shipping is a part of the transfer system for moving the product from the sawmill, and the work may be done by employees who also transfer lumber to the yard, dry kiln, planing mill, or dry shed.

Timber sizer.—The heavy strain to which the head saw is subjected and the speed of head saw and carriage operations may result in product which is irregular in size. To correct such irregularity in timbers for export, which must conform closely to order specifications, timbers are sawed slightly larger than such specifications and reduced to exact sizes by a heavy planer called the timber sizer. The timber sizer is sometimes housed in the sawmill, convenient to the timber trimmer previously described. More often, however, both sizer and trimmer are placed in the yard or at the dock, and timbers are moved to them over dead rolls.

Grader.—Lumber is graded before it is loaded for shipment. The grader must be able to grade and scale accurately in order to protect the company and to fill special orders. For export trade an association of mills generally maintains an inspection bureau. Each mill pays for cargo inspection, and the association certifies as to grade and scale.

Tallyman.—The tallyman makes a record of the grade and scale indicated by the grader.

Loader.—In loading lumber for shipment care must be taken to secure it so that its position will remain fixed during transit. Employees called loaders are used in rail shipments. In water shipments cranes and derricks are used to transfer the product from the wharf or dock to the vessel. Lumber handlers, longshoremens, and stevedores are employed in handling the lumber.

LOGGING WAGES AND HOURS OF LABOR.

As an additional feature of the lumber investigation, information was secured in 1915 relating to the wages and hours of labor in logging.

In securing data for this part of the report the Bureau confined itself to those establishments which did both logging and sawing and whose records as to logging were accessible at or near the mill, so the agents who secured the data relating to sawmills could also get information relating to logging without much additional expense.

Under these limitations some States represented in the sawmill section of this report will not be found in the logging section. Logging schedules were obtained as follows:

Establishments.		Establishments.	
Alabama.....	4	Oregon.....	1
Arkansas.....	9	South Carolina.....	8
California.....	11	Tennessee.....	4
Florida.....	3	Texas.....	6
Georgia.....	10	Virginia.....	7
Idaho.....	3	Washington.....	6
Louisiana.....	14	West Virginia.....	9
Mississippi.....	9		
Montana.....	3	Total.....	118
North Carolina.....	11		

The conditions under which logging is carried on, being done in the open where the men are exposed to the weather, render the work more or less irregular. Table 17 shows for 79 logging camps the number of days each was in operation, and the number of days idle, by causes of idleness, during the year. It will be observed that the average days idle on account of slack work was 21.9 and on account of weather conditions, 11.3. The total average days idle during the year was 42.1.

TABLE 17.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR.

State.	Establishment No.	Days in operation during year.	Number of week days idle during year on account of—				Total week days idle during year.
			Holidays and vacations.	Slack work.	Seasonal and weather conditions.	Other causes.	
Alabama.....	1	259	4	1 50			54
	2	310	3				3
	3	310	3				3
Arkansas.....	4	275	4	34			38
	5	272	4		37		41
	6	278	4	31			35
	7	256	4	53			57
	8	304	5	4			9
	9	285	4	74			78
	10	260	5	48			53
	11	261	3	49			52
	12	279	4	30			34
	13	242	4	67			71

¹ Including time closed on account of bad weather.

TABLE 17.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR—Concluded.

	Estab- lishment No.	Days in operation during year.	Number of week days idle during year on account of—				Total week days idle during year.
			Holidays and va- cations.	Slack work.	Seasonal and weather con- ditions.	Other causes.	
California.....	14	248	4	.....	61	.....	65
	15	171	1	.....	141	.....	142
	16	¹ 315	2	.....	.....	.....	2
	17	245	2	66	.....	.....	68
	18	175	2	.....	136	.....	138
	19	168	1	.....	144	.....	145
	20	240	3	.....	70	.....	73
	21	296	6	11	.....	.....	17
	22	189	1	.....	123	.....	124
	23	265	9	.....	39	.....	48
	24	180	3	130	.....	.....	133
Florida.....	25	295	5	13	.....	.....	18
	26	303	10	.....	.....	.....	10
Louisiana.....	27	307	4	.....	.....	² 2	6
	28	279	4	30	.....	.....	34
	29	304	2	.....	.....	² 7	9
	30	246	4	52	.....	² 11	67
	31	298	4	.....	.....	² 11	15
	32	291	4	18	.....	.....	22
	33	248	9	56	.....	.....	65
	34	191	4	.....	18	³ 100	122
	35	279	3	⁴ 31	.....	.....	34
Mississippi.....	36	309	4	.....	.....	.....	4
	37	287	2	.....	.....	⁵ 24	26
	38	310	2	.....	.....	² 1	3
	39	300	3	10	.....	.....	13
	40	297	.....	16	.....	.....	16
	41	311	2	.....	.....	.....	2
	42	299	2	12	.....	.....	14
	43	270	2	41	.....	.....	43
	44	303	4	6	.....	.....	10
	45	307	6	.....	.....	.....	6
	46	298	14	.....	1	.....	15
	47	313	.....	.....	.....	.....	.....
	48	263	3	47	.....	.....	50
	49	311	2	.....	.....	.....	2
	50	273	1	39	.....	.....	40
Montana.....	51	231	2	80	.....	.....	82
North Carolina.....	52	298	2	.....	.....	⁵ 13	15
	53	287	2	.....	.....	⁵ 24	26
	54	217	2	90	.....	⁵ 4	96
	55	279	3	18	.....	⁵ 13	34
	56	246	4	.....	.....	⁵ 63	67
	57	269	4	.....	.....	⁵ 40	44
	58	294	2	.....	17	.....	19
	59	228	2	72	11	.....	85
	60	250	4	37	.....	⁵ 22	63
	61	265	2	46	.....	.....	48
	62	295	9	.....	.....	⁵ 9	18
	63	298	9	.....	.....	⁵ 6	15
	64	293	11	.....	.....	⁵ 9	20
South Carolina.....	65	291	1	.....	.....	⁶ 21	22
	66	235	2	74	.....	⁵ 2	78
	67	284	2	.....	27	.....	29
Texas.....	68	269	3	.....	41	.....	44
	69	270	3	⁴ 40	.....	.....	43
	70	299	3	⁴ 11	.....	.....	14
	71	298	3	⁴ 12	.....	.....	15
	72	270	5	⁴ 38	.....	.....	43
	73	244	3	⁴ 66	.....	.....	69
Virginia.....	74	294	8	.....	.....	⁶ 11	19
	75	280	8	25	.....	.....	33
	76	281	2	.....	30	.....	32
	77	295	.....	.....	.....	⁶ 18	18
Washington.....	78	218	4	91	.....	.....	95
West Virginia.....	79	300	2	⁴ 11	.....	.....	13
Average.....		270.9	3.7	21.9	11.3	5.2	42.1

¹ Including four Sundays.
² Repairs.
³ Fire at mill.

⁴ Including time closed on account of bad weather.
⁵ Cause not reported.
⁶ Bad weather and cause not reported.

Many logging camps are located so far from any facilities for board and lodging that it is necessary for the employer to furnish them. In the case of certain employees, such as those engaged in the cookhouse, it is customary to furnish board in addition to the money wage paid. Sometimes this is furnished to other employees. It is more common, however, to pay employees (other than those who work in the cookhouse) a certain wage, and then charge them for board, the amount being deducted from their wages. When board is furnished in addition to the money wage, the fact is noted in the wage table. A common custom in some sections is to arrange with outside parties to conduct the boarding house, making their own price arrangements with the men. In such cases the employer usually sees to it that the boarding-house management does not lose anything through default in payment of board by the employees. Many companies maintain a general supply store, employees being given trading checks or books redeemable at the store. Each employee has a board and a store account, and quite frequently a hospital and medical service account—which last is a uniform charge against each employee—and a settlement for wages is made in cash on regular pay days.

The value placed upon the board, or the amount charged for it, differs so widely in different camps, even in the same locality, that it is very difficult to arrive at any satisfactory basis of comparison. In some camps the value is based upon the cost to the company, and in others upon what would be considered a fair charge if the employee had to board elsewhere.

Table 18 shows the number of camps reported as operating a boarding house or "cookhouse," and the range of values of board as reported by the company.

TABLE 18.—NUMBER OF LOGGING CAMPS OPERATING "COOK HOUSES" AND RANGE OF VALUES OF BOARD.

State.	Number of establishments reported as operating "cook-house."	Range of values of board per week as reported by company.
Alabama.....	3	\$2.77 to \$2.80
Arkansas.....	3	4.15 to 4.20
California.....	9	2.70 to 5.25
Florida.....	3	1.05 to 3.50
Georgia.....	2	3.46 to 3.50
Idaho.....	3	6.30
Mississippi.....	3	3.50
Montana.....	3	5.25 to 6.30
North Carolina.....	4	2.80 to 4.15
Oregon.....	1	5.25
South Carolina.....	4	2.77 to 3.50
Washington.....	6	5.25 to 5.50
West Virginia.....	6	4.20 to 4.41
Total.....	50	1.05 to 6.30

In Table 19 are shown, for each State from which data were secured, the number of employees, the full-time hours per week, the wage rates, and the equivalent rates per hour, by occupations.

On account of the many differences in organization, nomenclature, and conditions, no attempt has been made to summarize these figures.

The nature of the industry necessitates certain general processes defined in the description of processes and occupations, pages 147 to 169. Except in a few instances where one occupation is common to more than one process group, all occupations fall naturally into the groups used.

The occupations are arranged alphabetically under each classification and no attempt has been made to combine those which, while having different names, indicate the same or similar work. It has been thought better to use the nomenclature in vogue in the locality and in the establishment from which the data were secured. This will account for the appearance in the same State and classification of different terms meaning nearly if not exactly the same thing.

It will be noticed that the prevailing hours per week are 60 or 66, either 10 or 11 hours per day being the usual working time. Cook-house employees and some others are required to work 7 days per week as noted. The wage rates and the equivalent rates per hour are the actual money wages paid. When an employee receives board in addition to wages the fact is shown by a note.

In some occupations, notably cutters or sawyers, piece rates of pay often prevail. Usually in such cases the hours worked by such employees were not a matter of record, so that it was not possible to compute hourly earnings. Occasionally, however, the time worked was on record and in such cases the equivalent hourly rate has been computed and appears in the table. This explains why in some cases of piece rates an hourly equivalent appears while in other cases the note "pieceworkers" is given.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915.

ALABAMA.

[In the wage-rate column "h" stands for "per hour," "d" for "per day," "w" for "per week," and "m" for "per month." For glossary of occupations see pp. 160-169.]

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>General.</i>				<i>Cents.</i>	<i>General—Contd.</i>				<i>Cents.</i>
Blacksmiths.....	1	66	\$2.25 d.	20.5	Cooks.....	1	66	1 \$2.00 d.	13.2
Do.....	1	66	1.35 d.	12.3	Do.....	1	66	1 1.50 d.	13.6
Do.....	1	66	1.17 d.	10.6	Do.....	2	66	1 1.25 d.	11.4
Do.....	1	66	1.15 d.	10.5	Do.....	1	277	1 27.00 m.	18.1
Blacksmiths' help-ers.....	1	66	1.35 d.	12.3	Do.....	1	66	1 .85 d.	7.7
Car repairers.....	1	66	1.22 d.	11.1	Do.....	1	277	1 20.00 m.	16
Do.....	1	66	1.00 d.	9.1	Cooks' helpers.....	1	277	1 1.68½ d.	16.2
					Do.....	1	66	1 1.50 d.	14.5

¹ And board.

² Seven days.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

ALABAMA—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>General—Concl'd.</i>					<i>Hauling, skidding, and loading—Cld.</i>				
Filers.....	1	66	\$1.15 d.	10.5	Snakers.....	4	66	\$1.35 d.	12.3
Flunkys.....	1	66	\$1.00 d.	9.1	Teamsters.....	26	66	\$1.00 d.	19.1
Do.....	3	66	1.85 d.	7.7	Top loaders.....	1	66	1.65 d.	15
Do.....	1	66	1.75 d.	6.8	Do.....	1	66	1.60 d.	14.5
Repair men.....	1	66	\$1.25 d.	11.4	Do.....	4	66	\$1.50 d.	13.6
Timber riders.....	1	66	2.60 d.	23.6	Do.....	1	66	1.30 d.	11.8
Timekeepers.....	1	66	45.00 m.	15.7	Water boys.....	2	66	.60 d.	5.5
Not reported.....	2	66	(?)	(?)	<i>Railroad construction and maintenance.</i>				
<i>Cutting, etc.</i>					<i>Bridgemen.....</i>				
Foremen.....	1	66	2.00 d.	18.2	Engineers, construction.....	1	66	2.25 d.	20.5
Do.....	1	66	1.75 d.	15.9	Firemen, construction.....	1	66	(4)	13.4
Do.....	1	66	\$1.50 d.	13.6	Foremen, bridge men.....	1	66	\$2.00 d.	18.2
Foremen, assistant.....	1	66	1.25 d.	11.4	Foremen, construction.....	1	66	2.05 d.	18.6
Sawyers.....	5	66	\$1.00 d.	9.1	Foremen, maintenance.....	1	66	1.60 d.	14.5
Do.....	11	66	1.90 d.	18.2	Do.....	1	66	1.50 d.	13.6
Do.....	75	66	(?)	(?)	Foremen, section.....	4	66	2.00 d.	18.2
<i>Hauling, skidding, and loading.</i>					<i>Foremen, track.....</i>				
Brakemen.....	1	66	\$1.10 d.	10	Do.....	1	66	1.25 d.	11.4
Deck builders.....	1	66	1.80 d.	16.4	Laborers.....	1	66	.93 d.	8.5
Do.....	1	66	1.45 d.	13.2	Do.....	4	66	.83 d.	7.5
Deckers.....	8	66	1.35 d.	12.3	Do.....	1	66	.80 d.	7.3
Drivers.....	1	66	\$1.05 d.	9.5	Laborers, maintenance.....	6	66	1.12½ d.	19.2
Do.....	24	66	\$1.00 d.	9.1	Do.....	7	66	.90 d.	8.2
Do.....	46	66	1.85 d.	17.7	Section bosses.....	3	66	\$1.75 d.	15.9
Drivers, go-devil.....	20	66	1.25 d.	11.4	Do.....	2	66	1.75 d.	15.9
Drivers, ox.....	4	66	1.60 d.	14.5	Section hands.....	2	66	1.60 d.	14.5
Do.....	1	66	1.25 d.	11.4	Do.....	6	66	1.25 d.	11.4
Drivers, swing wagon.....	7	66	1.25 d.	11.4	Do.....	32	66	1.15 d.	10.5
Do.....	1	66	1.15 d.	10.5	Do.....	2	66	(9)	19.4
Do.....	1	66	1.00 d.	9.1	Do.....	16	66	1.12½ d.	19.2
Engineers.....	5	66	\$1.25 d.	19.5	Do.....	1	66	\$1.00 d.	9.1
Do.....	1	66	\$1.20 d.	18.2	Do.....	22	66	1.00 d.	9.1
Do.....	1	66	\$1.75 d.	15.9	Do.....	2	66	.90 d.	8.2
Engineers, loader.....	1	66	\$1.75 m.	25.2	Do.....	45	66	1.85 d.	17.7
Firemen.....	5	66	\$1.00 d.	9.1	Do.....	3	66	.80 d.	7.3
Foremen.....	1	66	\$1.75 m.	26.2	Do.....	3	66	.75 d.	6.8
Do.....	1	66	\$65.00 m.	22.7	Do.....	25	66	.70 d.	6.4
Do.....	1	66	\$56.25 m.	19.7	Do.....	1	66	.65 d.	5.9
Do.....	1	66	2.00 d.	18.2	Straw bosses.....	1	66	\$1.50 d.	13.6
Do.....	1	66	\$50.00 m.	17.5	Swampers.....	4	66	1.85 d.	17.7
Do.....	1	66	\$1.75 d.	15.9	Do.....	3	66	1.75 d.	16.8
Foremen, teams.....	1	66	2.25 d.	20.5	Water boys.....	1	66	.60 d.	5.5
Do.....	2	66	2.00 d.	18.2	Do.....	1	66	.50 d.	4.5
Hook men.....	10	66	1.50 d.	13.6	Do.....	2	66	1.40 d.	13.6
Loaders.....	11	66	1.26½ d.	11.5	<i>Railroad operation.</i>				
Do.....	1	66	1.25 d.	11.4	Brakemen.....	1	66	1.60 d.	14.5
Do.....	10	66	\$1.00 d.	9.1	Engineers.....	1	66	3.20 d.	29.1
Do.....	2	66	1.00 d.	9.1	Do.....	1	66	2.75 d.	25
Do.....	8	66	.90 d.	8.2	Do.....	2	66	2.25 d.	20.5
Do.....	4	66	1.85 d.	17.7	Do.....	1	66	45.00 m.	15.7
Do.....	1	66	.85 d.	7.7	Firemen.....	1	66	1.80 d.	16.4
Loaders, go-devil.....	6	66	1.25 d.	11.4	Do.....	3	66	1.35 d.	12.3
Loaders, swing wagon.....	1	66	1.45 d.	13.2	Do.....	1	66	1.25 d.	11.4
Do.....	2	66	1.25 d.	11.4	Not reported.....	1	66	1.35 d.	12.3
Do.....	1	66	1.15 d.	10.5					
Pump men.....	1	66	\$1.00 d.	9.1					
Skidding crew.....	2	66	\$1.50 d.	13.6					
Do.....	6	66	\$1.00 d.	9.1					
Do.....	7	66	1.85 d.	17.7					
Snakers.....	2	66	1.60 d.	14.5					

1 And board. 2 \$0.35 to \$0.49 per day. 3 \$0.032 to \$0.045. 4 More than one rate.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATE OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

ARKANSAS.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>General.</i>					<i>General—Concl'd.</i>				
Barn bosses.....	1	70	\$54.00 m.	17.8	Team bosses.....	1	60	\$58.50 m.	22.5
Barn men.....	2	70	60.00 m.	19.8	Unloaders and bark men.....	2	60	2.00 d.	20
Do.....	2	70	55.00 m.	18.1	Watchmen.....	1	70	(³) m.	20.5
Blacksmiths.....	1	60	3.50 d.	35	Do.....	1	84	.18 h.	18
Do.....	2	60	3.00 d.	30	Do.....	2	84	1.50 d.	12.5
Do.....	1	60	.30 h.	30	<i>Cutting, etc.</i>				
Do.....	1	60	75.00 m.	28.8	Cutters.....	22	60	(4)	(4)
Do.....	1	60	.270 h.	27	Fellers.....	1	60	.216 h.	21.6
Do.....	2	60	.225 h.	22.5	Do.....	1	60	.213 h.	21.3
Carpenters.....	1	60	2.25 d.	22.5	Do.....	1	60	.206 h.	20.6
Do.....	4	60	2.00 d.	20	Do.....	2	60	.196 h.	19.6
Do.....	1	60	.20 h.	20	Do.....	1	60	.194 h.	19.4
Do.....	1	60	.18 h.	18	Do.....	1	60	.193 h.	19.3
Do.....	1	60	.175 h.	17.5	Do.....	2	60	.184 h.	18.4
Car repairers.....	2	60	.175 h.	17.5	Do.....	2	60	.177 h.	17.7
Do.....	1	60	.30 h.	30	Do.....	1	60	.175 h.	17.5
Do.....	1	60	.25 h.	25	Do.....	1	60	.174 h.	17.4
Car repairers' helpers.....	1	60	.20 h.	20	Do.....	1	60	.173 h.	17.3
Do.....	1	60	.15 h.	15	Do.....	1	60	.167 h.	16.7
Chainmen, surveying.....	1	60	1.75 d.	17.5	Do.....	1	60	.137 h.	15.7
Cokee.....	2	70	21.00 d.	210	Do.....	1	60	.154 h.	15.4
Cooks.....	2	70	2.00 d.	20	Do.....	1	60	.152 h.	15.2
Do.....	1	70	26.00 m.	219.8	Do.....	1	60	.147 h.	14.7
Do.....	1	70	25.00 m.	218.5	Do.....	2	60	.145 h.	14.5
Cooks, assistant.....	1	70	21.00 d.	210	Do.....	1	60	.08 h.	8
Feeders, assistant.....	1	70	55.00 m.	18.1	Do.....	2	60	3.00 d.	30
Filers.....	2	60	3.00 d.	30	Do.....	2	60	2.50 d.	25
Do.....	1	60	2.50 d.	25	Do.....	2	60	2.50 d.	25
Do.....	1	60	.220 h.	22.5	Do.....	2	60	2.50 d.	25
Do.....	1	60	.215 h.	21	Do.....	9	60	2.25 d.	22.5
Flunkys.....	1	70	2.500 d.	25	Do.....	36	60	2.00 d.	20
Foremen.....	2	60	150.00 m.	57.7	Do.....	1	60	.175 h.	17.5
Do.....	2	60	2.50 d.	25	Do.....	9	60	.15 h.	15
Foremen, carpenters.....	1	60	3.50 d.	35	Do.....	72	60	(4)	(4)
Foremen, woods.....	1	60	115.00 m.	44.2	Do.....	2	60	1.00 d.	10
Foremen, woods, assistant.....	1	60	112.50 m.	43.3	Do.....	39	60	(⁵) d.	(⁵)
Do.....	1	60	.433 h.	43.3	<i>Hauling, skidding, and loading.</i>				
Helpers, shop.....	1	60	1.20 d.	12	Brakemen and oilers.....	1	60	.175 h.	17.5
Do.....	1	60	(³) h.	21.4	Drivers.....	2	60	.275 h.	27.5
Laborers.....	1	60	.160 h.	16	Do.....	8	60	.225 h.	22.5
Do.....	1	60	1.50 d.	15	Do.....	1	60	.205 h.	20.5
Do.....	1	60	1.25 d.	12.5	Do.....	9	60	.20 h.	20
Machinists.....	1	60	125.00 m.	48.1	Do.....	1	60	.198 h.	19.8
Do.....	1	60	.25 h.	25	Do.....	8	60	.19 h.	19
Machinists, assistant.....	1	60	(³) m.	30.8	Do.....	1	30	.188 h.	18.8
Machinists' helpers.....	1	60	1.50 d.	15	Do.....	1	60	.186 h.	18.6
Roadmasters.....	1	60	80.00 m.	30.8	Do.....	1	60	.184 h.	18.4
Saw bosses and filers.....	2	60	.30 h.	30	Do.....	1	60	.181 h.	18.1
Scalers.....	1	60	.29 h.	29	Do.....	8	60	2.25 d.	22.5
Do.....	1	60	2.50 d.	25	Do.....	1	60	67.50 m.	26
Do.....	2	60	.25 h.	25	Do.....	1	60	70.00 m.	26.9
Do.....	1	60	63.00 m.	24.2	Do.....	1	60	(⁶) d.	32.9
Do.....	1	60	.212 h.	21.2	Do.....	1	60	85.00 m.	32.7
Do.....	1	60	2.00 d.	20	Do.....	2	60	3.00 d.	30
Do.....	1	60	.20 h.	20	Do.....	1	60	(³) d.	23.6
Do.....	1	60	50.00 m.	19.2	Do.....	1	60	58.50 m.	22.5
Do.....	1	70	85.00 m.	28	Do.....	3	60	.20 h.	20
Do.....	1	70	2.25 d.	22.5	Do.....	1	60	36.00 m.	13.8
Do.....	1	70	65.00 m.	21.4	Do.....	1	60	75.00 m.	28.8
Do.....	1	70	2.00 d.	20	Do.....	1	60	1.75 d.	20.3
Do.....	1	70	.18 h.	18	Do.....	1	60	.203 h.	20.3
Do.....	1	60	.18 h.	18	Do.....	2	60	1.75 d.	17.5
Do.....	1	60	(³) h.	16.5	Do.....	1	60	2.25 d.	22.5
Do.....	1	60	.15 h.	15	Do.....	2	60	2.00 d.	20
Do.....	1	60	.150 h.	15	Do.....	1	60	.20 h.	20
Surveyor's helpers.....	1	60	80.00 m.	30.8	Do.....	1	60	.20 h.	20
Team bosses.....	1	60	.277 h.	27.7	Do.....	1	60	.20 h.	20
Do.....	1	60	67.50 m.	26	Do.....	1	60	.20 h.	20

¹ Seven days.² And board.³ More than one rate.⁴ Pieceworkers.⁵ \$1.50 to \$2.⁶ \$0.15 to \$0.20.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

ARKANSAS—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Hauling, skidding, and loading—Cld.</i>					<i>Railroad construction and maintenance—Continued.</i>				
				<i>Cents.</i>					<i>Cents.</i>
Foremen.....	1	60	\$0.35 h.	35	Foremen.....	1	60	\$0.26 h.	26
Do.....	1	60	65.00 m.	25	Do.....	3	60	2.50 d.	25
Foremen, teams.....	2	60	80.00 m.	30.8	Do.....	1	60	60.00 m.	23.1
Laborers.....	1	60	1.75 d.	17.5	Do.....	1	60	2.25 d.	22.5
Do.....	1	60	(1) d.	15.4	Do.....	8	60	.225 h.	22.5
Do.....	1	60	(1) d.	15.2	Do.....	2	60	.203 h.	20.3
Do.....	8	60	1.50 d.	15	Do.....	6	60	2.00 d.	20
Laborers, loading.....	1	60	.15 h.	15	Do.....	2	60	.20 h.	20
Loadermen.....	3	60	4.00 d.	40	Do.....	3	60	50.00 m.	19.2
Do.....	3	60	.40 h.	40	Do.....	1	60	1.90 d.	19
Do.....	1	60	.34 h.	34	Do.....	1	60	.18 h.	18
Do.....	1	60	75.00 m.	28.8	Do.....	2	60	1.75 d.	17.5
Loaders, head.....	1	60	1.75 h.	17.5	Do.....	4	60	.175 h.	17.5
Do.....	1	60	112.50 m.	43.3	Foremen, section.....	1	60	2.50 d.	25
Do.....	1	60	110.00 m.	42.3	Do.....	1	60	60.00 m.	23.1
Do.....	1	60	.277 h.	27.7	Do.....	1	60	2.25 d.	22.5
Loaders, machine.....	1	60	110.00 m.	42.3	Do.....	1	60	2.00 d.	20
Team bosses.....	1	60	.40 h.	40	Grade men.....	7	60	.175 h.	17.5
Do.....	1	60	65.60 m.	25	Do.....	1	60	.165 h.	16.5
Teamsters.....	39	60	2.00 d.	20	Do.....	20	60	.15 h.	15
Do.....	2	60	(1) h.	19.4	Laborers.....	1	60	2.00 d.	20
Do.....	1	60	.185 h.	18.5	Do.....	3	60	1.75 d.	17.5
Do.....	1	60	(1) h.	18.5	Do.....	5	60	.175 h.	17.5
Do.....	21	60	.18 h.	18	Do.....	1	60	(1) d.	16.4
Do.....	14	60	1.75 d.	17.5	Do.....	1	60	(1) d.	16.4
Do.....	1	60	.175 h.	17.5	Do.....	2	60	(1) d.	15.9
Do.....	1	60	.16 h.	16	Do.....	1	60	(1) d.	15.6
Do.....	1	60	.159 h.	15.9	Do.....	1	60	(1) d.	15.2
Do.....	1	60	.158 h.	15.8	Do.....	41	60	1.50 d.	15
Do.....	1	60	.157 h.	15.7	Do.....	1	60	.15 h.	15
Do.....	1	60	.146 h.	14.6	Do.....	9	60	.135 h.	13.5
Tong hookers.....	4	60	.22 h.	22	Right-of-way men.....	4	60	1.50 d.	15
Do.....	1	60	.208 h.	20.8	Sawyers.....	1	60	(1) d.	18.3
Do.....	1	60	.204 h.	20.4	Do.....	7	60	1.75 d.	17.5
Do.....	12	60	2.00 d.	20	Section men.....	17	60	1.60 d.	16
Do.....	20	60	.20 h.	20	Do.....	1	60	(1) d.	15.2
Do.....	1	60	(1) h.	19.5	Do.....	38	60	1.50 d.	15
Do.....	2	60	1.90 d.	19	Slip men.....	2	60	2.00 d.	20
Do.....	4	60	.189 h.	18.9	Spikers.....	10	60	1.85 d.	18.5
Do.....	2	60	(1) d.	18.4	Teamsters.....	7	60	2.00 d.	20
Do.....	1	60	.183 h.	18.3	Trackmen.....	1	60	(1) h.	22.2
Do.....	1	60	(1) d.	17.8	Do.....	6	60	.20 h.	20
Top loaders.....	2	60	2.25 d.	22.5	Do.....	3	60	1.90 d.	19
Do.....	1	60	(1) d.	21.6	Do.....	2	60	.185 h.	18.5
Do.....	1	60	.215 h.	21.5	Do.....	1	60	.183 h.	18.3
Do.....	2	60	2.00 d.	20	Do.....	1	60	(1) h.	18.3
Do.....	4	60	.20 h.	20	Do.....	11	60	1.75 d.	17.5
Unloaders.....	1	60	.144 h.	14.4	Do.....	12	60	.175 h.	17.5
<i>Railroad construction and maintenance.</i>					<i>Railroad construction and maintenance—Continued.</i>				
Axmen.....	1	60	1.80 d.	18	Do.....	1	60	(1) h.	17.4
Do.....	18	60	1.75 d.	17.5	Do.....	1	60	(1) h.	17.1
Do.....	1	60	(1) d.	17.4	Do.....	1	60	(1) h.	16.8
Bridgemen.....	1	60	.20 h.	20	Do.....	1	60	(1) h.	16.7
Carriers, rails and ties.....	1	60	(1) d.	18.4	Do.....	1	60	1.65 d.	16.5
Do.....	32	60	1.75 d.	17.5	Do.....	1	60	.165 h.	16.5
Engineers, locomotive.....	1	60	2.00 d.	20	Do.....	3	60	(1) d.	16.4
Firemen.....	1	60	(1) d.	19.4	Do.....	1	60	(1) h.	16.3
Firemen, locomotive.....	1	60	(1) d.	23.5	Do.....	1	60	(1) h.	16.2
Do.....	1	60	2.00 d.	20	Do.....	1	60	.161 h.	16.1
Foremen.....	2	60	3.60 d.	36	Do.....	1	60	1.60 d.	16
Do.....	1	60	92.00 m.	35.4	Do.....	16	60	.16 h.	16
Do.....	2	60	.30 h.	30	Do.....	1	60	(1) h.	15.9
Do.....	1	60	75.00 m.	28.8	Do.....	1	60	.158 h.	15.8
Do.....	1	60	2.75 d.	27.5	Do.....	2	60	.157 h.	15.7
Do.....	1	60	67.50 m.	26	Do.....	1	60	(1) h.	15.6
					Do.....	1	60	1.55 d.	15.5
					Do.....	2	60	.154 h.	15.4
					Do.....	2	60	.152 h.	15.2
					Do.....	2	60	(1) d.	15.1
					Do.....	26	60	1.50 d.	15

¹ More than one rate.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

ARKANSAS—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Railroad construction and maintenance—Concluded.</i>					<i>Railroad operation—Concluded.</i>				
Trackmen.....	102	60	\$0.15 h.	15	Firemen.....	1	60	\$2.25 d.	22.5
Do.....	1	60	.148 h.	14.8	Do.....	1	60	2.10 d.	21
Do.....	1	60	.146 h.	14.6	Do.....	7	60	.20 h.	20
Do.....	7	60	.144 h.	14.4	Do.....	4	60	.18 h.	18
Do.....	2	60	1.40 d.	14	Do.....	3	60	1.75 d.	17.5
Do.....	8	60	.14 h.	14	Do.....	1	60	(¹) h.	16.5
Do.....	11	60	.135 h.	13.5	Do.....	1	60	.158 h.	15.8
Do.....	2	60	.13 h.	13	Hostlers.....	1	270	2.50 d.	25
Do.....	1	60	.129 h.	12.9	Do.....	1	284	3.00 d.	25
Do.....	1	60	.128 h.	12.8	Do.....	1	60	(¹) h.	21.1
Do.....	3	60	.126 h.	12.6	Do.....	1	270	2.00 d.	20
Do.....	18	60	1.25 d.	12.5	Do.....	1	277	.20 h.	20
Do.....	24	60	.125 d.	12.5	Do.....	1	270	60.00 m.	19.8
Trackwalkers.....	1	60	.175 h.	17.5	Do.....	1	60	(¹) h.	19.2
Water boys.....	1	60	.10 h.	10	Do.....	2	84	2.00 d.	16.7
<i>Railroad operation.</i>					Do.....	2	60	1.75 d.	17.5
Brakemen.....	4	60	2.00 d.	20	Do.....	1	60	1.65 d.	16.5
Do.....	1	60	.20 h.	20	Do.....	1	270	.157 h.	15.7
Do.....	3	60	1.75 d.	17.5	Do.....	1	291	.093 h.	9.3
Do.....	6	60	.175 h.	17.5	Do.....	2	84	2.00 d.	16.7
Do.....	1	60	(¹) d.	17.1	Hostlers' helpers.....	1	60	.18 h.	18
Do.....	2	60	.17 h.	17	Oilers.....	1	60	(¹) d.	19.5
Do.....	1	60	1.65 d.	16.5	Pump men.....	1	60		
Do.....	1	60	.162 h.	16.2	Pump men's helpers.....	1	60	1.75 d.	17.5
Conductors.....	1	60	83.33 m.	33.1	Switchmen.....	1	60	.25 h.	25
Do.....	2	60	.30 h.	30	Do.....	1	60	(¹) d.	24
Do.....	1	60	.45 h.	45	Do.....	3	60	.20 h.	20
Do.....	1	60	4.25 d.	42.5	Do.....	1	60	1.90 d.	19
Do.....	1	60	3.60 d.	36	Do.....	1	60	1.50 d.	15
Do.....	1	60	80.00 m.	30.8	<i>Road construction and maintenance.</i>				
Do.....	1	60	3.00 d.	30	Strippers.....	1	60	2.00 d.	20
Do.....	5	60	.30 h.	30	Swampers.....	1	60	.192 h.	19.2
Do.....	1	60	.299 h.	29.9	Do.....	1	60	.186 h.	18.6
Do.....	1	60	76.50 m.	29.4	Do.....	19	60	1.75 d.	17.5
Do.....	4	60	75.00 m.	28.8	Do.....	10	60	.175 h.	17.5
Do.....	1	60	.277 h.	27.7	Do.....	5	60	1.60 d.	16
Do.....	1	60	2.75 d.	27.5	Do.....	1	60	(¹) h.	16
Do.....	1	60	70.00 m.	26.9	Do.....	1	60	(¹) h.	15.9
Do.....	1	60	67.50 m.	26	Do.....	1	60	(¹) h.	15.7
Do.....	1	60	.26 h.	26	Do.....	6	60	.15 h.	15
Do.....	1	60	.225 h.	22.5	Do.....	1	60	.136 h.	13.6
Firemen.....	1	60	.30 h.	30	Do.....	17	60	.135 h.	13.5
Do.....	1	60	.25 h.	25	Water boys.....	2	60	1.00 d.	10

CALIFORNIA.

General.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	General—Continued.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
Barn bosses.....	4	60	\$75.00 m.	28.8	Blacksmith's helpers.....	1	60	\$0.204 h.	20.4
Barn men.....	1	270	2.25 d.	22.5	Do.....	2	60	.19 h.	19
Do.....	1	270	\$55.00 m.	20.4	Do.....	7	270	\$40.00 m.	13.2
Blacksmiths.....	6	60	.40 h.	40	Bull cooks.....	1	270	2.75 d.	27.5
Do.....	1	60	3.70 d.	37	Camp men.....	1	60	2.75 d.	27.5
Do.....	3	60	3.50 d.	35	Do.....	1	270	2.50 d.	25
Do.....	1	60	.338 h.	33.8	Carpenters.....	1	60	85.00 m.	32.7
Do.....	5	60	3.25 d.	32.5	Do.....	1	60	3.25 d.	32.5
Do.....	1	60	80.00 m.	30.8	Do.....	1	60	\$3.00 d.	30
Do.....	1	60	3.00 d.	30	Do.....	1	60	.80 h.	30
Do.....	1	60	\$70.00 m.	26.9	Do.....	2	60	2.75 d.	27.5
Blacksmith's helpers.....	1	60	2.75 d.	27.5	Do.....	2	60	2.75 d.	27.5
Do.....	3	60	.275 h.	27.5	Do.....	1	60	(¹) h.	26.6
Do.....	1	60	2.40 d.	24	Do.....	1	60	\$65.00 m.	25
Do.....	4	60	2.25 d.	22.5	Do.....	1	60	.22 h.	22
Do.....	1	60	55.00 m.	21.2	Do.....	1	60	\$40.00 m.	15.4

¹ More than one rate.

² Seven days.

³ And beard.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

CALIFORNIA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	
<i>General—Contd.</i>					<i>General—Concl.</i>					
				<i>Cents.</i>					<i>Cents.</i>	
Carpenter's helpers	1	60	\$50.00	m.	19.2	Machinists	1	60	\$0.40	h.
Chore men	3	70	\$30.00	m.	9.9	Do.	1	60	3.75	d.
Cooks	2	70	\$100.00	m.	33	Do.	2	60	.35	h.
Do.	2	70	\$90.00	m.	29.7	Do.	1	60	3.00	d.
Do.	3	70	\$75.00	m.	24.7	Managers, camp	1	82½	\$85.60	m.
Do.	4	70	\$70.00	m.	23.1	Powder men	1	60	3.00	d.
Do.	1	70	\$2.00	d.	20	Repair men	1	60	3.00	d.
Do.	3	70	\$60.00	m.	19.8	Scalers	1	60	.30	h.
Do.	1	70	(*)	m.	17	Do.	1	60	65.00	m.
Do.	9	70	\$50.00	m.	16.5	Do.	2	60	.25	h.
Do.	1	70	(*)	m.	14	Scalers and time-keepers	1	60	.281	h.
Do.	1	70	\$40.00	m.	13.2	Stewards	1	60	\$150.00	m.
Do.	1	70	(*)	m.	13	Do.	1	70	\$60.00	m.
Do.	7	84	\$45.00	m.	12.4	Timekeepers	1	60	85.00	m.
Do.	7	84	\$40.00	m.	11	Do.	2	60	80.00	m.
Cooks, head	1	70	\$100.00	m.	33	Do.	1	60	77.00	m.
Do.	1	70	\$95.00	m.	31.3	Do.	3	60	75.00	m.
Do.	1	82½	\$105.00	m.	29.5	Do.	2	60	73.60	m.
Do.	1	82½	\$85.00	m.	23.9	Do.	1	60	70.00	m.
Do.	1	82½	\$80.00	m.	22.4	Do.	1	60	65.00	m.
Do.	1	82½	\$65.00	m.	18.2	Waiters	1	70	\$50.00	m.
Do.	11	84	\$55.00	m.	15.1	Do.	6	70	45.00	m.
Cooks, first	3	70	\$100.00	m.	33	Do.	10	70	\$35.00	m.
Do.	1	70	\$90.00	m.	29.7	Do.	1	70	\$35.00	m.
Cooks, second	3	70	\$60.00	m.	19.8	Do.	1	84	\$40.00	m.
Do.	1	82½	\$70.00	m.	19.6	Do.	22	70	\$20.00	m.
Do.	1	82½	\$65.00	m.	18.2	Do.	1	84	\$20.00	m.
Do.	4	70	\$50.00	m.	16.5	Waitresses	1	70	\$35.00	m.
Do.	2	82½	\$50.00	m.	14	Do.	6	70	\$1.00	d.
Cooks, third	1	82½	\$55.00	m.	15.4	Watchmen	1	60	.30	h.
Cook's helpers	2	70	\$30.00	m.	9.9	Do.	1	60	2.50	d.
Dishwashers	2	70	\$45.00	m.	14.8	Do.	3	70	2.25	d.
Do.	2	70	\$40.00	m.	13.2	Do.	2	84	2.50	d.
Do.	4	70	\$30.00	m.	9.9	Do.	1	84	70.00	m.
Filets	2	60	4.00	d.	40	Water boys	1	70	\$40.00	m.
Do.	1	60	.40	h.	40	Wood bucks	2	70	\$2.50	d.
Do.	1	60	.37½	h.	37.5	Do.	1	84	\$45.00	m.
Do.	8	60	3.50	d.	35	Do.	2	70	\$30.00	m.
Do.	1	60	.35	h.	35	Do.	2	84	\$35.00	m.
Do.	3	60	3.25	d.	32.5	Do.	5	84	\$30.00	m.
Do.	1	60	\$80.00	m.	30.8	Woodcutters	1	60	60.00	m.
Do.	1	70	3.00	d.	30	Do.	2	60	50.00	m.
Do.	1	60	2.00	d.	30					
Do.	1	60	.281	h.	28.1	<i>Cutting, etc.</i>				
Do.	1	60	.28	h.	28	Air-saw men	1	60	3.50	d.
Do.	1	60	.27	h.	27	Do.	3	60	3.00	d.
Do.	2	60	70.00	m.	26.9	Buckers	26	60	.18	h.
Do.	1	60	.25	h.	25	Do.	1	60	3.15	d.
Do.	1	60	.22	h.	22	Do.	1	60	2.80	d.
Foremen	1	60	\$150.00	m.	57.7	Do.	1	60	(4)	d.
Do.	5	60	150.00	m.	57.7	Do.	52	60	2.75	d.
Do.	4	60	135.00	m.	51.9	Do.	21	60	2.70	d.
Do.	2	60	125.00	m.	48.1	Do.	58	60	.27	h.
Do.	1	60	4.00	d.	40	Do.	2	60	2.50	d.
Do.	18	60	102.00	m.	39.2	Do.	6	60	.242	h.
Do.	1	60	100.00	m.	38.5	Do.	1	60	2.20	d.
Do.	1	60	87.00	m.	33.5	Do.	2	60	.22	h.
Do.	1	60	82.00	m.	31.5	Do.	42	60	.20	h.
Foremen, camp	1	60	200.00	m.	76.9	Do.	2	60	.18	h.
Do.	2	60	158.00	m.	61	Chopper bosses	1	60	3.25	d.
Foremen, woods	1	60	185.00	m.	71.2	Do.	1	60	\$65.00	m.
Do.	2	60	.20	h.	20	Choppers	1	60	4.00	d.
Handymen	1	60	.18	h.	18	Do.	4	60	3.50	d.
Helpers	1	60	55.00	m.	21.2	Do.	1	60	(4)	d.
Do.	1	70	\$55.00	m.	18.1	Do.	1	60	3.00	d.
Helpers, cookhouse	3	82½	\$40.00	m.	13.2	Do.	1	60	(4)	d.
Do.	4	82½	\$35.00	m.	9.8	Do.	1	60	(4)	d.
Do.	4	82½	\$25.00	m.	7	Do.	84	60	3.00	d.
Do.	4	82½	\$25.00	m.	7	Do.	2	60	(4)	d.
Laborers, clean-up	2	60	2.50	d.	25	Do.	1	60	(4)	d.
Log markers	1	60	90.00	m.	34.6					
Machinists	1	60	4.00	d.	40					

¹ Seven days.

² And board.

³ More than 1 rate, and board.

⁴ More than one rate.

⁵ Including bonus.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

CALIFORNIA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Cutting, etc.—Cld.</i>					<i>Railroad construction and maintenance—Concluded.</i>				
Choppers.....	5	60	\$0.281 h.	28.1	Firemen, pile driver.	2	60	\$2.00 d.	20
Do.....	77	60	2.75 d.	27.5	Foremen.....	1	60	4.00 d.	40
Do.....	1	60	(¹) d.	27.2	Do.....	3	60	3.25 d.	32.5
Do.....	5	60	.262 h.	26.2	Do.....	1	60	75.00 m.	28.8
Do.....	24	60	.23 h.	23	Foremen, graders....	1	60	85.00 m.	32.7
Do.....	25	60	.22 h.	22	Foremen, pile drivers.....	2	60	5.00 d.	50
Do.....	17	60	² 50.00 m.	² 19.2	Foremen, section....	1	60	.40 h.	40
Do.....	1	60	(³) d.	² 17.7	Do.....	2	60	.35 h.	35
Choppers, head.....	1	60	3.25 d.	32.5	Do.....	1	60	3.00 d.	30
Do.....	1	60	3.20 d.	32	Foremen, steel gang.....	1	60	4.00 d.	40
Do.....	16	60	3.00 d.	30	Foremen, track.....	2	60	80.00 m.	30.8
Choppers, second.....	1	60	(¹) d.	28.1	Do.....	1	60	75.00 m.	28.8
Do.....	18	60	2.75 d.	27.5	Foremen, assistant, pile driver.....	1	60	3.50 d.	35
Cutters.....	11	60	2.70 d.	27	Graders.....	20	60	1.75 d.	17.5
Fallers.....	5	60	85.00 m.	32.7	Laborers.....	1	60	2.75 d.	27.5
Do.....	5	60	80.00 m.	30.8	Do.....	5	60	2.50 d.	25
Do.....	31	60	3.00 d.	30	Do.....	1	60	(¹) d.	24.2
Do.....	34	60	.30 h.	30	Do.....	28	60	2.25 d.	22.5
Do.....	1	60	(¹) d.	28.6	Do.....	44	60	2.00 d.	20
Fallers, head.....	13	60	65.00 m.	25	Linemen.....	1	60	3.50 d.	35
Fallers, second.....	13	60	60.00 m.	23.1	Packers.....	1	60	70.00 m.	26.9
Falling bosses.....	1	60	85.00 m.	32.7	Pile drivers.....	9	60	3.25 d.	32.5
Foremen, choppers.....	1	60	118.60 m.	45.6	Railroad bosses.....	1	60	² 65.00 m.	² 25.5
Do.....	1	60	110.00 m.	42.3	Rodmen.....	1	60	62.40 m.	24
Limbers.....	31	60	.26 h.	26	Do.....	1	60	61.80 m.	23.8
Do.....	15	60	2.50 d.	25	Section bosses.....	2	60	3.50 d.	35
Markers.....	2	60	.24 h.	24	Do.....	1	60	80.00 m.	30.8
Notchers.....	2	60	² 50.00 m.	² 19.2	Do.....	1	60	3.00 d.	30
Peelers.....	1	60	(¹) d.	28.3	Do.....	1	60	70.00 m.	26.9
Do.....	1	60	2.50 d.	⁴ 27.6	Section men.....	4	60	2.75 d.	27.5
Do.....	7	60	2.75 d.	27.5	Do.....	56	60	.25 h.	25
Do.....	1	60	(¹) d.	26.8	Do.....	3	60	60.00 m.	23.1
Do.....	1	60	2.50 d.	⁴ 25.6	Do.....	2	60	2.25 d.	22.5
Do.....	1	60	2.50 d.	⁴ 25.4	Do.....	8	60	2.00 d.	20
Do.....	79	60	2.50 d.	25	Do.....	2	60	50.00 m.	19.2
Do.....	1	60	.242 h.	24.2	Do.....	48	60	1.85 d.	18.5
Do.....	1	60	(¹) d.	23.4	Do.....	20	60	1.75 d.	17.5
Do.....	45	60	2.25 d.	22.5	Do.....	27	60	45.00 m.	17.3
Do.....	5	60	.223 h.	22.3	Do.....	12	60	.16 h.	16
Do.....	1	60	2.00 d.	20	Do.....	1	60	² 40.00 m.	² 15.4
Do.....	14	60	50.00 m.	19.2	Do.....	1	60	(³) m.	² 14.2
Do.....	10	60	² 40.00 m.	² 15.4	Do.....	9	60	² 35.00 m.	² 13.5
Ringers.....	9	60	2.25 d.	22.5	Trackwalkers.....	2	60	.275 h.	27.5
Sawyers.....	2	60	3.00 d.	30	Do.....	1	72	2.50 d.	20.8
Do.....	88	60	2.70 d.	27	Do.....	2	60	2.00 d.	20
Do.....	2	60	60.00 m.	23.1	Do.....	1	60	.20 h.	20
Do.....	10	60	55.00 m.	21.2	Not reported.....	5	60	(⁶) m.	(⁶)
Do.....	10	60	² 40.00 m.	² 15.4	<i>Railroad operation.</i>				
Sawyers, head.....	4	60	3.00 d.	30	Brakemen.....	5	60	3.00 d.	30
Scalers.....	1	60	80.00 m.	30.8	Do.....	3	60	.30 h.	30
Do.....	1	60	3.00 d.	30	Do.....	1	60	2.75 d.	27.5
Do.....	1	60	73.60 m.	28.3	Do.....	3	72	3.08 d.	25.7
Timber heavers.....	1	60	.262 h.	26.2	Do.....	5	72	3.00 d.	25
<i>Railroad construction and maintenance.</i>					Do.....	10	60	2.50 d.	25
Axmen.....	4	60	² 40.00 m.	² 15.4	Do.....	1	60	(¹) d.	25
Blacksmiths.....	1	60	2.75 d.	27.5	Do.....	2	66	70.00 m.	24.5
Carpenters.....	1	60	3.00 d.	30	Do.....	3	60	55.00 m.	21.2
Carpenters, bridge.....	2	60	3.00 d.	30	Conductors.....	3	60	4.00 d.	40
Do.....	1	60	2.25 d.	22.5	Do.....	1	60	102.00 m.	35.7
Chaimmen.....	2	60	² 40.00 m.	² 15.4	Do.....	3	60	.35 h.	35
Construction bosses.....	1	60	² 75.00 m.	² 28.8	Do.....	1	60	(¹) d.	34.6
Engineers, donkey.....	1	60	² 45.00 m.	² 17.3	Do.....	1	72	4.15 d.	34.5
Engineers, pile driver.....	2	60	3.50 d.	35	Do.....	2	60	3.25 d.	32.5
Do.....	1	60	(¹) d.	27.7	Do.....	1	60	(¹) d.	32.1
					Do.....	5	72	3.75 d.	31.3
					Do.....	1	60	2.75 d.	27.5

¹ More than one rate.² And board.³ More than one rate, and board.⁴ Including bonus.⁵ \$45 to \$65.⁶ \$0.173 to \$0.25.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

CALIFORNIA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Railroad operation—</i> <i>Concluded.</i>					<i>Road construction and maintenance—</i> <i>Concluded.</i>				
Dispatchers, telephone Engineers.....	1	72	\$4.00 d.	<i>Cents.</i> 33.3	Swampers.....	15	60	\$2.25 d.	<i>Cents.</i> 22.5
Do.....	2	60	4.50 d.	45	Do.....	1	60	.223 h.	22.3
Do.....	3	60	.45 h.	45	Do.....	2	60	2.10 d.	32.2
Do.....	1	72	5.00 d.	41.7	Do.....	2	60	2.10 d.	32.1
Do.....	2	60	4.00 d.	40	Do.....	4	60	2.10 d.	32.2
Do.....	2	60	100.00 m.	33.5	Do.....	1	60	.22 h.	22
Do.....	1	60	3.75 d.	37.5	Do.....	1	60	2.10 d.	31.8
Do.....	5	72	4.25 d.	35.4	Do.....	1	60	(1) d.	21.8
Do.....	3	60	3.50 d.	35	Do.....	1	60	2.10 d.	31.7
Do.....	1	66	100.00 m.	35	Do.....	4	60	55.00 m.	21.2
Do.....	1	60	85.00 m.	32.7	Do.....	1	60	2.10 d.	31.2
Do.....	1	60	60.00 m.	23.1	Do.....	55	60	2.10 d.	21.2
Do.....	1	60	2.25 d.	22.5	Do.....	12	60	.204 h.	20.4
Engineers, crane.	1	63	3.50 d.	35	Do.....	1	60	(1) m.	20
Firemen.....	2	60	.30 h.	30	Do.....	2	60	2.00 d.	20
Do.....	1	60	(1) h.	29.1	Do.....	1	60	.20 h.	20
Do.....	1	60	2.75 d.	27.5	Do.....	3	60	50.00 m.	19.2
Do.....	2	63	2.70 d.	27	Do.....	4	60	1.85 d.	18.5
Do.....	1	60	(1) h.	26.8	Do.....	6	60	.18 h.	18
Do.....	1	72	3.08 d.	25.7	Do.....	7	60	45.00 m.	17.3
Do.....	1	60	65.00 m.	25	Do.....	23	60	.16 h.	16
Do.....	7	72	3.00 d.	25	Do.....	8	60	35.00 m.	13.5
Do.....	3	63	2.50 d.	25	Do.....	1	60	1.25 d.	12.5
Do.....	2	63	(1) d.	24.9	Do.....	2	60	30.00 m.	11.5
Do.....	1	66	70.00 m.	24.5	Swampers, head.....	3	60	4.25 d.	42.5
Do.....	1	60	60.00 m.	23.1	Do.....	1	60	.30 h.	30
Do.....	1	63	2.25 d.	22.5	Do.....	5	60	4.00 d.	40
Do.....	1	60	55.00 m.	21.2	Do.....	2	60	90.00 m.	34.6
Do.....	1	60	2.00 d.	20	Do.....	1	60	3.25 d.	32.5
Foremen.....	1	60	150.00 m.	57.7	Do.....	2	60	.25 h.	25
Hostlers.....	1	60	100.00 m.	35.5	Do.....	1	60	.23 h.	23
Do.....	2	84	3.00 d.	25	Do.....	1	60	.22 h.	22
Laborers.....	1	72	2.50 d.	20.8	Swampers, second.....	2	60	3.75 h.	37.5
Oilers.....	1	60	50.00 m.	19.2	Do.....	2	60	3.50 d.	35
Watchmen.....	2	60	75.00 m.	28.8	Do.....	1	60	3.25 d.	32.5
Wipers.....	1	60	60.00 m.	23.1	Do.....	1	60	3.25 d.	32.5
Do.....	1	60	50.00 m.	19.2	Do.....	3	60	3.25 d.	32.5
<i>Road construction and maintenance.</i>					<i>Yarding, hauling, and loading.</i>				
Axmen, chute building.....	1	60	3.00 d.	30	Boat tenders.....	1	60	.25 h.	25
Do.....	7	60	2.75 d.	27.5	Do.....	1	60	.23 h.	23
Do.....	3	60	2.50 d.	25	Do.....	2	60	.22 h.	22
Chute builders.....	2	60	3.25 d.	32.5	Block greasers.....	1	60	2.25 d.	22.5
Do.....	2	63	3.00 d.	30	Brush cutters.....	2	60	45.00 m.	17.3
Do.....	3	60	2.75 d.	27.5	Burners.....	1	60	35.00 m.	13.5
Do.....	1	60	2.50 d.	25	Car loaders.....	3	60	.262 h.	26.2
Engineers, donkey.....	1	63	3.25 d.	31.1	Do.....	2	60	.18 h.	18
Do.....	1	60	(1) d.	33.4	Chain tenders.....	1	60	3.50 d.	35
Do.....	2	60	3.25 d.	32.5	Do.....	1	60	(1) d.	35
Do.....	1	63	2.75 d.	27.5	Do.....	1	60	(1) d.	34.3
Greasers.....	4	63	2.50 d.	25	Do.....	4	60	3.25 d.	32.5
Roadmen.....	1	63	2.00 d.	20	Do.....	1	60	.32½ h.	32.5
Swamper bosses.....	1	60	.30 h.	30	Do.....	1	60	(1) d.	29.4
Do.....	1	63	65.00 m.	25	Do.....	1	60	2.75 d.	27.5
Swampers.....	4	60	3.00 d.	30	Do.....	1	60	2.75 d.	27.5
Do.....	1	60	(1) d.	27.5	Do.....	1	60	2.50 d.	25
Do.....	3	60	2.75 d.	27.5	Chain tenders, head.....	1	60	4.00 d.	40
Do.....	1	60	(1) d.	27.2	Do.....	3	60	4.25 d.	42.5
Do.....	1	60	(1) d.	26.5	Do.....	1	60	(1) d.	40.9
Do.....	1	60	.262 h.	26.2	Do.....	13	60	4.00 d.	40
Do.....	9	60	2.50 d.	25	Chain tenders, second.....	1	60	3.50 d.	35
Do.....	69	60	.25 h.	25	Do.....	1	60	3.50 d.	35
Do.....	1	60	2.45 d.	24.5	Do.....	17	60	3.50 d.	35
Do.....	1	60	(1) d.	24.5	Do.....	1	60	(1) d.	34.2
Do.....	1	60	(1) d.	23.2	Chasers.....	1	60	(1) d.	33.7
Do.....	1	60	60.00 m.	23.1	Do.....	2	60	3.50 d.	35
Do.....	1	60	(1) d.	23.1	Do.....	6	60	3.50 d.	35
Do.....	1	60	.23 h.	23	Do.....	17	60	3.00 d.	30

1 More than one rate.

2 Seven days.

3 Including bonus.

4 And board.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

CALIFORNIA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Yarding, hauling, and loading—Ctd.</i>					<i>Yarding, hauling, and loading—Ctd.</i>				
<i>Cents.</i>					<i>Cents.</i>				
Chasers	5	60	\$2.75 d.	27.5	Engineers	1	60	\$0.242 h.	24.2
Do	1	60	70.00 m.	26.9	Do	1	60	¹ 60.00 m.	23.1
Do	3	60	60.00 m.	23.1	Do	1	60	60.00 m.	23.1
Do	1	60	.22 h.	22	Do	1	60	¹ 55.00 m.	21.2
Do	4	60	55.00 m.	21.2	Do	1	60	55.00 m.	21.2
Do	2	60	¹ 50.00 m.	¹ 19.2	Do	1	60	¹ 50.00 m.	¹ 19.2
Chasers, head	1	60	4.25 d.	42.5	Engineers, crane	2	60	.425 h.	42.5
Choker men	1	60	.26 h.	26	Engineers, donkey	1	60	4.00 d.	40
Do	3	60	.25 h.	25	Do	6	60	3.75 d.	37.5
Do	4	60	.23 h.	23	Do	1	60	(?) d.	37.1
Do	5	60	.22 h.	22	Do	1	60	3.25 d.	² 36.1
Do	5	60	.20 h.	20	Do	5	60	3.50 d.	35
Do	1	60	.18 h.	18	Do	1	60	(?) d.	35
Do	1	60	.16 h.	16	Do	4	60	3.25 d.	32.5
Chokers	2	60	¹ 55.00 m.	¹ 21.2	Do	1	60	\$0.00 m.	30.8
Do	3	60	¹ 50.00 m.	¹ 19.2	Do	1	60	(?) d.	30.7
Do	2	60	¹ 45.00 m.	¹ 17.3	Do	3	60	3.00 d.	30
Chokers, head	1	60	70.00 m.	26.9	Do	1	60	(?) d.	28.3
Chokers, second	1	60	65.00 m.	25	Do	6	60	2.75 d.	27.5
Chunk sawyers	1	60	2.75 d.	27.5	Do	1	60	(?) d.	27
Do	2	60	2.70 d.	27	Do	1	63	.26 h.	26
Do	6	60	2.50 d.	25	Do	3	60	2.50 d.	25
Do	1	60	(?) d.	21.6	Do	9	63	.20 h.	20
Chute peelers	1	60	2.75 d.	27.5	Engineers, loader	3	60	.425 h.	42.5
Do	1	60	(?) d.	23.8	Do	5	60	3.50 d.	35
Do	5	60	2.25 d.	22.5	Do	1	60	.35 h.	35
Chute tenders	1	60	3.50 d.	35	Do	2	60	2.75 d.	27.5
Do	1	60	3.00 d.	30	Engineers, skidder	1	60	125.00 m.	48.1
Do	3	60	2.75 d.	27.5	Do	1	60	2.75 d.	27.5
Do	7	60	2.50 d.	25	Do	1	63	.25 h.	25
Couplers	1	60	2.75 d.	³ 32.5	Do	4	63	.23 h.	23
Do	1	60	2.75 d.	³ 29.4	Do	2	63	.22 h.	22
Do	1	60	(?) d.	27.7	Engineers, spool, donkey	1	60	2.75 d.	27.5
Do	12	60	2.75 d.	27.5	Engineers, yard	1	60	(?) d.	36.4
Do	1	60	(?) d.	27.5	Do	1	60	3.50 d.	³ 35.9
Do	1	60	2.50 d.	³ 26.8	Do	1	60	3.50 d.	35
Do	1	60	(?) d.	26.7	Engineers, yarder	1	63	.26 h.	26
Do	1	60	2.50 d.	³ 26.6	Do	11	63	.25 h.	25
Do	2	60	2.60 d.	26	Do	4	63	.23 h.	23
Do	1	60	65.00 m.	25	Engineers, head	1	60	\$5.00 m.	32.7
Do	1	60	2.50 d.	25	Firemen	1	63	(?) d.	32.5
Couple-up men	9	60	.22 h.	22	Do	5	63	2.75 d.	26.2
Do	6	60	.20 h.	20	Do	7	60	2.50 d.	25
Do	2	60	.18 h.	18	Do	1	60	(?) d.	25
Cranemen	1	60	.40 h.	40	Do	1	60	2.25 d.	³ 24.7
Do	2	60	.35 h.	35	Do	1	60	2.25 d.	³ 23.8
Do	5	60	.30 h.	30	Do	13	63	2.50 d.	23.3
Do	1	60	.27½ h.	27.5	Do	1	60	(?) d.	23.6
Do	1	60	.25 h.	25	Do	1	60	(?) d.	23.4
Donkey bosses	1	60	110.00 m.	42.3	Do	1	60	2.25 d.	³ 23.1
Do	1	60	¹ 95.00 m.	¹ 36.5	Do	11	60	2.25 d.	22.5
Donkey tenders	1	60	4.50 d.	45	Do	1	63	2.25 d.	21.4
Do	1	60	4.00 d.	³ 42	Do	1	60	55.00 m.	21.2
Do	1	60	4.00 d.	40	Do	1	60	2.10 d.	21
Do	1	60	2.00 d.	20	Do	5	60	2.00 d.	20
Drivers, line-horse	5	60	2.75 d.	27.5	Do	1	60	¹ 50.00 m.	19.2
Engineers	1	60	100.00 m.	38.5	Do	1	60	50.00 m.	19.2
Do	1	60	3.50 d.	³ 35.9	Do	1	63	.18 h.	18
Do	1	60	3.50 d.	35	Do	2	60	¹ 40.00 m.	15.4
Do	1	60	90.00 m.	34.6	Firemen, donkey	1	60	2.00 d.	³ 21.2
Do	1	60	3.25 d.	³ 34.3	Firemen, loader	3	60	.275 h.	27.5
Do	2	60	5.25 d.	32.5	Do	1	60	2.25 d.	22.5
Do	1	60	¹ 80.00 m.	¹ 30.8	Firemen, skidder	1	60	.30 h.	30
Do	2	60	3.00 d.	30	Firemen, yard	1	60	2.25 d.	³ 23.3
Do	1	60	.281 h.	28.1	Do	1	60	2.25 d.	³ 23.1
Do	1	60	2.75 d.	³ 28	Do	2	60	2.25 d.	22.5
Do	5	60	2.75 d.	27.5	Do	1	60	(?) d.	20.8
Do	5	60	70.00 m.	26.9	Flagmen	8	60	2.75 d.	27.5
Do	4	60	.262 h.	26.2	Foremen	1	60	155.00 m.	59.6
Do	1	60	¹ 65.00 m.	¹ 25	Do	1	60	130.00 m.	57.7
Do	2	60	2.50 d.	25					

¹ And board.² More than one rate.³ Including bonus.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

CALIFORNIA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Yarding, hauling, and loading—Ctd.</i>				<i>Cents.</i>	<i>Yarding, hauling, and loading—Ctd.</i>				<i>Cents.</i>
Foremen.....	1	60	\$135.00	m. 51.9	Pack boys.....	1	60	\$2.25	d. 22.5
Do.....	1	60	4.00	d. 40	Pipemen.....	10	60	2.50	d. 25
Do.....	1	60	.377	h. 37.7	Do.....	1	60	2.25	d. 22.5
Do.....	1	60	.338	h. 33.8	Pipemen's helpers.....	1	60	2.10	d. 21
Foremen, donkey.....	1	60	.415	h. 41.5	Poles.....	6	60	2.50	d. 25
Do.....	1	60	.358	h. 35.8	Powder men.....	1	60	3.00	d. 30
Gophers.....	9	60	.25	h. 25	Do.....	2	60	2.50	d. 25
Hookers.....	8	60	.30	h. 30	Do.....	1	60	2.10	d. 21
Do.....	2	60	70.00	m. 26.9	Pump men.....	6	60	2.75	d. 27.5
Hook tenders.....	2	60	5.00	d. 50	Do.....	4	60	2.50	d. 25
Do.....	1	60	4.50	d. 149.9	Do.....	4	60	2.25	d. 22.5
Do.....	2	60	4.50	d. 146.3	Do.....	1	60	2.00	d. 20
Do.....	11	60	4.50	d. 45	Do.....	2	60	.20	h. 20
Do.....	1	60	4.25	d. 42.5	Do.....	1	60	.18	h. 18
Do.....	18	60	4.00	d. 40	Do.....	1	60	\$30.00	\$11.5
Do.....	1	60	(²)	d. 39.2	Riggers.....	11	60	.30	h. 30
Do.....	1	60	3.50	d. 35	Do.....	1	60	.281	h. 28.1
Do.....	2	60	3.00	d. 30	Do.....	2	60	.262	h. 26.2
Do.....	1	60	(²)	d. 27.8	Do.....	12	60	.242	h. 24.2
Do.....	4	60	2.75	d. 27.5	Do.....	1	60	66.00	m. 23.1
Do.....	13	60	.275	h. 27.5	Do.....	1	60	.223	h. 22.3
Do.....	3	60	2.70	d. 27.0	Do.....	1	63	55.00	m. 21.2
Do.....	1	60	\$70.00	m. \$26.9	Do.....	1	60	(²)	m. 20.3
Do.....	1	60	(²)	d. 26.6	Riggers, head.....	3	60	70.00	m. 25.9
Do.....	2	60	.25	h. 25	Rigging men.....	7	60	3.00	d. 30
Do.....	5	60	.23	h. 23	Do.....	26	60	2.75	d. 27.5
Do.....	1	60	.22	h. 22	Do.....	3	60	2.50	d. 25
Do.....	1	60	.20	h. 20	Rigging pullers.....	1	60	3.25	d. 32.5
Hostlers.....	1	60	2.25	d. 22.5	Do.....	1	60	2.75	d. 27.5
Jackscrew men.....	3	60	65.00	m. 25	Do.....	1	60	2.75	d. 27.5
Do.....	2	60	60.00	m. 23.1	Do.....	2	60	2.75	d. 27.5
Do.....	1	60	55.00	m. 21.2	Do.....	1	60	(²)	d. 30.9
Laborers.....	1	60	185	h. 18.5	Do.....	1	60	2.75	d. 27.5
Landing men.....	1	60	3.00	d. 30	Do.....	27	60	3.00	d. 30
Do.....	1	60	2.75	d. 129.3	Do.....	1	60	2.75	d. 27.5
Do.....	1	60	2.75	d. 128.3	Do.....	4	60	2.75	d. 27.5
Do.....	1	60	2.75	d. 27.5	Do.....	1	60	2.75	d. 27.5
Linemen.....	1	60	.40	h. 40	Do.....	1	60	(²)	d. 28.6
Do.....	1	60	3.00	d. 30	Do.....	1	60	2.75	d. 27.5
Line pullers.....	1	60	.22	h. 22	Do.....	3	60	2.75	d. 27.5
Do.....	5	60	55.00	m. 21.2	Do.....	1	60	(²)	d. 28
Do.....	4	60	.20	h. 20	Do.....	1	60	2.75	d. 27.5
Do.....	40	60	.18	h. 18	Do.....	1	60	2.75	d. 27.5
Do.....	2	60	.16	h. 16	Do.....	1	60	2.75	d. 27.5
Do.....	7	60	\$40.00	m. \$15.4	Do.....	1	60	(²)	d. 27.6
Loaders.....	1	60	3.50	d. 137.4	Do.....	59	60	2.75	d. 27.5
Do.....	8	60	3.50	d. 35	Do.....	1	60	(²)	d. 27.5
Do.....	1	60	3.25	d. 133.4	Do.....	1	60	(²)	d. 27
Do.....	4	60	3.25	d. 32.5	Do.....	8	60	2.50	d. 25
Do.....	1	60	(²)	d. 31.4	Do.....	2	60	.25	h. 25
Do.....	9	60	3.00	d. 30	Do.....	1	60	(²)	d. 23.4
Do.....	1	60	(²)	d. 29.4	Rigging pullers, lead.....	5	60	3.50	d. 35
Do.....	8	60	2.75	d. 27.5	Do.....	1	60	(²)	d. 35
Do.....	1	60	70.00	m. 26.9	Rigging slingers.....	5	60	3.00	d. 30
Do.....	1	60	(²)	d. 25.9	Do.....	10	60	2.75	d. 27.5
Do.....	2	60	60.00	m. 23.1	Do.....	1	60	(²)	d. 27
Do.....	1	60	2.25	d. 22.5	Signalmen.....	4	60	2.00	d. 20
Do.....	2	60	55.00	m. 21.2	Do.....	3	60	.20	h. 20
Do.....	1	60	2.00	d. 20	Do.....	15	60	.18	h. 18
Do.....	4	60	\$50.00	m. \$19.2	Do.....	5	60	.16	h. 16
Loaders, head.....	2	60	3.50	d. 35	Do.....	1	60	2.75	d. 27.5
Do.....	1	60	75.00	m. 28.8	Skid adzers.....	1	60	3.00	d. 30
Do.....	1	60	70.00	d. 26.9	Do.....	2	60	3.00	d. 30
Loaders, landing.....	6	60	.25	h. 25	Do.....	1	60	2.75	d. 27.5
Do.....	4	60	.23	h. 23	Do.....	1	60	2.50	d. 25
Do.....	1	60	.22	h. 22	Skid sawyers.....	1	60	2.50	d. 25
Do.....	2	60	.20	h. 20	Sled tenders.....	3	60	.23	h. 23
Do.....	4	60	.18	h. 18	Snipers.....	1	60	(²)	d. 40.5
Loaders, second.....	1	60	2.65	d. 26.5	Do.....	4	60	3.50	d. 35
Muckers.....	2	60	2.00	d. 20	Do.....	1	60	3.00	d. 30
Oilers.....	1	60	3.00	d. 30	Do.....	6	60	3.25	d. 32.5

¹ Including bonus.

² More than one rate.

³ And board.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

CALIFORNIA—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Yarding, hauling, and loading—Ctd.</i>					<i>Yarding, hauling, and loading—Ctd.</i>				
<i>Cents.</i>					<i>Cents.</i>				
Snipers.....	1	60	\$3.00 d.	¹ 31.7	Water slingers.....	1	60	\$4.00 d.	¹ 42.7
Do.....	1	60	3.00 d.	¹ 31.5	Do.....	1	60	4.25 d.	42.5
Do.....	1	60	3.00 d.	¹ 30.8	Do.....	11	60	4.00 d.	40
Do.....	13	60	3.00 d.	30	Do.....	1	60	(²) d.	39.1
Do.....	1	60	(²) d.	27.9	Do.....	2	60	3.75 d.	37.5
Do.....	9	60	2.75 d.	27.5	Do.....	1	60	(²) d.	30.7
Do.....	1	60	.25 h.	25	Do.....	1	60	2.75 d.	27.5
Do.....	2	60	.242 h.	24.2	Do.....	2	60	.223 h.	22.3
Do.....	13	60	.22 h.	22	Do.....	1	60	.22 h.	22
Do.....	5	60	³ 50.00 m.	³ 19.2	Do.....	2	60	.20 h.	20
Do.....	1	60	.18 h.	18	Do.....	1	60	.18 h.	18
Splicers.....	2	60	3.00 d.	30	Do.....	1	60	³ 35.00 m.	³ 13.5
Spool runners.....	1	60	3.25 d.	32.5	Wheel loaders.....	13	60	.27 ¹ h.	27.5
Spool tenders.....	2	60	3.75 d.	37.5	Whistle boys.....	1	60	.25 h.	25
Do.....	1	60	3.00 d.	¹ 34.3	Do.....	1	60	2.25 d.	22.5
Do.....	1	60	3.00 d.	¹ 32.1	Do.....	1	60	2.00 d.	¹ 22.2
Do.....	1	60	5.00 d.	¹ 31.6	Do.....	2	60	55.00 m.	21.2
Do.....	1	60	3.00 d.	¹ 31	Do.....	1	60	2.00 d.	¹ 20.6
Do.....	32	60	3.00 d.	30	Do.....	1	60	.204 h.	20.4
Do.....	1	60	(²) d.	29.7	Do.....	10	60	2.00 d.	20
Do.....	1	60	2.75 d.	¹ 29.3	Do.....	1	60	(²) d.	19.8
Do.....	1	60	2.75 d.	¹ 29.2	Do.....	1	60	1.90 d.	19
Do.....	1	60	2.75 d.	¹ 28.3	Do.....	2	60	.185 h.	18.5
Do.....	1	60	(²) d.	28.2	Do.....	2	60	45.00 m.	17.3
Do.....	9	60	2.75 d.	27.5	Do.....	1	60	³ 30.00 m.	³ 11.5
Do.....	2	60	.27 ¹ h.	27.5	Winch men.....	4	60	2.75 d.	27.5
Do.....	1	60	(²) d.	26.3	Do.....	3	60	2.50 d.	25
Do.....	1	60	(²) d.	25.2	Wood bucks.....	1	60	2.50 d.	¹ 27.7
Do.....	1	60	65.00 m.	25	Do.....	1	60	2.75 d.	27.5
Do.....	1	60	.25 h.	25	Do.....	2	60	2.70 d.	27
Do.....	5	60	.242 h.	24.2	Do.....	1	60	2.50 d.	¹ 26.5
Do.....	2	60	60.00 m.	23.1	Do.....	1	60	(²) d.	26.2
Do.....	1	60	.22 h.	22	Do.....	10	60	2.50 d.	25
Do.....	2	60	55.00 m.	21.2	Do.....	3	60	.25 h.	25
Do.....	19	60	.20 h.	20	Do.....	1	60	(²) d.	24.4
Do.....	1	60	³ 50.00 m.	³ 19.2	Do.....	1	60	.242 h.	24.2
Do.....	1	60	.18 h.	18	Do.....	1	60	60.00 m.	23.1
Do.....	3	60	³ 45.00 m.	³ 17.3	Do.....	17	60	2.25 d.	22.5
Do.....	1	60	³ 40.00 m.	³ 15.4	Do.....	1	60	.22 h.	22
Spool wrights.....	2	60	3.50 d.	35	Do.....	1	60	(²) d.	21.7
Do.....	2	60	3.00 d.	30	Do.....	9	60	55.00 m.	21.2
Teamsters.....	1	60	(²) h.	33.9	Do.....	3	60	2.00 d.	⁴ 20.6
Do.....	28	60	.30 h.	30	Do.....	4	60	.204 h.	20.4
Do.....	1	60	(²) h.	28.2	Do.....	12	60	2.00 d.	20
Do.....	5	60	2.75 d.	27.5	Do.....	13	60	.20 h.	20
Do.....	6	60	.27 ¹ h.	27.5	Do.....	1	60	1.85 d.	⁴ 19.4
Do.....	4	60	2.50 d.	25	Do.....	1	60	(²) d.	19.2
Do.....	1	60	2.25 d.	22.5	Do.....	4	60	1.90 d.	19
Toggle knockers.....	3	60	.25 h.	25	Do.....	2	60	(²) d.	19
Tommies.....	1	60	³ 50.00 m.	³ 19.2	Do.....	1	60	(²) d.	18.8
Do.....	1	60	³ 45.00 m.	³ 17.3	Do.....	15	60	1.85 d.	18.5
Top loaders.....	4	60	.35 h.	35	Do.....	2	60	.185 h.	18.5
Unloaders.....	1	60	100.00 m.	38.5	Do.....	9	60	.18 h.	18
Do.....	4	60	3.00 d.	30	Do.....	2	60	1.75 d.	17.5
Water bucks.....	1	60	2.50 d.	25	Do.....	9	60	.16 h.	16
Do.....	4	60	2.25 d.	22.5	Do.....	2	60	³ 40.00 m.	³ 15.4
Do.....	2	60	2.00 d.	20	Do.....	1	60	³ 35.00 m.	³ 13.5
Do.....	1	60	.18 h.	18	Yard bosses.....	1	60	135.00 m.	51.9
Do.....	2	60	1.75 d.	17.5	Do.....	1	60	140.00 m.	42.3
Do.....	1	60	³ 45.00 m.	³ 17.3	Yarder bosses.....	1	60	³ 95.00 m.	³ 36.5
Do.....	1	60	.16 h.	16	Zooglers.....	1	60	3.25 d.	32.5
Do.....	1	60	³ 35.00 m.	³ 13.5	Do.....	1	60	2.75 d.	⁴ 29.3
Water slingers.....	1	60	4.00 d.	¹ 43	Do.....	9	60	2.75 d.	27.5

¹ Including bonus.² More than 1 rate.³ And board.⁴ And bonus.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

FLORIDA.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>General.</i>					<i>Hauling, skidding, and loading.</i>				
Barn men.....	1	1 77	\$1.10	d. 2 10	Brakemen, loader..	1	66	\$30.90	d. 2 8.2
Do.....	1	1 77	1.00	d. 2 9	Deckers.....	2	66	2 1.10	d. 2 10
Blacksmiths.....	1	66	3.00	d. 27.3	Drivers.....	2	66	2 2.00	d. 2 18.2
Do.....	1	66	2.55	d. 23.2	Do.....	2	66	2 1.75	d. 2 15.9
Do.....	1	66	2.50	d. 22.7	Do.....	1	66	2 1.50	d. 2 13.6
Do.....	1	66	2.00	d. 18.2	Do.....	1	66	1.35	d. 12.3
Blacksmiths' helpers	3	66	2.15	d. 13.6	Do.....	46	66	2 1.25	d. 2 11.4
Do.....	1	66	1.25	d. 11.4	Do.....	1	66	2 1.20	d. 2 10.9
Do.....	1	66	1.10	d. 10	Do.....	1	66	2 1.15	d. 2 10.5
Carpenters.....	1	66	2.50	d. 22.7	Do.....	12	66	2 1.00	d. 2 9.1
Carpenters' helpers	1	66	1.75	d. 15.9	Do.....	1	66	(*)	d. 2 8.9
Do.....	1	66	1.50	d. 13.6	Drivers, ox.....	1	66	(*)	d. 2 13.8
Car repairers.....	2	66	2.00	d. 18.2	Do.....	13	66	2 1.00	d. 2 9.1
Chore boys.....	1	77	2.90	d. 8.2	Do.....	1	66	(*)	d. 2 8.3
Do.....	1	77	2.75	d. 6.8	Do.....	1	66	1.90	d. 2 8.2
Do.....	1	77	2.50	d. 4.5	Do.....	1	66	(*)	d. 2 7
Cooks.....	1	77	2.50	d. 22.7	Drummen.....	1	66	2 1.75	d. 2 15.9
Do.....	1	77	2.50	d. 13.6	Do.....	1	66	(*)	d. 2 15.8
Do.....	1	77	45.00	m. 21.5	Do.....	1	66	(*)	d. 2 14.6
Do.....	2	77	49.00	m. 12	Do.....	1	66	2 1.50	d. 2 13.6
Do.....	1	77	35.00	m. 10.5	Engineers and riggers.....	1	66	2 2.75	d. 2 25
Cooks, first.....	1	77	70.00	m. 21.4	Engineers, loader..	1	66	2 2.35	d. 2 21.4
Cooks, second.....	1	77	21.25	d. 9.1	Do.....	1	66	2 1.75	d. 2 15.9
Do.....	2	77	21.00	d. 9.1	Engineers, skidder	2	66	3 3.00	d. 2 27.3
Cooks' helpers.....	6	77	2.75	d. 6.8	Extra hands.....	1	66	(*)	d. 2 10.9
Feed mixers.....	1	77	2.90	d. 8.2	Firemen, loader..	1	66	(*)	d. 2 9.4
Filers.....	3	66	2.15	d. 13.6	Do.....	2	66	2 1.00	d. 2 9.1
Do.....	2	66	2.35	d. 12.3	Firemen, skidder..	2	66	2 1.75	d. 2 15.9
Foremen.....	1	66	110.00	m. 238.5	Do.....	2	66	2 1.50	d. 2 13.6
Foremen, camp....	1	66	150.00	m. 252.4	Do.....	1	66	2 1.25	d. 2 11.4
Do.....	1	66	65.00	m. 22.7	Foremen, drivers..	1	66	2 70.00	m. 2 24.5
Foremen, camp, assistant.....	1	66	60.00	m. 231.5	Foremen, loader..	1	66	2 90.00	m. 31.5
Helpers, cookhouse.	1	77	(3)	d. 210.6	Do.....	1	66	2 75.00	m. 26.2
Do.....	2	77	1.00	d. 9.1	Do.....	1	66	2 65	d. 24.1
Janitors.....	1	77	2.75	d. 6.8	Do.....	1	66	2 65.00	m. 22.7
Machinists.....	1	66	4.00	d. 36.4	Foremen, skidder..	1	66	2 100.00	m. 35
Do.....	1	66	1.85	d. 16.8	Foremen, teamsters.	1	66	(*)	d. 2 20.7
Do.....	1	66	1.65	d. 15	Hookers.....	1	66	2 1.75	d. 2 15.9
Ox feeders.....	2	77	2.75	d. 6.8	Hookers, head.....	1	66	2 2.75	d. 2 25
Oxmen.....	1	66	2 1.25	d. 11.4	Hookers, assistant.	1	66	2 1.50	d. 2 13.6
Pumpers.....	3	66	2 1.00	d. 9.1	Laborers.....	1	66	1.30	d. 2 11.8
Scalers.....	1	66	2 75.00	m. 26.2	Do.....	23	66	2 1.00	d. 2 9.1
Do.....	1	66	2 70.00	m. 24.5	Landing men.....	1	66	(*)	d. 2 8.5
Scalers' helpers	1	66	2 2.00	d. 18.2	Do.....	1	66	(*)	d. 2 8.1
Tallymen.....	2	66	2 2.00	d. 18.2	Do.....	1	66	(*)	d. 2 7.7
Watchmen.....	1	77	48.00	m. 14.4	Do.....	1	66	(*)	d. 2 7.6
Do.....	2	77	2 1.50	d. 13.6	Do.....	6	66	2 75	d. 2 6.8
Do.....	1	77	(*)	d. 11.9	Do.....	1	66	(*)	d. 2 6.8
Do.....	1	77	(*)	d. 9.2	Levermen.....	1	66	2 1.75	d. 2 15.9
Water boys.....	5	66	2.50	d. 4.5	Linemen.....	5	66	2 1.25	d. 2 11.4
Woodcutters.....	1	66	(*)	d. 9.1	Loaders.....	1	66	(*)	d. 17.2
Do.....	1	66	(*)	d. 8.9	Do.....	1	66	1.80	d. 16.4
Do.....	1	66	(*)	d. 8.8	Do.....	15	66	1.70	d. 15.5
Do.....	1	66	(*)	d. 7.9	Do.....	1	66	2 1.50	d. 2 13.6
Do.....	2	66	(*)	d. 6.9	Ox tenders.....	1	77	(*)	d. 2 7.8
Do.....	4	66	2.75	d. 6.8	Riders, mule.....	1	66	(*)	d. 2 8.7
Yardmen.....	1	60	2 1.15	d. 11.5	Do.....	1	66	(*)	d. 2 6.9
					Do.....	6	66	2 75	d. 2 6.8
					Do.....	1	66	(*)	d. 2 6.8
<i>Cutting, etc.</i>					Riggers.....	1	66	2 1.75	d. 2 15.9
Foreman.....	1	66	2 75.00	m. 26.2	Do.....	3	66	2 1.50	d. 2 13.6
Sawyers.....	1	66	2 2.50	d. 22.7	Riggers, head.....	1	66	2 2.75	d. 2 25
Do.....	1	66	2 2.00	d. 18.2	Teamsters.....	1	66	2 1.00	d. 2 9.1
Do.....	2	66	2 1.75	d. 15.9	Tongers.....	1	66	(*)	d. 2 11.7
Do.....	1	66	(*)	d. 11.5	Do.....	1	66	2 1.25	d. 2 11.4
Do.....	14	66	2 1.25	d. 11.4	Do.....	1	66	(*)	d. 2 10.9
Do.....	1	66	(*)	d. 10.7	Do.....	2	66	2 1.20	d. 2 11.3
Do.....	52	66	2 1.15	d. 10.5	Do.....	3	66	2 1.10	d. 2 10
Do.....	16	66	2 1.00	d. 9.1	Top loaders.....	1	66	2 2.40	d. 21.8
Do.....	1	66	(*)	d. 8.6	Do.....	2	66	2 1.75	d. 2 15.9
Do.....	1	66	(*)	d. 8.4	Do.....	2	66	2 1.60	d. 2 14.5

¹ Seven days.

² And board.

³ More than one rate, and board.

⁴ More than one rate.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

FLORIDA—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Raft building.</i>					<i>Railroad operation.</i>				
Room men.....	7	66	\$1.25 d.	11.4	Brakemen.....	1	66	\$1.85 d.	16.8
Do.....	4	66	1.00 d.	9.1	Do.....	1	66	(²) d.	16.3
Foremen.....	1	66	1.75 d.	15.9	Do.....	1	66	1.75 d.	15.9
<i>Railroad construction and maintenance.</i>					Do.....	1	60	1.20 d.	12
Bridgemen.....	1	66	11.25 d.	11.4	Do.....	4	60	1.15 d.	11.5
Do.....	2	66	11.00 d.	9.1	Do.....	3	66	.90 d.	8.2
Flagmen.....	1	66	11.00 d.	9.1	Conductors.....	1	60	2.10 d.	21
Foremen.....	1	66	100.00 m.	35	Do.....	1	60	(²) d.	20.6
Do.....	1	66	11.50 d.	13.6	Do.....	1	60	2.00 d.	20
Foremen, grading.....	1	66	11.80 d.	16.4	Engineers.....	1	66	3.75 d.	34.1
Foremen, ox teams.....	1	66	1.40 d.	12.7	Do.....	2	60	2.85 d.	28.5
Foremen, right-of-way.....	1	66	11.25 d.	11.4	Do.....	2	66	1.30 d.	12.3
Foremen, section.....	1	69	1.70 d.	17	Do.....	1	66	3.00 d.	27.3
Do.....	7	66	1.55 d.	14.1	Do.....	1	66	2.75 d.	125
Do.....	1	66	1.35 d.	12.3	Do.....	1	60	(²) d.	24.5
Laborers.....	1	66	52.50 m.	18.4	Do.....	1	66	1.25 d.	12.7
Do.....	1	66	(²) d.	16	Do.....	1	66	2.25 d.	21.4
Do.....	1	66	(²) d.	15.9	Do.....	1	66	2.20 d.	20
Do.....	1	66	1.65 d.	15	Do.....	1	66	1.75 d.	15.9
Do.....	1	66	(²) d.	15	Firemen.....	1	66	2.00 d.	18.2
Do.....	1	66	(²) d.	14.9	Do.....	1	66	1.50 d.	13.6
Do.....	1	66	(²) d.	14.6	Do.....	2	60	1.30 d.	13.0
Do.....	1	66	(²) d.	14.5	Do.....	1	60	1.20 d.	12
Do.....	1	66	1.60 d.	13.6	Do.....	2	66	1.25 d.	11.4
Do.....	2	66	1.50 d.	13.6	Do.....	1	66	1.00 d.	9.1
Do.....	1	66	(²) d.	13.4	Do.....	1	66	.90 d.	8.2
Do.....	1	66	(²) d.	13.1	Do.....	1	69	.85 d.	7.7
Do.....	1	66	(²) d.	13	Do.....	1	69	1.20 d.	12
Do.....	1	66	(²) d.	12.7	Flagmen.....	1	66	(²) d.	9.6
Do.....	1	66	(²) d.	12.4	Do.....	1	66	(²) d.	7.3
Do.....	4	66	1.35 d.	12.3	Do.....	1	66	(²) d.	7.2
Do.....	1	66	(²) d.	12.3	Greasers.....	1	66	1.75 d.	15.9
Do.....	1	66	(²) d.	12	Do.....	1	66	1.25 d.	11.4
Do.....	19	66	1.30 d.	11.8	Hostlers.....	1	477	1.35 d.	12.3
Do.....	1	66	(²) d.	11.7	Hostlers' helpers.....	1	477	.90 d.	8.2
Do.....	4	66	1.25 d.	11.4	Switchmen.....	1	60	.85 d.	8.5
Do.....	1	66	.90 d.	8.2	<i>Road construction and maintenance</i>				
Section hands.....	1	66	1.50 d.	13.6	Swampers.....	1	66	1.20 d.	11.4
Do.....	2	60	(²) d.	12	Do.....	2	66	1.25 d.	11.4
Do.....	1	66	1.25 d.	11.4	Do.....	4	66	1.00 d.	9.1
Do.....	5	60	1.10 d.	11	<i>GEORGIA.</i>				
Do.....	42	60	1.00 d.	10	<i>General.</i>				
Do.....	29	66	1.00 d.	9.1	Blacksmiths.....	1	60	\$100.00 m.	38.5
Do.....	1	66	(³) d.	8.3	Do.....	1	66	2.70 d.	21.5
Do.....	1	66	(³) d.	7.2	Do.....	3	66	2.50 d.	22.7
Do.....	1	66	(³) d.	7.1	Do.....	1	66	2.25 d.	20.5
Do.....	64	66	1.75 d.	6.8	Do.....	1	66	(²) d.	16.7
					<i>General—Contd.</i>				
					Blacksmiths' and machinists' helpers.....	1	66	\$1.25 d.	11.4
					Carpenters.....	2	66	1.50 d.	13.6
					Car repairers.....	1	66	2.25 d.	20.5
					Do.....	2	66	2.00 d.	18.2
					Do.....	1	66	1.75 d.	15.9
					Do.....	2	66	1.50 d.	13.6
					Do.....	1	66	1.25 d.	11.4
					Do.....	1	66	.80 d.	7.3
					Cooks.....	1	477	1.10 d.	10
					Do.....	1	477	1.09 d.	9.1
					Feeders.....	1	477	1.25 d.	11.4
					Filers.....	1	60	.13 h.	18
					Foremen.....	1	66	2.00 d.	18.2

¹ And board.² More than one rate.³ More than one rate, and board.⁴ Seven days.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

GEORGIA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>General—Concl'd.</i>					<i>Hauling, skidding, and loading—Ctd.</i>				
Foremen, camp.....	1	66	\$90.00 m.	31.5	Engineers.....	1	66	(?) d.	15.6
Helpers, shop.....	1	66	1.75 d.	15.9	Do.....	2	66	\$1.50 d.	13.6
Do.....	1	66	1.50 d.	13.6	Do.....	1	66	1.75 d.	15.9
Do.....	1	66	1.25 d.	11.4	Engineers, loader.....	1	66	2.50 d.	22.7
Laborers.....	1	66	1.50 d.	13.6	Engineers, skidder.....	1	66	2.25 d.	20.5
Do.....	2	66	1.00 d.	9.1	Do.....	1	66	1.50 d.	13.6
Linemen, telephone.....	1	66	2.00 d.	18.2	Do.....	4	60	.225 h.	22.5
Linemen's helpers, telephone.....	1	66	1.35 d.	12.3	Do.....	3	60	.155 h.	15.5
Do.....	1	66	1.00 d.	9.1	Do.....	1	66	1.50 d.	13.6
Lot men.....	1	66	1.60 d.	14.5	Do.....	1	66	(?) d.	12.1
Do.....	2	77	1.50 d.	13.6	Do.....	1	63	1.25 d.	11.4
Do.....	1	77	1.40 d.	12.7	Do.....	1	69	1.00 d.	9.1
Do.....	2	77	1.25 d.	11.4	Firemen, skidder.....	1	66	1.80 d.	16.4
Do.....	1	77	.80 d.	7.3	Do.....	1	66	1.50 d.	13.6
Machinists.....	1	66	90.00 m.	31.5	Do.....	3	60	.155 h.	15.5
Do.....	1	66	75.00 m.	26.2	Flagmen.....	3	60	.155 h.	15.5
Repairs, camp.....	1	66	1.50 d.	13.6	Do.....	1	66	1.50 d.	13.6
Scalers.....	1	60	67.00 m.	23.8	Do.....	2	66	1.35 d.	12.3
Do.....	1	60	.225 h.	22.5	Do.....	14	66	1.25 d.	11.4
Do.....	1	63	2.25 d.	20.5	Do.....	5	66	1.00 d.	9.1
Do.....	1	66	2.00 d.	18.2	Foremen.....	2	66	100.00 m.	35
Stablemen.....	1	77	1.25 d.	11.4	Do.....	2	66	3.00 d.	27.3
Do.....	1	66	1.00 d.	9.1	Do.....	1	66	2.50 d.	22.7
Watchmen.....	1	77	1.35 d.	12.3	Do.....	1	66	2.25 d.	20.5
Do.....	1	66	1.35 d.	12.3	Do.....	1	66	(?) d.	20.2
Do.....	1	66	1.25 d.	11.4	Do.....	3	66	1.80 d.	16.4
Watchmen, bridge.....	2	84	1.50 d.	13.6	Do.....	1	66	(?) d.	15.9
Watchmen, tower.....	2	84	1.35 d.	11.3	Foremen, skidder.....	1	66	3.50 d.	31.8
Water boys.....	1	66	1.10 d.	10	Do.....	1	66	75.00 m.	26.2
Do.....	1	66	.90 d.	8.2	Do.....	1	66	2.50 d.	22.7
Do.....	1	66	.80 d.	7.3	Do.....	1	66	2.50 d.	22.7
Do.....	1	66	.50 d.	4.5	Foremen, wagon.....	1	66	2.25 d.	20.5
Do.....	3	66	.50 d.	4.5	Laborers.....	6	66	1.50 d.	13.6
<i>Boom.</i>					Do.....	3	60	1.35 d.	13.5
Engineers.....	1	66	1.50 d.	13.6	Do.....	1	66	1.35 d.	12.3
Foremen.....	1	66	2.25 d.	20.5	Do.....	9	66	1.25 d.	11.4
Laborers.....	3	66	1.50 d.	13.6	Do.....	1	66	1.00 d.	9.1
Do.....	1	66	(?) d.	12.9	Do.....	1	66	1.75 d.	15.9
Do.....	1	66	(?) d.	12.7	Do.....	1	66	1.35 d.	12.3
Do.....	7	66	1.25 d.	11.4	Do.....	2	66	1.00 d.	9.1
<i>Cutting, etc.</i>					Levermen, loader.....	1	66	2.70 d.	24.5
Axmen.....	1	66	1.10 d.	10	Do.....	1	60	.245 h.	24.5
Blazers.....	1	66	1.50 d.	13.6	Do.....	3	60	.225 h.	22.5
Choppers.....	15	66	(?)	(?)	Levermen, skidder.....	5	60	.360 h.	36.7
Cutters, piling.....	1	66	1.75 d.	15.9	Loaders.....	2	66	2.50 d.	22
Do.....	2	66	1.50 d.	13.6	Do.....	10	60	.20 h.	20
Foremen.....	1	66	2.50 d.	22.7	Do.....	1	66	2.00 d.	18.2
Do.....	2	66	2.25 d.	20.5	Do.....	1	60	.18 h.	18
Do.....	1	66	2.00 d.	18.2	Do.....	1	66	(?) d.	16.7
Foremen, sawing.....	1	60	77.00 m.	29.6	Do.....	2	66	1.75 d.	15.9
Foremen, assistant.....	1	66	1.75 d.	15.9	Do.....	1	66	1.50 d.	13.6
Sawyers.....	1	66	1.20 d.	12	Do.....	1	66	(?) d.	13
Do.....	1	66	(?) d.	10.3	Do.....	1	66	1.35 d.	12.3
Do.....	10	66	(?)	(?)	Loaders, wagon.....	1	66	1.75 d.	15.6
Do.....	10	66	(?)	(?)	Do.....	5	66	1.50 d.	13.3
Do.....	88	66	(?)	(?)	Do.....	1	66	1.35 d.	12.9
Do.....	33	60	(?)	(?)	Do.....	13	66	1.25 d.	11.4
Sawyers, piling.....	6	66	1.50 d.	13.6	Do.....	3	66	1.00 d.	9.1
<i>Hauling, skidding, and loading.</i>					Pump men.....	1	66	.80 d.	7.3
Chainers.....	3	66	1.50 d.	13.6	Riders.....	2	66	1.25 d.	11.4
Chasers.....	2	66	1.00 d.	9.1	Do.....	7	66	1.00 d.	9.1
Doggers.....	4	66	1.50 d.	13.6	Do.....	2	66	2.00 d.	18.2
Engineers.....	1	66	(?) d.	18.6	Do.....	3	60	.180 h.	18
Do.....	2	66	1.75 d.	15.9	Do.....	1	66	(?) d.	15.8
					Do.....	24	60	.155 h.	15.5
					Do.....	2	60	.145 h.	14.5
					Do.....	1	66	1.50 d.	13.6
					Do.....	2	60	.135 h.	13.5
					Riggers, head.....	4	60	.315 h.	31.5
					Do.....	1	66	3.00 d.	27.3
					Riggers, second.....	3	60	.225 h.	22.5

¹ Seven days.

² More than one rate.

³ Pieceworkers.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

GEORGIA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Hauling, skidding, and loading—Cid.</i>				<i>Cents.</i>	<i>Raft building.</i>				<i>Cents.</i>
Riggers, second.....	1	66	\$1.70 d.	15.5	Foremen.....	1	66	\$2.00 d.	18.2
Riggers' helpers.....	3	66	1.40 d.	12.7	Raftmen.....	4	66	1.25 d.	11.4
Do.....	1	66	(1) d.	12.5	<i>Railroad construction and maintenance.</i>				
Do.....	1	66	1.35 d.	12.3	Firemen.....	1	60	.175 h.	17.5
Do.....	2	66	1.30 d.	11.8	Foremen.....	1	66	76.50 m.	26.7
Do.....	1	66	1.25 d.	11.4	Do.....	1	66	2.50 d.	22.7
Run cutters.....	3	66	1.50 d.	13.6	Do.....	1	60	.225 h.	22.5
Signalmen.....	1	66	1.60 d.	14.5	Do.....	1	66	2.25 d.	20.5
Do.....	1	66	1.35 d.	12.3	Do.....	1	60	.20 h.	20
Do.....	1	66	1.30 d.	11.8	Do.....	2	66	2.00 d.	18.2
Do.....	1	66	1.25 d.	11.4	Do.....	2	66	1.75 d.	15.9
Do.....	4	66	1.10 d.	10	Foremen, pile-driver.....	3	60	.275 h.	27.5
Skidder men.....	1	60	.225 h.	22.5	Do.....	1	66	2.00 d.	18.2
Skidder men's helpers.....	1	60	.225 h.	22.5	Foremen, right-of-way.....	2	66	2.00 d.	18.2
Teamsters.....	7	66	1.50 d.	13.6	Do.....	1	66	1.50 d.	13.6
Do.....	9	66	1.35 d.	12.3	Foremen, section.....	2	66	2.25 d.	20.5
Do.....	17	66	1.25 d.	11.4	Do.....	3	66	2.00 d.	18.2
Do.....	12	66	1.10 d.	10	Do.....	3	66	1.75 d.	15.9
Do.....	4	66	1.00 d.	9.1	Do.....	1	66	1.50 d.	13.6
Do.....	22	66	1.00 d.	9.1	Hammer men, pile-driver.....	1	66	2.00 d.	18.2
Teamsters, loading.....	1	66	1.50 d.	13.6	Laborers.....	2	60	.180 h.	18
Do.....	8	66	1.25 d.	11.4	Do.....	9	60	.155 h.	15.5
Do.....	1	66	(1) d.	9.4	Do.....	4	60	.145 h.	14.5
Do.....	1	66	1.00 d.	9.1	Do.....	1	66	1.50 d.	13.6
Teamsters' helpers.....	1	66	1.00 d.	9.1	Do.....	16	60	.135 h.	13.5
Do.....	1	66	.90 d.	8.2	Do.....	9	66	1.35 d.	12.3
Togglers.....	1	66	1.50 d.	13.6	Do.....	1	66	(1) d.	11.6
Tongers.....	1	66	2.50 d.	22.7	Do.....	30	66	1.25 d.	11.4
Do.....	1	66	1.75 d.	15.9	Do.....	1	66	(1) d.	11.4
Do.....	3	66	1.50 d.	13.6	Do.....	1	66	(1) d.	11.3
Tongers' helpers.....	1	66	1.50 d.	13.6	Do.....	1	66	(1) d.	10.9
Tong hookers.....	6	60	.225 h.	22.5	Do.....	1	66	(1) d.	10.4
Do.....	1	66	2.25 d.	20.5	Do.....	26	66	1.10 d.	10
Do.....	1	66	2.00 d.	18.2	Do.....	3	66	(1) d.	9.8
Do.....	4	60	.18 h.	18	Do.....	1	66	(1) d.	9.2
Do.....	2	60	.155 h.	15.5	Do.....	50	66	1.00 d.	9.1
Do.....	2	66	1.50 d.	13.6	Laborers, right-of-way.....	42	66	1.00 d.	9.1
Do.....	1	66	1.40 d.	12.7	Do.....	1	66	.90 d.	8.2
Do.....	1	66	(1) d.	12.4	Laborers, section.....	3	66	1.25 d.	11.4
Do.....	1	66	(1) d.	11.9	Do.....	12	66	1.15 d.	10.5
Do.....	1	66	(1) d.	11.8	Do.....	1	66	(1) d.	10
Do.....	1	66	(1) d.	11.8	Do.....	62	66	1.00 d.	9.1
Do.....	1	66	1.25 d.	11.4	Do.....	1	66	.90 d.	8.2
Do.....	1	66	(1) d.	10.9	Do.....	26	66	.80 d.	7.3
Tong hookers, second.....	1	66	(1) d.	12.4	Do.....	3	66	.75 d.	6.8
Tong men.....	1	66	1.75 d.	15.9	Do.....	1	66	.50 d.	4.5
Do.....	3	66	1.50 d.	13.6	Levermen.....	1	60	(1) h.	18.4
Do.....	3	66	1.25 d.	11.4	Levermen, pile-driver.....	2	60	.225 h.	22.5
Do.....	2	66	.90 d.	8.2	Setters, piling.....	1	66	1.75 d.	15.9
Tong pullers.....	1	66	1.50 d.	13.6	Teamsters.....	1	66	1.00 d.	9.1
Do.....	1	66	1.35 d.	12.3	Teamsters' helpers.....	1	66	1.00 d.	9.1
Do.....	1	66	1.75 d.	15.9	Water boys.....	1	66	.50 d.	4.5
Do.....	1	66	(1) d.	14.9	<i>Railroad operation.</i>				
Do.....	1	66	(1) d.	14.2	Brakemen.....	6	60	.135 h.	13.5
Do.....	1	66	1.50 d.	13.6	Do.....	1	72	(1) d.	11.9
Do.....	1	66	1.25 d.	11.4	Do.....	5	72	1.25 d.	10.4
Do.....	1	66	(1) d.	10.7	Car greasers.....	1	66	1.25 d.	11.4
Train loaders.....	7	66	1.10 d.	10	Do.....	1	72	1.00 d.	8.3
Wagoners.....	5	66	1.25 d.	11.4	Engineers.....	4	60	67.00 m.	25.8
Watchmen.....	1	77	.80 d.	7.3	Do.....	1	66	2.70 d.	24.5
Water boys.....	1	66	.75 d.	6.8	Do.....	2	66	2.50 d.	22.7
Woodmen.....	1	66	.80 d.	7.3					
<i>Pile driving.</i>									
Foremen.....	1	66	2.50 d.	22.7					
Laborers.....	1	66	1.50 d.	13.6					
Do.....	1	66	1.45 d.	13.2					
Do.....	1	66	(1) d.	11.9					
Do.....	12	66	1.00 d.	9.1					

¹ More than one rate.² Seven days.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

GEORGIA—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Railroad operation—Continued.</i>					<i>Railroad operation—Concluded.</i>				
Engineers.....	3	72	\$2.50 d.	20.8	Hostlers.....	2	66	\$1.25 d.	11.4
Do.....	6	66	2.25 d.	20.5	Do.....	1	66	1.10 d.	10
Do.....	2	66	2.00 d.	18.2	Do.....	1	66	1.00 d.	9.1
Do.....	1	66	2.00 d.	18.2	Signalmen.....	4	66	1.50 d.	13.6
Do.....	1	66	1.80 d.	16.4	Do.....	1	66	(¹) d.	12.7
Do.....	1	66	1.00 d.	9.1	Do.....	1	66	1.25 d.	11.4
Firemen.....	2	66	1.75 d.	15.9	Switchmen.....	7	66	1.35 d.	12.3
Do.....	3	60	.155 h.	15.5	Do.....	5	66	1.25 d.	11.4
Do.....	1	72	(¹) d.	14.6	Trainmen.....	2	66	1.25 d.	11.4
Do.....	1	66	(¹) d.	14.5	Do.....	2	66	1.00 d.	9.1
Do.....	1	60	(¹) h.	14	<i>Road construction and maintenance.</i>				
Do.....	4	66	1.50 d.	13.6	Blazers.....	1	66	1.80 d.	16.4
Do.....	1	60	.135 h.	13.5	Foremen.....	1	66	2.25 d.	20.5
Do.....	2	66	1.35 d.	12.3	Laborers.....	1	66	1.50 d.	13.6
Do.....	1	72	(¹) d.	11.5	Do.....	2	66	1.00 d.	9.1
Do.....	2	66	1.25 d.	11.4	Do.....	2	66	.90 d.	8.2
Do.....	1	66	1.20 d.	10.9	Do.....	1	66	.45 d.	4.1
Do.....	1	72	1.25 d.	10.4	Logway men.....	2	66	1.25 d.	11.4
Do.....	1	66	1.10 d.	10	Swampers.....	5	66	1.50 d.	13.6
Do.....	2	66	1.00 d.	9.1	Do.....	1	66	(¹) d.	12.5
Do.....	1	66	.90 d.	8.2	Do.....	1	66	1.25 d.	11.4
Do.....	1	66	1.25 d.	11.4	Do.....	12	66	1.00 d.	9.1
Do.....	1	66	1.00 d.	9.1	Do.....	4	66	1.00 d.	9.1
Do.....	1	66	1.00 d.	9.1	Do.....	1	66	.75 d.	6.8
Do.....	1	72	3.00 d.	25	Trail cutters.....	3	66	1.50 d.	13.6
Do.....	1	60	.225 h.	22.5	Do.....	1	66	1.40 d.	12.7
Do.....	2	66	2.25 d.	20.5					
Do.....	1	66	1.50 d.	13.6					

IDAHO.

<i>General.</i>					<i>General—Contd.</i>				
Barn bosses.....	2	² 70	\$2.50 d.	25	Cruisers.....	1	60	³ \$85.00 m.	³ \$32.7
Do.....	1	² 70	2.25 d.	22.5	Filers.....	9	60	2.50 d.	25
Barn men.....	1	² 70	2.50 d.	25	Do.....	1	60	(¹) d.	24.7
Do.....	3	² 70	2.25 d.	22.5	Flunkies.....	1	² 70	³ \$35.00 m.	³ \$11.5
Do.....	2	² 70	2.00 d.	20	Do.....	8	² 70	³ \$30.00 m.	³ \$9.9
Do.....	2	² 70	³ \$45.00 m.	³ \$14.8	Foremen.....	1	60	4.00 d.	40
Blacksmiths.....	1	60	³ \$70.00 m.	³ \$26.9	Do.....	11	60	³ \$100.00 m.	³ \$38.5
Do.....	1	60	³ \$2.50 d.	³ \$25	Foremen, assistant.....	1	60	³ \$100.00 m.	³ \$38.5
Do.....	1	60	2.50 d.	25	Do.....	1	60	3.50 d.	35
Blacksmiths' helpers.....	1	60	(¹) d. ⁴	20.4	Do.....	1	60	3.00 d.	30
Brush burners.....	2	60	2.00 d.	20	Inspectors.....	1	60	4.00 d.	40
Bull cooks.....	1	² 70	(⁴) d.	³ \$27.3	Do.....	1	60	3.50 d.	35
Do.....	1	² 70	(⁴) d.	³ \$20.8	Do.....	1	60	³ \$70.00 m.	³ \$26.9
Do.....	3	² 70	³ \$35.00 m.	³ \$11.5	Inspectors, land.....	2	60	2.50 d.	25
Do.....	5	² 70	³ \$30.00 m.	³ \$9.9	Do.....	2	60	2.25 d.	22.5
Cookees.....	1	² 70	(⁴) m.	³ \$30.6	Do.....	10	60	2.00 d.	20
Do.....	1	² 70	(⁴) m.	³ \$28.7	Laborers.....	2	60	2.00 d.	20
Do.....	1	² 70	³ \$40.00 m.	³ \$13.2	Machine-shop employees.....	1	60	³ \$115.00 m.	³ \$44.2
Do.....	9	² 70	³ \$30.00 m.	³ \$9.9	Do.....	1	60	4.00 d.	40
Cookhouse employees.....	2	² 70	³ \$100.00 m.	³ \$33	Do.....	1	60	³ \$100.00 m.	³ \$38.5
Do.....	3	² 70	³ \$90.00 m.	³ \$29.7	Do.....	1	60	3.75 d.	37.5
Do.....	1	² 70	(⁴) m.	³ \$28.6	Do.....	1	60	(¹) d.	37.5
Do.....	1	² 70	³ \$85.00 m.	³ \$28	Do.....	1	60	3.50 d.	35
Do.....	1	² 70	(⁴) m.	³ \$22	Do.....	1	60	(¹) d.	35
Do.....	2	² 70	³ \$40.00 m.	³ \$13.2	Do.....	2	60	3.00 d.	30
Do.....	6	² 70	³ \$35.00 m.	³ \$11.5	Do.....	1	60	(¹) d.	29.9
Do.....	23	² 70	³ \$30.00 m.	³ \$9.9	Do.....	1	60	³ \$75.00 m.	³ \$28.8
Cooks.....	1	² 70	(⁴) m.	³ \$46.8	Do.....	2	60	2.75 d.	27.5
Do.....	8	² 70	³ \$100.00 m.	³ \$33	Do.....	2	60	³ \$70.00 m.	³ \$26.9
Do.....	1	² 70	(⁴) m.	³ \$42	Do.....	6	60	2.50 d.	25
Cooks, second.....	1	² 70	³ \$75.00 m.	³ \$24.7	Do.....	6	60	2.25 d.	22.5
Do.....	1	² 70	³ \$40.00 m.	³ \$13.2	Do.....	5	60	2.00 d.	20
Do.....	2	² 70	³ \$35.00 m.	³ \$11.5	Painters.....	1	60	4.00 d.	40
Do.....	1	² 70	³ \$30.00 m.	³ \$9.9	Scalers.....	6	60	³ \$70.00 m.	³ \$26.9
					Scalers and clerks.....	1	60	³ \$75.00 m.	³ \$28.8

¹ More than one rate. ² Seven days. ³ And board. ⁴ More than one rate, and board.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

IDAHO—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>General—Concd.</i>					<i>Hauling, skidding, and loading—Ctd.</i>				
Scalers and clerks..	8	60	\$70.00 m.	¹ 28.9	Hookers.....	1	60	(³) d.	<i>Cents.</i> 29.9
Straw bosses.....	1	60	3.50 d.	35	Do.....	1	60	(³) d.	26.4
Do.....	1	60	2.50 d.	25	Do.....	13	60	\$2.25 d.	22.5
Warehousemen.....	2	60	¹ 75.00 m.	¹ 28.8	Do.....	1	60	(³) d.	22.4
Do.....	2	60	2.75 d.	27.5	Do.....	1	60	(³) d.	22.4
Do.....	1	60	2.25 d.	22.5	Do.....	1	60	(³) d.	21.9
Watchmen.....	1	270	2.50 d.	25	Do.....	2	60	(³) d.	21.9
Do.....	1	270	70.00 m.	23.1	Do.....	1	60	(³) d.	21.8
Do.....	1	270	2.25 d.	22.5	Do.....	1	60	(³) d.	21.7
Do.....	16	270	2.00 d.	20	Do.....	1	60	(³) d.	21.5
Do.....	1	270	30.00 m.	9.9	Do.....	1	60	(³) d.	20.9
Wood bucks.....	1	60	2.25 d.	22.5	Do.....	2	60	(³) d.	20.2
Do.....	4	60	2.00 d.	20	Do.....	20	60	2.00 d.	20.2
<i>Cutting, etc.</i>					Do.....	1	60	(³) d.	19.2
Sawyers.....	3	60	2.50 d.	25	Do.....	1	60	(³) d.	18.6
Do.....	1	60	(³) d.	25	Hook tenders.....	1	60	3.50 d.	35
Do.....	1	60	(³) d.	23.6	Do.....	1	60	(³) d.	33.1
Do.....	1	60	(³) d.	23.2	Do.....	6	60	3.25 d.	32.5
Do.....	1	60	(³) d.	22.9	Landing men.....	2	60	2.00 d.	20
Do.....	1	60	(³) d.	22.8	Loaders.....	1	60	2.75 d.	27.5
Do.....	242	60	2.25 d.	22.5	Do.....	9	60	2.50 d.	25
Do.....	1	60	(³) d.	22.4	Do.....	2	60	(³) d.	23
Do.....	1	60	(³) d.	22.3	Do.....	4	60	2.25 d.	22.5
Do.....	3	60	(³) d.	22.2	Loading employees.....	2	60	5.00 d.	50
Do.....	3	60	(³) d.	22.1	Do.....	2	60	4.50 d.	45
Do.....	2	60	(³) d.	22	Do.....	1	60	3.50 d.	35
Do.....	2	60	(³) d.	21.9	Do.....	1	60	3.25 d.	32.5
Do.....	2	60	(³) d.	21.8	Do.....	1	60	(³) d.	31.7
Do.....	2	60	(³) d.	21.7	Do.....	1	60	(³) d.	31.4
Do.....	1	60	(³) d.	21.6	Do.....	17	60	3.00 d.	30
Do.....	3	60	(³) d.	21.4	Do.....	1	60	(³) d.	29.9
Do.....	2	60	(³) d.	21.3	Do.....	1	60	(³) d.	28.2
Do.....	1	60	(³) d.	21.1	Do.....	1	60	(³) d.	27.8
Do.....	2	60	(³) d.	20.9	Do.....	1	60	2.75 d.	27.5
Do.....	1	60	(³) d.	20.7	Do.....	2	60	2.50 d.	25
Do.....	1	60	(³) d.	20.5	Do.....	1	60	(³) d.	23.7
Do.....	1	60	(³) d.	20.4	Do.....	6	60	2.25 d.	22.5
Do.....	1	60	¹ 45.00 m.	¹ 17.3	Do.....	1	60	.75 d.	7.5
Do.....	2	60	¹ 40.00 m.	¹ 15.4	Riggers.....	1	60	(³) d.	45.1
Undercutters.....	5	60	2.50 d.	25	Do.....	1	60	(³) d.	27.5
Do.....	12	60	2.25 d.	22.5	Do.....	1	60	(³) d.	27.4
<i>Hauling, skidding, and loading.</i>					Do.....	1	60	(³) d.	27
Chainers.....	13	60	2.00 d.	20	Do.....	44	60	2.50 d.	25
Chasers.....	1	60	(³) d.	24.4	Do.....	1	60	(³) d.	23.3
Do.....	1	60	(³) d.	23.5	Do.....	1	60	(³) d.	22.6
Do.....	1	60	2.00 d.	20	Do.....	1	60	(³) d.	22.5
Chute and skidway men.....	2	60	2.25 d.	22.5	Do.....	1	60	(³) d.	20.4
Deck men.....	1	60	2.25 d.	22.5	Do.....	1	60	(³) d.	18
Do.....	1	60	2.00 d.	20	Skidding employees.....	1	60	5.00 d.	50
Engineers.....	1	60	5.00 d.	50	Do.....	1	60	4.00 d.	40
Do.....	2	60	3.50 d.	35	Do.....	1	60	3.75 d.	37.5
Do.....	5	60	3.25 d.	32.5	Do.....	10	60	3.50 d.	35
Do.....	1	60	(³) d.	21.8	Do.....	1	60	(³) d.	32.6
Engineers, donkey.....	1	60	4.00 d.	40	Do.....	3	60	3.25 d.	32.5
Do.....	1	60	3.50 d.	35	Do.....	1	60	(³) d.	31.6
Do.....	11	60	3.25 d.	32.5	Do.....	1	60	(³) d.	30.6
Do.....	2	60	3.00 d.	30	Do.....	1	60	(³) d.	30.5
Do.....	1	60	(³) d.	28.8	Do.....	1	60	13.00 d.	130
Engineers, hoisting.....	1	60	4.00 d.	40	Do.....	6	60	3.00 d.	30
Firemen.....	1	60	(³) d.	23.5	Do.....	1	60	(³) d.	29.4
Do.....	1	60	(³) d.	23	Do.....	1	60	(³) d.	29.1
Do.....	8	60	2.25 d.	22.5	Do.....	1	60	(³) d.	28.9
Do.....	13	60	2.00 d.	20	Do.....	1	60	175.00 m.	128.8
Hoisters.....	1	60	(³) d.	25.9	Do.....	1	60	(³) d.	28.3
Do.....	1	60	2.50 d.	25	Do.....	1	60	(³) d.	27.5
Do.....	1	60	2.25 d.	22.5	Do.....	1	60	(³) d.	27
					Do.....	1	60	(³) d.	26.7
					Do.....	1	60	(³) d.	25.5
					Do.....	1	60	(³) d.	25.1
					Do.....	4	60	¹ 65.00 m.	125
					Do.....	4	60	2.50 d.	25

¹ And board.² Seven days.³ More than one rate.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

IDAHO—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Hauling, skidding, and loading—Cld.</i>					<i>Railroad construction and maintenance—Concluded.</i>				
Skidding employees	1	60	(1) d.	<i>Cents.</i> 24.9					<i>Cents.</i>
Do.....	1	60	(1) d.	24.8	Laborers.....	3	60	(1) d.	21
Do.....	1	60	(1) d.	24.7	Do.....	46	60	\$2.00 d.	20
Do.....	1	60	(1) d.	24.4	Do.....	1	60	² 50.00 m.	² 19.2
Do.....	2	60	(1) d.	24	Do.....	1	60	(1) d.	18.5
Do.....	2	60	(1) d.	23.8	Do.....	1	60	(1) d.	18.4
Do.....	1	60	(1) d.	23.7	Do.....	8	60	1.75 d.	17.5
Do.....	1	60	(1) d.	22.7	Laborers, construction.....	31	60	2.25 d.	22.5
Do.....	29	60	\$2.25 d.	22.5	Do.....	1	60	(1) d.	20.1
Do.....	1	60	(1) d.	22.3	Do.....	15	60	2.00 d.	20
Do.....	2	60	(1) d.	22.1	Laborers, maintenance.....	7	60	2.25 d.	22.5
Do.....	1	60	(1) d.	22	Do.....	11	60	2.00 d.	20
Do.....	2	60	(1) d.	21.7	Section hands.....	5	60	1.75 d.	17.5
Do.....	1	60	(1) d.	21.5					
Do.....	1	60	(1) d.	21.4	<i>Railroad operation.</i>				
Do.....	2	60	(1) d.	21.3	Brakemen.....	5	60	2.50 d.	25
Do.....	31	60	2.00 d.	20	Do.....	1	60	(1) d.	25
Skidway men	1	60	2.50 d.	25	Conductors.....	2	60	3.50 d.	35
Do.....	40	60	2.25 d.	22.5	Do.....	1	60	(1) d.	36.9
Do.....	1	60	(1) d.	22.3	Engineers.....	1	60	.50 h.	50
Do.....	1	60	(1) d.	20.7	Do.....	3	60	4.00 d.	40
Do.....	15	60	2.00 d.	20	Firemen.....	1	60	(1) d.	25.6
Snubbers	3	60	2.50 d.	25	Do.....	4	60	2.50 d.	25
Do.....	3	60	2.25 d.	22.5	Do.....	1	60	(1) d.	24.6
Teamsters	44	60	2.25 d.	22.5	Roundhouse employees.....	1	60	5.00 d.	50
Do.....	1	60	(1) d.	21	Do.....	1	60	4.50 d.	45
Do.....	6	60	2.00 d.	20	Do.....	1	60	3.00 d.	30
Top loaders	6	60	3.00 d.	30	Do.....	1	60	2.75 d.	27.5
Do.....	1	60	(1) d.	29.3	Do.....	1	60	2.00 d.	20
Do.....	1	60	(1) d.	21.3	Not reported.....	11	72	(3) d.	(1)
Whistle punks	1	60	(1) d.	24.8	<i>Road construction and maintenance.</i>				
Do.....	2	60	2.25 d.	22.5	Swampers.....	1	60	(1) d.	24.2
Do.....	13	60	2.00 d.	20	Do.....	9	60	2.25 d.	22.5
Wood bucks	1	60	(1) d.	22.2	Do.....	2	60	(1) d.	22.2
Do.....	4	60	2.00 d.	20	Do.....	1	60	(1) d.	22
Do.....	2	60	1.75 d.	17.5	Do.....	3	60	(1) d.	21.6
					Do.....	3	60	(1) d.	21.4
<i>Railroad construction and maintenance.</i>					Do.....	1	60	(1) d.	21.3
Bridge builders	1	60	4.00 d.	40	Do.....	1	60	(1) d.	21.1
Do.....	1	60	² 3.50 d.	² 35	Do.....	1	60	(1) d.	21.9
Do.....	1	60	3.50 d.	35	Do.....	5	60	(1) d.	23.8
Do.....	3	60	3.00 d.	30	Do.....	2	60	(1) d.	23.7
Foremen, laborers	2	60	3.25 d.	32.5	Do.....	1	60	(1) d.	23.5
Do.....	2	60	3.00 d.	30	Do.....	1	60	(1) d.	23.4
Foremen, maintenance	2	60	2.75 d.	27.5	Do.....	1	60	(1) d.	23.3
Laborers	1	60	4.00 d.	40	Do.....	225	60	2.00 d.	20
Do.....	1	60	3.25 d.	32.5					
Do.....	1	60	3.00 d.	30					
Do.....	3	60	2.50 d.	25					
Do.....	2	60	(1) d.	23.2					
Do.....	8	60	2.25 d.	22.5					

LOUISIANA.

<i>General.</i>					<i>General—Contd.</i>				
Blacksmiths	1	60	\$0.35 h.	35	Blacksmith's helpers	1	60	\$0.25 h.	25
Do.....	2	60	3.00 d.	30	Do.....	1	60	2.00 d.	20
Do.....	1	60	90.00 m.	29.7	Do.....	1	60	1.80 d.	18
Do.....	1	60	76.50 m.	29.4	Do.....	1	60	1.60 d.	16
Do.....	1	60	.27 h.	27	Do.....	1	60	.16 h.	16
Do.....	1	60	.245 h.	24.5	Carpenters	2	60	2.50 d.	25
Do.....	1	60	2.25 d.	22.5	Do.....	2	60	2.25 d.	22.5
Do.....	1	60	2.00 d.	20					

¹ More than one rate.

² And board.

³ \$3.25 to \$4.50.

⁴ \$0.271 to \$0.375.

⁵ Seven days.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

LOUISIANA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>General—Contd.</i>					<i>General—Concl.</i>				
				<i>Cents.</i>					<i>Cents.</i>
Carpenter.....	1	60	\$0.225 h.	22.5	Watchmen.....	1	170	(?) h.	16.9
Car repairer.....	1	60	2.50 d.	25	Do.....	1	170	\$0.16 h.	16
Do.....	1	60	58.50 m.	22.5	Do.....	1	66	45.00 m.	15.7
Do.....	1	60	2.00 d.	20	Do.....	1	70	1.50 d.	15.15
Do.....	3	60	.20 h.	20	Wood getters.....	4	60	2.00 d.	20
Car repairer's help- ers.....	1	60	1.50 d.	15	<i>Cutting, etc.</i>				
Clean-up men.....	1	60	.175 h.	17.5	Cutters.....	60	60	(?)	(?)
Corral men.....	1	70	.30 h.	30	Foremen.....	1	60	100.00 m.	38.5
Do.....	1	70	67.50 m.	22.3	Do.....	1	60	.35 h.	35
Engineers, pump.....	1	70	2.00 d.	20	Do.....	1	60	3.33 d.	33.3
Extra men.....	2	60	.20 h.	20	Do.....	1	60	\$1.00 m.	31.2
Do.....	1	60	(?) h.	17.3	Do.....	1	68	\$2.50 m.	28.8
Do.....	1	60	(?) h.	16.9	Do.....	1	60	75.00 m.	28.8
Do.....	3	60	.15 h.	15	Saw bosses.....	1	60	(?)	(?)
Filers.....	1	60	3.00 d.	30	Sawyers.....	11	66	(?)	(?)
Do.....	1	60	.30 h.	30	Do.....	334	60	(?)	(?)
Do.....	2	60	2.75 d.	27.5	<i>Hauling, skidding, and loading.</i>				
Do.....	1	60	2.50 d.	25	Brakemen.....	2	60	1.75 d.	17.5
Do.....	1	60	2.35 d.	23.5	Bunchers.....	1	60	2.50 d.	25
Foremen.....	1	60	90.00 m.	34.6	Do.....	3	60	2.25 d.	22.5
Foremen, camp.....	2	60	202.50 m.	77.9	Do.....	4	60	1.80 d.	18
Foremen, woods.....	1	60	165.00 m.	63.3	Deckers.....	1	60	(?) h.	21.5
Do.....	1	60	150.00 m.	57.7	Do.....	1	60	(?) d.	20.1
Do.....	1	60	4.00 m.	40	Do.....	1	60	(?) h.	20.1
Do.....	1	70	103.50 m.	34.1	Do.....	8	60	2.00 d.	20
Do.....	1	60	75.00 m.	28.8	Do.....	7	60	.20 h.	20
Foremen and black- smiths.....	1	70	125.00 m.	41.2	Do.....	1	60	(?) h.	18.5
Foremen and scalers	1	60	2.25 d.	22.5	Do.....	1	60	(?) h.	18.3
Fuel men.....	1	60	2.05 d.	20.5	Do.....	2	60	1.80 d.	18
Do.....	1	60	1.80 d.	18	Do.....	2	60	.18 h.	18
Laborers.....	1	60	1.75 d.	17.5	Do.....	1	60	(?) h.	14.9
Do.....	1	60	1.60 d.	16	Drivers.....	5	60	2.50 d.	25
Do.....	2	60	1.40 d.	14	Do.....	12	60	2.25 d.	22.5
Machinists.....	1	60	.36 h.	36	Do.....	19	60	2.00 d.	20
Do.....	1	60	2.75 d.	27.5	Do.....	5	60	1.75 d.	17.5
Machinist's helpers.	1	60	.18 h.	18	Do.....	1	60	1.50 d.	15
Mechanics.....	1	60	4.00 d.	40	Do.....	1	60	2.25 d.	22.5
Oilers.....	1	60	.18 h.	18	Do.....	1	60	(?) d.	22.2
Painters.....	1	60	.225 h.	22.5	Do.....	1	60	2.00 d.	20
Pump men.....	1	60	2.00 d.	20	Drummen.....	9	60	2.75 d.	27.5
Do.....	1	60	(?) h.	15.4	Do.....	1	60	(?) d.	27.4
Scalers.....	1	60	3.00 d.	30	Do.....	1	60	(?) d.	26.8
Do.....	3	60	.30 h.	30	Do.....	7	60	.25 h.	25
Do.....	1	60	76.50 m.	29.4	Do.....	1	60	(?) h.	24.4
Do.....	1	60	72.00 m.	27.7	Do.....	5	60	2.25 d.	22.5
Do.....	1	60	2.75 d.	27.5	Do.....	8	60	.225 h.	22.5
Do.....	1	60	2.70 d.	27	Do.....	1	60	(?) h.	22
Do.....	5	60	2.50 d.	25	Do.....	1	60	(?) d.	21.5
Do.....	1	60	.25 h.	25	Engineers.....	1	60	3.00 d.	30
Do.....	3	60	2.25 d.	22.5	Do.....	1	60	2.75 d.	27.5
Do.....	3	60	2.00 d.	20	Extra men.....	1	60	2.00 d.	20
Scalers and filers.....	1	60	3.00 d.	30	Do.....	1	60	1.50 d.	15
Stablenen.....	1	70	2.00 d.	20	Firemen.....	3	60	.25 h.	25
Do.....	1	60	2.00 d.	20	Do.....	1	60	2.25 d.	22.5
Do.....	1	70	1.75 d.	17.5	Do.....	4	60	1.80 d.	18
Do.....	1	70	.15 h.	15	Do.....	5	60	1.75 d.	17.5
Do.....	1	70	.225 h.	22.5	Firemen, loader.....	1	60	4.00 d.	40
Teamsters.....	2	60	.225 h.	22.5	Do.....	3	60	2.00 d.	20
Timekeepers.....	1	60	3.00 d.	30	Do.....	2	60	.18 h.	18
Warehousemen.....	1	60	3.00 d.	30	Do.....	2	60	3.00 d.	30
Watchmen.....	1	70	2.25 d.	22.5	Do.....	1	70	2.50 d.	25
Do.....	1	60	(?) d.	21.2	Do.....	2	60	2.50 d.	25
Do.....	1	60	(?) d.	20.3	Do.....	2	60	.20 h.	20
Do.....	1	70	2.00 d.	20	Do.....	2	60	2.25 d.	22.5
Do.....	2	60	2.00 d.	20	Do.....	3	60	1.80 d.	18
Do.....	2	70	.20 h.	20	Do.....	4	60	.18 h.	18
Do.....	1	70	(?) h.	19.2	Do.....	4	60	.18 h.	18
Do.....	1	70	1.80 d.	18	Do.....	1	60	(?) h.	17.7
Do.....	2	70	.18 h.	18					
Do.....	2	70	.18 h.	18					
Do.....	1	66	.18 h.	18					
Do.....	1	70	(?) h.	17.8					

¹ Seven days.

² More than one rate.

³ Pieceworkers.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

LOUISIANA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Hauling, skidding, and loading—Ctd.</i>					<i>Hauling, skidding, and loading—Ctd.</i>				
				<i>Cents.</i>					<i>Cents.</i>
Flagmen.....	4	60	\$1.75	d.	Slack men.....	1	60	(²)	d.
Do.....	12	60	1.60	d.	Do.....	8	60	\$1.75	d.
Foremen.....	1	70	125.00	m.	Stablemen.....	1	70	2.25	d.
Do.....	2	60	.35	h.	Stake cutters.....	1	60	(³)	d.
Do.....	1	70	100.00	m.	Teamsters.....	2	60	2.75	d.
Do.....	1	60	67.50	m.	Do.....	1	60	2.50	d.
Foremen, drivers.....	1	60	2.25	d.	Do.....	1	60	2.25	d.
Foremen, hauling.....	2	60	90.00	m.	Do.....	4	60	2.05	d.
Foremen, loader.....	1	60	112.50	m.	Do.....	15	60	2.00	d.
Do.....	1	60	4.00	d.	Do.....	9	66	1.80	d.
Do.....	1	70	100.00	m.	Do.....	26	60	1.75	d.
Foremen, skidder.....	4	63	125.00	m.	Do.....	1	60	1.60	d.
Do.....	2	70	125.00	m.	Teamsters' helpers.....	3	66	1.50	d.
Foremen, skidder and loader.....	1	63	.60	h.	Tongers.....	2	60	2.75	d.
Foremen, assistant.....	1	60	2.75	d.	Do.....	12	60	2.25	d.
Do.....	1	60	.245	h.	Do.....	2	66	1.80	d.
Fuel men.....	2	63	.25	h.	Tongers and skidders.....	2	60	2.00	d.
Do.....	1	60	2.05	d.	Do.....	7	60	1.75	d.
Do.....	1	60	2.00	d.	Tong hookers.....	2	60	2.50	d.
Do.....	1	60	1.80	d.	Do.....	10	60	.25	h.
Do.....	1	60	(²)	h.	Do.....	7	60	2.25	d.
Do.....	1	60	(²)	h.	Do.....	11	60	.225	h.
Do.....	2	60	.16	h.	Do.....	1	60	(²)	h.
Do.....	1	60	(²)	d.	Do.....	1	60	(²)	d.
Fuel men, loader.....	1	60	(²)	d.	Do.....	1	60	2.00	d.
Do.....	1	60	1.50	d.	Do.....	4	60	.20	h.
Fuel men, skidder.....	1	60	2.50	d.	Do.....	1	60	.188	h.
Do.....	1	60	(²)	d.	Do.....	1	60	(²)	d.
Do.....	1	60	(²)	d.	Do.....	1	60	(²)	d.
Do.....	1	60	(²)	d.	Do.....	1	60	(²)	d.
Grab setters.....	1	60	(²)	d.	Do.....	12	60	1.75	d.
Do.....	2	60	1.50	d.	Do.....	2	60	.175	h.
Helpers, general.....	3	60	1.80	d.	Do.....	1	60	.165	h.
Do.....	1	60	(²)	d.	Do.....	1	60	(²)	d.
Do.....	1	60	1.60	d.	Tong setters.....	1	60	2.50	d.
Helpers, loader.....	1	60	1.50	d.	Do.....	8	60	(²)	d.
Horse changers.....	2	60	20	h.	Do.....	1	60	(²)	d.
Do.....	1	60	(²)	d.	Do.....	9	60	2.25	d.
Laborers.....	1	60	(²)	d.	Do.....	1	60	(²)	d.
Do.....	10	60	1.60	d.	Do.....	1	60	2.00	d.
Lever men, first.....	2	60	3.50	d.	Do.....	6	60	.20	h.
Lever men, second.....	2	60	2.25	d.	Do.....	10	60	1.80	d.
Loader men.....	1	60	150.00	m.	Do.....	1	60	(²)	d.
Do.....	1	60	145.00	m.	Do.....	1	60	(²)	d.
Do.....	1	60	5.00	d.	Tong shakers.....	1	60	(²)	d.
Do.....	2	60	.50	h.	Do.....	1	60	(²)	d.
Do.....	2	60	112.50	m.	Top loaders.....	1	60	3.00	d.
Do.....	1	60	100.00	m.	Do.....	1	60	2.70	d.
Do.....	3	60	3.50	d.	Do.....	1	60	2.50	d.
Do.....	1	60	90.00	m.	Do.....	1	66	1.80	d.
Do.....	1	60	3.00	d.	Trailers.....	2	60	1.60	d.
Do.....	1	60	75.00	m.	Water boys.....	1	60	1.50	d.
Do.....	1	60	2.50	d.	Woodcutters.....	2	60	.25	h.
Do.....	1	66	2.00	d.	Do.....	2	60	1.80	d.
Loaders.....	4	60	2.00	d.	Woodmen.....	1	60	(²)	h.
Do.....	1	60	2.00	d.	Do.....	1	60	(²)	h.
Riders.....	1	60	1.80	d.	Do.....	3	60	(²)	h.
Do.....	11	60	1.60	d.					
Do.....	2	60	1.50	d.	<i>Railroad construction and maintenance.</i>				
Do.....	6	60	.15	h.	Bankers, grading.....	4	60	1.75	d.
Do.....	3	60	1.45	d.	Bridgemen.....	1	60	(²)	d.
Riggers, head.....	1	60	3.00	d.	Carriers, rails and ties.....	1	60	(²)	d.
Riggers, first.....	2	60	3.00	d.	Do.....	24	60	1.60	d.
Riggers, second.....	3	60	1.75	d.	Do.....	1	60	1.50	d.
Skidder men.....	1	60	2.25	d.	Do.....	9	60	1.40	d.
Skidway men.....	4	60	1.60	d.	Dumpers.....	1	60	.20	h.
Slack men.....	1	60	(²)	d.	Dynamiters.....	1	60	.30	h.
Do.....	1	60	(²)	d.	Do.....	1	60	(²)	d.
Do.....	1	60	(²)	d.	Engineers.....	1	60	50.00	m.
Do.....	2	63	(²)	d.					
Do.....	1	60	(²)	d.					

¹ Seven days.

² More than one rate.

³ Pieceworkers.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

LOUISIANA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Railroad construction and maintenance—Continued.</i>				<i>Cents.</i>	<i>Railroad construction and maintenance—Continued.</i>				<i>Cents.</i>
Engineers.....	1	60	\$3.00 d.	30	Laborers, steel crew.	2	60	\$1.75 d.	17.5
Do.....	1	70	90.00 m.	29.7	Do.....	9	60	1.05 d.	16.5
Do.....	1	60	67.50 m.	26	Do.....	2	60	1.50 d.	15
Do.....	1	60	(?) m.	24.2	Do.....	9	60	1.40 d.	14
Engineers' helpers.	1	60	1.50 d.	15	Do.....	29	60	1.35 d.	13.5
Firemen.....	1	60	(?) d.	18.4	Do.....	1	60	1.30 d.	13
Do.....	1	60	2.00 d.	20	Do.....	1	60	1.25 d.	12.5
Do.....	1	60	.18 h.	18	Right-of-way men.	2	60	.25 h.	25
Do.....	1	70	(?) h.	16.5	Do.....	2	60	.225 h.	22.5
Do.....	1	60	.16 h.	16	Do.....	1	60	2.00 d.	20
Foremen.....	1	60	2.70 d.	27	Do.....	5	60	.20 h.	20
Do.....	5	60	.225 h.	22.5	Do.....	1	60	(?) h.	18.9
Foremen, construction.	1	60	76.50 m.	29.4	Do.....	1	60	(?) h.	18.6
Foremen, grade crew.	1	60	.30 h.	30	Do.....	1	60	(?) d.	18.5
Foremen, grading.	2	60	81.00 m.	31.2	Do.....	1	60	1.80 d.	18
Do.....	1	60	75.00 m.	28.8	Do.....	16	60	1.57½ d.	15.8
Do.....	1	60	63.00 m.	21.2	Do.....	3	60	1.40 d.	14
Do.....	1	60	.225 h.	22.5	Slip men.	1	60	2.90 d.	29
Do.....	2	60	2.00 d.	20	Do.....	2	60	.20 h.	20
Foremen, repair crew.	2	60	.25 h.	25	Do.....	4	60	1.75 d.	17.5
Do.....	1	60	2.00 d.	20	Spike peddlers.	1	60	(?) d.	13.6
Do.....	1	60	1.65 d.	16.5	Do.....	1	60	1.15 d.	11.5
Foremen, right-of-way.	1	60	2.75 d.	27.5	Do.....	1	60	.90 d.	9
Do.....	1	60	1.80 d.	18	Spikers.	1	60	2.00 d.	20
Foremen, section.	1	60	75.00 m.	28.8	Do.....	3	60	(?) d.	18.3
Do.....	2	60	2.50 d.	25	Do.....	14	60	1.75 d.	17.5
Do.....	1	60	62.50 m.	21	Do.....	4	60	1.70 d.	17
Do.....	1	60	60.00 m.	23.1	Do.....	1	60	(?) d.	17
Do.....	3	60	58.50 m.	22.5	Do.....	1	60	(?) d.	17
Do.....	1	60	2.25 d.	22.5	Do.....	1	60	(?) d.	17
Do.....	1	60	.225 h.	22.5	Do.....	8	60	1.60 d.	16
Do.....	1	66	60.00 m.	21	Do.....	2	60	2.00 d.	20
Do.....	1	60	54.00 m.	20.8	Do.....	25	69	.20 h.	20
Do.....	3	60	2.00 d.	20	Do.....	1	61	(?) h.	18
Do.....	1	60	.20 h.	20	Do.....	1	60	(?) d.	17.9
Do.....	1	66	1.60 d.	14.5	Do.....	28	60	1.75 d.	17.5
Do.....	1	66	40.00 m.	14	Do.....	12	60	.175 h.	17.5
Foremen, steel crew.	1	60	.40 h.	40	Do.....	1	60	(?) d.	17.4
Do.....	1	60	100.00 m.	38.5	Do.....	1	60	(?) h.	17.3
Do.....	1	60	90.00 m.	34.6	Do.....	1	60	(?) h.	17.2
Do.....	1	60	3.25 d.	32.5	Do.....	1	60	1.70 d.	17
Do.....	1	60	81.00 m.	31.2	Do.....	1	60	(?) d.	16.9
Do.....	1	60	76.50 m.	29.4	Do.....	34	60	1.60 d.	16
Do.....	1	60	75.00 m.	28.8	Do.....	16	60	.16 h.	16
Do.....	1	60	72.00 m.	27.7	Do.....	23	60	1.57½ d.	15.8
Do.....	3	60	2.50 d.	25	Do.....	1	60	(?) h.	15.3
Do.....	1	60	2.00 d.	20	Do.....	1	60	.15 h.	15
Grade men.	1	60	2.00 d.	20	Teamsters.	1	60	(?) d.	19.2
Do.....	2	60	(?) d.	17	Do.....	2	60	(?) h.	18.5
Do.....	2	60	(?) d.	16.9	Do.....	1	60	1.75 d.	17.5
Do.....	1	60	(?) d.	16.5	Do.....	4	60	.175 h.	17.5
Do.....	10	60	1.50 d.	15	Do.....	1	60	(?) d.	17.1
Laborers.	1	60	.20 h.	20	Do.....	1	60	(?) d.	16.9
Do.....	1	60	(?) h.	17	Do.....	1	60	(?) d.	16.7
Do.....	5	60	.16 h.	16	Do.....	27	60	1.60 d.	16
Do.....	12	60	1.45 d.	14.5	Do.....	4	60	1.40 d.	14
Laborers, grading.	1	60	1.75 d.	17.5	Do.....	4	60	1.75 d.	17.5
Do.....	13	60	1.35 d.	13.5	Trackmen.	2	60	1.75 d.	17.5
Do.....	11	60	1.50 d.	15	Do.....	13	60	.175 h.	17.5
Do.....	11	60	1.35 d.	13.5	Do.....	1	60	(?) d.	16.7
Laborers, section.	48	60	1.75 d.	17.5	Do.....	1	60	(?) h.	16.6
Do.....	5	60	1.60 d.	16	Do.....	1	60	1.65 d.	16.5
Do.....	1	60	(?) d.	15.8	Do.....	1	60	(?) h.	16.3
Do.....	29	60	1.40 d.	14	Do.....	4	60	1.60 d.	16
Do.....	8	60	1.25 d.	12.5	Do.....	2	60	(?) h.	15.7
Do.....	12	66	1.25 d.	11.4	Do.....	1	60	(?) h.	15.6
Do.....	7	66	1.15 d.	10.5	Do.....	1	60	(?) d.	15.4
					Do.....	1	60	(?) h.	15.1
					Do.....	27	60	1.50 d.	15
					Do.....	33	60	.15 h.	15
					Do.....	1	60	(?) d.	14.4
					Do.....	13	60	1.42½ d.	14.3

¹ Seven days.

² More than one rate.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

LOUISIANA—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Railroad construction and maintenance—Concluded.</i>					<i>Railroad operation—Concluded.</i>				
Trackmen.....	1	60	(1) d.	11.2	Firemen.....	5	60	\$2.25 d.	22.5
Do.....	14	60	\$1.50 d.	14	Do.....	1	60	54.00 m.	20.8
Trackwalkers.....	1	60	2.50 d.	25	Do.....	1	60	(1) d.	20.6
Do.....	1	2 70	2.25 d.	22.5	Do.....	2	2 70	2.05 d.	20.5
Do.....	2	60	.18 h.	18	Do.....	7	60	2.00 d.	20
Do.....	2	60	1.60 d.	16	Do.....	1	60	(1) m.	19.3
Water boys.....	1	60	.10 h.	10	Do.....	1	60	.185 h.	18.5
Do.....	1	60	.75 d.	7.5	Do.....	3	60	1.80 d.	18
Woodchoppers.....	1	60	.25 h.	25	Do.....	8	60	1.75 d.	17.5
<i>Railroad operation.</i>					Do.....	2	66	1.80 d.	16.4
Brakemen.....	4	60	2.50 d.	25	Do.....	1	60	1.60 d.	16
Do.....	1	60	(1) h.	25	Do.....	1	60	(1) h.	15.7
Do.....	2	66	2.25 d. ³	22.5	Do.....	1	66	1.60 d.	14.5
Do.....	2	69	58.50 m.	22.5	Flagmen.....	1	2 70	1.80 d.	18
Do.....	4	60	2.25 d.	22.5	Fuel men.....	1	60	1.80 d.	18
Do.....	1	2 70	2.05 d.	20.5	Do.....	2	60	1.55 d.	15.5
Do.....	1	60	(1) d.	20.5	Hostlers.....	1	2 70	2.25 d.	22.5
Do.....	4	60	2.00 d.	20	Do.....	1	2 70	2.05 d.	20.5
Do.....	4	60	2.00 d.	20	Do.....	4	2 70	2.00 d.	20
Do.....	5	69	1.80 d.	18	Do.....	1	60	2.00 d.	20
Do.....	2	69	.18 h.	18	Do.....	1	2 70	.20 h.	20
Do.....	3	69	1.75 d.	17.5	Do.....	1	2 70	1.80 d.	18
Do.....	1	60	1.60 d.	16	Do.....	1	2 70	.18 h.	18
Conductors.....	1	60	126.00 m.	48.5	Do.....	1	2 70	46.50 m.	15.4
Do.....	1	69	99.69 m.	34.6	Do.....	1	2 70	1.50 d.	15
Do.....	1	2 77	2.75 d. ³	27.5	Hostlers, assistant.....	1	2 70	.15 h.	15
Engineers.....	1	60	159.60 m.	53.8	Oilers.....	1	60	(1) d.	21.3
Do.....	1	60	112.50 m.	43.3	Do.....	1	60	2.69 d.	20
Do.....	3	60	4.00 d.	40	Do.....	1	60	.20 h.	20
Do.....	2	2 70	120.90 m.	39.6	Do.....	1	63	(1) d.	19.2
Do.....	1	60	100.00 m.	38.5	Pump men.....	2	60	1.75 d.	17.5
Do.....	1	60	3.50 d.	35	Switchmen.....	1	60	1.50 d.	15
Do.....	1	66	95.00 m.	33.2		1	69	1.75 d.	17.5
Do.....	3	2 70	100.00 m.	33	<i>Road construction and maintenance.</i>				
Do.....	1	2 70	99.00 m.	32.6	Swampers.....	1	60	100.00 m.	38.5
Do.....	1	60	\$3.35 m.	32.1	Do.....	1	60	90.00 m.	34.6
Do.....	6	69	81.00 m.	31.2	Do.....	1	60	80.00 m.	30.8
Do.....	1	2 77	3.00 d. ³	30	Do.....	1	60	3.00 d.	30
Do.....	1	66	3.00 d. ³	30	Do.....	1	69	59.60 m.	22.9
Do.....	4	69	3.60 d.	30	Do.....	1	60	2.25 d.	22.5
Do.....	2	2 70	90.00 m.	29.7	Do.....	7	60	2.00 d.	20
Do.....	1	66	80.00 m.	28	Do.....	1	60	50.00 m.	19.2
Do.....	1	60	2.80 d.	28	Do.....	1	60	(1) d.	17.8
Do.....	1	66	75.00 m.	26.2	Do.....	11	60	1.75 d.	17.5
Do.....	1	60	(1) m.	25.4	Do.....	1	60	(1) d.	15.5
Do.....	3	60	2.50 d.	25	Do.....	5	60	1.50 d.	15
Do.....	1	2 70	70.00 m.	23.1	<i>Unloading.</i>				
Do.....	1	66	65.00 m.	22.7	Rollway men.....	1	60	2.50 d.	25
Do.....	1	60	2.25 d.	22.5	Do.....	3	60	2.25 d.	22.5
Firemen.....	2	60	3.00 d.	30	Do.....	1	60	(1) d.	19.2
Do.....	1	60	2.75 d.	27.5					
Do.....	1	2 70	2.50 d.	25					
Do.....	1	2 70	2.25 d.	22.5					

MISSISSIPPI.

<i>General.</i>					<i>General—Contd.</i>				
Barn bosses.....	1	2 84	\$1.80 d.	15	Blacksmiths.....	1	60	\$2.60 d.	26
Barn men.....	1	60	50.00 m.	19.2	Do.....	2	60	2.50 d.	25
Do.....	1	60	1.80 d.	18	Do.....	1	60	2.25 d.	22.5
Do.....	1	2 70	1.80 d.	18	Do.....	1	60	2.00 d.	20
Do.....	1	69	1.75 d.	17.5	Blacksmiths' help-ers.....	1	60	1.80 d.	18
Blacksmiths.....	1	60	3.25 d.	32.5	Do.....	1	60	1.60 d.	16
Do.....	2	60	3.15 d.	31.5	Do.....	3	60	1.50 d.	15
Do.....	1	2 70	3.00 d.	30	Car inspectors.....	1	60	2.00 d.	20
Do.....	2	60	3.00 d.	30					

¹ More than one rate.

² Seven days.

³ Of 10 hours.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

MISSISSIPPI—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.		
<i>General—Concd.</i>					<i>Cutting, etc.—Cld.</i>						
				<i>Cents.</i>					<i>Cents.</i>		
Carpenters.....	1	60	\$2.05	d.	20.5	Foremen.....	1	60	\$65.00	m.	25
Do.....	2	60	1.60	d.	16	Foremen and filers.....	1	60	2.25	d.	22.5
Car repairers.....	1	60	2.75	d.	27.5	Foremen and log					
Do.....	1	60	2.25	d.	22.5	checkers.....	1	60	2.25	d.	22.5
Do.....	1	60	1.75	d.	17.5	Foremen and scalers					
Civil engineers' help-						Knot choppers.....	4	60	2.00	d.	20
ers.....	1	60	1.75	d.	17.5	Do.....	2	60	(³)	d.	16
Cooks.....	1	84	² 90.00	m.	² 24.7	Do.....	5	60	1.40	d.	14
Do.....	1	70	1.50	d.	15	Sawyers.....	7	60	1.60	d.	16
Do.....	2	70	² 32.50	m.	² 10.7	Do.....	29	60	1.50	d.	15
Do.....	2	70	² .65	d.	² 6.5	Do.....	10	60	1.40	d.	14
Do.....	1	70	² .50	d.	² 5	Do.....	4	60	1.35	d.	13.5
Cooks' helpers.....	1	84	² 41.00	m.	² 11.3	Do.....	16	60	1.25	d.	12.5
Do.....	3	70	1.10	d.	11	Do.....	2	60	1.15	d.	11.5
Do.....	6	84	² 1.00	d.	² 8.3	Do.....	186	60	(⁴)		10
Dynamo men.....	1	60	1.75	d.	17.5	Water boys.....	1	60	1.00	d.	10
Filers.....	1	60	80.00	m.	30.8						
Do.....	1	60	2.75	d.	27.5	<i>Hauling, skidding,</i>					
Do.....	2	60	2.50	d.	25	<i>and loading.</i>					
Foremen.....	1	60	115.00	m.	44.2	Axmen.....	1	60	1.40	d.	14
Do.....	1	60	100.00	m.	38.5	Cart-hook men.....	5	60	1.50	d.	15
Do.....	1	60	67.50	m.	26	Deckers and chokers					
Do.....	1	60	50.00	m.	19.2	Do.....	1	60	1.25	d.	12.5
Horse tenders.....	1	60	.50	d.	5	Do.....	4	60	1.15	d.	11.5
Landing men.....	1	60	1.40	d.	14	Deck men.....	4	60	1.40	d.	14
Machinists.....	1	60	115.00	m.	44.2	Drivers.....	4	60	1.50	d.	15
Do.....	1	60	100.00	m.	38.5	Do.....	1	72	1.50	d.	12.5
Do.....	1	60	² 90.00	m.	² 31.6	Drivers, ox.....	1	60	(³)	d.	18
Do.....	1	60	3.15	d.	31.5	Do.....	8	60	1.60	d.	16
Do.....	1	70	2.50	d.	25	Do.....	1	60	(³)	d.	12
Do.....	2	60	2.50	d.	25	Do.....	14	60	1.15	d.	11.5
Do.....	1	84	2.50	d.	20.8	Do.....	2	60	1.00	d.	10
Do.....	1	70	1.90	d.	18	Drivers and bunch-					
Machinists' helpers.....	1	60	2.25	d.	22.5	ers.....	1	60	1.50	d.	15
Oilers.....	1	60	1.40	d.	14	Do.....	2	60	1.35	d.	13.5
Pipe fitters.....	1	70	1.80	d.	18	Do.....	1	60	(³)	d.	12.9
Pipe fitters' helpers.....	1	60	1.25	d.	12.5	Do.....	5	60	1.20	d.	12
Pump men.....	1	60	1.50	d.	15	Drummen.....	5	60	2.25	d.	22.5
Scalers.....	1	60	2.75	d.	27.5	Do.....	4	60	2.05	d.	20.5
Do.....	1	60	2.25	d.	22.5	Do.....	3	60	2.00	d.	20
Do.....	3	60	55.00	m.	21.2	Do.....	1	60	(³)	d.	19
Do.....	2	60	2.05	d.	20.5	Do.....	1	60	1.75	d.	17.5
Do.....	1	60	2.00	d.	20	Do.....	6	60	1.50	d.	15
Do.....	1	60	1.75	d.	17.5	Do.....	2	72	1.60	d.	13.3
Do.....	1	60	1.60	d.	16	Do.....	1	60	90.00	m.	34.6
Do.....	1	60	.14	h.	14	Engineers.....	1	60	1.50	d.	15
Shoers.....	1	60	2.05	d.	20.5	Extra men.....	1	60	2.00	d.	20
Tallymen.....	3	60	1.50	d.	15	Feeders.....	1	60	2.00	d.	20
Timekeepers.....	1	60	3.00	d.	30	Do.....	1	60	1.75	d.	17.5
Do.....	1	60	60.00	m.	23.1	Firemen.....	1	60	2.83	d.	28.3
Timekeepers and						Do.....	1	72	3.00	d.	25
scalers.....	1	60	75.00	m.	28.8	Do.....	1	60	2.00	d.	20
Unloaders, coal.....	1	60	1.25	d.	12.5	Do.....	2	70	1.80	d.	18
Washers.....	1	60	1.00	d.	10	Do.....	1	60	1.80	d.	18
Watchmen.....	2	84	2.25	d.	18.8	Do.....	10	60	1.75	d.	17.5
Do.....	1	84	65.00	m.	17.9	Do.....	2	60	.175	h.	17.5
Do.....	1	84	2.00	d.	16.7	Do.....	2	60	1.25	d.	12.5
Do.....	4	70	1.40	d.	14	Do.....	4	72	1.40	d.	11.7
Do.....	1	60	1.40	d.	14	Do.....	2	72	1.20	d.	10
Do.....	1	84	1.60	d.	13.3	Firemen's helpers.....	1	60	.14	h.	14
Do.....	2	84	1.50	d.	12.5	Flagmen.....	1	60	1.25	d.	12.5
Do.....	6	84	1.40	d.	11.7	Do.....	4	72	1.40	d.	11.7
Do.....	1	84	1.25	d.	10.4	Foremen.....	2	60	125.00	m.	48.1
Water boys.....	3	60	1.25	d.	12.5	Do.....	1	60	100.00	m.	38.5
Do.....	1	60	1.15	d.	11.5	Do.....	1	60	3.50	d.	35
Woodmen.....	1	60	1.60	d.	16	Do.....	1	60	² 90.00	m.	² 34.6
						Do.....	2	60	85.00	m.	32.7
						Do.....	1	60	2.88	d.	28.8
						Do.....	1	60	2.83	d.	28.3
						Do.....	1	60	70.00	m.	26.9
						Do.....	1	60	2.25	d.	22.5
						Do.....	1	60	2.00	d.	20
						Do.....	2	60	50.00	m.	19.2
						Do.....	1	72	1.90	d.	15.8
						Do.....	1	60	1.50	d.	15

¹ Seven days.² And board.³ More than one rate.⁴ Pieceworkers.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

MISSISSIPPI—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Hauling, skidding, and loading—Ctd.</i>					<i>Hauling, skidding, and loading—Ctd.</i>				
<i>Cents.</i>					<i>Cents.</i>				
Foremen.....	1	60	(1) d.	13.6	Tongers.....	1	60	\$0.18 h.	18
Foremen, loader.....	1	60	\$4.13 d.	41.3	Do.....	1	60	(1) d.	17.8
Do.....	1	60	2.25 d.	22.5	Do.....	1	60	(1) d.	17.7
Foremen, skidder.....	1	60	110.00 m.	42.3	Do.....	12	60	1.75 d.	17.5
Do.....	1	60	4.00 d.	40	Do.....	1	60	(1) d.	17.4
Do.....	1	60	100.00 m.	38.5	Do.....	29	60	1.60 d.	16
Do.....	1	60	1.75 d.	17.5	Do.....	6	60	1.50 d.	15
Foremen, teamsters.....	1	60	75.00 m.	23.8	Do.....	1	60	(1) d.	14.8
Do.....	1	60	55.00 m.	21.2	Do.....	16	60	1.40 d.	14
Do.....	1	72	2.50 d.	20.8	Do.....	13	60	1.35 d.	13.5
Do.....	1	60	2.05 d.	20.5	Do.....	1	60	(1) d.	13.2
Do.....	1	60	2.00 d.	20	Do.....	1	60	1.25 d.	12.5
Handymen.....	1	60	1.25 d.	12.5	Do.....	4	72	1.40 d.	11.7
Haulers.....	7	60	1.15 d.	11.5	Do.....	6	72	1.30 d.	10.8
Labors.....	1	60	1.75 d.	17.5	Do.....	3	60	1.00 d.	10
Do.....	2	60	1.50 d.	15	Tong setters.....	1	72	1.50 d.	12.5
Do.....	1	60	1.40 d.	14	Top loaders.....	1	60	.25 h.	25
Do.....	5	60	1.35 d.	13.5	Do.....	5	60	2.25 d.	22.5
Do.....	1	60	(1) d.	13	Do.....	1	60	1.75 d.	17.5
Do.....	28	60	1.25 d.	12.5	Do.....	1	60	(1) d.	17
Do.....	5	60	1.15 d.	11.5	Do.....	2	60	1.50 d.	15
Do.....	2	60	1.10 d.	11	Do.....	1	72	1.50 d.	12.5
Do.....	32	60	1.00 d.	10	Do.....	1	72	.75 d.	7.5
Linemen.....	1	60	1.60 d.	16	Water boys.....	1	60	.75 d.	7.5
Line setters.....	1	60	1.75 d.	17.5	Wood getters.....	9	60	1.50 d.	15
Do.....	2	60	1.50 d.	15	Do.....	2	60	1.40 d.	14
Loadermen.....	1	60	5.00 d.	50	Woodmen.....	4	72	1.60 d.	13.3
Do.....	1	60	.50 h.	50	Do.....	2	72	1.40 d.	11.7
Do.....	2	60	4.25 d.	42.5	<i>Railroad construction and maintenance.</i>				
Do.....	1	60	(1) d.	41.3	Bridgemen.....	1	60	2.50 d.	25
Do.....	1	60	3.50 d.	35	Drivers.....	1	60	1.40 d.	14
Do.....	1	60	2.83 d.	28.3	Do.....	1	60	1.35 d.	13.5
Do.....	2	72	2.50 d.	20.8	Do.....	1	60	2.50 d.	25
Do.....	2	60	2.00 d.	20	Engineers.....	1	60	2.50 d.	25
Do.....	1	72	2.25 d.	18.8	Firemen.....	1	60	1.00 d.	10
Leaders.....	1	60	1.75 d.	17.5	Foremen.....	1	60	3.50 d.	35
Do.....	10	60	1.50 d.	15	Do.....	1	60	75.00 m.	28.8
Do.....	7	60	1.15 d.	11.5	Do.....	1	60	55.00 m.	21.2
Leaders, assistant.....	1	60	2.00 d.	20	Foremen, construction.....	1	60	2.00 d.	20
Leaders, bumper.....	2	60	1.50 d.	15	Do.....	1	72	1.75 d.	14.6
Do.....	1	60	1.35 d.	13.5	Foremen, grading.....	1	60	85.00 m.	32.7
Leaders, bumper, and swampers.....	1	60	(1) d.	13.6	Do.....	1	60	3.00 d.	30
Do.....	1	60	(1) d.	12.4	Do.....	1	60	2.25 d.	22.5
Do.....	3	60	1.20 d.	12	Do.....	1	60	.175 h.	17.5
Oilers.....	1	60	2.00 d.	20	Foremen, section.....	1	60	75.00 m.	28.8
Do.....	2	60	1.75 d.	17.5	Do.....	1	60	2.50 d.	25
Do.....	1	60	(1) d.	13.8	Do.....	1	60	2.30 d.	23
Riders.....	1	60	1.55 d.	15.5	Do.....	4	60	2.25 d.	22.5
Do.....	5	60	1.50 d.	15	Do.....	1	60	2.00 d.	20
Do.....	1	60	(1) d.	14.3	Do.....	1	60	.20 h.	20
Do.....	3	60	1.35 d.	13.5	Do.....	1	60	.185 h.	18.5
Do.....	1	72	1.00 d.	8.3	Do.....	5	66	1.80 d.	16.4
Roustabouts.....	2	60	1.00 d.	10	Foremen, steel gang.....	1	60	80.00 m.	30.8
Skidder men.....	1	60	2.25 d.	22.5	Do.....	1	60	3.00 d.	30
Skinners.....	3	60	1.25 d.	12.5	Do.....	1	60	75.00 m.	28.8
Spicers.....	1	60	2.05 d.	20.5	Do.....	1	60	2.70 d.	27
Tail-down men.....	4	60	1.50 d.	15	Do.....	1	60	2.55 d.	25.5
Teamsters.....	2	60	2.00 d.	20	Do.....	1	66	2.00 d.	18.2
Do.....	6	60	1.80 d.	18	Foremen, track crew.....	1	66	2.25 d.	20.5
Do.....	11	60	1.75 d.	17.5	Do.....	1	60	1.65 d.	16.5
Do.....	15	60	1.65 d.	16.5	Do.....	1	60	1.25 d.	12.5
Do.....	7	60	1.60 d.	16	Foremen, construction, assistant.....	1	60	1.15 d.	11.5
Do.....	10	60	1.50 d.	15	Foremen, grading, assistant.....	1	60	2.00 d.	20
Do.....	14	60	.135 h.	13.5	Foremen, section, assistant.....	1	60	1.75 d.	17.5
Do.....	9	72	1.50 d.	12.5	Labors.....	1	60	1.25 d.	12.5
Do.....	12	60	1.25 d.	12.5	Do.....	41	60	1.00 d.	10
Teamsters, head.....	1	60	.20 h.	20					
Do.....	3	60	.175 h.	17.5					
Do.....	1	60	.15 h.	15					
Tongers.....	8	60	1.80 d.	18					

¹ More than one rate.

² And board.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

MISSISSIPPI—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Railroad construction and maintenance—Concluded.</i>					<i>Railroad operation—Concluded.</i>				
Laborers, construction	6	72	\$1.40 d.	11.7	Engineers	7	60	\$3.00 d.	30
Do	32	60	1.00 d.	10	Do	1	60	75.00 m.	28.8
Laborers, grading	5	60	1.35 d.	13.5	Do	1	60	2.75 d.	27.5
Do	16	60	1.30 d.	13	Do	2	70	2.70 d.	27
Do	7	60	1.15 d.	11.5	Do	3	72	3.00 d.	25
Do	12	60	.11 h.	11	Do	2	60	2.50 d.	25
Laborers, section	18	60	1.30 d.	13	Do	1	72	.225 h.	22.5
Do	31	60	1.25 d.	12.5	Do	1	60	2.25 d.	22.5
Do	11	60	1.15 d.	11.5	Do	4	72	.20 h.	20
Do	4	60	.11 h.	11	Do	1	60	2.00 d.	20
Do	30	66	1.10 d.	10	Do	4	60	1.75 d.	17.5
Do	16	60	1.00 d.	10	Engineers' helpers	1	60	1.40 d.	14
Do	6	60	.10 h.	10	Extra men	2	60	1.25 d.	12.5
Laborers, steel-gang	26	60	1.50 d.	15	Firemen	1	70	2.25 d.	22.5
Do	1	60	1.40 d.	14	Do	1	60	(¹) d.	20.9
Do	4	60	1.35 d.	13.5	Do	2	60	2.00 d.	20
Do	1	60	(¹) d.	12.8	Do	1	60	(¹) d.	19.2
Do	34	60	1.25 d.	12.5	Do	1	60	1.80 d.	18
Do	3	60	1.20 d.	12	Do	5	69	1.75 d.	17.5
Do	2	60	1.15 d.	11.5	Do	2	72	2.60 d.	16.7
Do	1	60	1.10 d.	11	Do	1	70	1.60 d.	16
Do	14	60	.11 h.	11	Do	3	60	1.50 d.	15
Do	15	65	1.15 d.	10.5	Do	1	72	1.75 d.	14.6
Do	26	60	1.00 d.	10	Do	1	70	1.40 d.	14
Laborers, track	10	66	1.10 d.	10	Do	1	72	.135 h.	13.5
Do	17	60	1.00 d.	10	Do	3	72	.13 h.	13
Loaders, slip	1	60	1.35 d.	13.5	Do	2	60	1.30 d.	13
File drivers	1	72	2.25 d.	18.8	Do	1	72	.126 h.	12.6
Teamsters	4	60	1.75 d.	17.5	Do	1	72	1.50 d.	12.5
Do	3	60	1.50 d.	15	Do	3	60	1.25 d.	12.5
Do	2	60	1.35 d.	13.5	Flagmen	2	70	1.80 d.	18
Do	1	72	1.50 d.	12.5	Do	1	72	.125 h.	12.5
Do	1	60	1.15 d.	11.5	Hostlers	1	60	2.25 d.	22.5
Trackdressers	1	60	1.45 d.	14.5	Do	1	70	1.80 d.	18
Do	1	60	1.25 d.	12.5	Do	1	70	1.65 d.	16.5
Trackwalkers	1	60	.11 h.	11	Do	1	74	1.75 d.	14.6
Do	1	66	1.20 d.	10.9	Do	1	72	.11 h.	11
Do	1	72	1.25 d.	10.4	Do	4	72	1.25 d.	10.4
Do	4	72	1.20 d.	10	Hostlers' helpers	1	60	2.50 d.	25
Water boys	1	60	1.05 d.	10.5	Do	1	60	1.75 d.	17.5
Do	1	60	.90 d.	9	Do	4	60	1.40 d.	14
Do	2	60	.80 d.	8	Train masters	1	60	2.50 d.	25
Do	1	66	.80 d.	7.3					
Do	1	60	.25 d.	2.5	<i>Road construction and maintenance.</i>				
<i>Railroad operation.</i>					Swampers	10	60	1.35 d.	13.5
Brakemen	1	60	1.80 d.	18	Do	11	60	1.25 d.	12.5
Do	3	72	2.00 d.	16.7	Do	1	60	1.15 d.	11.5
Do	2	70	1.60 d.	16	Do	4	72	1.30 d.	10.8
Do	8	60	1.50 d.	15	Do	40	60	1.00 d.	10
Do	2	60	1.35 d.	13.5	Timbermen	1	60	2.60 d.	26
Do	1	60	1.30 d.	13					
Do	2	72	1.50 d.	12.5	<i>Wood-machine crew.</i>				
Do	7	60	1.25 d.	12.5	Axmen and wood				
Do	1	72	1.25 d.	10.4	stockers	1	60	1.35 d.	13.5
Car greasers	1	60	1.50 d.	15	Do	6	60	1.30 d.	13
Car knockers	1	60	2.00 d.	20	Block setters	1	60	1.50 d.	15
Conductors	1	72	125.00 m.	40.1	Firemen	1	60	1.50 d.	15
Do	1	70	3.50 d.	35	Foremen	1	60	50.00 m.	19.2
Do	11	60	3.50 d.	35	Off-bearers	3	60	1.30 d.	13
Do	1	60	(¹) d.	28.8	Sawyers	1	60	1.50 d.	15
Do	2	70	1.80 d.	18	Splitter men	1	60	1.65 d.	16.5
Engineers	1	60	100.00 m.	38.5	Tongers	2	60	1.30 d.	13
Do	1	70	3.00 d.	36	Trash burners and				
Do	1	60	3.50 d.	35	yardmen	1	60	1.35 d.	13.5
Do	2	70	3.15 d.	31.5					

¹ More than one rate.² Seven days.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

MONTANA.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>General.</i>					<i>Cutting, etc.—Cld.</i>				
Barn bosses.....	1	70	\$1.45 d.	214.5	Stall hewers.....	2	54	(3) d.	29.8
Blacksmiths.....	1	60	2 2.90 d.	29	Do.....	1	54	(3) d.	29.6
Do.....	1	60	2 75.00 m.	23.8	Do.....	1	54	(3) d.	29.5
Bull cooks.....	1	63	2 50.00 m.	18.3	Do.....	1	54	(3) d.	29.3
Do.....	1	70	2 1.61 d.	16.1	<i>Hauling, skidding, and loading.</i>				
Cooksees.....	1	63	(2) m.	23.4	Chainmen.....	1	54	(3) d.	31.3
Do.....	3	63	2 50.00 m.	18.3	Do.....	1	54	\$2.70 d.	30
Do.....	4	63	2 45.00 m.	16.5	Do.....	1	54	(3) d.	30
Cookhouse employ-					Do.....	1	54	(3) d.	29.8
ees.....	2	70	2 90.00 m.	29.7	Do.....	2	54	(3) d.	29.6
Do.....	1	70	2 45.00 m.	14.8	Doggers.....	3	60	2.75 d.	27.5
Do.....	5	70	2 40.00 m.	13.2	Do.....	1	60	2.50 d.	25
Cooks.....	3	63	2 125.00 m.	43.8	Do.....	1	60	5.90 d.	49.2
Do.....	1	70	2 100.00 m.	32	Engineers.....	1	60	4.92 d.	38.5
Do.....	1	70	2 3.22 d.	32.2	Do.....	1	60	100.00 m.	48.5
Cooks, second.....	2	63	2 60.00 m.	28.9	Do.....	1	60	4.50 d.	45
Filers.....	1	54	3 5.00 d.	38.9	Engineers, donkey.....	1	60	2.75 d.	27.5
Do.....	1	60	3 25 d.	32.5	Engineers' helpers.....	1	60	3.25 d.	32.5
Do.....	1	60	(3) d.	28.9	Firemen.....	1	60	3.00 d.	30
Do.....	1	60	(3) d.	28.8	Do.....	1	54	(3) d.	33.3
Firemen.....	1	54	2 65.00 m.	25	Do.....	1	54	(3) d.	32.4
Flunkies.....	1	70	2 45.00 m.	14.8	Hookers.....	1	54	(3) d.	31
Do.....	3	70	2 1.45 d.	14.5	Do.....	1	54	(3) d.	31.4
Foremen.....	1	60	2 6.44 d.	64.4	Do.....	3	60	3.00 d.	30
Do.....	1	60	2 166.67 m.	166.7	Do.....	1	60	4.50 d.	45
Do.....	1	60	2 150.00 m.	157.7	Hook tenders.....	1	60	(3) d.	29.8
Do.....	2	60	2 100.00 m.	100	Jammers.....	1	54	(3) d.	27.5
Do.....	1	60	2 85.00 m.	85	Loaders.....	1	60	3.75 d.	37.5
Do.....	2	60	2 3.22 d.	32.2	Do.....	2	60	3.50 d.	35
Do.....	1	60	2 2.43 d.	24.3	Do.....	2	60	3.00 d.	30
Handy men.....	2	60	3 32.5 d.	32.5	Do.....	3	60	2.75 d.	27.5
Harness men.....	1	54	3 0.00 d.	33.3	Do.....	1	60	(3) d.	25.7
Hoisters.....	1	54	(4) d.	33.9	Do.....	9	60	2.50 d.	25
Laborers.....	3	60	2 2.25 d.	22.5	Do.....	1	60	(3) d.	24.8
Powder men.....	1	54	(3) d.	33	Riggers.....	7	60	2.75 d.	27.5
Sealers.....	1	54	(4) d.	28.6	Skidder crew.....	1	60	4.25 d.	42.5
Do.....	2	60	2 65.00 m.	25	Do.....	1	60	(3) d.	39.1
Sheppmen.....	1	54	2 100.00 m.	100	Do.....	2	60	130.00 m.	38.5
Do.....	1	54	2 50.00 m.	21.4	Do.....	1	60	(3) d.	37.7
Stablenen.....	1	54	2 50.00 m.	21.4	Do.....	4	60	3.50 d.	35
Timekeepers.....	1	54	2 100.00 m.	100	Do.....	1	60	(2) d.	33.3
Do.....	1	54	2 75.00 m.	75	Do.....	3	60	3.25 d.	32.5
Do.....	1	60	2 2.43 d.	24.3	Do.....	1	60	(3) d.	31.8
Do.....	1	60	2 60.00 m.	60	Do.....	1	60	(3) d.	28.9
Do.....	2	60	2 50.00 m.	50	Do.....	1	60	(2) d.	28.1
Watchmen.....	1	60	3 0.00 d.	30	Do.....	3	60	2.75 d.	27.5
Do.....	2	63	2 60.00 m.	60	Do.....	2	60	2.50 d.	25
Do.....	1	63	2 50.00 m.	50	Do.....	1	60	2.25 d.	22.5
Not reported.....	10	54	(3) d.	(3)	Teamsters.....	1	60	(3) d.	31.1
<i>Cutting, etc.</i>					Do.....	1	54	(4) d.	29.8
Boss sawyers.....	1	54	2 100.00 m.	100	Do.....	1	54	2 2.50 d.	27.8
Sawyers.....	31	54	2 2.75 d.	30.6	Do.....	8	60	2.75 d.	27.5
Do.....	1	54	(2) d.	30.6	Do.....	1	60	(3) d.	27
Do.....	1	54	(3) d.	30.3	Do.....	1	54	(4) d.	26.4
Do.....	1	54	(3) d.	30.2	Do.....	1	60	(3) d.	25.8
Do.....	1	54	(3) d.	29.9	Do.....	1	60	(3) d.	25.7
Do.....	2	54	(3) d.	29.8	Do.....	1	54	(4) d.	25.5
Do.....	1	54	(3) d.	29.7	Do.....	20	60	2.50 d.	25
Do.....	1	60	(3) d.	27.9	Do.....	1	54	(4) d.	24.6
Do.....	26	60	2 2.75 d.	27.5	Do.....	2	54	(4) d.	24.3
Do.....	1	60	(2) d.	26.3	Do.....	1	60	(3) n.	21.2
Do.....	1	60	(3) d.	26.2	Do.....	1	54	(4) d.	23.9
Do.....	1	60	(3) d.	26	Do.....	1	60	(3) d.	23.5
Do.....	1	60	(3) d.	25.7	Do.....	2	54	(4) d.	23.4
Do.....	32	60	2 50.00 d.	25	Do.....	1	54	(4) d.	22.7
Do.....	2	60	(3) d.	24.9	Do.....	10	60	2.25 d.	22.5
Do.....	1	60	(3) d.	24.3	Do.....	2	54	(4) d.	22.5
Do.....	1	60	(3) d.	24.2	Do.....	1	54	(4) d.	22.3
Do.....	2	60	(3) d.	24	Do.....	1	54	(4) d.	22.2
Do.....	1	60	(3) d.	24	Do.....	1	54	(4) d.	22.1
Do.....	1	60	(3) d.	23.9	Do.....	1	54	(4) d.	21.8

1 Seven days. 2 And board. 3 More than one rate. 4 More than one rate, and board. 5 \$0.263 to \$0.323.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

MONTANA—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Logging, skidding, and loading—Cld.</i>					<i>Railroad operation.</i>				
Teamsters.....	2	54	(1) d.	<i>Cents.</i> 21.7	Brakemen.....	1	54	\$113.60 m.	48.5
Do.....	1	54	(1) d.	21.6	Engineers.....	2	54	5.00 d.	55.6
Do.....	1	54	(1) d.	21.5	Firemen.....	1	54	113.60 m.	48.5
Do.....	2	54	\$50.00 m.	21.4	Not reported.....	18	60	(6) d.	(7)
Do.....	1	54	(1) d.	21.4	<i>Road construction and maintenance.</i>				
Do.....	1	54	245.00 m.	19.2	Swampers.....	1	54	(3) d.	30.3
Topmen, jammer.....	1	54	5.00 d.	55.6	Do.....	1	60	(3) d.	29.1
Whistle punks.....	1	60	2.50 d.	25	Do.....	1	60	(3) d.	28.6
Wood bucks.....	1	60	2.75 d.	27.5	Do.....	1	54	(3) d.	28.3
Do.....	6	60	2.50 d.	25	Do.....	25	54	2.50 d.	27.8
Do.....	1	60	(3) d.	24.4	Do.....	1	54	(3) d.	27.6
Do.....	1	60	(3) d.	24.2	Do.....	1	60	(3) d.	27.5
Do.....	1	60	2.25 d.	22.5	Do.....	14	60	2.75 d.	27.5
<i>Railroad construction and maintenance.</i>					Do.....	2	60	(3) d.	27.3
Laborers.....	1	60	(3) d.	25.6	Do.....	2	60	(3) d.	27.2
Do.....	6	60	2.50 d.	25	Do.....	1	60	(3) d.	27.1
Do.....	1	60	(3) d.	23.8	Do.....	2	60	(3) d.	27
Do.....	2	60	(3) d.	23.7	Do.....	1	60	(3) d.	26.9
Do.....	1	60	(3) d.	23	Do.....	1	60	(3) d.	26.7
Do.....	1	60	(3) d.	22.9	Do.....	1	60	(3) d.	26.6
Do.....	68	60	2.25 d.	22.5	Do.....	1	60	(3) d.	26.5
Do.....	1	60	(3) d.	22.5	Do.....	1	60	(3) d.	26.2
Do.....	1	60	(3) d.	21.7	Do.....	1	60	(3) d.	26.1
Not reported.....	68	54	(4) d.	(2)	Do.....	1	54	(3) d.	26
<i>Railroad construction, maintenance, and operation.</i>					Do.....	1	60	(3) d.	25.8
Laborers.....	1	60	3.00 d.	30	Do.....	1	60	(3) d.	25.7
Do.....	19	60	2.75 d.	27.5	Do.....	30	60	2.50 d.	25
Do.....	1	60	(3) d.	25.6	Do.....	1	54	(3) d.	24.7
Do.....	8	60	2.50 d.	25	Do.....	1	54	(3) d.	24.6
Not reported.....	1	60	(3) d.	33.9	Do.....	1	54	(3) d.	23.8
					Do.....	1	60	(3) d.	23.6
					Do.....	1	60	(3) d.	23.5
					Do.....	1	60	(3) d.	23.4
					Do.....	1	60	(3) d.	23.2
					Do.....	16	60	2.25 d.	22.5

NORTH CAROLINA.

<i>General.</i>	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	<i>General—Contd.</i>	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
Blacksmiths.....	1	60	\$0.30 h.	30	Cooks, assistant.....	1	77	\$16.00 m.	24.8
Do.....	1	60	.27½ h.	27.5	Counters.....	1	60	1.80 d.	18
Do.....	1	60	2.50 d.	25	Do.....	1	60	1.25 d.	12.5
Do.....	1	66	2.48 d.	22.5	Feeders.....	2	60	1.35 d.	13.5
Do.....	1	60	.20 h.	20	Do.....	2	77	.90 d.	8.2
Do.....	1	66	2.00 d.	18.2	Filers.....	2	60	.30 h.	30
Do.....	1	60	1.80 d.	18	Do.....	1	60	.25 h.	25
Blacksmiths' help-ers.....	2	60	1.35 d.	13.5	Do.....	1	60	.20 h.	20
Do.....	1	60	1.00 d.	10	Do.....	2	66	2.00 d.	18.2
Carpenters.....	1	60	.25 h.	25	Do.....	2	60	1.80 d.	18
Do.....	1	60	.22 h.	22	Do.....	1	66	1.80 d.	16.4
Do.....	1	60	1.80 d.	18	Do.....	3	60	1.50 d.	15
Cookees.....	1	70	(1) m.	18.5	Do.....	1	66	(3) d.	13.2
Do.....	6	70	245.50 m.	15	Foremen.....	1	60	.40 h.	40
Do.....	1	70	245.00 m.	14.8	Do.....	3	60	100.00 m.	38.5
Cooks.....	3	70	290.50 m.	29.8	Do.....	1	63	100.00 m.	36.6
Do.....	1	70	(1) m.	26.7	Do.....	1	60	15.00 m.	25
Do.....	1	70	75.50 m.	24.9	Laborers.....	2	63	1.50 d.	14.3
Do.....	1	77	240.00 m.	12	Landing builders.....	1	60	.25 h.	25
Do.....	4	77	35.00 m.	10.5	Lobby men.....	2	60	45.50 m.	17.5
Do.....	2	77	2.90 d.	8.2	Mechanics.....	1	60	1.80 d.	18
Cooks, assistant.....	1	77	20.00 m.	6	Office men.....	1	66	67.50 m.	23.6
Do.....	2	77	218.00 m.	5.4	Pump men.....	2	60	36.00 m.	22.7

1 More than one rate, and board.
 2 And board.
 3 More than one rate.

4 From \$2.40 and board to \$4.55.
 5 From \$0.268 and board to \$0.506.
 6 \$2.70 and board to \$4.50.

7 \$0.270 to \$0.450
 8 Seven days.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

NORTH CAROLINA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>General—Concd.</i>					<i>Cutting, etc.—Cld.</i>				
Repair men, log equipment	2	66	\$3.00 d.	27.3	Sawyers	136	66	(7)	(7)
Do	2	66	2.00 d.	18.2	Do	66	60	(7)	(7)
Do	1	66	1.50 d.	13.6	Water boys	1	66	(6) d.	7.3
Scalers	1	60	1.80 d.	18	Do	1	66	\$0.75 d.	6.8
Do	2	60	1.50 d.	15	Not reported	7	66	(9) d.	(10)
Do	2	60	1.35 d.	13.5	<i>Hauling, skidding, and loading.</i>				
Shopmen	1	66	2.70 d.	24.5	Canterers	1	60	1.80 d.	18
Do	1	66	2.35 d.	21.4	Chainers	1	63	1.25 d.	11.9
Do	1	66	2.25 d.	20.5	Chain pullers	1	63	1.45 d.	13.8
Do	1	66	1.50 d.	13.6	Choker men	1	60	(6) h.	26.4
Do	1	66	1.35 d.	12.3	Do	5	60	.25 h.	25
Stablemen	1	60	55.00 m.	21.2	Do	8	60	.22½ h.	22.5
Do	1	70	55.00 m.	18.1	Do	1	60	(6) d.	22.1
Telephone men	2	60	15 h.	15	Do	1	60	.20 h.	20
Timekeepers	1	60	67.50 m.	28	Do	7	60	.15 h.	15
Do	1	66	2.20 d.	20	Deckers	7	60	1.00 d.	10
Do	1	60	1.00 d.	10	Do	1	60	.50 d.	5
Water boys	2	60	.80 d.	8	Drivers	6	66	1.35 d.	12.3
Do	2	60	.50 d.	5	Do	3	66	1.28 d.	11.5
Woodcutters	1	60	1.10 d.	11	Do	12	66	1.25 d.	11.4
Not reported	10	66	(2) d.	(3)	Do	2	66	1.21 d.	11
Do	3	77	(4)	(5)	Do	1	60	.07½ h.	7.5
<i>Cutting, etc.</i>					Drivers, loading	1	63	1.00 d.	9.5
Choppers	8	60	.22 h.	22	Do	1	63	.90 d.	8.6
Do	1	60	(6) h.	21.7	Drivers, tram	1	60	1.25 d.	12.5
Do	1	60	(6) h.	20.8	Drivers, wagon	1	60	1.75 d.	17.5
Do	2	60	.20 h.	20	Do	1	63	1.50 d.	14.3
Do	1	63	1.35 d.	12.9	Do	2	60	1.35 d.	13.3
Do	2	60	1.25 d.	12.5	Do	1	63	1.40 d.	13.3
Do	3	60	.12½ h.	12.5	Do	1	63	1.35 d.	12.9
Do	3	63	1.25 d.	11.9	Do	1	60	1.25 d.	12.5
Do	1	60	1.15 d.	11.5	Do	1	60	1.10 d.	11
Do	1	60	1.10 d.	11	Drum pullers	1	60	1.25 d.	12.5
Do	2	60	1.00 d.	10	Engineers	2	60	.40 h.	40
Cutters	32	60	(7)	(7)	Do	1	60	(6) h.	34.5
Fellers	2	63	1.50 d.	14.3	Do	1	60	.32½ h.	32.5
Foremen	1	66	2.50 d.	22.7	Do	4	60	.30 h.	30
Do	1	66	2.30 d.	20.9	Do	1	60	(6) h.	28.7
Do	2	66	2.25 d.	20.5	Do	1	60	.17½ h.	17.5
Do	1	66	2.25 d.	20.5	Do	1	66	1.80 d.	16.4
Do	1	66	2.00 d.	18.2	Do	1	66	1.75 d.	15.9
Do	1	60	1.80 d.	18	Do	1	66	1.50 d.	13.6
Do	1	60	1.70 d.	17	Do	1	66	1.35 d.	12.3
Limbers	14	60	.20 h.	20	Engineers, skidder	1	60	.30 h.	30
Do	1	60	(6) h.	19.1	Do	1	60	.20 h.	20
Do	3	60	.19 h.	19	Firemen	2	60	.22½ h.	22.5
Do	1	60	.18½ h.	18.5	Do	4	60	1.50 d.	15
Do	3	60	.18 h.	18	Do	3	66	1.50 d.	13.6
Do	2	60	.17 h.	17	Do	4	60	1.25 d.	12.5
Do	1	60	(6) h.	15.6	Do	5	60	.12½ h.	12.5
Do	2	60	1.00 d.	10	Do	2	66	1.26 d.	11.5
Sawyers	23	60	.22 h.	22	Do	1	66	1.25 d.	11.4
Do	1	60	(6) h.	21.7	Do	1	66	1.21 d.	11
Do	1	60	(6) h.	20.7	Do	1	66	1.00 d.	9.1
Do	1	60	(6) h.	20.6	Firemen, skidder	1	60	.20 h.	20
Do	1	66	58.50 m.	20.5	Flagmen	4	65	1.25 d.	11.4
Do	3	60	.20 h.	20	Do	1	60	1.00 d.	10
Do	1	60	1.40 d.	14	Foremen	1	60	115.50 m.	44.4
Do	2	60	1.35 d.	13.5	Do	1	60	2.50 d.	25
Do	6	60	.13½ h.	13.5	Do	3	66	67.50 m.	23.6
Do	4	60	1.25 d.	12.5	Do	1	66	2.60 d.	23.6
Do	7	60	.12½ h.	12.5	Do	1	66	2.50 d.	22.7
Do	47	66	1.25 d.	11.4	Do	2	60	2.25 d.	22.5
Do	1	66	(6) d.	11.2	Do	1	66	2.25 d.	20.5
Do	17	66	1.20 d.	10.9	Do	4	60	2.00 d.	20
Do	1	66	1.15 d.	10.3	Do	1	60	.20 h.	20
Do	1	66	1.05 d.	9.5	Do	2	66	2.00 d.	18.2
Do	1	66	.90 d.	8.2	Do	2	60	1.75 d.	17.5

1 Seven days.
 2 \$1.25 to \$4.67.
 3 \$0.114 to \$0.425.
 4 \$0.50 per day and board to \$60 per month and board.
 5 \$0.045 and board to \$0.18 and board.
 6 More than one rate.
 7 Pieceworkers.
 8 And board.
 9 \$1.25 to \$3.
 10 \$0.114 to \$0.273.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

NORTH CAROLINA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Hauling, skidding, and loading—Ctd.</i>					<i>Hauling, skidding, and loading—Ctd.</i>				
				<i>Cents.</i>					<i>Cents.</i>
Foremen, loader....	1	66	\$1.92 d.	17.5	Loading crew.....	2	66	\$93.00 m.	23.8
Foremen, skidder...	1	60	.40 h.	40	Do.....	1	66	(1) d.	17.5
Do.....	1	60	.30 h.	30	Do.....	2	66	1.50 d.	13.6
Do.....	1	66	3.15 d.	28.6	Do.....	1	66	(1) d.	13.2
Foremen, teamsters.	1	66	2.75 d.	25	Do.....	1	66	(1) d.	10.4
Foremen, transfer men.....	1	66	2.00 d.	18.2	Log bunchers.....	1	63	1.35 d.	12.9
Do.....	1	66	1.92 d.	17.5	Do.....	1	63	1.25 d.	11.9
Foremen, wagon men.....	1	66	2.15 d.	19.5	Log rollers.....	1	63	1.35 d.	12.9
Hauling crew.....	1	66	1.50 d.	13.6	Riggers.....	3	66	2.25 d.	20.5
Do.....	1	66	1.35 d.	12.3	Do.....	1	66	2.00 d.	18.2
Do.....	2	66	1.25 d.	11.4	Do.....	1	66	(1) d.	17.4
Do.....	1	66	(1) d.	10.3	Do.....	1	60	1.50 d.	15
Do.....	9	66	1.00 d.	9.1	Riggers, second.	1	66	1.25 d.	11.4
Helpers.....	4	60	1.25 d.	12.5	Rigging slingers.	1	60	.30 h.	30
Hook tenders.....	1	60	.22½ h.	22.5	Do.....	1	60	.25 h.	25
Laborers.....	2	60	1.35 d.	13.5	Do.....	5	69	.22½ h.	22.5
Do.....	3	60	1.30 d.	13.	Signalmen.....	1	60	.22½ h.	22.5
Do.....	7	60	1.25 d.	12.5	Do.....	2	69	.20 h.	20
Do.....	2	60	1.20 d.	12	Skidders.....	5	60	55.00 m.	21.2
Do.....	3	60	1.15 d.	11.5	Do.....	1	60	1.25 d.	12.5
Do.....	34	66	1.25 d.	11.4	Snakers.....	1	63	1.50 d.	14.3
Do.....	1	66	(1) d.	10.9	Do.....	3	60	1.25 d.	12.5
Do.....	2	66	(1) d.	10.3	Do.....	4	66	1.35 d.	12.3
Do.....	1	66	1.10 d.	10	Do.....	1	66	1.26 d.	11.5
Do.....	7	60	1.00 d.	10	Do.....	1	66	1.25 d.	11.4
Do.....	1	66	(1) d.	9.8	Do.....	2	69	1.09 d.	10
Do.....	3	66	1.00 d.	9.1	Teamsters.....	4	69	1.59 d.	14.3
Do.....	1	66	(1) d.	8.9	Do.....	4	63	1.59 d.	14.3
Landing men.....	2	69	.22½ h.	22.5	Do.....	1	66	1.59 d.	13.6
Do.....	1	60	(1) d.	21.9	Do.....	1	63	1.45 d.	13.2
Levermen.....	7	60	.20 h.	20	Do.....	3	63	1.40 d.	12.7
Do.....	2	60	2.00 d.	20	Do.....	27	69	1.25 d.	12.5
Levermen, loader.	1	66	1.75 d.	15.9	Do.....	1	66	1.35 d.	12.3
Do.....	2	66	1.50 d.	13.6	Do.....	1	60	1.29 d.	12
Do.....	2	66	1.25 d.	11.4	Do.....	1	60	1.15 d.	11.5
Levermen, skidder.	3	66	2.25 d.	20.5	Do.....	5	66	1.25 d.	11.4
Do.....	1	66	2.00 d.	18.2	Do.....	7	66	1.20 d.	10.9
Loadermen, woods.	1	66	1.75 d.	15.9	Do.....	2	66	1.10 d.	10
Do.....	1	66	1.45 d.	13.2	Do.....	3	60	1.00 d.	10
Do.....	3	66	1.25 d.	11.4	Do.....	4	66	1.09 d.	9.1
Do.....	3	66	1.20 d.	10.9	Tongers.....	2	60	1.50 d.	15
Do.....	3	66	1.00 d.	9.1	Do.....	37	60	1.25 d.	12.5
Loaders.....	2	60	.30 h.	30	Do.....	3	69	.12½ h.	12.5
Do.....	1	60	(1) h.	26.6	Do.....	1	60	.19 h.	10
Do.....	1	60	2.25 d.	22.5	Tong hooks.....	2	66	2.09 d.	18.2
Do.....	1	60	2.20 d.	22	Do.....	1	66	1.75 d.	15.9
Do.....	1	60	2.00 d.	20	Do.....	1	66	(1) d.	13.3
Do.....	1	60	1.75 d.	17.5	Do.....	3	66	1.25 d.	11.4
Do.....	1	63	1.50 d.	14.3	Do.....	2	66	(1) d.	11.4
Do.....	1	60	.14 h.	14	Do.....	2	66	1.00 d.	9.1
Do.....	1	66	(1) d.	13.1	Tong men.....	1	60	1.50 d.	15
Do.....	1	63	1.30 d.	12.4	Do.....	1	66	1.35 d.	12.3
Do.....	1	66	1.35 d.	12.3	Do.....	2	66	1.26 d.	11.5
Do.....	2	66	1.30 d.	11.8	Do.....	1	66	1.25 d.	11.4
Do.....	4	66	1.26 d.	11.5	Do.....	1	66	1.21 d.	11
Do.....	8	66	1.25 d.	11.4	Do.....	1	66	(1) d.	11
Do.....	2	66	1.21 d.	11	Do.....	1	66	(1) d.	11.9
Do.....	1	66	1.20 d.	10.9	Top loaders.....	2	60	.30 h.	30
Do.....	6	66	1.15 d.	10.5	Do.....	1	60	(1) h.	23
Do.....	2	66	1.12 d.	10.2	Do.....	1	60	1.50 d.	15
Do.....	4	66	1.10 d.	10	Do.....	1	66	1.50 d.	13.6
Do.....	1	60	1.00 d.	10	Do.....	1	63	1.35 d.	12.9
Do.....	2	66	1.00 d.	9.1	Do.....	3	66	1.25 d.	11.4
Do.....	1	66	.75 d.	6.8	Do.....	1	66	1.92 d.	17.5
Loaders, wagon.	1	63	1.40 d.	13.3	Do.....	4	66	1.35 d.	12.3
Do.....	1	63	1.35 d.	12.9	Do.....	2	66	1.30 d.	11.8
Do.....	2	63	1.25 d.	11.9	Do.....	7	66	1.25 d.	11.4
Do.....	1	66	1.21 d.	11	Do.....	5	66	1.20 d.	10.9
					Do.....	1	66	1.12 d.	10.2
					Do.....	1	66	.75 d.	6.8
					Wagon men.....	1	66	1.57 d.	14.3

¹ More than one rate.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

NORTH CAROLINA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Hauling, skidding, and loading—Cld.</i>					<i>Railroad construction and maintenance—Concluded.</i>				
<i>Cents.</i>					<i>Cents.</i>				
Wagon men.....	3	66	\$1.35 d.	12.3	Laborers.....	30	66	\$1.26 d.	11.5
Do.....	2	66	1.30 d.	11.8	Do.....	4	60	1.15 d.	11.5
Do.....	19	66	1.25 d.	11.4	Do.....	29	66	1.25 d.	11.4
Do.....	1	66	1.20 d.	10.9	Do.....	1	66	(⁵) d.	11.4
Do.....	8	66	1.15 d.	10.5	Do.....	1	66	(⁵) d.	11.3
Do.....	2	66	1.10 d.	10	Do.....	1	69	1.10 d.	11
Do.....	2	66	1.00 d.	9.1	Do.....	1	60	.11 h.	11
Do.....	2	66	.75 d.	6.8	Do.....	5	66	1.20 d.	10.9
Water boys.....	1	66	1.21 d.	11	Do.....	1	66	(⁵) d.	10.7
Do.....	1	66	1.15 d.	10.5	Do.....	4	66	1.17 d.	10.6
Do.....	1	66	.90 d.	8.2	Do.....	2	66	1.15 d.	10.5
Water pumpers.....	1	60	1.25 d.	12.5	Do.....	3	66	1.12 d.	10.2
Yardmen.....	1	60	1.25 d.	12.5	Do.....	13	63	1.10 d.	10
Not reported.....	298	66	(¹)	(²)	Do.....	19	60	1.00 d.	10
<i>Railroad construction and maintenance.</i>					Do.....	9	60	.10 h.	10
Engineers.....	1	³ 77	2.60 d.	18.2	Do.....	134	66	1.00 d.	9.1
Do.....	1	66	2.60 d.	18.2	Do.....	2	63	.95 d.	8.6
Engineers, ditcher.....	1	60	4.50 d.	45	Do.....	1	63	.90 d.	8.2
Engineers, steam-shovel.....	1	66	2.60 d.	18.2	Do.....	1	69	(³) d.	7.6
Firemen.....	1	³ 77	1.50 d.	13.6	Do.....	3	63	.75 d.	6.8
Firemen, ditcher.....	2	60	1.25 d.	12.5	Laborers, construction.....	3	63	1.35 d.	12.9
Firemen, steam-shovel.....	1	66	2.60 d.	18.2	Do.....	1	63	1.30 d.	12.4
Foremen.....	1	³ 77	1.50 d.	13.6	Do.....	6	63	1.25 d.	11.9
Do.....	2	60	1.25 d.	12.5	Laborers, grading.....	2	60	.25 h.	25
Do.....	1	66	1.00 d.	9.1	Do.....	2	60	(⁵) h.	20.5
Do.....	1	60	2.75 d.	27.5	Do.....	1	60	.30 h.	20
Do.....	2	60	2.25 d.	22.5	Do.....	1	60	(⁵) h.	18
Do.....	1	⁴ 66	63.75 m.	22.3	Do.....	1	60	(⁵) h.	17.6
Do.....	1	66	460.00 m.	421	Do.....	31	60	.17 ¹ / ₂ h.	17.5
Do.....	1	66	2.31 d.	21	Do.....	2	60	45.50 m.	16
Do.....	2	66	2.25 d.	20.5	Do.....	32	60	.16 h.	15
Do.....	1	60	2.00 d.	20	Do.....	43	60	.15 h.	15
Do.....	1	60	.20 h.	20	Do.....	1	60	.14 h.	14
Do.....	2	66	2.10 d.	19.1	Do.....	3	60	.10 h.	10
Do.....	1	66	2.00 d.	18.2	Laborers, maintenance.....	4	63	1.25 d.	11.9
Do.....	1	60	.17 ¹ / ₂ h.	17.5	Laborers, tracklaying.....	1	60	.17 ¹ / ₂ h.	17.5
Do.....	2	66	1.80 d.	16.4	Do.....	5	60	.16 h.	13
Do.....	1	66	1.75 d.	15.9	Do.....	13	60	.15 h.	15
Do.....	1	66	1.70 d.	15.5	Do.....	1	60	.14 h.	14
Do.....	1	66	1.65 d.	15	Do.....	1	60	.14 h.	14
Do.....	1	66	1.58 d.	14.4	Do.....	2	66	1.25 d.	12.5
Do.....	2	66	40.00 m.	14	Do.....	1	60	1.00 d.	10
Do.....	3	66	1.50 d.	13.6	Do.....	2	60	.15 h.	15
Do.....	1	66	1.25 d.	11.4	Do.....	21	60	.11 h.	14
Foremen, construction.....	1	63	2.10 d.	20	Do.....	1	66	1.35 d.	12.3
Do.....	1	63	2.00 d.	19	Do.....	1	66	1.25 d.	11.4
Foremen, grading.....	1	60	.35 h.	35	Do.....	2	66	1.20 d.	10.9
Do.....	1	60	.30 h.	30	Do.....	3	66	1.15 d.	10.5
Do.....	1	60	.25 h.	25	Do.....	1	66	1.12 d.	10.2
Foremen, section.....	7	60	2.00 d.	20	Do.....	7	66	1.10 d.	10
Do.....	2	60	1.75 d.	17.5	Do.....	51	60	1.00 d.	10
Do.....	4	60	45.00 m.	17.3	Do.....	4	66	1.00 d.	9.1
Do.....	1	63	1.50 d.	14.3	Do.....	1	66	.75 d.	6.8
Do.....	1	66	1.25 d.	11.4	Stakers, right-of-way.....	1	60	1.50 d.	11.5
Foremen, track laying.....	1	60	60.00 m.	23.1	Tie distributors.....	15	60	1.00 d.	10
Foremen, assistant.....	1	66	2.00 d.	18.2	Trippers, ditcher.....	1	60	1.25 d.	12.5
Do.....	4	66	1.25 d.	11.4	Water boys.....	2	66	1.00 d.	9.1
Laborers.....	1	66	1.92 d.	17.5	Do.....	2	66	.99 d.	8.2
Do.....	1	66	1.65 d.	15	Do.....	2	66	.80 d.	5.5
Do.....	1	60	1.50 d.	15	Not reported.....	20	66	(⁵) d.	(⁷)
Do.....	2	60	.13 ¹ / ₂ h.	13.5	<i>Railroad operation.</i>				
Do.....	1	66	(⁵) d.	13.4	Brakemen.....	1	60	.25 h.	25
Do.....	3	60	1.25 d.	12.5	Do.....	10	60	1.17 ¹ / ₂ h.	17.5
Do.....	1	60	.12 ¹ / ₂ h.	12.5	Do.....	1	90	2.00 d.	13.3
Do.....	2	66	1.35 d.	12.3					
Do.....	2	63	1.25 d.	11.9					

¹ \$0.50 per day to \$80 per month.

² \$0.045 to \$0.28.

³ Seven days.

⁴ And board.

⁵ More than one rate.

⁶ \$1 to \$2.94.

⁷ \$0.091 to \$0.267.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

NORTH CAROLINA—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Railroad operation—Continued.</i>					<i>Railroad operation—Concluded.</i>				
<i>Cents.</i>					<i>Cents.</i>				
Car greasers.....	1	66	\$1.25 d.	11.4	Hostlers.....	1	³ 77	\$1.40 d.	12.7
Do.....	1	66	1.15 d.	10.5	Do.....	1	66	1.35 d.	12.3
Engineers.....	1	60	.35 h.	35	Do.....	1	³ 77	1.25 d.	11.4
Do.....	3	60	.32½ h.	32.5	Switchmen.....	1	90	1.25 d.	8.3
Do.....	2	60	.30 h.	30	Do.....	1	90	(1) d.	7.3
Do.....	1	60	(1) h.	25.8	Trainmen.....	1	60	.14 h.	14
Do.....	2	60	2.50 d.	25	Not reported.....	23	66	(4) d.	(5)
Do.....	1	66	2.70 d.	24.5	Do.....	2	³ 77	(5) d.	(7)
Do.....	1	60	2.25 d.	22.5	<i>Road construction and maintenance.</i>				
Do.....	1	60	.22½ h.	22.5	Road cutters.....	2	60	1.35 d.	13.5
Do.....	3	66	2.25 d.	20.5	Do.....	1	63	1.35 d.	12.9
Do.....	4	60	2.00 d.	20	Do.....	2	60	1.25 d.	12.5
Do.....	1	66	(1) d.	19.6	Do.....	1	60	1.2½ h.	12.5
Do.....	1	63	50.00 m.	18.3	Do.....	4	63	1.25 d.	11.9
Do.....	1	90	2.65 d.	17.7	Do.....	2	66	1.26 d.	11.5
Do.....	1	60	1.75 d.	17.5	Do.....	1	60	1.15 d.	11.5
Do.....	1	66	(1) d.	17.5	Do.....	3	66	1.25 d.	11.4
Do.....	1	90	² 65.00 m.	² 16.7	Do.....	4	66	1.21 d.	11
Do.....	2	90	² 50.00 m.	² 12.8	Do.....	1	66	1.15 d.	10.5
Do.....	1	90	50.00 m.	12.8	Do.....	12	60	1.00 d.	10
Do.....	1	90	40.00 m.	10.3	Do.....	2	60	1.00 d.	10
Firemen.....	2	60	.20 h.	20	Do.....	1	66	1.15 d.	10.5
Do.....	1	60	.18½ h.	18.5	Do.....	12	60	1.00 d.	10
Do.....	1	60	(1) h.	17.8	Roadmen.....	2	60	1.00 d.	10
Do.....	6	60	.17½ h.	17.5	Swampers.....	1	60	.22½ h.	22.5
Do.....	10	60	1.50 d.	15	Do.....	2	60	.22 h.	22
Do.....	1	60	.15 h.	15	Do.....	1	60	(1) h.	21.3
Do.....	1	60	.14 h.	14	Do.....	1	60	.21 h.	21
Do.....	2	63	1.35 d.	12.9	Do.....	13	60	.20 h.	20
Do.....	4	66	1.35 d.	12.3	Do.....	13	60	.19 h.	19
Do.....	2	60	1.15 d.	11.5	Do.....	1	60	(1) h.	18.9
Do.....	1	66	1.25 d.	11.4	Do.....	3	60	.18½ h.	18.5
Do.....	1	66	1.21 d.	11	Do.....	4	60	.18 h.	18
Do.....	1	90	1.50 d.	10	Do.....	6	60	.17½ h.	17.5
Do.....	1	60	1.00 d.	10	Do.....	1	60	.16 h.	16
Do.....	1	66	1.00 d.	9.1	<i>Unloading and rafting.</i>				
Do.....	2	90	1.25 d.	8.3	Foremen, landing..	2	63	2.00 d.	19
Do.....	3	90	1.00 d.	6.7	Rafters.....	1	60	.17½ h.	17.5
Do.....	1	66	1.00 d.	9.1	Do.....	1	60	1.50 d.	15
Do.....	2	90	1.25 d.	8.3	Do.....	2	63	1.50 d.	14.3
Do.....	3	90	1.00 d.	6.7	Do.....	2	63	1.35 d.	12.9
Do.....	1	66	1.00 d.	9.1	Do.....	4	63	1.40 d.	13.3
Flagmen.....	1	66	1.35 d.	12.3	Unloaders, landing..	2	63	1.40 d.	13.3
Do.....	4	60	1.00 d.	10					
Foremen.....	1	60	100.00 m.	38.5					
Hostlers.....	3	60	.20 h.	20					
Do.....	2	60	.17½ h.	17.5					
Do.....	2	66	1.50 d.	13.6					
Do.....	1	63	1.40 d.	13.3					
Do.....	1	63	1.35 d.	12.9					

OREGON.

<i>General.</i>					<i>General—Concl.</i>				
Blacksmiths.....	2	60	\$3.00 d.	36	Foremen.....	3	60	² \$125.00 m.	² 48.1
Blacksmith's help-ers.....	3	60	2.75 d.	27.5	Do.....	1	60	² 100.00 m.	² 38.5
Do.....	3	60	2.50 d.	25	Machinists.....	1	60	4.00 d.	40
Bull cooks.....	4	³ 70	² 30.00 m.	² 9.9	Powder men.....	1	60	2.50 d.	25
Carpenters.....	4	60	3.00 d.	30	Scalers and time-keepers.....	1	60	150.00 m.	57.7
Do.....	1	60	(1) d.	26.5	Timekeepers.....	1	60	² 55.00 m.	² 21.2
Cooks.....	1	³ 70	² 100.00 m.	² 33	Do.....	2	60	² 50.00 m.	² 19.2
Do.....	2	³ 70	² 65.00 m.	² 21.4	<i>Cutting, etc.</i>				
Do.....	1	³ 70	² 60.00 m.	² 19.8	Buckers.....	1	60	3.00 d.	30
Do.....	1	³ 70	² 50.00 m.	² 16.5	Do.....	1	60	(1) d.	28.8
Cooks, second.....	2	³ 70	² 35.00 m.	² 11.5	Do.....	1	60	2.75 d.	27.5
Do.....	1	³ 70	² 30.00 m.	² 9.9	Do.....	1	60	(1) d.	27.3
Dishwashers.....	1	³ 70	² 30.00 m.	² 9.9	Do.....	1	60	(1) d.	26.3
Filers.....	3	60	3.50 d.	35					
Flunkies.....	10	² 70	² 30.00 m.	² 9.9					

¹ More than one rate.
² And board.

³ Seven days.
⁴ \$1.22 to \$2.75.

⁵ \$0.111 to \$0.250.
⁶ \$1.50 to \$1.70.

⁷ \$0.136 to \$0.155.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

OREGON—Concluded.

Classification and occupation of employees.	No. of emp-loyees.	Full-time hrs. per wk.	Wage rate.	Equiv-alent rate per hour.	Classification and occupation of emp-loyees.	No. of emp-loyees.	Full-time hrs. per wk.	Wage rate.	Equiv-alent rate per hour.
<i>Cutting, etc.—Cld.</i>					<i>Yarding, hauling, and loading—Cld.</i>				
Buckers.....	1	60	(1) d.	<i>Cents.</i> 25	Chainmen.....	1	60	\$45.00 m.	<i>Cents.</i> 17.3
Do.....	1	60	(1) d.	25.4	Do.....	1	60	\$40.00 m.	15.4
Do.....	27	60	\$2.50 d.	25	Do.....	2	60	\$35.00 m.	13.5
Do.....	1	60	(1) d.	23.7	Chasers.....	1	60	(1) d.	26.5
Do.....	4	60	2.30 d.	23	Do.....	1	60	(1) d.	25.3
Buckers, head.....	4	60	3.00 d.	30	Do.....	24	60	2.50 d.	25
Fallers.....	2	60	(1) d.	28.5	Choker setters.....	1	60	(1) d.	25.4
Do.....	7	60	2.75 d.	27.5	Do.....	1	60	(1) d.	24.9
Do.....	2	60	(1) d.	27.1	Do.....	1	60	(1) d.	24.6
Do.....	2	60	(1) d.	26.4	Do.....	3	60	(1) d.	24.4
Fallers, head.....	17	60	3.00 d.	30	Do.....	1	60	(1) d.	24.3
Fallers, second.....	9	60	2.75 d.	27.5	Do.....	1	60	(1) d.	24.2
Do.....	1	60	(1) d.	25.8	Do.....	27	60	2.40 d.	24.8
<i>Rafting.</i>					Do.....	1	60	(1) d.	23.8
Boom men.....	5	60	2.50 d.	25	Do.....	1	60	(1) d.	23.3
Engineers, derrick.....	1	60	3.75 d.	37.5	Do.....	1	60	(1) d.	23
Engineers, launch.....	1	60	3.00 d.	30	Engineers.....	1	60	3.50 d.	35
Foremen, boom.....	1	60	100.00 m.	38.5	Do.....	3	60	3.00 d.	30
Do.....	1	60	85.00 m.	32.7	Engineers, donkey.....	3	60	3.00 d.	30
Foremen, cradle.....	1	60	\$125.00 m.	\$48.1	Engineers, loader.....	1	60	(1) d.	29.7
Rafters.....	1	60	3.25 d.	32.5	Do.....	4	60	2.75 d.	27.5
Do.....	2	60	3.00 d.	30	Engineers, roader.....	4	60	3.00 d.	30
Do.....	2	60	2.75 d.	27.5	Do.....	1	60	(1) d.	28.1
Do.....	4	60	2.50 d.	25	Engineers, steam shovel.....	2	60	3.00 d.	30
<i>Railroad construction and maintenance.</i>					Engineers, yard.....	6	60	3.50 d.	35
oremen, section.....	1	60	(1) d.	31.9	Firemen.....	21	60	2.25 d.	22.5
Do.....	3	60	3.00 d.	30	Do.....	1	60	(1) d.	19.9
Do.....	2	60	2.75 d.	27.5	Flagmen.....	1	60	1.75 d.	17.5
Do.....	4	60	2.65 d.	26.5	Foremen, bridge.....	1	60	4.00 d.	40
Do.....	4	60	(1) d.	20.1	Gophers.....	2	60	2.25 d.	22.5
Laboers, section.....	1	60	(1) d.	18.9	Hook tenders.....	1	60	(1) d.	75.8
Do.....	1	60	(1) d.	17.7	Do.....	4	60	4.50 d.	45
Do.....	4	60	1.70 d.	17	Do.....	3	60	4.00 d.	40
Do.....	2	60	(1) d.	16.7	Do.....	1	60	(1) d.	28.5
Do.....	1	60	(1) d.	16.5	Instrument men.....	1	60	70.00 m.	26.9
Do.....	118	60	1.60 d.	16	Loaders.....	1	60	(1) d.	33.6
Section, bosses.....	1	60	2.75 d.	27.5	Do.....	2	60	3.00 d.	30
Do.....	1	60	(1) d.	27.3	Do.....	1	60	(1) d.	27.1
Do.....	3	60	2.50 d.	25	Loaders, head.....	4	60	3.60 d.	36
Do.....	1	60	2.00 d.	20	Loaders, second.....	1	60	3.20 d.	32
<i>Railroad operation.</i>					Do.....	2	60	3.00 d.	30
Brakemen.....	3	60	3.60 d.	36	Riggers.....	9	60	2.75 d.	27.5
Do.....	1	60	(1) d.	33.6	Do.....	18	60	2.50 d.	25
Do.....	2	60	3.20 d.	32	Do.....	1	60	(1) d.	24.6
Engineers.....	3	60	4.00 d.	40	Do.....	1	60	(1) d.	19.1
Do.....	1	60	(1) d.	32.6	Riggers, second.....	1	60	2.50 d.	25
Do.....	1	60	(1) d.	29	Do.....	1	60	(1) d.	24.6
Firemen.....	1	60	(1) d.	21.3	Signalmen.....	2	60	1.75 d.	17.5
Do.....	1	60	(1) d.	20.6	Snipers.....	8	60	2.25 d.	22.5
<i>Yarding, hauling, and loading.</i>					Do.....	1	60	(1) d.	17.2
Brakemen.....	1	60	3.20 d.	32	Pump men.....	1	60	2.75 d.	27.5
Bridgemen.....	2	60	2.50 d.	25	Do.....	1	60	(1) d.	22.9
					Do.....	2	60	2.25 d.	22.5
					Water bucks.....	2	60	2.00 d.	20
					Wood bucks.....	1	60	(1) d.	23.1
					Do.....	1	60	(1) d.	20.9
					Do.....	1	60	(1) d.	20.6
					Do.....	10	60	2.00 d.	20
					Do.....	2	60	(1) d.	18.1

¹ More than one rate.

² And board.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

SOUTH CAROLINA.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>General.</i>					<i>General—Concl'd.</i>				
Blacksmiths.....	1	60	\$3.75 d.	<i>Cents.</i> 37.5	Foremen, woods.....	2	69	\$112.50 m.	43.3
Do.....	1	66	100.00 m.	35	Fuel men.....	1	60	1.00 d.	10
Do.....	1	69	3.50 d.	35	Harness makers.....	1	60	63.00 m.	24.2
Do.....	1	69	2.50 d.	25	Helpers, cookhouse.....	1	70	2.50 d.	2.5
Do.....	1	66	2.45 d.	22.3	Helpers, shop.....	1	69	2.09 d.	29
Do.....	1	66	2.50 d.	22.7	Do.....	1	69	1.75 d.	17.5
Do.....	4	69	2.25 d.	22.5	Do.....	3	69	1.50 d.	15
Do.....	1	60	2.00 d.	20	Do.....	1	69	1.40 d.	14
Do.....	1	69	1.80 d.	15	Do.....	6	69	1.25 d.	12.5
Do.....	2	60	1.50 d.	15	Hostlers.....	1	77	1.25 d.	11.4
Do.....	1	60	1.35 d.	13.5	Do.....	1	70	1.00 d.	10
Do.....	1	60	1.25 d.	12.5	Inspectors, ties and wood.....	1	60	58.50 m.	22.5
Blacksmiths' helpers.....	1	69	1.50 d.	15	Laborers.....	2	60	1.00 d.	10
Do.....	2	69	1.35 d.	13.5	Do.....	1	69	.65 d.	6.5
Do.....	2	60	1.25 d.	12.5	Do.....	1	60	.69 d.	6
Do.....	1	66	1.25 d.	11.4	Laborers, shop.....	1	66	1.75 d.	15.9
Do.....	1	69	1.12 ¹ d.	11.3	Do.....	1	66	1.65 d.	15
Do.....	1	69	1.10 d.	11	Do.....	4	69	1.50 d.	15
Do.....	2	60	1.00 d.	10	Do.....	6	66	1.59 d.	13.6
Do.....	1	66	1.00 d.	9.1	Do.....	1	65	1.40 d.	12.7
Do.....	2	60	.90 d.	9	Do.....	1	69	1.25 d.	12.5
Do.....	1	69	.80 d.	8	Do.....	6	66	1.25 d.	11.4
Do.....	1	66	.85 d.	7.7	Do.....	1	66	1.00 d.	9.1
Do.....	1	69	.60 d.	6	Laborers, telephone line.....	1	60	1.00 d.	10
Boiler makers.....	1	69	3.75 d.	37.5	Linemen, telephone.....	1	60	1.50 d.	15
Do.....	1	69	3.50 d.	35	Machinists.....	3	69	3.50 d.	35
Car builders.....	2	66	2.00 d.	18.2	Do.....	1	69	3.00 d.	20
Car builders' helpers.....	1	66	1.50 d.	13.6	Porters, warehouse.....	1	60	.95 d.	9.5
Do.....	1	66	.69 d.	5.5	Pump men.....	1	66	1.25 d.	11.4
Car inspectors.....	1	69	1.50 d.	15	Do.....	2	66	1.00 d.	9.1
Carpenters.....	1	69	2.00 d.	20	Scalers.....	1	69	2.00 d.	20
Do.....	1	66	2.00 d.	18.2	Do.....	1	60	50.00 m.	19.2
Car repairers.....	1	69	2.50 d.	25	Do.....	1	69	49.50 m.	19
Do.....	6	69	2.25 d.	22.5	Do.....	4	69	45.00 m.	17.3
Do.....	8	69	2.00 d.	20	Do.....	1	66	1.75 d.	15.9
Do.....	5	69	1.75 d.	17.5	Do.....	1	66	1.50 d.	13.6
Do.....	6	69	1.50 d.	15	Do.....	1	60	30.00 m.	11.5
Do.....	1	60	1.40 d.	14	Scavengers.....	1	60	.95 d.	9.5
Cleaners, camp.....	1	69	1.15 d.	11.5	Stablemen.....	1	70	45.00 m.	14.8
Do.....	2	69	1.00 d.	10	Do.....	1	70	1.35 d.	13.5
Do.....	2	69	.95 d.	9.5	Do.....	1	70	1.15 d.	11.5
Commissary men.....	1	66	50.00 m.	17.5	Do.....	1	98	1.25 d.	8.9
Do.....	1	70	2 ² 40.00 m.	2 ² 13.2	Do.....	2	70	.70 d.	7
Do.....	1	70	2 ¹ 1.00 d.	2 ¹ 10	Supply-house men.....	1	60	1.35 d.	13.5
Do.....	4	70	1.00 d.	10	Team tenders.....	1	84	1.35 d.	11.3
Do.....	1	98	2 ¹ 1.35 d.	2 ¹ 9.6	Timekeepers.....	1	69	83.25 m.	32
Do.....	5	70	2 ¹ .95 d.	2 ¹ 9.5	Watchmen.....	1	70	(9) d.	12.1
Do.....	1	98	2 ¹ 1.00 d.	2 ¹ 7.1	Do.....	1	66	1.25 d.	11.4
Do.....	1	70	2 ¹ .70 d.	2 ¹ 7	Do.....	2	79	1.13 d.	11.3
Do.....	2	77	2 ¹ .75 d.	2 ¹ 6.8	Do.....	1	84	1.13 d.	9.4
Cooks' helpers.....	1	70	2 ¹ .70 d.	2 ¹ 7	Do.....	3	84	1.00 d.	8.3
Cooks, assistant.....	3	70	2 ¹ .95 d.	2 ¹ 9.5	Do.....	1	69	20.00 m.	7.7
Do.....	1	70	2 ¹ .90 d.	2 ¹ 9	Do.....	1	60	15.00 m.	5.8
Do.....	1	70	2 ¹ .75 d.	2 ¹ 7.5	<i>Cutting, etc.</i>				
Do.....	2	70	2 ¹ .65 d.	2 ¹ 6.5	Choppers.....	19	60	(4)	(4)
Do.....	1	77	2 ¹ .50 d.	2 ¹ 4.5	Foremen.....	1	54	2.50 d.	27.8
Do.....	1	98	2 ¹ .50 d.	2 ¹ 4.5	Do.....	1	66	3.00 d.	27.3
Feeders.....	1	77	1.35 d.	12.8	Do.....	1	69	2.50 d.	25
Fillers.....	1	66	2.25 d.	20.5	Do.....	1	69	2.47 ³ d.	24.8
Do.....	8	69	1.80 d.	18	Do.....	1	60	2.25 d.	22.5
Do.....	1	60	1.75 d.	17.5	Do.....	1	54	2.00 d.	22.2
Do.....	1	66	1.75 d.	15.9	Do.....	2	66	2.25 d.	20.5
Do.....	1	66	1.50 d.	13.6	Do.....	1	54	1.66 ³ d.	18.5
Foremen.....	1	60	76.50 m.	29.4	Do.....	1	66	1.75 d.	15.9
Do.....	1	60	75.00 m.	28.9	Foremen, choppers.....	1	60	2.25 d.	22.5
Do.....	1	66	2.75 d.	25	Foremen, sawing.....	3	60	58.50 m.	22.5
Foremen, blacksmith shop.....	1	60	4.50 d.	45	Oil boys.....	1	60	.71 d.	7.1
Foremen, camp.....	2	60	76.50 m.	29.4	Do.....	1	60	.70 d.	7
Do.....	1	66	2.50 d.	22.7	Do.....	1	60	.60 d.	6
Foremen, shop.....	1	60	3.00 d.	30					

¹ Seven days.

² And board.

³ More than one rate.

⁴ Pieceworkers.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

SOUTH CAROLINA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Cutting, etc.—Ctd.</i>					<i>Hayling, skidding, and loading—Ctd.</i>				
Oil boys.....	1	60	\$0.50 d.	5	Firemen.....	4	60	\$1.00 d.	10
Sawyers.....	37	54	1.25 d.	13.9	Firemen, loader.....	2	60	1.40 d.	14
Do.....	1	60	1.30 d.	13	Do.....	1	60	1.15 d.	11.5
Do.....	36	60	1.25 d.	12.5	Do.....	1	66	1.25 d.	11.4
Do.....	6	66	1.35 d.	12.3	Do.....	1	60	1.00 d.	10
Do.....	16	60	1.20 d.	12	Do.....	1	66	1.10 d.	10
Do.....	2	60	(1) d.	11.7	Do.....	1	66	1.00 d.	9.1
Do.....	158	60	1.13 d.	11.3	Firemen, skidder.....	1	60	2.00 d.	20
Do.....	4	60	1.10 d.	11	Do.....	1	60	1.35 d.	13.5
Do.....	2	60	(1) d.	11	Do.....	1	60	1.30 d.	13
Do.....	3	66	1.20 d.	10.9	Do.....	4	60	1.25 d.	12.5
Do.....	3	60	1.09 d.	10.9	Firemen's helpers.....	11	60	1.00 d.	10
Do.....	1	60	(1) d.	10.7	Do.....	1	60	.75 d.	7.5
Do.....	13	66	1.15 d.	10.5	Flagmen.....	1	60	1.80 d.	18
Do.....	4	66	1.10 d.	10	Do.....	1	60	1.50 d.	15
Do.....	34	60	1.00 d.	10	Do.....	1	60	1.40 d.	14
Do.....	4	66	1.00 d.	9.1	Do.....	3	60	1.35 d.	13.5
Do.....	4	66	.80 d.	8	Do.....	6	60	1.25 d.	12.5
Do.....	84	66	(2) d.	(2)	Do.....	3	60	1.20 d.	12
Stumpers.....	4	60	1.35 d.	13.5	Do.....	6	60	1.13 d.	11.3
Do.....	1	60	(1) d.	11.5	Do.....	7	60	1.20 d.	12
Do.....	26	60	1.13 d.	11.3	Do.....	1	66	1.20 d.	10.9
Do.....	1	60	1.10 d.	11	Do.....	1	60	(1) d.	10.9
Do.....	21	66	(2) d.	(2)	Do.....	1	66	1.15 d.	10.5
Tallymen.....	2	60	1.50 d.	15	Do.....	6	60	1.00 d.	10
Toppers.....	2	60	1.35 d.	13.5	Do.....	2	66	1.10 d.	10
Do.....	1	60	1.25 d.	12.5	Do.....	1	66	1.00 d.	9.1
Do.....	5	60	1.20 d.	12	Do.....	1	66	.75 d.	6.8
Do.....	1	60	1.13 d.	11.3	Foremen.....	1	60	2.75 d.	27.5
Water boys.....	1	60	.71 d.	7.1	Do.....	4	60	2.50 d.	25
Do.....	1	60	.60 d.	6	Do.....	2	66	2.70 d.	24.5
Do.....	1	54	.50 d.	5.6	Do.....	2	66	2.50 d.	22.7
Do.....	2	60	.50 d.	5	Do.....	2	60	2.25 d.	22.5
Do.....	2	54	.40 d.	4.4	Do.....	1	66	2.25 d.	20.5
Woodcutters.....	2	60	1.25 d.	12.5	Foremen, hauling.....	1	60	2.25 d.	22.5
Do.....	2	60	1.20 d.	12	Do.....	2	60	1.80 d.	18
Do.....	3	60	1.10 d.	11	Foremen, loader.....	1	60	2.75 d.	27.5
Do.....	2	66	1.15 d.	10.5	Do.....	1	60	2.70 d.	27
Do.....	2	60	1.00 d.	10	Do.....	1	60	2.47½ d.	24.8
Do.....	14	66	1.00 d.	9.1	Do.....	1	66	2.25 d.	20.5
Do.....	1	66	.85 d.	7.7	Do.....	1	66	2.00 d.	18.2
Do.....	2	60	.75 d.	7.5	Do.....	2	60	1.58 d.	15.8
Do.....	1	66	.75 d.	6.8	Do.....	2	60	1.57 d.	15.7
Do.....	1	60	.50 d.	5	Do.....	1	60	1.50 d.	15
Do.....	1	60	.50 d.	5	Do.....	1	66	1.50 d.	13.6
<i>Hayling, skidding, and loading.</i>					Foremen, skidder.....	1	60	4.50 d.	45
Bush cutters.....	4	60	1.25 d.	12.5	Do.....	1	60	112.50 m.	43.3
Do.....	1	60	1.00 d.	10	Do.....	1	60	4.00 d.	40
Do.....	1	60	.90 d.	9	Do.....	1	60	90.00 m.	34.6
Do.....	1	60	.80 d.	8	Do.....	1	60	2.70 d.	27
Chaimers.....	1	66	1.10 d.	10	Do.....	4	60	67.50 m.	26
Deck men.....	2	66	1.10 d.	10	Do.....	2	60	2.50 d.	25
Do.....	1	66	1.00 d.	9.1	Do.....	2	60	2.47½ d.	24.8
Drivers.....	4	60	1.25 d.	12.5	Do.....	1	60	2.20 d.	22
Do.....	1	66	1.00 d.	9.1	Foremen, teamsters.....	1	66	2.50 d.	22.7
Engineers.....	2	66	1.50 d.	13.6	Do.....	1	66	2.00 d.	18.2
Engineers, loader.....	1	60	1.85 d.	18.5	Foremen, wagon.....	3	60	1.80 d.	18
Do.....	4	60	1.80 d.	18	Grab catchers.....	4	66	1.00 d.	9.1
Do.....	1	66	1.50 d.	13.6	Do.....	1	66	.90 d.	8.2
Do.....	1	66	1.25 d.	11.4	Ground loaders.....	7	60	1.26 d.	12.6
Engineers, skidder.....	1	60	2.70 d.	27	Hauling crew.....	1	66	2.25 d.	20.5
Do.....	6	60	2.25 d.	22.5	Do.....	1	66	1.50 d.	13.6
Do.....	2	60	1.75 d.	17.5	Do.....	1	66	1.25 d.	11.4
Do.....	1	60	1.35 d.	13.5	Do.....	10	66	.91 d.	8.3
Extra men.....	1	66	2.70 d.	24.5	Do.....	1	66	.77 d.	7
Firemen.....	5	66	1.50 d.	13.6	Do.....	1	66	.73 d.	6.6
Do.....	2	60	1.35 d.	13.5	Helpers.....	5	60	1.25 d.	12.5
Do.....	2	60	1.25 d.	12.5	Do.....	13	60	1.10 d.	11
Do.....	1	66	1.25 d.	11.4	Do.....	8	60	1.00 d.	10
Do.....	5	60	1.12½ d.	11.3	Hostlers.....	2	66	1.25 d.	11.4
Do.....	1	60	1.10 d.	11	Laborers.....	4	60	1.25 d.	12.5
Do.....	1	60	1.10 d.	11	Do.....	1	60	1.20 d.	12

¹ More than one rate.

² Pieceworkers.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

SOUTH CAROLINA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Hauling, skidding, and loading—Ctd.</i>					<i>Hauling, skidding, and loading—Ctd.</i>				
<i>Cents.</i>					<i>Cents.</i>				
Laborers.....	4	60	\$1.00	d. 10	Loaders.....	3	60	\$1.50	d. 15
Laborers, hauling...	7	60	1.35	d. 13.5	Do.....	3	60	1.45	d. 14.5
Do.....	1	60	1.31	d. 13.1	Do.....	1	60	1.44	d. 14.4
Do.....	1	60	1.30	d. 13	Do.....	2	60	1.40	d. 14
Do.....	6	60	1.26	d. 12.6	Do.....	8	60	1.35	d. 13.5
Do.....	4	60	1.25	d. 12.5	Do.....	2	60	1.30	d. 13
Do.....	4	60	1.22	d. 12.2	Do.....	2	60	1.25	d. 12.5
Do.....	2	60	1.21	d. 12.1	Do.....	1	66	1.25	d. 11.4
Do.....	4	60	1.20	d. 12	Do.....	5	66	1.20	d. 10.9
Do.....	7	60	1.17	d. 11.7	Do.....	1	66	1.15	d. 10.5
Do.....	6	60	1.15	d. 11.5	Do.....	2	66	1.10	d. 10
Do.....	1	60	1.14	d. 11.4	Do.....	1	66	1.00	d. 9.1
Do.....	11	60	1.13	d. 11.3	Loaders, wagon.....	5	66	1.10	d. 10
Do.....	6	60	1.12	d. 11.2	Do.....	7	66	1.00	d. 9.1
Do.....	30	60	1.10	d. 11	Do.....	1	66	.90	d. 8.2
Do.....	2	60	1.05	d. 10.5	Do.....	1	66	.75	d. 6.8
Do.....	47	60	1.00	d. 10	Loading crew.....	1	66	1.80	d. 16.4
Do.....	4	60	.95	d. 9.5	Do.....	2	66	1.50	d. 13.6
Do.....	8	60	.90	d. 9	Do.....	1	66	1.35	d. 12.3
Do.....	1	60	.86	d. 8.6	Log riggers.....	1	66	1.10	d. 10
Do.....	4	60	.85	d. 8.5	Do.....	1	66	1.00	d. 9.1
Do.....	1	60	.80	d. 8	Riders.....	2	60	1.00	d. 10
Do.....	9	60	.75	d. 7.5	Do.....	1	66	1.00	d. 9.1
Do.....	1	60	.71	d. 7.1	Do.....	7	66	.85	d. 7.7
Do.....	3	60	.70	d. 7	Do.....	3	60	.75	d. 7.5
Do.....	4	60	.65	d. 6.5	Do.....	2	60	(¹)	d. 7.4
Do.....	2	60	.60	d. 6	Do.....	1	66	.75	d. 6.8
Do.....	1	60	.50	d. 5	Do.....	5	60	.65	d. 6.5
Laborers, loading...	2	60	1.57	d. 15.7	Do.....	15	60	.60	d. 6
Do.....	3	60	1.35	d. 13.5	Do.....	7	60	.50	d. 5
Do.....	2	60	1.26	d. 12.6	Do.....	1	60	.40	d. 4
Do.....	5	60	1.25	d. 12.5	Riggers.....	1	60	2.25	d. 22.5
Do.....	1	60	1.22	d. 12.2	Do.....	1	60	1.80	d. 18
Do.....	1	60	1.21	d. 12.1	Do.....	1	60	1.75	d. 17.5
Do.....	3	60	1.20	d. 12	Do.....	1	60	1.50	d. 15
Do.....	6	60	1.15	d. 11.5	Riggers' helpers.....	1	60	1.50	d. 15
Do.....	1	60	1.13	d. 11.3	Road cutters.....	1	66	1.20	d. 10.9
Do.....	4	60	1.10	d. 11	Do.....	1	66	1.10	d. 10
Do.....	1	60	1.05	d. 10.5	Rope men.....	1	60	1.13	d. 11.3
Do.....	7	60	1.00	d. 10	Run backs.....	1	60	1.35	d. 13.5
Do.....	3	66	1.10	d. 10	Do.....	1	60	1.30	d. 13
Do.....	12	66	1.00	d. 9.1	Skidding crew.....	1	66	81.00	m. 28.3
Do.....	2	66	.90	d. 8.2	Do.....	1	66	1.80	d. 16.4
Do.....	1	60	.65	d. 6.5	Do.....	1	66	1.50	d. 13.6
Do.....	3	60	.50	d. 5	Do.....	3	66	1.35	d. 12.3
Laborers, skidding...	3	60	1.75	d. 17.5	Do.....	13	66	1.25	d. 11.4
Do.....	1	60	1.70	d. 17	Do.....	1	66	1.15	d. 10.5
Do.....	1	60	1.65	d. 16.5	Do.....	3	66	1.10	d. 10
Do.....	6	60	1.50	d. 15	Do.....	6	66	1.00	d. 9.1
Do.....	6	60	1.40	d. 14	Do.....	1	66	.80	d. 7.3
Do.....	3	60	1.35	d. 13.5	Slack pullers.....	1	60	1.25	d. 12.5
Do.....	8	60	1.25	d. 12.5	Smitters.....	1	60	1.35	d. 13.5
Do.....	1	60	1.15	d. 11.5	Snakers.....	2	60	1.35	d. 13.5
Do.....	3	60	1.10	d. 11	Stablemen.....	1	2 70	.90	d. 9
Do.....	5	60	1.00	d. 10	Tallymen.....	1	60	2.00	d. 20
Do.....	4	60	.75	d. 7.5	Teamsters.....	1	66	1.50	d. 13.6
Do.....	4	60	.65	d. 6.5	Do.....	5	60	1.35	d. 13.5
Do.....	1	60	.50	d. 5	Do.....	1	60	1.12 ²	d. 11.3
Levermen.....	1	60	2.00	d. 20	Do.....	1	66	1.20	d. 10.9
Do.....	2	66	2.00	d. 18.2	Do.....	1	60	1.00	d. 10
Do.....	4	60	1.75	d. 17.5	Do.....	16	66	1.10	d. 10
Do.....	2	66	1.75	d. 15.9	Do.....	4	66	1.00	d. 9.1
Do.....	1	66	1.60	d. 14.5	Teamsters' helpers.....	1	60	.70	d. 7
Do.....	3	66	1.50	d. 13.6	Do.....	1	60	.60	d. 6
Do.....	4	60	1.35	d. 13.5	Tongers.....	8	60	1.67	d. 16.7
Do.....	2	60	1.26	d. 12.6	Do.....	1	60	1.35	d. 13.5
Do.....	1	60	1.00	d. 10	Do.....	1	60	1.20	d. 12
Loaders.....	2	60	1.75	d. 17.5	Tong hookers.....	1	60	1.85	d. 18.5
Do.....	1	60	1.70	d. 17	Do.....	1	69	1.50	d. 15
Do.....	2	60	1.67	d. 16.7	Tong men.....	1	66	2.00	d. 20
Do.....	5	60	1.60	d. 16	Do.....	3	60	1.50	d. 15
					Do.....	1	60	1.40	d. 14

¹ More than one rate.² Seven days.

TABLE 19.—NUMBER OF EMPLOYEES, FULL TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

SOUTH CAROLINA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Hauling, skidding, and loading—Cld.</i>					<i>Railroad construction and maintenance—Continued.</i>				
<i>Cents.</i>					<i>Cents.</i>				
Tong men.....	8	60	\$1.35 d.	13.5	Foremen, section...	1	66	\$2.25 d.	20.5
Do.....	2	60	1.25 d.	12.5	Do.....	1	60	50.00 m.	19.2
Do.....	5	66	1.35 d.	12.3	Do.....	1	66	2.00 d.	18.2
Top loaders.....	1	60	1.50 d.	15	Do.....	1	60	1.75 d.	17.5
Do.....	1	60	1.40 d.	14	Do.....	1	66	1.80 d.	16.4
Do.....	2	60	1.35 d.	13.5	Foremen, track-laying.....	1	60	76.50 m.	29.4
Do.....	3	66	1.25 d.	11.4	Do.....	1	60	1.50 d.	15
Do.....	1	66	1.20 d.	10.9	Laborers.....	9	60	1.25 d.	12.5
Wagon crew.....	3	60	1.10 d.	11	Do.....	9	60	1.15 d.	11.5
Do.....	2	60	1.00 d.	10	Do.....	2	66	1.25 d.	11.4
Wagon helpers.....	4	60	1.25 d.	12.5	Do.....	2	60	1.12½ d.	11.3
Do.....	1	60	1.00 d.	10	Do.....	10	60	1.10 d.	11
Watchmen.....	1	66	1.00 d.	9.1	Do.....	95	60	1.00 d.	10
Water boys.....	1	66	1.00 d.	9.1	Do.....	2	66	1.10 d.	10
Do.....	3	60	.75 d.	7.5	Do.....	15	66	1.00 d.	9.1
Do.....	1	66	.70 d.	6.4	Do.....	3	60	.90 d.	9
Do.....	2	60	.60 d.	6	Do.....	113	66	.90 d.	8.2
Do.....	1	66	.65 d.	5.9	Do.....	5	60	.80 d.	8
Do.....	1	60	.55 d.	5.5	Do.....	6	66	.80 d.	7.3
Do.....	13	60	.50 d.	5	Do.....	1	60	.70 d.	7
Do.....	2	66	.50 d.	4.5	Do.....	6	66	.75 d.	6.8
Wood boys.....	3	60	1.00 d.	10	Do.....	1	60	.65 d.	6.5
Do.....	1	60	.90 d.	9	Do.....	2	60	.60 d.	6
Do.....	1	60	.80 d.	8	Do.....	1	66	.50 d.	4.5
Do.....	7	60	.75 d.	7.5	Laborers, construction.....	1	60	1.65 d.	16.5
Do.....	1	60	.70 d.	7	Do.....	1	60	1.50 d.	15
Do.....	3	60	.65 d.	6.5	Do.....	1	60	1.35 d.	13.5
Woodchoppers.....	1	66	.70 d.	6.4	Do.....	28	60	1.25 d.	12.5
<i>Raft building.</i>					Do.....	18	60	1.20 d.	12.5
Foremen.....	2	60	1.50 d.	15	Do.....	14	60	1.15 d.	11.5
Laborers.....	1	60	1.35 d.	13.5	Do.....	1	66	1.25 d.	11.4
Do.....	1	60	1.25 d.	12.5	Do.....	11	60	1.10 d.	11
Do.....	1	60	1.10 d.	11	Do.....	3	66	1.20 d.	10.9
Raftmen.....	1	60	1.40 d.	14	Do.....	9	60	1.00 d.	10
Do.....	1	60	1.35 d.	13.5	Do.....	11	66	1.10 d.	10
Do.....	7	60	1.25 d.	12.5	Do.....	1	66	1.00 d.	9.1
Do.....	2	66	1.35 d.	12.3	Do.....	1	60	.90 d.	9
Do.....	1	60	1.12½ d.	11.3	Do.....	1	60	.75 d.	7.5
Do.....	3	60	1.00 d.	10	Do.....	1	60	.60 d.	6
<i>Railroad construction and maintenance.</i>					Laborers, maintenance.....	3	60	1.25 d.	12.5
Brush cutters.....	1	66	1.10 d.	10	Do.....	1	60	1.20 d.	12
Carpenters.....	1	66	1.50 d.	13.6	Do.....	2	60	1.15 d.	11.5
Foremen.....	1	60	2.50 d.	25	Do.....	5	60	1.13 d.	11.3
Do.....	2	66	2.25 d.	20.5	Do.....	5	60	1.10 d.	11
Do.....	1	60	2.00 d.	20	Do.....	7	60	1.00 d.	10
Do.....	1	66	2.00 d.	18.2	Do.....	1	60	.75 d.	7.5
Do.....	4	60	1.80 d.	18	Laborers, ripping crew.....	1	60	1.35 d.	13.5
Do.....	1	60	1.75 d.	17.5	Do.....	14	60	1.25 d.	12.5
Do.....	3	66	1.75 d.	15.9	Do.....	7	60	1.20 d.	12
Do.....	1	60	1.50 d.	15	Do.....	20	60	1.15 d.	11.5
Do.....	2	60	1.35 d.	13.5	Do.....	7	60	1.10 d.	11
Foremen, construction.....	1	60	76.50 m.	29.4	Do.....	11	60	1.00 d.	10
Do.....	4	60	2.25 d.	22.5	Do.....	2	66	1.10 d.	10
Do.....	1	66	2.25 d.	20.5	Do.....	16	66	1.00 d.	9.1
Do.....	1	60	1.75 d.	17.5	Do.....	2	60	.85 d.	8.5
Foremen, maintenance.....	1	60	2.03 d.	20.3	Do.....	5	60	.75 d.	7.5
Do.....	1	60	1.80 d.	18	Do.....	1	60	.50 d.	5
Do.....	1	60	1.75 d.	17.5	Laborers, section.....	1	66	1.50 d.	13.6
Foremen, right of way.....	1	60	1.35 d.	13.5	Do.....	2	60	1.25 d.	12.5
Foremen, ripping crew.....	1	60	2.25 d.	22.5	Do.....	1	66	1.35 d.	12.3
Do.....	2	60	1.75 d.	17.5	Do.....	6	60	1.20 d.	12
Do.....	1	66	1.75 d.	15.9	Do.....	3	60	1.15 d.	11.5
					Do.....	2	66	1.25 d.	11.4
					Do.....	12	60	1.10 d.	11
					Do.....	7	66	1.15 d.	10.5
					Do.....	9	60	1.00 d.	10
					Do.....	4	66	1.10 d.	10

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

SOUTH CAROLINA—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Railroad construction and maintenance—Concluded.</i>					<i>Railroad operation—Concluded.</i>				
Laborers, section	1	66	\$1.05 d.	9.5	Engineers	1	66	\$2.50 d.	22.7
Do.	22	66	1.00 d.	9.1	Do.	2	60	2.25 d.	22.5
Do.	1	66	.90 d.	8.2	Do.	2	66	2.25 d.	20.5
Do.	2	60	.75 d.	7.5	Do.	1	66	2.00 d.	18.2
Do.	6	66	.80 d.	7.3	Do.	1	66	1.75 d.	15.9
Do.	1	60	.60 d.	6	Firemen	1	60	1.75 d.	17.5
Laborers, track	3	60	1.35 d.	13.5	Do.	15	60	1.50 d.	15
Do.	5	60	1.25 d.	12.5	Do.	1	66	1.50 d.	13.6
Do.	1	60	1.20 d.	12	Do.	3	60	1.25 d.	12.5
Do.	15	60	1.15 d.	11.5	Do.	1	72	1.50 d.	12.5
Do.	2	60	1.10 d.	11	Do.	2	65	1.35 d.	12.3
Do.	8	60	1.00 d.	10	Do.	1	72	(1) d.	11.6
Do.	1	60	.90 d.	9	Do.	7	66	1.25 d.	11.4
Do.	2	60	.80 d.	8	Do.	1	60	1.12½ d.	11.3
Do.	1	60	.75 d.	7.5	Do.	3	60	1.00 d.	10
Stakers	1	66	2.69 d.	18.2	Do.	3	66	1.10 d.	10
Teamsters	1	65	1.60 d.	9.1	Do.	1	66	1.00 d.	9.1
Do.	1	66	.90 d.	8.2	Flagmen	1	69	1.50 d.	13.6
Water boys	3	60	.75 d.	7.5	Do.	2	60	1.25 d.	12.5
Do.	1	69	.70 d.	7	Do.	2	63	1.25 d.	11.4
Do.	2	66	.70 d.	6.4	Do.	1	60	1.00 d.	10
Do.	6	60	.69 d.	6	Do.	2	63	1.10 d.	10
Do.	1	60	.55 d.	5.5	Do.	10	65	1.00 d.	9.1
Do.	2	65	.69 d.	5.5	Do.	1	60	.80 d.	8
Do.	5	60	.50 d.	5	Hostlers	1	69	1.35 d.	12.3
Do.	4	66	.50 d.	4.5	Do.	2	70	1.00 d.	10
<i>Railroad operation.</i>					Pump men	1	69	2.90 d.	20
Brakemen	1	72	1.10 d.	9.2	Do.	1	60	1.50 d.	15
Car greasers	1	66	1.25 d.	11.4	Switchmen	1	60	1.50 d.	15
Do.	1	66	1.60 d.	9.1	Do.	2	60	1.25 d.	12.5
Do.	1	66	.75 d.	6.8	Do.	1	72	1.50 d.	12.5
Car inspectors	3	60	2.00 d.	20	Do.	3	66	1.25 d.	11.4
Do.	1	60	1.50 d.	15	Do.	1	72	1.35 d.	11.3
Engineers	1	72	3.37½ d.	28.1	Do.	13	60	1.00 d.	10
Do.	1	66	3.00 d.	27.3	Do.	1	66	1.10 d.	10
Do.	16	60	70.00 m.	26.9	Do.	1	65	1.00 d.	9.1
Do.	1	72	81.00 m.	26	<i>Road construction and maintenance.</i>				
Do.	1	60	67.50 m.	26	Path cutters	5	66	1.10 d.	10
Do.	1	66	72.00 m.	25.2	Do.	8	66	1.00 d.	9.1
Do.	1	60	2.50 d.	25	Do.	1	66	.90 d.	8.2
Do.	1	66	2.75 d.	25	Swampers	1	66	1.50 d.	13.6
Do.	2	66	67.50 m.	23.6					

TENNESSEE.

<i>General.</i>					<i>General—Concl'd.</i>				
Blacksmiths	2	60	2.70 d.	27	Foremen, camp	1	60	2.50 d.	25
Do.	1	66	2.75 d.	25	Foremen, general	1	60	3 1/2 d.	34.3
Do.	2	66	2.50 d.	22.7	Foremen, road	1	60	2.50 d.	25
Do.	2	66	2.35 d.	21.4	Harness makers	1	66	2.50 d.	22.7
Car repairers	1	66	2.02½ d.	18.4	Helpers, shop	1	65	2.00 d.	18.2
Do.	2	66	2.00 d.	18.2	Do.	1	66	1.94 d.	17.6
Cookies	1	2 70	3 1.60 d.	316	Do.	1	63	1.75 d.	15.9
Do.	1	2 70	3 1.50 d.	315	Do.	2	66	1.67 d.	15.2
Cooks	1	2 70	3 67.50 m.	322.3	Do.	3	66	1.57 d.	14.3
Do.	2	2 70	3 65.00 m.	321.4	Do.	1	2 77	2.50 d.	22.7
Filters	2	66	2.25 d.	20.5	Hostlers	1	69	1.50 d.	15
Do.	3	60	2.00 d.	20	Landing builders	2	69	1.50 d.	15
Foremen	2	66	90.00 m.	31.5	Lobby hogs	1	66	2.50 d.	22.7
Do.	1	65	(1) d.	31.1	Machinists	1	66	3.00 d.	27.3
Do.	1	60	75.00 m.	28.3	Pattern makers	1	63	3.00 d.	27.3
Do.	1	66	3.00 d.	27.3	Stablemen	1	2 77	1.80 d.	16.4
Do.	1	60	3 67.50 m.	326	Do.	1	2 70	(1) d.	15.2
Do.	1	66	2.75 d.	25	Telephone men	1	66	59.09 m.	17.5
Do.	1	66	2.70 d.	24.5	Timekeepers	1	66	75.00 m.	26.2
Do.	1	66	2.50 d.	22.7	Watchmen	1	65	(1) m.	17.8
					Do.	1	66	(1) m.	14.6
					Do.	1	66	(1) m.	13.7

¹ More than one rate.

² Seven days.

³ And board.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

TENNESSEE—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Cutting, etc.</i>					<i>Hauling, skidding, and loading—Cld.</i>				
Bark fitters.....	3	60	\$1.60 d.	16	<i>Cents.</i>				
Cutlers.....	10	60	2.00 d.	20	Teamsters.....	16	66	\$1.80 d.	16.4
Do.....	4	60	1.90 d.	19	Do.....	1	66	(1) d.	16.1
Do.....	1	60	(1) d.	19	Do.....	5	60	1.60 d.	16
Do.....	1	60	(1) d.	18.5	Do.....	1	66	(1) d.	16
Do.....	1	60	(1) d.	18.4	Do.....	1	66	(1) d.	15.5
Do.....	1	60	(1) d.	18.3	Do.....	7	60	1.50 d.	15
Do.....	3	60	1.75 d.	17.5	Do.....	1	66	(1) d.	14.5
Do.....	62	66	1.80 d.	16.4	Tong hookers.....	3	60	2.50 d.	25
Do.....	2	66	(1) d.	16.3	Do.....	2	66	2.25 d.	20.5
Do.....	1	66	(1) d.	16.2	Do.....	2	60	2.00 d.	20
Do.....	2	66	(1) d.	16	Top loaders.....	1	66	2.25 d.	20.5
Do.....	7	66	(1) d.	15.9	<i>Railroad construction and maintenance.</i>				
Do.....	1	66	1.75 d.	15.9	Blacksmiths.....	1	66	3.60 d.	32.7
Do.....	4	66	(1) d.	15.8	Carpenters, bridge.....	2	66	2.00 d.	18.2
Do.....	1	66	(1) d.	15.6	Cranemen.....	1	66	4.00 d.	36.4
Do.....	1	66	(1) d.	15.5	Foremen.....	2	60	2.00 d.	20
Do.....	1	66	(1) d.	15.2	Foremen, bridge.....	1	66	3.00 d.	27.3
Do.....	1	66	(1) d.	15.1	Foremen, construction.....	1	66	2.25 d.	20.5
Do.....	13	69	1.50 d.	15.2	Do.....	1	66	2.00 d.	18.2
Do.....	1	66	(1) d.	11.2	Foremen, grade.....	1	60	3.00 d.	30
Foremen cutters.....	1	60	2.50 d.	25	Do.....	1	66	2.75 d.	25
Knot bumpers.....	2	60	1.60 d.	16	Foremen, maintenance.....	4	66	2.00 d.	18.2
Peelers.....	3	60	1.50 d.	15	Graders.....	34	60	1.50 d.	15
Sawyers.....	2	60	1.60 d.	16	Do.....	1	60	1.25 d.	12.5
Do.....	5	60	1.50 d.	15	Laborers.....	1	60	(1) d.	17.7
Spudders.....	2	60	1.50 d.	15	Do.....	1	60	(1) d.	16.4
Stave-block loaders.....	1	60	(1) d.	17.8	Do.....	2	60	(1) d.	15.4
Do.....	1	60	1.75 d.	17.5	Do.....	3	60	(1) d.	15.2
Stave-block rollers.....	1	60	2.00 d.	20	Do.....	9	60	1.50 d.	15
Do.....	4	60	1.70 d.	17	Do.....	1	60	1.25 d.	12.5
Do.....	7	60	1.60 d.	16	Laborers, construction.....	1	66	2.25 d.	20.5
Do.....	1	60	1.50 d.	15	Do.....	4	66	2.00 d.	18.2
Stave-block splitters.....	1	60	1.90 d.	19	Do.....	4	66	1.80 d.	16.4
Do.....	2	60	1.85 d.	18.5	Do.....	1	66	1.65 d.	14.1
Do.....	5	60	1.75 d.	17.5	Do.....	20	66	1.55 d.	14.1
Do.....	1	60	1.50 d.	15	Do.....	1	66	(1) d.	13.7
Timber fitters.....	1	60	1.50 d.	15	Laborers, maintenance.....	43	66	1.50 d.	13.6
<i>Hauling, skidding, and loading.</i>					Do.....	1	66	1.00 d.	9.1
Foremen, skidder.....	3	66	3.60 d.	32.7	Steam-shovel men.....	1	66	4.00 d.	36.4
Do.....	1	60	60.00 m.	23.1	Do.....	1	66	2.00 d.	18.2
Foremen, teamsters.....	1	60	2.15 d.	21.5	Watchmen, steam shovel.....	1	66	2.00 d.	18.2
Grab drivers.....	1	60	1.60 d.	16	<i>Railroad operation.</i>				
Do.....	6	60	1.50 d.	15	Brakemen.....	6	66	2.25 d.	20.5
Laborers.....	1	66	3.00 d.	27.3	Do.....	1	60	2.00 d.	20
Do.....	1	66	2.75 d.	25	Do.....	1	60	(1) d.	18.6
Do.....	1	66	2.50 d.	22.7	Do.....	2	66	2.00 d.	18.2
Do.....	1	66	(1) d.	22.5	Do.....	5	60	1.75 d.	17.5
Do.....	4	66	2.25 d.	20.5	Engineers.....	1	66	(1) d.	31.7
Do.....	1	60	1.50 d.	15	Do.....	1	66	2.75 d.	25
Landing men.....	4	60	1.50 d.	15	Do.....	3	60	65.00 m.	25
Do.....	1	66	(1) d.	14.2	Do.....	3	66	2.30 d.	20.9
Do.....	3	66	1.55 d.	14.1	Engineers, yard.....	1	66	2.75 d.	25
Do.....	1	66	(1) d.	13.8	Firemen.....	1	66	60.00 m.	21
Do.....	6	66	1.50 d.	13.6	Do.....	1	60	(1) d.	20.9
Loadermen.....	1	60	4.00 d.	40	Do.....	1	60	2.00 d.	20
Do.....	1	60	100.00 m.	38.5	Do.....	1	66	(1) d.	19.5
Do.....	2	66	4.00 d.	36.4	Do.....	1	66	2.00 d.	18.2
Do.....	1	60	75.00 m.	28.8	Do.....	1	60	1.75 d.	17.5
Do.....	1	60	2.50 d.	25	Do.....	1	66	(1) d.	17.2
Do.....	1	66	(1) d.	24.7	Do.....	3	66	1.85 d.	16.8
Do.....	1	66	2.25 d.	20.5	Do.....	1	66	1.85 d.	16.8
Loader operators.....	1	60	3.00 d.	30	Firemen, yard.....	1	66	90.00 m.	31.4
Teamsters.....	1	60	2.60 d.	26	Hostlers.....	1	66	1.80 d.	16.5
Do.....	1	60	55.50 m.	21.3					
Do.....	2	63	2.00 d.	20					
Do.....	4	69	1.90 d.	19					
Do.....	1	60	(1) d.	18.4					
Do.....	1	66	2.00 d.	18.2					

¹ More than one rate.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

TENNESSEE—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Road construction and maintenance.</i>					<i>Road construction and maintenance—Concluded.</i>				
Buck swampers.....	12	66	\$2.25 d.	20.5	Swampers.....	1	66	(1) d.	14.7
Do.....	1	66	(1) d.	20.1	Do.....	1	66	(1) d.	14.6
Do.....	1	66	(1) d.	19.5	Do.....	2	60	\$1.45 d.	14.5
Do.....	1	66	(1) d.	18.7	Do.....	1	66	(1) d.	14.5
Do.....	1	66	(1) d.	18.3	Do.....	2	66	(1) d.	14.4
Do.....	1	66	(1) d.	17.4	Do.....	1	66	(1) d.	14.2
Road builders.....	1	60	1.75 d.	17.5	Do.....	29	66	1.55 d.	14.1
Swampers.....	1	66	2.25 d.	20.5	Do.....	3	60	1.40 d.	14
Do.....	1	60	(1) d.	18.1	Do.....	3	66	(1) d.	14
Do.....	7	60	1.75 d.	17.5	Do.....	3	66	(1) d.	13.9
Do.....	1	60	(1) d.	17.4	Do.....	1	66	(1) d.	13.7
Do.....	6	60	1.60 d.	16	Do.....	45	66	1.50 d.	13.6
Do.....	1	60	(1) d.	15.5	Do.....	1	66	(1) d.	13.4
Do.....	111	60	1.50 d.	15	Do.....	5	60	1.25 d.	12.5
Do.....	1	66	(1) d.	14.8					

TEXAS.

<i>General.</i>					<i>General—Concl.</i>				
Blacksmiths.....	1	60	\$90.00 m.	34.6	Stablemen.....	1	270	(1) h.	23.5
Do.....	3	60	3.00 d.	30	Do.....	1	270	2.25 d.	22.5
Do.....	1	60	(1) h.	29.3	Do.....	1	270	.20 h.	20
Do.....	1	60	.275 h.	27.5	Do.....	2	270	1.80 d.	18
Do.....	1	60	2.00 d.	20	Do.....	1	270	1.75 d.	17.5
Car checkers.....	1	270	2.25 d.	22.5	Do.....	1	270	1.55 d.	15.5
Carpenters.....	1	60	2.50 d.	25	Do.....	1	270	1.50 d.	15
Do.....	1	60	2.25 d.	22.5	Stablemen's helpers.	1	270	.225 h.	22.5
Do.....	1	60	2.00 d.	20	Do.....	1	270	(1) h.	21.3
Car repairers.....	1	60	2.50 d.	25	Stake cutters.....	1	60	1.75 d.	17.5
Do.....	3	60	2.25 d.	22.5	Team bosses.....	1	60	.225 h.	22.5
Do.....	3	60	2.00 d.	20	Timekeepers.....	1	60	74.00 m.	28.5
Do.....	1	270	2.00 d.	20	Watchmen.....	1	270	1.80 d.	18
Car repairers' helpers.	1	60	1.75 d.	17.5	Do.....	1	270	1.70 d.	17
Cranemen.....	1	60	(1) d.	27.6	Do.....	1	60	1.50 d.	15
Feeders and shopmen.	1	270	2.25 d.	22.5	Do.....	3	270	1.50 d.	15
Filers.....	1	60	(1) h.	27.2	Do.....	1	270	1.40 d.	14
Do.....	2	60	.225 h.	22.5	Water boys.....	2	60	1.50 d.	15
Foremen.....	1	60	3.25 d.	32.5	Water haulers.....	1	60	1.50 d.	15
Do.....	1	60	81.00 m.	31.2	Woodcutters.....	1	60	2.00 d.	20
Do.....	1	60	3.00 d.	30	Wood haulers.....	1	60	2.00 d.	20
Do.....	6	60	2.50 d.	25	Do.....	1	60	(1) d.	19.8
Do.....	1	60	(1) d.	22.6	Wood loaders.....	1	60	1.50 d.	15
Do.....	1	60	2.25 d.	22.5					
Do.....	2	60	2.00 d.	20	<i>Cutting, etc.</i>				
Do.....	2	60	1.90 d.	19	Foremen.....	2	60	.27 h.	27
Foremen, shop.....	1	60	3.40 d.	34	Foremen, saws.....	1	60	2.25 d.	22.5
Foremen, woods.....	1	60	125.00 m.	48.1	Do.....	1	60	(1) d.	22.2
Do.....	1	60	3.40 d.	34	Saw bosses.....	1	60	2.50 d.	25
Foremen, assistant.	1	60	(1) d.	20.9	Sawyers.....	159	60	(2)	(3)
Helpers, general.....	3	60	1.50 d.	15					
Helpers, shop.....	1	60	1.75 d.	17.5	<i>Hauling, skidding, and loading.</i>				
Laborers.....	1	60	(1) d.	18	Chainmen.....	1	60	(1) h.	18.8
Do.....	3	60	1.75 d.	17.5	Do.....	2	60	(1) h.	14.4
Do.....	2	60	1.50 d.	15	Do.....	1	60	(1) h.	14.2
Machinists.....	1	60	3.50 d.	35	Drivers.....	1	60	1.90 d.	19
Machinists' helpers.	1	60	(1) d.	15.5	Do.....	1	60	1.50 d.	15
Sand burners.....	1	60	.75 d.	7.5	Engineers.....	1	60	.27 h.	27
Scalers.....	7	60	3.00 d.	30	Firemen.....	1	60	.225 h.	22.5
Do.....	1	60	.30 h.	30	Do.....	1	60	.18 h.	18
Do.....	1	60	2.75 d.	27.5	Do.....	1	60	1.75 d.	17.5
Do.....	2	60	2.25 d.	22.5	Do.....	1	60	1.70 d.	17
Do.....	1	60	2.00 d.	20	Do.....	1	270	(1) d.	15.5
Do.....	2	60	.20 h.	20	Firemen, loader.....	2	60	(1) d.	19.4
Scavengers.....	1	60	27.00 m.	10.4	Do.....	1	60	(1) d.	19
Shopmen.....	1	60	(1) d.	16.5	Do.....	1	60	(1) d.	18
Do.....	1	60	1.50 d.	15					

1 More than one rate.

2 Seven days.

3 Pieceworkers.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

TEXAS—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Hauling, skidding, and loading—Ctd.</i>					<i>Hauling, skidding, and loading—Ctd.</i>				
Firemen, loader....	1	60	\$1.75 d.	17.5	Tong hookers.....	2	60	(1) h.	19.1
Do.....	1	60	1.70 d.	17	Do.....	2	60	\$0.19 h.	19
Flagmen.....	1	60	(1) d.	15.4	Do.....	1	60	(1) h.	18.5
Do.....	1	60	(1) d.	15.2	Do.....	5	60	.18 h.	18
Do.....	4	60	1.50 d.	15	Do.....	4	60	1.75 d.	17.5
Foremen, skidder....	1	60	3.00 d.	30	Do.....	1	60	(1) h.	17
Do.....	1	60	(1) d.	16.5	Do.....	1	60	(1) d.	16.7
Foremen, teamster.	2	60	2.50 d.	25	Top loaders.....	1	60	(1) d.	21.9
Grab setters.....	1	60	(1) d.	18.5	Do.....	1	60	1.75 d.	17.5
Do.....	1	60	(1) h.	15.6	Water boys.....	1	60	.165 h.	16.5
Do.....	1	60	(1) h.	14.8	<i>Railroad construction and maintenance.</i>				
Do.....	1	60	(1) h.	14.4	Axmen.....	1	60	1.70 d.	17
Do.....	1	60	(1) h.	14.3	Do.....	1	60	1.65 d.	16.5
Do.....	5	60	.14 h.	14	Do.....	1	60	1.50 d.	15
Do.....	1	60	.125 h.	12.5	Do.....	1	60	(1) d.	13.5
Horse changers.....	1	60	(1) d.	17	Do.....	1	60	2.50 d.	25
Hostlers.....	1	70	46.00 m.	15.2	Bridge builders.....	1	60	2.50 d.	25
Loadermen.....	1	60	.45 h.	45	Bridge builders' helpers.....	1	60	(1) d.	16.9
Do.....	2	60	100.00 m.	38.5	Car loaders.....	1	60	.155 h.	15.5
Do.....	1	60	90.00 m.	34.6	Do.....	1	60	(1) h.	14.8
Do.....	2	60	3.00 d.	30	Engineers, locomotive.....	2	60	.27 h.	27
Loadermen, head....	1	60	125.00 m.	48.1	Firemen, locomotive.....	1	60	(1) h.	20.3
Loaders.....	3	60	2.00 d.	20	Do.....	1	60	.18 h.	18
Do.....	1	60	(1) d.	19.6	Do.....	1	60	1.50 d.	15
Do.....	1	60	1.75 d.	17.5	Do.....	1	60	.20 h.	20
Do.....	1	60	(1) d.	15.3	Do.....	1	60	1.75 d.	17.5
Ropers.....	1	60	1.75 d.	17.5	Foremen, grade.....	1	60	2.70 d.	27
Skidders.....	1	60	1.90 d.	19	Do.....	1	60	2.00 d.	20
Do.....	1	60	(1) d.	18.7	Foremen, repair crew.....	1	60	(1) h.	17.7
Do.....	1	60	(1) d.	17.7	Foremen, right of way.....	1	60	.32 h.	32
Do.....	1	60	1.75 d.	17.5	Do.....	1	60	2.60 d.	26
Do.....	1	60	(1) d.	16.8	Do.....	1	60	.20 h.	20
Do.....	1	60	(1) d.	16.6	Do.....	1	60	.18 h.	18
Do.....	3	60	1.50 d.	15	Foremen, section.....	2	60	.225 h.	22.5
Skidway men.....	3	60	2.00 d.	20	Do.....	1	60	2.00 d.	20
Do.....	1	60	(1) d.	19.3	Do.....	1	60	.18 h.	18
Do.....	1	60	(1) d.	18.9	Foremen, steel crew.....	1	60	3.43 d.	34.3
Do.....	1	60	(1) d.	18.2	Do.....	1	60	(1) h.	25.9
Do.....	1	60	(1) d.	17.9	Do.....	1	60	.225 h.	22.5
Do.....	6	60	1.75 d.	17.5	Do.....	1	60	2.00 d.	20
Do.....	1	60	(1) d.	16.7	Do.....	1	60	3.00 d.	30
Do.....	2	60	1.65 d.	16.5	Do.....	4	60	2.00 d.	20
Do.....	1	60	(1) d.	16.3	Do.....	1	60	(1) d.	19.8
Do.....	1	60	(1) d.	16.1	Grade men.....	1	60	1.75 d.	17.5
Do.....	1	60	(1) d.	16	Do.....	10	60	1.50 d.	15
Do.....	1	60	(1) d.	15.6	Do.....	15	60	1.14 h.	14
Do.....	1	60	(1) d.	15.4	Laborers.....	1	60	(1) d.	13.8
Do.....	2	60	(1) d.	15.1	Laborers, grade.....	1	60	1.75 d.	17.5
Do.....	23	60	1.50 d.	15	Do.....	1	63	(1) d.	15.6
Do.....	14	60	.15 h.	15	Do.....	36	60	1.50 d.	15
Do.....	1	60	(1) h.	14.7	Do.....	3	60	2.00 d.	20
Teamsters.....	30	60	2.00 d.	20	Do.....	1	60	.20 h.	20
Do.....	9	60	.20 h.	20	Do.....	1	60	(1) d.	18.2
Do.....	1	60	(1) d.	19.7	Do.....	2	60	.18 h.	18
Do.....	1	60	(1) d.	19.6	Do.....	11	60	1.75 d.	17.5
Do.....	1	60	.195 h.	19.5	Do.....	1	60	(1) d.	17.3
Do.....	1	60	(1) h.	19.5	Do.....	1	60	(1) h.	16.8
Do.....	5	60	1.85 d.	18.5	Do.....	1	60	1.65 d.	16.5
Do.....	1	60	(1) d.	18.1	Do.....	12	60	.165 h.	16.5
Do.....	15	60	.18 h.	18	Do.....	1	60	(1) d.	16.3
Do.....	1	60	(1) d.	17.7	Do.....	20	60	1.50 d.	15
Do.....	1	60	(1) d.	17.4	Do.....	7	60	.14 h.	16
Do.....	1	60	(1) d.	16.8	Do.....	2	60	.16 h.	14
Do.....	1	60	(1) d.	16	Section men.....	2	60		
Do.....	1	60	(1) d.	13.5					
Tong hookers.....	4	60	2.25 d.	22.5					
Do.....	4	60	2.00 d.	20					
Do.....	1	60	(1) h.	19.8					
Do.....	2	60	(1) h.	19.2					

¹ More than one rate.

² Seven days.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

TEXAS—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Railroad construction and maintenance—Concluded.</i>					<i>Railroad operation—Concluded.</i>				
Section men.....	1	60	(1) d.	15.3	Engineers.....	1	60	\$0.27 h.	27
Do.....	29	60	\$0.14 h.	14	Do.....	1	60	(1) d.	25.2
Do.....	8	60	1.25 d.	12.5	Do.....	5	60	2.50 d.	25
Shovelmen.....	1	60	1.60 d.	16	Do.....	1	270	2.50 d.	25
Do.....	1	60	1.50 d.	15	Do.....	1	270	2.00 d.	20
Do.....	4	60	1.25 d.	12.5	Firemen.....	1	60	2.50 d.	25
Slip drivers.....	1	60	1.60 d.	16	Do.....	1	60	(1) d.	24.8
Do.....	3	60	1.25 d.	12.5	Do.....	1	60	.225 h.	22.5
Slip dumpers.....	1	60	1.50 d.	15	Do.....	1	60	(1) d.	22.2
Slip fillers.....	1	60	1.65 d.	16.5	Do.....	1	270	(1) d.	20.2
Spike peddlers.....	1	60	.09 h.	9	Do.....	1	60	2.00 d.	20
Steel men.....	1	60	(1) d.	19.9	Do.....	3	60	.20 h.	20
Do.....	1	60	(1) d.	17.9	Do.....	1	60	(1) d.	19.8
Do.....	58	60	1.75 d.	17.5	Do.....	1	60	(1) d.	19.5
Do.....	3	60	(1) d.	17.4	Do.....	1	60	(1) d.	19.2
Do.....	1	60	(1) d.	17.5	Do.....	1	60	(1) d.	19.1
Do.....	1	60	(1) h.	16.3	Do.....	1	60	(1) d.	19
Do.....	1	60	(1) h.	16.7	Do.....	2	60	1.85 d.	18.5
Do.....	11	60	.165 h.	16.5	Do.....	1	60	.18 h.	18
Do.....	23	60	.155 h.	15.5	Do.....	1	60	1.75 d.	17.5
Do.....	1	60	(1) d.	15.4	Hostlers.....	1	270	.255 h.	25.5
Do.....	12	60	1.50 d.	15	Do.....	1	270	2.25 d.	22.5
Teamsters.....	1	60	.18 h.	18	Do.....	2	270	.20 h.	20
Trackmen.....	76	60	1.50 d.	15	Do.....	1	270	1.65 d.	16.5
Do.....	6	60	.135 h.	13.5	Hostlers' helpers.....	1	270	.18 h.	18
Do.....	24	60	1.25 d.	12.5	Oilers.....	1	60	(1) h.	25
Trackwalkers.....	1	60	1.40 d.	14	Pump men.....	1	60	.20 h.	20
					Do.....	1	60	1.70 d.	17
<i>Railroad operation.</i>					<i>Road construction and maintenance.</i>				
Brakemen.....	5	60	.20 h.	20	Swampers.....	1	60	(1) h.	18.1
Do.....	1	60	1.85 d.	18.5	Do.....	15	60	.18 h.	18
Do.....	1	60	.18 h.	18	Do.....	1	60	(1) d.	17.5
Do.....	1	60	(1) d.	17.6	Do.....	1	60	(1) h.	27.2
Do.....	2	60	1.75 d.	17.5	Do.....	1	60	(1) d.	16.6
Do.....	4	60	1.70 d.	17	Do.....	1	60	(1) d.	16.3
Engineers.....	1	60	.35 h.	35	Do.....	1	60	(1) d.	16.2
Do.....	1	60	90.00 m.	24.6	Do.....	1	60	(1) d.	16.3
Do.....	3	60	3.00 d.	30	Do.....	1	60	1.60 d.	16
Do.....	2	60	.30 h.	30	Do.....	2	60	1.50 d.	15
Do.....	1	270	2.90 d.	29	Do.....	2	60	(1) d.	14.2
Do.....	2	60	.275 h.	27.5	Do.....	1	60	.14 h.	14

VIRGINIA.

<i>General.</i>					<i>General—Concl'd.</i>				
Barn bosses.....	2	270	\$45.00 m.	14.8	Machine-shop men..	3	66	\$2.75 d.	25
Blacksmiths.....	1	60	.35 h.	35	Do.....	1	66	1.30 d.	11.8
Do.....	1	60	.30 h.	30	Do.....	1	66	1.10 d.	10
Do.....	1	60	.15 h.	15	Do.....	1	66	.60 d.	5.5
Cooks.....	2	270	50.00 m.	16.4	Do.....	1	66	.25 d.	2.3
Do.....	1	270	35.00 m.	11.3	Machinists.....	1	60	100.00 m.	38.5
Fillers.....	1	60	.25 h.	25	Sand dryers.....	1	60	.75 d.	7.5
Do.....	1	60	2.35 d.	23.5	Shopmen.....	2	60	2.50 d.	25
Do.....	1	60	1.50 d.	15	Do.....	1	66	2.03 d.	18.5
Do.....	1	66	1.50 d.	13.6	Do.....	1	66	1.37 d.	14.3
Foremen.....	2	60	75.00 m.	28.9	Stablemen.....	1	60	.20 h.	20
Do.....	2	60	.25 h.	25	Do.....	1	60	.17½ h.	17.5
Do.....	1	60	.20 h.	20	Watchmen.....	1	60	2.75 d.	27.5
Do.....	1	60	(1) m.	17.8	Do.....	1	60	1.75 d.	17.5
Do.....	1	60	1.75 d.	17.5	Do.....	1	60	.17½ h.	17.5
Foremen, assist- ant.....	1	60	.17½ h.	17.5	Water boys.....	1	60	1.25 d.	12.5
Foremen, woods.....	1	60	100.00 m.	38.5	Do.....	2	60	1.00 d.	10
Log scalers.....	1	60	75.00 m.	38.8	Do.....	1	60	.88 d.	8.5
Do.....	1	60	(1) m.	13	Do.....	10	60	.75 d.	7.8
Machine-shop men..	1	66	90.00 m.	31.5	Do.....	1	60	.50 d.	5
					Not reported.....	2	66	(*) m.	(*)

1 More than one rate.

2 Seven days.

3 \$40 and \$60.

4 \$0.140 and \$0.210.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

VIRGINIA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Cutting, etc.</i>					<i>Hauling, skidding, and loading—Cld.</i>				
Bark laborers.....	1	60	\$0.20 h.	20	Hauling crews.....	2	66	\$0.90 d.	8.1
Do.....	1	60	.16 h.	16	Loaders.....	3	60	3.00 d.	30
Do.....	16	60	.14 h.	14	Do.....	1	60	75.00 m.	28.9
Do.....	1	60	.10 h.	10	Do.....	1	60	2.40 d.	24
Cutters.....	1	60	2.00 d.	20	Do.....	2	60	.17½ h.	17.5
Do.....	2	60	1.90 d.	19	Do.....	2	60	(1) h.	17.2
Do.....	1	60	1.75 d.	17.5	Do.....	1	60	.16 h.	16
Do.....	1	60	(1) h.	16.8	Do.....	6	60	.15 h.	15
Do.....	4	60	1.60 d.	16	Do.....	1	66	1.40 d.	12.7
Do.....	2	60	.16 h.	16	Do.....	1	66	1.25 d.	11.4
Do.....	1	60	(1) h.	15.5	Loaders, cart.....	2	60	.11½ h.	11.3
Do.....	67	60	1.50 d.	15	Loaders, wagon.....	5	66	1.25 d.	11.4
Do.....	2	60	.15 h.	15	Loading crew.....	1	66	2.43 d.	22.1
Do.....	1	60	1.40 d.	14	Do.....	2	66	1.75 d.	15.9
Do.....	1	60	1.25 d.	12.5	Do.....	11	66	1.35 d.	12.3
Do.....	59	66	(2)	(2)	Do.....	2	66	1.30 d.	11.8
Foremen, bark laborers.....	1	60	.20 h.	20	Do.....	15	66	1.25 d.	11.4
Peelers.....	1	60	(1) d.	18	Do.....	4	66	1.20 d.	10.9
Do.....	1	60	(1) d.	16.8	Do.....	6	66	1.15 d.	10.5
Do.....	38	60	1.50 d.	15	Do.....	1	66	1.10 d.	10
Do.....	1	60	1.40 d.	14	Do.....	4	66	1.00 d.	9.1
Do.....	10	60	1.25 d.	12.5	Log rollers.....	1	66	1.25 d.	11.4
Do.....	1	60	1.00 d.	10	Path cutters.....	3	66	1.25 d.	11.4
Sawyers.....	40	60	.16 h.	16	Riders.....	1	66	.75 d.	6.8
Do.....	1	60	(1) h.	16	Ropemen.....	4	66	1.50 d.	13.6
Do.....	5	66	1.50 d.	13.6	Do.....	4	66	1.40 d.	12.7
Do.....	3	66	1.40 d.	12.7	Do.....	2	66	1.35 d.	12.3
Do.....	2	66	1.35 d.	12.3	Do.....	7	66	1.25 d.	11.4
Do.....	1	66	1.25 d.	11.4	Skidders.....	2	60	.21 h.	20
Do.....	10	60	(2)	(2)	Do.....	1	60	(1) h.	19.3
Do.....	55	66	(2)	(2)	Do.....	3	60	.17½ h.	17.5
Not reported.....			(2)	(2)	Snakers.....	1	60	.15 h.	15
<i>Hauling, skidding, and loading.</i>			(2)	(2)	Do.....	1	66	1.40 d.	12.7
Brutters.....	1	60	(1) h.	16.4	Do.....	1	66	1.35 d.	12.3
Do.....	1	60	(1) h.	16.3	Teamsters.....	12	60	1.75 d.	17.5
Do.....	1	60	(1) h.	15.5	Do.....	15	60	.17½ h.	17.5
Do.....	28	60	1.50 d.	15	Do.....	1	60	1.50 d.	15
Do.....	43	60	.15 h.	15	Tong hookers.....	4	60	2.40 d.	24
Do.....	4	60	1.25 d.	12.5	Do.....	3	60	.20 h.	20
Do.....	18	60	.712½ h.	12.5	Do.....	1	60	(1) h.	16.5
Chainmen.....	1	66	1.35 d.	12.3	Tong men.....	1	66	1.50 d.	13.6
Do.....	1	60	.11½ h.	11.3	Do.....	1	66	1.25 d.	11.4
Drivers.....	1	60	.15 h.	15	Top loaders.....	1	60	.25 h.	25
Do.....	2	60	.12½ h.	12.5	Do.....	2	66	1.40 d.	12.7
Do.....	1	66	1.35 d.	12.3	Do.....	1	60	.12½ h.	12.5
Do.....	2	66	1.25 d.	11.4	Do.....	2	66	1.35 d.	12.3
Do.....	1	60	.00¾ h.	6.7	Top loaders, assistant.....	1	66	.75 d.	6.8
Engineers, skidder.....	1	60	75.00 m.	28.9	Transfer crew.....	1	66	2.25 d.	20.5
Do.....	2	66	1.50 d.	13.6	Do.....	1	66	2.60 d.	18.2
Extra men.....	2	66	1.25 d.	11.4	Do.....	2	66	1.35 d.	12.3
Firemen.....	2	66	1.50 d.	13.6	Do.....	13	66	1.25 d.	11.4
Foremen.....	3	66	2.00 d.	18.2	Do.....	1	66	.75 d.	6.8
Foremen, loader.....	1	60	70.00 m.	26.9	Wagon crew.....	1	66	100.00 m.	35
Foremen, skidder.....	1	60	60.00 m.	23.1	Do.....	1	66	85.00 m.	29.7
Foremen, teamsters.....	3	60	3.32½ d.	33.3	Do.....	1	66	2.30 d.	18.2
Do.....	1	60	65.00 m.	25	Do.....	1	66	1.75 d.	15.9
Foremen, woods.....	1	66	5.00 d.	45.5	Do.....	3	66	1.40 d.	12.7
Foremen, woods, assistant.....	1	66	2.75 d.	25	Do.....	4	66	1.30 d.	11.3
Grab drivers.....	11	60	1.60 d.	16	Do.....	7	66	1.25 d.	11.4
Do.....	2	60	1.50 d.	15	Do.....	2	66	1.20 d.	10.9
Hauling crew.....	1	66	180.00 m.	62.9	Do.....	18	66	1.15 d.	10.5
Do.....	1	66	126.00 m.	44.1	Do.....	8	66	1.10 d.	10
Do.....	1	66	2.89 d.	26.3	Do.....	3	66	1.00 d.	9.1
Do.....	1	66	1.55 d.	14.1	Do.....	1	577	1.00 d.	9.1
Do.....	8	66	1.35 d.	12.3	Do.....	1	66	.60 d.	5.5
Do.....	9	66	1.25 d.	11.4	Do.....	1	66	.40 d.	3.6
Do.....	7	66	1.20 d.	10.9	Water boys.....	1	66	.75 d.	6.8
Do.....	3	66	1.15 d.	10.5	Woodcutters.....	1	66	1.50 d.	13.6
Do.....	2	66	1.10 d.	10	Do.....	1	66	1.35 d.	12.3
Do.....	1	66	1.00 d.	9.1	Do.....	2	66	1.25 d.	11.4
					Not reported.....	24	66	(1) d.	(1)

¹ More than one rate.
² Pieceworkers.

³ \$1.15 to \$3.50.
⁴ \$0.105 to \$0.318.

⁵ Seven days.
⁶ \$0.80 to \$1.75.

⁷ \$0.073 to \$0.159.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

VIRGINIA—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Railroad construction and maintenance.</i>					<i>Railroad construction and maintenance—Concluded.</i>				
Foremen.....	1	60	\$0.35 h.	35	<i>Cents.</i>				
Do.....	1	66	2.90 d.	26.4	Section hands.....	1	60	\$0.07½ h.	7.5
Do.....	1	66	2.75 d.	25	Do.....	1	60	.05 h.	5
Do.....	2	66	2.25 d.	20.5	Do.....	47	66	(²)	(³)
Do.....	1	60	.15 h.	15	<i>Railroad operation.</i>				
Foremen, section.....	1	66	3.46 d.	31.5	Brakemen.....	1	60	50.00 m.	19.2
Do.....	1	60	.50 h.	30	Do.....	5	60	1.75 d.	17.5
Do.....	1	60	76.00 m.	29.2	Do.....	1	60	1.50 d.	15
Do.....	1	60	2.15 d.	21.5	Do.....	1	66	1.25 d.	11.4
Do.....	1	60	50.00 m.	19.2	Do.....	4	60	2.15 d.	21.5
Do.....	1	60	1.90 d.	19	Conductors.....	1	60	85.00 m.	32.7
Do.....	1	66	2.60 d.	18.2	Engineers.....	1	60	80.00 m.	30.8
Foremen, steel gang.....	1	60	2.40 d.	24	Do.....	2	60	3.00 d.	30
Laborers.....	4	66	1.50 d.	13.6	Do.....	1	60	75.00 m.	28.9
Do.....	2	66	1.40 d.	12.7	Do.....	3	60	2.75 d.	27.5
Do.....	1	60	1.2½ h.	12.5	Do.....	1	60	.25 h.	25
Do.....	1	66	1.35 d.	12.3	Do.....	1	66	2.42 d.	22
Do.....	14	66	1.25 d.	11.4	Do.....	1	60	52.25 m.	20.1
Do.....	6	60	1.20½ h.	11.3	Do.....	1	66	1.75 d.	15.9
Do.....	5	66	1.20 d.	10.9	Do.....	1	66	1.50 d.	13.6
Do.....	14	66	1.15 d.	10.5	Do.....	1	60	2.85 d.	28.5
Do.....	18	66	1.10 d.	10	Firemen.....	1	60	20 h.	20
Do.....	1	60	10 h.	10	Do.....	2	60	.20 h.	20
Do.....	1	66	1.00 d.	9.1	Do.....	1	60	50.00 m.	19.2
Laborers, steel gang.....	1	60	1.90 d.	19	Do.....	2	60	1.85 d.	18.5
Do.....	1	60	(¹) d.	15.8	Do.....	2	60	1.75 d.	17.5
Do.....	12	60	1.50 d.	15	Do.....	1	60	1.6½ h.	16.7
Do.....	1	60	1.25 d.	12.5	Do.....	2	66	1.50 d.	13.6
Do.....	1	60	(¹) d.	9.8	Do.....	1	66	1.25 d.	11.4
Road builders.....	16	60	.17½ h.	17.5	Sand haulers.....	1	60	(¹)	32.5
Do.....	1	60	.15 h.	15	Train masters.....	1	60	95.00 m.	36.5
Do.....	1	60	.07½ h.	7.5	Not reported.....	42	66	(⁴)	(⁵)
Section hands.....	1	60	.17½ h.	17.5	<i>Road construction and maintenance.</i>				
Do.....	27	60	.15 h.	15	Roadmen.....	2	60	1.60 d.	16
Do.....	7	60	1.42½ d.	14.3	Do.....	1	60	1.50 d.	15
Do.....	1	60	(¹) h.	14.2	Do.....	4	60	.15 h.	15
Do.....	4	60	1.40 d.	14	Do.....	1	60	1.25 d.	12.5
Do.....	14	60	.14 h.	14	Do.....	1	60	.12½ h.	12.5
Do.....	1	66	1.35 d.	12.3	Swampers.....	21	60	.15 h.	15
Do.....	14	66	1.25 d.	11.4	Do.....	2	60	.14 h.	14
Do.....	6	66	1.15 d.	10.5	Do.....	4	60	.11½ h.	11.3
Do.....	1	66	1.10 d.	10	Do.....	1	60	.10 h.	10
Do.....	1	60	.10 h.	10					
Do.....	3	66	1.00 d.	9.1					

WASHINGTON.

<i>General.</i>					<i>General—Contd.</i>				
Blacksmiths.....	2	60	3.75 d.	37.5	Cooks.....	2	670	790.00 m.	7 29.7
Do.....	1	60	(¹) d.	36.9	Do.....	2	670	775.00 m.	7 24.7
Blacksmiths' helpers.....	1	60	2.50 d.	25	Do.....	1	684	775.00 m.	7 20.6
Bull cooks.....	1	670	7 2.25 d.	7 22.5	Do.....	1	684	7 2.42 d.	7 20.2
Do.....	1	670	7 2.00 d.	7 20	Do.....	1	670	7 60.00 m.	7 19.8
Do.....	3	670	7 30.00 m.	7 9.9	Cooks, head.....	1	684	7 2.42 d.	7 20.2
Do.....	1	670	30.00 m.	9.9	Cooks, second.....	1	670	7 45.00 m.	7 14.8
Carpenters.....	1	60	3.00 d.	30	Do.....	1	684	7 35.00 m.	7 9.6
Do.....	2	60	2.75 d.	27.5	Do.....	1	684	7 1.13 d.	7 9.4
Do.....	1	60	2.50 d.	25	Engineers.....	1	60	2.75 d.	27.5
Cookhouse men.....	2	670	7 40.00 m.	7 13.2	Filers.....	1	60	4.00 d.	40
Do.....	4	670	7 1.00 d.	7 10	Do.....	1	60	3.75 d.	37.5
Do.....	1	670	7 30.00 m.	7 9.9	Do.....	2	60	3.50 d.	35
Cooks.....	1	670	7 110.00 m.	7 36.3	Do.....	1	60	2.68 d.	26.8

¹ More than one rate.

² \$0.75 per day to \$100 per month.

³ \$0.668 to \$0.350.

⁴ \$0.75 per day to \$75 per month.

⁵ \$0.668 to \$6.262.

⁶ Seven days.

⁷ And board.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

WASHINGTON—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>General—Concl'd.</i>					<i>Railroad construction and maintenance—Concluded.</i>				
Filers.....	1	60	\$2.50 d.	25	Foremen.....	2	60	\$3.00 d.	30
Filers and blacksmiths' helpers.....	1	60	2.50 m.	31.9	Do.....	1	60	2.75 d.	27.5
Firemen.....	1	60	2.00 d.	20	Foremen, construction.....	1	60	100.00 m.	47.2
Do.....	2	60	2.00 d.	20	Foremen, section.....	3	60	2.50 d.	25
Flunkies.....	1	70	2 22.5 d.	22.5	Handymen.....	1	70	2.75 d.	27.5
Do.....	1	70	2 35.00 m.	211.5	Laborers.....	2	60	2.25 d.	22.5
Do.....	4	70	2 30.00 m.	29.9	Do.....	2	60	2.00 d.	20
Do.....	1	84	2 1.00 d.	28.3	Do.....	54	60	1.60 d.	16
Do.....	4	84	2 .97 d.	28.1	Laborers, construction.....	2	60	2.75 d.	27.5
Foremen.....	1	60	2 180.00 m.	269.2	Do.....	2	60	2.50 d.	25
Do.....	1	60	2 150.00 m.	257.7	Do.....	1	60	(*) d.	23.6
Do.....	1	60	150.00 m.	57.7	Do.....	1	60	(*) d.	22.7
Do.....	1	60	2 130.00 m.	250	Do.....	19	60	2.25 d.	22.5
Do.....	1	70	4.82 d.	48.2	Do.....	1	60	(*) d.	22.5
Do.....	1	70	136.81 m.	45.1	Do.....	1	60	(*) d.	25.2
Do.....	1	60	2 112.50 m.	243.3	Do.....	1	60	(*) d.	25
Do.....	1	60	2 125.00 m.	248.1	Riggers.....	1	60	2.50 d.	25
Foremen, woods.....	1	60	2.50 d.	25	Section men.....	1	60	(*) d.	21.3
Handymen.....	1	70	2 1.00 d.	210	Do.....	1	60	(*) d.	19.6
Hashers, cookhouse.....	1	70	2 2.00 d.	20	Do.....	1	60	(*) d.	19.1
Laborers.....	2	60	2.00 d.	20	Do.....	13	60	1.80 d.	18
Machinists.....	1	60	2 90.00 m.	34.6	Do.....	12	60	1.75 d.	17.5
Powder men.....	1	60	2.50 d.	25	Timekeepers.....	1	70	3.21 d.	32.1
Pump men.....	1	60	2.50 d.	25	Wood bucks.....	8	60	2.00 d.	20
Timekeepers.....	1	60	3.25 d.	32.5	Not reported.....	2	60	(*) d.	(*)
Do.....	1	70	91.87 m.	30.3	<i>Railroad operation.</i>				
Do.....	1	60	2 72.00 m.	27.7	Brakemen.....	4	60	2.50 d.	25
Do.....	1	60	2 2.75 d.	27.5	Conductors.....	1	60	3.00 d.	30
Do.....	1	60	2 67.50 m.	26	Do.....	2	60	2.80 d.	28
Do.....	1	70	2.43 d.	24.3	Do.....	1	60	2.70 d.	27
Do.....	1	60	2 2.25 d.	22.5	Engineers.....	1	60	112.50 m.	43.3
Watchmen.....	1	60	2.25 d.	22.5	Do.....	1	60	3.69 d.	36.9
Do.....	1	70	60.00 m.	19.8	Do.....	2	60	3.15 d.	31.5
Do.....	1	70	50.00 m.	16.5	Engineers, donkey.....	1	60	3.15 d.	31.5
Wood bucks.....	2	60	2.00 d.	20	Do.....	1	60	3.00 d.	30
Do.....	1	60	1.50 d.	15	Engineers, helper, donkey.....	1	60	1.75 d.	17.5
Do.....	1	84	1.76 d.	14.7	Firemen.....	2	60	2.80 d.	28
<i>Cutting, etc.</i>					Do.....	2	60	2.25 d.	22.5
Buckers.....	9	60	3.50 d.	35	<i>Road construction and maintenance.</i>				
Do.....	1	60	3 25 d.	32.5	Foremen.....	1	60	2.75 d.	27.5
Do.....	28	60	3.00 d.	30	Do.....	2	60	2.50 d.	25
Do.....	10	60	2.75 d.	27.5	Foremen, train.....	1	60	100.00 m.	38.5
Do.....	25	60	2.50 d.	25	Laborers.....	1	60	(*) d.	21.7
Fallers.....	3	60	3.75 d.	37.5	Do.....	15	60	2.00 d.	20
Do.....	5	60	3.50 d.	35	Do.....	7	60	1.80 d.	18
Do.....	1	60	(*) d.	32.6	Do.....	9	60	1.50 d.	15
Do.....	9	60	3.25 d.	32.5	Skid-road men.....	12	60	2.50 d.	25
Do.....	1	60	(*) d.	30.2	Swampers.....	1	60	3.00 d.	30
Do.....	11	60	3.00 d.	30	Do.....	1	60	(*) d.	29.5
Do.....	4	60	2.75 d.	27.5	Do.....	1	60	(*) d.	29.3
Do.....	2	60	2.50 d.	25	Swampers, head.....	1	60	3.50 d.	35
Fallers, head.....	14	60	3.00 d.	30	<i>Skidding, overhead.</i>				
Fallers, second.....	12	60	2.75 d.	27.5	Choker men.....	1	60	(*) d.	28.1
Knotters.....	2	60	3.00 d.	30	Do.....	1	60	(*) d.	25.9
Do.....	3	60	2.50 d.	25	Do.....	3	60	2.50 d.	25
Markers.....	1	60	3.50 d.	35	Firemen.....	1	60	2.80 d.	28
Wood buckers.....	5	60	2.25 d.	22.5	Do.....	1	60	2.75 d.	27.5
Do.....	1	60	(*) d.	21.4	Hookers, head.....	1	60	3.00 d.	30
<i>Railroad construction and maintenance.</i>					Hook-ons.....	1	60	3.25 d.	32.5
Blasters.....	1	60	2.75 d.	27.5	Do.....	1	60	2.50 d.	25
Engineers.....	1	60	2.75 d.	27.5	Do.....	1	60	3.50 d.	35
Engineers, donkey.....	3	60	2.75 d.	27.5	Hook tenders.....	1	60	2.50 d.	25
Foremen.....	1	70	4.82 d.	48.2					
Do.....	1	70	4.81 d.	48.1					
Do.....	2	60	3.50 d.	35					
Do.....	1	60	3.25 d.	32.5					

¹ Seven days. ² And board. ³ More than one rate. ⁴ \$2.50 and \$3.75. ⁵ \$0.25 and \$0.375.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

WASHINGTON—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Skidding, overhead— Concluded.</i>				<i>Cents.</i>	<i>Yarding, hauling, and loading—Cld.</i>				<i>Cents.</i>
Knotters.....	1	60	\$2.25 d.	22.5	Firemen, donkey...	1	60	\$2.00 d.	20
Levermen.....	2	60	4.18 d.	41.8	Firemen, roader...	2	60	2.50 d.	25
Do.....	2	60	4.00 d.	40	Firemen, skidder...	1	60	2.50 d.	25
Levermen, head...	1	60	4.25 d.	42.5	Firemen, yarder...	2	60	2.50 d.	25
Loaders, head...	2	60	3.75 d.	37.5	Flagmen.....	1	60	3.00 d.	30
Loaders, second...	3	60	2.80 d.	28	Do.....	4	60	2.50 d.	25
Do.....	1	60	2.50 d.	25	Do.....	3	60	2.00 d.	20
Riggers.....	10	60	2.50 d.	25	Groundmen.....	1	60	2.50 d.	25
Riggers, head...	1	60	5.44 d.	54.4	Handymen.....	1	60	3.00 d.	30
Do.....	1	60	5.38 d.	53.8	Hook-on men.....	1	60	3.00 d.	30
Do.....	1	60	5.28 d.	52.8	Do.....	1	60	2.75 d.	27.5
Riggers, second...	3	60	3.25 d.	32.5	Do.....	1	60	2.50 d.	25
Signalmen.....	2	60	2.00 d.	20	Hook tenders.....	1	60	5.75 d.	57.5
Unhookers.....	1	60	(1) d.	25.4	Do.....	2	60	5.50 d.	55
Do.....	1	60	2.50 d.	25	Do.....	5	60	4.00 d.	40
Wood bucks.....	1	60	2.50 d.	25	Do.....	3	60	5.75 d.	37.5
Do.....	1	60	2.25 d.	22.5	Do.....	1	60	3.50 d.	35
Do.....	2	60	2.00 d.	20	Do.....	1	60	3.00 d.	30
					Do.....	2	60	2.75 d.	27.5
					Do.....	1	60	(1) d.	19.4
<i>Yarding, hauling, and loading.</i>					Laborers.....	1	60	2.00 d.	20
Boom men.....	1	60	2.75 d.	27.5	Do.....	1	60	1.75 d.	17.5
Chasers.....	1	60	3.50 d.	35	Landing men.....	1	60	2.00 d.	20
Do.....	3	60	3.25 d.	32.5	Levermen.....	1	60	3.92 d.	39.2
Do.....	5	60	3.00 d.	30	Do.....	1	60	3.40 d.	34
Do.....	3	60	2.75 d.	27.5	Loaders.....	2	60	4.00 d.	40
Do.....	3	60	2.50 d.	25	Do.....	1	60	4.00 d.	40
Do.....	9	60	(1) d.	22.6	Do.....	1	60	(1) d.	31.1
Do.....	1	60	(1) d.	22.5	Do.....	4	60	3.00 d.	30
Choker men.....	3	60	3.25 d.	32.5	Do.....	2	60	2.75 d.	27.5
Do.....	1	60	(1) d.	31.1	Do.....	2	60	2.50 d.	25
Do.....	1	60	3.00 d.	30	Do.....	2	60	2.25 d.	22.5
Do.....	1	60	(1) d.	29.5	Loaders, head.....	1	60	5.00 d.	50
Do.....	1	60	(1) d.	26.7	Do.....	1	60	3.50 d.	35
Do.....	9	60	2.50 d.	25	Loaders, second...	3	60	2.89 d.	28
Choker setters.....	2	60	2.75 d.	27.5	Do.....	1	60	2.50 d.	25
Do.....	3	60	2.50 d.	25	Pick-ups.....	1	60	2.25 d.	22.5
Do.....	1	60	(1) d.	22.9	Powder men.....	1	60	3.00 d.	30
Chunk bucks.....	1	60	3.00 d.	30	Pump men.....	1	60	2.75 d.	27.5
Climbers.....	1	60	4.00 d.	40	Do.....	1	60	2.25 d.	22.5
Coupling men.....	1	60	2.50 d.	25	Do.....	1	60	1.80 d.	18
Deck men.....	1	60	2.75 d.	27.5	Riggers.....	1	60	4.00 d.	40
Drum tenders.....	1	60	(1) d.	27.3	Do.....	1	60	(1) d.	37.6
Do.....	1	60	2.50 d.	25	Do.....	5	60	2.75 d.	27.5
Engineers.....	12	60	3.25 d.	32.5	Do.....	11	60	2.50 d.	25
Do.....	3	60	3.00 d.	30	Rigging men.....	1	60	3.50 d.	35
Do.....	1	60	(1) d.	28.5	Do.....	1	60	2.50 d.	25
Do.....	1	60	(1) d.	28.4	Rigging slingers.....	1	60	3.50 d.	35
Do.....	1	60	(1) d.	27.5	Do.....	1	60	(1) d.	25.4
Do.....	3	60	2.50 d.	25	Roader splitters.....	1	60	2.50 d.	25
Engineers, donkey...	3	60	2.75 d.	27.5	Scraper men.....	1	60	5.50 d.	55
Engineers, loader...	1	60	3.50 d.	35	Signalmen.....	1	60	2.50 d.	25
Engineers, roader...	1	60	4.00 d.	40	Do.....	1	60	2.00 d.	20
Do.....	1	60	3.50 d.	35	Skidders.....	1	60	5.50 d.	55
Do.....	1	60	3.25 d.	32.5	Skidders, head...	1	60	5.00 d.	50
Do.....	1	60	3.00 d.	30	Snipers.....	1	60	3.25 d.	32.5
Engineers, skidder...	2	60	3.50 d.	35	Do.....	1	60	(1) d.	27.9
Do.....	4	60	3.00 d.	30	Do.....	4	60	2.50 d.	25
Do.....	2	60	2.50 d.	25	Do.....	1	60	(1) d.	24.3
Engineers, yarder...	1	60	4.00 d.	40	Spool tenders.....	1	60	(1) d.	28.1
Do.....	1	60	3.25 d.	32.5	Do.....	1	60	2.75 d.	27.5
Firemen.....	1	60	3.00 d.	30	Do.....	1	60	2.50 d.	25
Do.....	1	60	(1) d.	26.1	Teamsters.....	1	60	2.25 d.	22.5
Do.....	3	60	2.50 d.	25	Whistle boys.....	2	60	2.00 d.	20
Do.....	1	60	(1) d.	23.6	Wood bucks.....	2	60	2.75 d.	27.5
Do.....	1	60	(1) d.	22.6	Do.....	8	60	2.50 d.	25
Do.....	1	60	(1) d.	22.5	Do.....	4	60	2.25 d.	22.5
Do.....	17	60	2.25 d.	22.5	Do.....	1	60	(1) d.	21
Do.....	1	60	(1) d.	21.9	Do.....	5	60	2.00 d.	20
Do.....	1	60	(1) d.	21.2	Yarder splitters.....	1	60	2.75 d.	27.5

1 More than one rate.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

WEST VIRGINIA.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>General.</i>					<i>General—Conclid.</i>				
Bakers.....	1	59	\$1.69	d. 16.3	Improvement men.....	1	60 ¹	\$2.25	d. 22.4
Barn bosses.....	1	60	1.80	d. 18	Do.....	1	59	1.80	d. 18.3
Do.....	1	60 ¹	1.50	d. 14.9	Do.....	3	59	1.50	d. 15.3
Blacksmiths.....	2	59	2.75	d. 35.1	Do.....	1	59	1.35	d. 13.7
Do.....	1	63	3.25	d. 32.5	Inspectors.....	1	60 ¹	(*)	d. 23.7
Do.....	1	59	2.50	d. 25.4	Do.....	1	59	2.25	d. 22.9
Do.....	1	59	2.50	d. 25.4	Janitors.....	1	60	1.75	d. 17.5
Do.....	2	66	2.75	d. 25	Laborers.....	1	60	40.00	m. 15.4
Do.....	8	60	2.50	d. 25	Landing builders.....	1	60 ¹	2.00	d. 19.9
Do.....	2	60 ¹	2.50	d. 24.9	Lobby hogs.....	1	60	135.00	m. 11.5
Do.....	1	60	2.35	d. 23.5	Do.....	5	60	1.15	d. 11.5
Do.....	1	66	2.50	d. 22.7	Do.....	1	60	1.00	d. 10
Do.....	3	63	2.25	d. 22.5	Do.....	1	60	1.35	d. 13.5
Do.....	1	59	2.10	d. 21.4	Pliers.....	1	59	2.00	d. 20.4
Do.....	1	66	2.25	d. 20.5	Scalers.....	1	66	185.00	m. 29.7
Do.....	1	59	1.60	d. 16.3	Do.....	1	60	2.60	d. 26
Carpenters.....	1	66	2.75	d. 25	Do.....	1	59	2.50	d. 25.4
Do.....	1	60	2.00	d. 20	Do.....	1	60	65.00	m. 25
Do.....	2	66	2.10	d. 19.1	Do.....	1	60	63.00	m. 23.1
Do.....	1	59	1.60	d. 16.3	Do.....	1	60	55.00	m. 21.2
Carpenters' helpers.....	1	60	1.75	d. 17.5	Do.....	1	59	2.00	d. 20.4
Car repairers.....	2	60	2.70	d. 27	Do.....	1	60	2.60	d. 26
Do.....	1	72	(*)	d. 16.6	Do.....	1	60 ¹	2.00	d. 20.4
Chore boys.....	1	60	1.00	d. 10	Do.....	1	60 ¹	50.00	m. 19.2
Cookes.....	1	60	(*)	d. 19.3	Do.....	1	60 ¹	1.90	d. 18.9
Do.....	1	77	1.75	d. 15.9	Stablemen.....	2	60	2.10	d. 20.4
Do.....	2	70	(*)	d. 15.7	Do.....	1	70	1.50	d. 15
Do.....	8	70	1.50	d. 15	Timekeepers.....	1	66	3.00	d. 27.3
Do.....	4	70	1.45	m. 14.8	Do.....	1	60	155.00	m. 21.2
Do.....	1	60	(*)	d. 14.8	Do.....	1	59	2.00	d. 20.4
Do.....	1	77	1.45	m. 13.5	Watchmen.....	1	66	2.25	d. 20.5
Do.....	1	60	(*)	d. 13.5	Do.....	1	66	2.00	d. 18.2
Do.....	2	70	1.35	m. 11.5	Do.....	3	77	2.00	d. 18.2
Do.....	1	77	1.25	d. 11.4	Do.....	2	66	1.75	d. 15.9
Do.....	3	70	1.60	d. 16	<i>Cutting, etc.</i>				
Do.....	1	60	1.80	d. 18	Bark scalers.....	1	59	175.00	m. 29.3
Do.....	1	70	2.25	m. 18.2	Choppers.....	5	59	2.50	d. 25.4
Cooks.....	2	70	1.85	m. 19.3	Do.....	1	59	2.25	d. 22.5
Do.....	1	77	1.90	m. 17	Do.....	1	60	2.25	d. 22.5
Do.....	1	77	2.75	d. 25	Do.....	1	59	2.00	d. 20.4
Do.....	4	70	2.50	d. 22.7	Do.....	1	60	2.00	d. 20
Do.....	2	77	2.50	d. 22.7	Do.....	14	60	2.00	d. 20
Do.....	7	70	1.60	m. 19.8	Do.....	1	60	1.90	d. 19
Do.....	1	77	1.60	m. 18	Choppers and sawyers.....	2	60	1.85	d. 18.5
Do.....	2	70	40.00	m. 13.2	Cutters.....	4	66	2.15	d. 19.5
Filers.....	1	59	3.00	d. 30.6	Do.....	3	66	2.10	d. 19.1
Do.....	1	60 ¹	2.75	d. 27.4	Do.....	20	66	1.50	d. 13.6
Do.....	1	66	2.88	d. 26.2	Fitters.....	16	59	2.50	d. 25.4
Do.....	2	59	2.50	d. 25.4	Do.....	15	59	2.40	d. 24.4
Do.....	1	60 ¹	2.50	d. 24.9	Do.....	19	59	2.25	d. 22.9
Do.....	5	60	2.40	d. 24	Do.....	1	59	2.15	d. 21.9
Do.....	2	60	2.25	d. 22.5	Do.....	1	59	2.00	d. 20.4
Do.....	1	60	(*)	d. 22.2	Do.....	1	59	1.50	d. 15.3
Do.....	1	66	2.38	d. 21.6	Do.....	1	59	1.35	d. 13.7
Do.....	1	66	2.30	d. 20.9	Do.....	1	59	(*)	d. 10.1
Do.....	2	66	2.25	d. 20.5	Knot bumpers.....	10	59	2.50	d. 25.4
Do.....	1	60	2.00	d. 20	Do.....	1	60	2.50	d. 25
Foremen.....	1	60	135.00	m. 51.9	Do.....	1	60 ¹	2.50	d. 21.9
Do.....	2	59	100.00	m. 39.1	Do.....	1	60	(*)	d. 24.8
Do.....	2	60 ¹	100.00	m. 38.3	Do.....	18	59	2.40	d. 24.4
Do.....	1	60	90.00	m. 34.6	Do.....	1	60	(*)	d. 24.3
Do.....	1	60	76.50	m. 29.4	Do.....	1	60	(*)	d. 24.2
Do.....	2	60	75.00	m. 28.8	Do.....	1	60 ¹	(*)	d. 23.1
Do.....	6	60	75.00	m. 28.8	Do.....	10	59	2.25	d. 22.9
Do.....	1	66	180.00	m. 28	Do.....	2	60 ¹	(*)	d. 22.2
Do.....	1	66	175.00	m. 26.2	Do.....	1	60 ¹	(*)	d. 21.3
Do.....	2	59	12.50	d. 25.4	Do.....	1	60 ¹	(*)	d. 21.2
Do.....	1	60	2.35	d. 23.5	Do.....	1	60 ¹	(*)	d. 21.1
Harness makers.....	1	60 ¹	3.00	d. 29.9	Do.....	1	60 ¹	(*)	d. 20.9
Do.....	2	66	12.00	d. 18.2	Do.....	1	60 ¹	(*)	d. 20.8
Improvement men.....	1	59	2.25	d. 22.9					

¹ And beard.

² More than one rate.

³ Seven days.

⁴ More than one rate, and board.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

WEST VIRGINIA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Cutting, etc.—Cld.</i>					<i>Hauling, skidding, and loading.</i>				
Knot bumpers.....	4	59	\$2.00	d.	Spudders.....	2	59	\$2.00	d.
Do.....	2	60 ¹	(²)	d.	Bell boys.....	2	66	2.00	d.
Do.....	1	60	2.00	d.	Do.....	2	59	1.35	d.
Do.....	126	60	2.00	d.	Chokers.....	11	59	2.50	d.
Do.....	1	60 ¹	(²)	d.	Do.....	1	59	2.00	d.
Do.....	4	60 ¹	1.75	d.	Engineers.....	1	60	3.00	d.
Do.....	1	60 ¹	1.60	d.	Engineers, loader.....	2	59	3.60	d.
Do.....	15	66	1.75	d.	Do.....	1	66	3.75	d.
Peelers.....	59	60	3.00	d.	Firemen.....	2	59	2.00	d.
Do.....	1	60	(²)	d.	Do.....	2	66	2.00	d.
Do.....	2	60	(²)	d.	Do.....	1	60	1.50	d.
Do.....	1	60	(²)	d.	Foremen.....	1	60	5.00	d.
Do.....	38	60	2.75	d.	Do.....	2	59	4.05	d.
Do.....	1	60 ¹	2.75	d.	Do.....	1	59	90.00	m.
Do.....	1	60	(²)	d.	Do.....	2	66	3.50	d.
Do.....	1	60	(²)	d.	Do.....	3	60	2.75	d.
Do.....	4	60	2.60	d.	Do.....	1	66	3.00	d.
Do.....	9	59	2.50	d.	Do.....	1	59	2.50	d.
Do.....	3	60	2.50	d.	Do.....	1	66	2.50	d.
Do.....	1	66	2.75	d.	Do.....	1	66	2.50	d.
Do.....	7	60 ¹	2.50	d.	Foremen, assistant.....	1	60	3.75	d.
Do.....	1	60	(²)	d.	Do.....	2	66	2.25	d.
Do.....	1	60 ¹	(²)	d.	Foremen, skidder.....	1	66	5.00	d.
Do.....	1	60 ¹	(²)	d.	Do.....	1	66	4.25	d.
Do.....	1	60 ¹	(²)	d.	Grab drivers.....	1	59	2.25	d.
Do.....	2	60 ¹	(²)	d.	Do.....	1	60 ¹	(²)	d.
Do.....	2	59	2.25	d.	Do.....	8	59	12.00	d.
Do.....	2	60 ¹	2.25	d.	Do.....	1	60	2.00	d.
Do.....	1	60 ¹	(²)	d.	Do.....	2	66	2.15	d.
Do.....	2	66	2.35	d.	Do.....	10	66	2.10	d.
Do.....	2	60 ¹	(²)	d.	Do.....	4	60	1.90	d.
Do.....	2	60 ¹	(²)	d.	Do.....	7	60 ¹	1.75	d.
Do.....	12	66	2.25	d.	Grab drivers and swammers.....	46	60	1.75	d.
Do.....	1	59	2.00	d.	Grabhook men.....	16	66	2.25	d.
Do.....	1	66	2.10	d.	Hostlers.....	2	59	1.80	d.
Do.....	3	66	2.00	d.	Laborers.....	1	60	2.75	d.
Do.....	6	60 ¹	1.75	d.	Do.....	1	60	60.00	m.
Do.....	2	60 ¹	1.60	d.	Do.....	8	60	2.25	d.
Do.....	1	59	1.50	d.	Do.....	3	60	2.00	d.
Do.....	4	60 ¹	1.50	d.	Do.....	1	59	1.90	d.
Peelers and teamsters.....	2	60	2.00	d.	Do.....	1	60	(³)	d.
Do.....	114	60	2.00	d.	Do.....	1	60	1.75	d.
Do.....	1	60	(³)	d.	Do.....	1	59	1.60	d.
Do.....	1	60	(³)	d.	Do.....	1	59	1.50	d.
Do.....	1	60	(³)	d.	Landing men.....	1	60	(²)	d.
Do.....	4	60	(³)	d.	Levermen.....	1	59	4.05	d.
Do.....	1	60	(³)	d.	Do.....	2	66	4.00	d.
Sawyers.....	7	59	2.50	d.	Loader men.....	1	60	4.50	d.
Do.....	2	60 ¹	(²)	d.	Do.....	1	60	4.00	d.
Do.....	1	59	2.40	d.	Do.....	1	72	4.00	d.
Do.....	6	60 ¹	(²)	d.	Do.....	2	60	3.20	d.
Do.....	1	60 ¹	(²)	d.	Do.....	2	59	12.70	d.
Do.....	2	59	2.25	d.	Loaders.....	7	66	4.00	d.
Do.....	1	60 ¹	(²)	d.	Do.....	4	72	4.05	d.
Do.....	1	60	2.25	d.	Loaders' helpers.....	1	72	(³)	d.
Do.....	1	60 ¹	(²)	d.	Do.....	1	72	(³)	d.
Do.....	1	60 ¹	(²)	d.	Do.....	5	72	2.57	d.
Do.....	1	60 ¹	(²)	d.	Do.....	2	72	(³)	d.
Do.....	1	60 ¹	(²)	d.	Do.....	1	72	(³)	d.
Do.....	74	60	2.10	d.	Do.....	1	72	(³)	d.
Do.....	2	59	2.00	d.	Do.....	1	72	(³)	d.
Do.....	37	60	2.00	d.	Do.....	1	72	(³)	d.
Do.....	4	60 ¹	2.00	d.	Pulp pilers.....	2	59	12.35	d.
Do.....	11	60	1.90	d.	Rigger men.....	3	66	3.75	d.
Do.....	70	66	1.90	d.	Do.....	1	59	3.00	d.
Do.....	13	66	1.75	d.	Do.....	1	66	3.25	d.
Do.....	3	66	1.50	d.	Do.....	1	59	12.50	d.
Spudders.....	20	59	2.50	d.	Do.....	2	59	12.25	d.
Do.....	17	59	2.40	d.	Do.....	2	59	12.00	d.
Do.....	6	59	2.25	d.	Skidder men.....	1	59	2.00	d.

¹ And board.

² More than one rate, and board.

³ More than one rate.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

WEST VIRGINIA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Hauling, skidding, and loading—Cld.</i>					<i>Railroad construction and maintenance—Concluded.</i>				
Skidder men	3	59	\$1.60 d.	116.3	Foremen	1	59	\$2.35 d.	23.9
Do.	1	59	1.50 d.	15.3	Do.	2	66	2.60 d.	23.6
Skidway men	1	60	2.75 d.	27.5	Do.	1	60	2.35 d.	23.5
Do.	1	60	2.50 d.	25	Do.	1	59	2.25 d.	22.9
Do.	1	60	1.90 d.	19	Do.	15	60	2.25 d.	22.5
Do.	3	66	1.75 d.	15.9	Do.	1	60	2.25 d.	22.4
Teamsters	1	59	2.50 d.	25.4	Do.	1	60	2.15 d.	21.4
Do.	1	60	58.50 m.	22.5	Do.	1	60	55.00 m.	21.2
Do.	3	59	2.10 d.	21.4	Do.	2	66	2.25 d.	20.5
Do.	1	60	(2) d.	21.2	Do.	1	60	2.00 d.	20
Do.	1	60	(2) d.	21.1	Do.	1	66	3.00 d.	27.3
Do.	1	59	2.00 d.	20.4	Do.	2	59	2.25 d.	22.9
Do.	6	60	2.00 d.	20	Do.	1	66	2.00 d.	18.2
Do.	1	60	2.00 d.	20	Do.	1	66	5.00 d.	45.5
Do.	4	66	2.10 d.	19.9	Do.	1	60	2.25 d.	22.5
Do.	1	60	2.10 d.	19.1	Foremen, general	1	66	5.00 d.	45.5
Do.	1	60	(3) d.	18.2	Foremen, graders	1	60	2.50 d.	25
Do.	1	60	(3) d.	17.9	Foremen, laborers	1	60	2.50 d.	25
Do.	11	59	1.75 d.	17.8	Do.	2	60	2.00 d.	20
Do.	14	60	1.75 d.	17.4	Do.	2	66	2.75 d.	25
Do.	9	66	1.90 d.	17.3	Foremen, section	3	60	2.25 d.	22.5
Do.	10	60	1.70 d.	17	Do.	2	60	2.00 d.	20
Do.	28	60	40.00 m.	15.4	Foremen, steel gang	1	60	65.00 m.	25
Do.	1	66	40.00 m.	14	Laborers	1	59	2.25 d.	22.9
Do.	16	66	11.54 d.	14	Do.	5	60	2.00 d.	19.9
Do.	1	59	11.35 d.	13.7	Do.	7	66	2.10 d.	19.1
Do.	1	66	11.50 d.	13.6	Do.	1	60	1.90 d.	18.9
Do.	1	60	(3) d.	11.3	Do.	2	60	1.85 d.	18.4
Tong hookers	7	60	2.75 d.	27.5	Do.	47	59	1.80 d.	18.3
Do.	1	60	(3) d.	26.6	Do.	2	66	2.00 d.	18.2
Do.	6	59	2.50 d.	25	Do.	48	60	1.75 d.	17.5
Do.	6	66	2.75 d.	25	Do.	27	60	1.75 d.	17.4
Do.	1	60	2.50 d.	25	Do.	12	66	1.85 d.	16.8
Do.	7	66	2.65 d.	24.1	Do.	17	59	1.65 d.	16.8
Do.	4	72	2.75 d.	22.9	Do.	32	60	1.65 d.	16.5
Do.	1	60	2.25 d.	22.5	Do.	4	60	1.60 h.	16.5
Do.	2	59	2.00 d.	20.4	Do.	47	59	1.60 d.	16.3
Do.	8	59	2.00 d.	20.3	Do.	4	60	1.16 h.	16
Do.	8	60	2.00 d.	20	Do.	49	66	1.75 d.	15.9
Do.	1	66	(3) d.	19.3	Do.	4	60	1.60 d.	15.9
Do.	1	59	1.80 d.	18.3	Do.	63	66	1.65 d.	15
Do.	1	60	1.75 d.	17.5	Do.	1	60	1.50 d.	15
Top loaders	1	66	2.90 d.	26.4	Do.	15	60	1.15 h.	15
Do.	2	66	2.60 d.	23.6	Do.	1	60	1.50 d.	14.9
Unloaders	2	72	2.48 d.	20.6	Do.	86	60	1.45 d.	14.5
Yardmen	1	72	90.00 m.	28.8	Do.	2	60	1.35 d.	13.5
Do.	1	72	2.70 d.	22.5	Do.	3	59	1.25 d.	12.7
					Do.	1	60	1.25 d.	12.4
					Do.	1	60	1.11 h.	11.5
					Do.	1	60	1.00 d.	10
<i>Railroad construction and maintenance.</i>					<i>Railroad operation.</i>				
Bridgemen	3	66	2.50 d.	22.7	Laborers, steel gang	14	60	1.75 d.	17.5
Do.	1	60	2.25 d.	22.5	Do.	1	60	1.50 d.	15
Do.	6	60	2.00 d.	20	Do.	1	60	1.00 d.	10
Do.	1	66	2.00 d.	18.2	Section men	1	60	2.00 d.	20
Do.	1	66	1.75 d.	15.9	Do.	7	60	1.65 d.	16.5
Do.	1	60	40.00 m.	15.4	Survey gang	6	60	2.00 d.	20
Engineers	1	66	2.50 d.	22.7	Water boys	1	66	1.40 d.	12.7
Firemen	1	66	1.80 d.	16.4	Do.	1	66	1.10 d.	10
Foremen	1	60	\$85.00 m.	\$32.6	Do.	1	66	.75 d.	6.8
Do.	1	60	\$3.00 d.	\$29.9					
Do.	1	66	90.00 m.	31.5					
Do.	1	59	2.75 d.	28	Brakemen	2	59	2.25 d.	22.9
Do.	1	60	2.75 d.	27.5	Do.	2	60	2.25 d.	22.5
Do.	1	60	\$2.75 d.	\$27.4	Do.	1	60	(3) d.	20.8
Do.	1	66	3.00 d.	27.3	Do.	1	59	(3) d.	20.8
Do.	1	60	70.00 m.	26.9	Do.	3	66	2.25 d.	20.5
Do.	1	59	2.60 d.	26.4	Do.	9	59	2.00 d.	20.3
Do.	4	59	2.50 d.	25.4	Do.	3	60	2.00 d.	20
Do.	2	66	2.75 d.	25	Do.	1	72	(3) d.	18.8

¹ And board.

² More than one rate, and board.

³ More than one rate.

⁴ And rent 19 cents per day.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Continued.

WEST VIRGINIA—Continued.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Railroad operation—Continued.</i>					<i>Railroad operation—Concluded.</i>				
<i>Cents.</i>					<i>Cents.</i>				
Brakemen.....	1	72	(1) d.	19.3	Hostlers.....	1	59	\$2.50 d.	25.4
Do.....	1	72	(1) d.	13.5	Do.....	1	66	2.25 d.	20.5
Do.....	3	72	\$2.21 d.	18.4	Do.....	3	59	2.00 d.	20.3
Do.....	2	66	2.03 d.	18.4	Do.....	2	² 70	2.00 d.	20
Do.....	1	72	(1) d.	18.3	Do.....	1	72	(1) d.	20
Do.....	4	66	2.00 d.	18.2	Do.....	1	72	(1) d.	18.3
Do.....	1	72	(1) d.	18.2	Do.....	1	72	(1) d.	17.7
Do.....	1	72	(1) d.	18	Do.....	3	72	2.03 d.	16.9
Do.....	1	72	(1) d.	17.7	Do.....	1	72	2.00 d.	16.7
Do.....	1	72	(1) d.	17.6	Do.....	1	72	(1) d.	15.9
Do.....	1	72	(1) d.	17.4	Do.....	1	72	(1) d.	15.4
Do.....	1	72	(1) d.	17	Do.....	2	72	(1) d.	15.1
Do.....	1	72	2.03 d.	16.9	Do.....	1	72	(1) d.	14.1
Do.....	1	72	(1) d.	16.9	Train masters.....	1	72	180.00 m.	57.7
Do.....	1	72	(1) d.	16.2	Do.....	1	66	100.00 m.	35
Do.....	1	72	(1) d.	15.9	Train masters, assistant.....	2	72	117.00 m.	37.5
Do.....	1	72	(1) d.	15.8	Unloaders.....	2	72	2.75 d.	22.9
Do.....	1	72	(1) d.	15.5	<i>Railroad operation and loading.</i>				
Conductors.....	1	60	3.50 d.	35	Brakemen.....	2	60	2.15 d.	21.5
Do.....	1	60	2.75 d.	27.5	Brakemen and loaders.....	1	60	(1) d.	29.7
Do.....	2	59	2.70 d.	27.5	Do.....	2	60	2.25 d.	22.5
Do.....	2	66	3.00 d.	27.3	Brakemen and tong hooks.....	2	60	2.25 d.	22.5
Do.....	1	72	85.90 m.	27.2	Do.....	1	60	(1) d.	20.7
Do.....	1	72	3.15 d.	26.3	Brakemen and top loaders.....	1	60	(1) d.	24.1
Do.....	1	66	2.75 d.	25	Do.....	1	60	(1) d.	22.5
Do.....	6	59	2.25 d.	22.9	Do.....	4	60	2.25 d.	22.5
Do.....	1	66	65.00 m.	22.7	Do.....	1	60	2.15 d.	21.5
Do.....	4	66	2.50 d.	22.7	Conductors.....	7	60	2.50 d.	25
Do.....	4	72	2.70 d.	22.5	Do.....	1	60	(1) d.	24.8
Do.....	6	72	2.48 d.	22.6	Do.....	1	60	(1) d.	24.7
Do.....	1	72	(1) d.	22.6	Do.....	1	60	2.25 d.	22.5
Dispatchers.....	1	66	3.50 d.	31.3	Do.....	1	60	(1) d.	20
Do.....	2	60	3.09 d.	30	Engineers.....	5	60	3.00 d.	30
Engineers.....	3	59	2.95 d.	30	Do.....	1	60	(1) d.	29.7
Do.....	2	66	3.25 d.	29.5	Do.....	2	60	(1) d.	29.5
Do.....	1	72	3.51 d.	29.3	Do.....	1	60	(1) d.	29.3
Do.....	1	60	75.00 m.	28.9	Do.....	1	60	(1) d.	28.8
Do.....	3	60	2.75 d.	27.5	Do.....	1	60	(1) d.	28
Do.....	6	59	2.70 d.	27.5	Do.....	1	60	(1) d.	28.8
Do.....	1	66	3.00 d.	27.3	Do.....	1	60	(1) d.	28
Do.....	1	72	3.25 d.	27.1	Do.....	1	60	(1) d.	25.8
Do.....	1	72	(1) d.	27	Do.....	1	60	(1) d.	23.8
Do.....	1	72	(1) d.	26	Do.....	1	60	(1) d.	22.7
Do.....	2	59	2.50 d.	25.4	Do.....	1	60	(1) d.	22.5
Do.....	5	66	2.75 d.	25	Do.....	1	60	2.25 d.	22.5
Do.....	1	72	(1) d.	21.6	Do.....	1	60	(1) d.	20
Do.....	6	72	2.93 d.	21.4	Do.....	1	60	(1) d.	20.9
Do.....	1	72	(1) d.	23.8	Do.....	1	60	(1) d.	20
Do.....	3	66	2.50 d.	22.7	Do.....	8	60	2.00 d.	20
Do.....	1	72	2.70 d.	22.5	Do.....	1	60	65.00 m.	25
Do.....	1	72	(1) d.	37.4	Do.....	1	60	2.25 d.	18.8
Firemen.....	1	60	(1) d.	37.4	Do.....	1	60	3.00 d.	30
Do.....	5	59	2.25 d.	22.9	Do.....	1	60	(1) d.	29.7
Do.....	1	66	(1) d.	21	Do.....	1	60	(1) d.	29.4
Do.....	3	66	2.25 d.	20.5	Do.....	1	60	(1) d.	27.9
Do.....	8	59	2.00 d.	20.3	Do.....	1	60	(1) d.	27.9
Do.....	5	60	2.00 d.	20	Do.....	1	60	(1) d.	27.9
Do.....	5	60	2.00 d.	20	Do.....	3	60	2.25 d.	22.5
Do.....	1	72	(1) d.	19.5	<i>Road construction and maintenance.</i>				
Do.....	1	72	(1) d.	19.1	Buck swampers.....	1	60	\$ 2.75 d.	\$ 27.5
Do.....	1	72	(1) d.	18.5	Do.....	2	60	\$ 2.60 d.	\$ 26
Do.....	1	72	2.21 d.	18.4	Do.....	4	60	\$ 2.50 d.	\$ 25
Do.....	1	72	(1) d.	18.4	Do.....	13	60	2.15 d.	21.5
Do.....	1	59	1.80 d.	18.3	Do.....	1	60	(1) d.	23.7
Do.....	3	66	2.00 d.	18.2	Do.....	1	60	(1) d.	20.6
Do.....	1	72	(1) d.	17.6	Do.....	1	60	\$ 2.50 d.	\$ 24.9
Do.....	2	72	(1) d.	17	Do.....	1	60	\$ 2.60 d.	\$ 24.9
Do.....	3	72	2.03 d.	16.9	Do.....	1	60	\$ 2.60 d.	\$ 24.9
Do.....	1	72	2.00 d.	16.7	Foremen, swampers.....	1	60	\$ 2.50 d.	\$ 24.9
Do.....	4	66	1.80 d.	16.4	Road builders.....	1	60	\$ 2.60 d.	\$ 24.9
Do.....	1	72	(1) d.	15.2					
Do.....	1	72	(1) d.	13.9					

¹ More than one rate.

² Seven days.

³ And board.

TABLE 19.—NUMBER OF EMPLOYEES, FULL-TIME HOURS PER WEEK, AND RATES OF WAGES IN THE LOGGING INDUSTRY, BY OCCUPATIONS, 1915—Concluded.

WEST VIRGINIA—Concluded.

Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.	Classification and occupation of employees.	No. of employees.	Full-time hrs. per wk.	Wage rate.	Equivalent rate per hour.
<i>Road construction and maintenance—Concluded.</i>				<i>Cents.</i>	<i>Tramroad construction and maintenance.</i>				<i>Cents.</i>
Roadmen.....	2	66	\$2.10	d. 19.1	Foremen, bridge crew.....	1	60	\$85.00	m. 32.7
Do.....	1	66	2.00	d. 18.2	Foremen, grade crew.....	2	60	2.75	d. 27.5
Do.....	1	66	1.95	d. 17.7	Foremen, steel crew.....	1	60	3.00	d. 30
Do.....	2	66	1.85	d. 16.8	Laborers.....	1	60	2.00	d. 20
Do.....	1	66	1.50	d. 13.6	Do.....	1	60	1.80	d. 18
Road monkeys.....	1	59	2.00	d. 20.4	Do.....	1	60	1.75	d. 17.5
Do.....	1	60	1.90	d. 19	Do.....	29	60	1.70	d. 17
Do.....	5	60½	1.75	d. 16.8	Do.....	1	60	1.65	d. 16.5
Do.....	3	59	1.60	d. 16.3	Laborers, bridge crew.....	4	60	2.25	d. 22.5
Do.....	3	65	1.75	d. 15.9	Do.....	1	60	2.00	d. 20
Do.....	4	59	1.50	d. 15.3	Laborers, steel crew.....	5	60	1.85	d. 18.5
Do.....	3	60½	1.50	d. 14.9	Do.....	15	60	1.75	d. 17.5
Do.....	1	59	1.35	d. 13.7	Surveyors' helpers.....	1	60	2.70	d. 27
Road poters.....	3	60½	1.75	d. 16.8	Do.....	1	69	67.50	m. 25
Swampers.....	2	60	1.50	d. 15	Do.....	1	69	2.25	d. 22.5
Do.....	1	60½	(?)	d. 12.7	<i>Unloading.</i>				
Do.....	4	59	1.25	d. 12.9	Landing men.....	1	60½	(?)	d. 122.5
Do.....	1	60	2.25	d. 22.5	Do.....	1	60½	(?)	d. 120.9
Do.....	2	59	1.20	d. 12.4	Do.....	1	66	2.10	d. 19.1
Do.....	1	60	(?)	d. 120.9	Do.....	1	66	2.00	d. 18.2
Do.....	6	59	1.00	d. 10.4	Do.....	4	60½	1.75	d. 17.4
Do.....	11	60	1.00	d. 10	Do.....	1	60½	1.50	d. 14.9
Do.....	24	60	2.00	d. 20	Do.....	1	60½	(?)	d. 111.9
Do.....	5	60	1.95	d. 19.5	<i>Unclassified.</i>				
Do.....	1	60½	(?)	d. 19.4	Foremen.....	1	60	100.00	m. 138.5
Do.....	1	59	11.00	d. 119.3	Do.....	1	60	75.00	m. 128.8
Do.....	1	66	12.10	d. 119.1	Do.....	1	60	12.75	d. 127.5
Do.....	18	66	2.10	d. 19.1	Laborers.....	1	60	12.50	d. 125
Do.....	41	60	1.90	d. 19	Do.....	4	60	2.50	d. 25
Do.....	3	59	1.85	d. 18.8	Do.....	1	60	(?)	d. 24.4
Do.....	1	60½	(?)	d. 18.5	Do.....	1	59	12.00	d. 120.4
Do.....	17	60	1.85	d. 18.5	Do.....	5	59	11.80	d. 118.3
Do.....	10	59	1.80	d. 18.3	Do.....	3	59	11.70	d. 117.3
Do.....	3	66	2.09	d. 18.2	Do.....	1	60	1.65	d. 16.5
Do.....	2	60	1.80	d. 18	Do.....	2	59	11.60	d. 116.3
Do.....	1	60½	(?)	d. 17.7	Do.....	2	59	11.50	d. 115.3
Do.....	13	60	11.75	d. 117.5	Do.....	1	60	11.50	d. 115
Do.....	1	60½	11.75	d. 117.4	Do.....	3	60	1.50	d. 15
Do.....	1	59	11.69	d. 116.3	Do.....	1	60	1.25	d. 12.5
Do.....	7	65	1.75	d. 15.9	Do.....	2	60	1.00	d. 10
Do.....	4	60½	11.60	d. 115.9	Do.....	2	60	20.00	m. 7.7
Do.....	15	59	11.50	d. 115.3	Not reported.....	111	60	(?)	d. (?)
Do.....	7	60½	11.50	d. 114.9					
Do.....	12	59	11.35	d. 113.7					
Do.....	1	65	11.50	d. 113.6					
Do.....	1	65	11.40	d. 112.7					
Do.....	1	59	11.25	d. 112.7					
Do.....	1	59	(?)	d. 9.0					

¹ And board. ² More than one rate. ³ More than one rate, and board. ⁴ \$0.135 to \$0.35 and board. ⁵ \$1.35 to \$3.50 and board.

MILLWORK.

SASH, DOORS, BLINDS, FRAMES, FIXTURES, AND TRIM.

SUMMARY.

The full-time weekly earnings of employees engaged in millwork in 1915 were 2 per cent lower than in 1913, the same as in 1912, 2 per cent higher than in 1911, and 4 per cent higher than in 1910.

Full-time hours per week were the same in 1915 as in 1913, and 1 per cent lower than in 1910, 1911, and 1912.

The average rate of wages per hour in 1915 was 1 per cent lower than in 1913, 1 per cent higher than in 1912, 4 per cent higher than in 1911, and 5 per cent higher than in 1910.

The number of establishments from which data were secured has differed during the period covered by the report as follows:

1907 to 1910.....	62 identical establishments.
1910 and 1911.....	232 identical establishments.
1911 and 1912.....	269 identical establishments.
1912 and 1913.....	344 identical establishments.
1913 and 1915.....	340 identical establishments.

In addition to the 340 establishments furnishing information for 1913 and 1915, data were secured from 7 establishments for 1915 only, making a total of 347 establishments for which data for 1915 are presented. Figures based upon data for all establishments covered for 1915 are included in certain tables, as indicated by prefatory notes.

The salient facts concerning the several occupations included in this report are summarized in Table 1 which follows. In this table direct comparisons can be made between the data for different years only when the data are from identical establishments. The comparable data for different years are grouped together.

TABLE 1.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS, IN THE PRINCIPAL OCCUPATIONS, 1907 TO 1915.

[The figures opposite each group of years are for identical establishments. When a second line is shown for 1915 it contains all data secured for 1915 whether or not comparable data for 1913 were available.]

Occupation and number of establishments.	Year.	Number of employees.	Average full-time hours per week.	Per cent of employees whose full-time hours per week were—						Average rate of wages per hour.	Per cent of employees whose rates of wages per hour were—				Average full-time weekly earnings.
				48 and under.	48 and under 54.	54.	Over 54 and under 60.	60 and over.	Under 14 cts.		14 and under 16 cts.	16 and under 18 cts.	18 cts. and over.		
														Under 20 cts.		20 and under 30 cts.	30 and under 40 cts.	40 cts. and over.
Laberers:															
60 establishments..	1907	1,578	58.5	4	4	7	14	71	\$0.155	29	26	31	13	\$9.07	
	1908	1,300	58.2	5	3	9	16	66	.155	34	24	26	16	9.02	
	1909	1,451	58.0	6	3	10	16	65	.159	31	20	29	19	9.22	
	1910	1,522	58.3	4	5	9	16	66	.161	29	17	52	22	9.39	
223 establishments..	1910	4,885	57.6	4	6	13	21	55	.171	16	20	33	31	9.73	
	1911	4,762	57.6	5	5	12	21	56	.171	16	20	33	31	9.79	
253 establishments..	1911	4,456	57.6	5	4	14	21	57	.172	14	20	34	32	9.86	
	1912	4,121	57.4	4	7	17	17	55	.178	10	17	36	37	10.15	
319 establishments..	1912	4,641	57.0	6	8	18	21	47	.179	8	17	37	38	10.15	
	1913	5,144	56.7	6	11	17	20	46	.186	6	11	36	48	10.47	
317 establishments..	1913	5,267	56.8	6	10	16	21	46	.183	5	11	36	48	10.34	
	1915	5,018	56.6	6	10	18	25	42	.184	9	14	27	51	10.37	
329 establishments..	1915	5,224	56.7	5	10	17	25	43	.184	9	14	26	51	10.40	
Bench hands:															
62 establishments..	1907	1,076	55.6	13	7	26	13	41	.298	9	49	27	14	16.57	
	1908	945	55.6	14	6	28	10	42	.294	9	49	28	14	16.35	
	1909	1,041	55.7	13	7	29	10	42	.294	9	51	28	14	16.38	
	1910	1,083	55.5	12	11	26	11	41	.305	8	44	34	14	16.93	
226 establishments..	1910	3,695	55.1	12	10	29	21	28	.307	6	44	39	12	16.51	
	1911	3,553	55.2	14	9	28	21	29	.309	5	42	41	11	16.74	
267 establishments..	1911	4,131	55.1	14	11	29	18	28	.310	6	40	43	11	16.76	
	1912	4,148	54.8	15	16	24	17	28	.311	7	38	44	12	16.74	
343 establishments..	1912	4,947	54.6	17	15	24	20	24	.311	6	37	45	12	16.68	
	1913	5,033	54.5	17	17	22	21	23	.315	5	37	37	21	16.90	
339 establishments..	1913	5,119	54.4	18	17	21	22	23	.318	5	37	37	22	17.00	
	1915	4,874	54.2	17	18	20	22	23	.318	5	37	36	21	16.92	
346 establishments..	1915	4,931	54.3	17	18	19	23	23	.317	5	38	36	21	16.91	
Machine hands:															
62 establishments..	1907	1,508	56.9	12	3	20	11	55	.253	27	50	15	8	14.40	
	1908	1,372	57.1	11	2	20	10	57	.249	30	48	14	8	14.22	
	1909	1,488	57.2	10	2	18	10	58	.251	28	50	15	7	14.36	
	1910	1,580	57.3	10	3	19	10	60	.257	25	49	18	8	14.73	
232 establishments..	1910	5,438	57.0	6	7	18	19	50	.255	28	45	22	6	14.28	
	1911	5,363	56.8	10	6	16	19	49	.261	25	45	24	7	14.55	
268 establishments..	1911	5,615	56.7	10	6	17	19	48	.261	25	43	25	7	14.63	
	1912	5,054	56.2	12	10	16	19	43	.270	21	43	28	8	14.88	
342 establishments..	1912	5,970	55.8	14	10	17	21	37	.273	19	42	32	8	14.97	
	1913	6,074	55.5	14	12	18	23	33	.286	15	42	31	12	15.57	
339 establishments..	1913	6,154	55.6	14	12	16	24	33	.294	15	43	30	12	16.09	
	1915	5,835	55.4	13	13	17	26	32	.284	15	43	30	13	15.47	
347 establishments..	1915	5,973	55.5	12	13	17	26	32	.283	15	43	30	12	15.46	
Other employees:															
345 establishments..	1915	5,821	57.6	10	9	19	23	40	.247	17	19	35	29	14.11	

In 1915 the average full-time weekly earnings of employees in the three selected occupations shown varied from \$10.40 for laborers to \$16.91 for bench hands. Machine hands received an average of \$15.46 per full week. The full-time hours in the different establishments ranged from 44 to 60. An exception to this is the regular time of watchmen, firemen, and some others, who are included in "other employees," and whose hours are often as high as 84, or in some instances 91, per week. The average full-time hours per week of all employees for 1915 was 55.4.

As wages and hours differ in different establishments, the inclusion or exclusion of a given establishment in a group may raise or lower the average for the group, so that exact comparisons can not be made between the actual wages shown for different years, unless the data for the several years are from identical establishments. This is brought out on page 11. To aid in making comparisons, where the establishments are changing more or less from year to year, relative, or index, numbers have been computed from the averages in Table 1 for full-time hours per week, rates of wages per hour, and full-time weekly earnings for each occupation and for the industry for the years 1910 to 1915, inclusive. These relative numbers, which are shown in Table 2, following, are simply percentages in which the figures for 1915 are taken as the base, or 100 per cent. Thus the facts for each preceding year are brought into direct comparison with the facts for the latest year available, namely, 1915. The relative for each year preceding 1915 is the per cent that the average in that year is of the average for 1915. For example, the table shows that the relative full-time weekly earnings of machine hands in 1910 were 96 per cent of the weekly earnings in 1915. In 1911 they had increased to 98 per cent; in 1912, to 100 per cent, and in 1913, to 104 per cent of the earnings in 1915.

The relative number for full-time hours per week of machine hands decreased from 102 in 1910 to 100 in 1915. That is, the average full-time hours of work per week in 1910 were 102 per cent of the average full-time hours in 1915. The heavy-faced figures of the table are relative numbers, and may all be read in like manner. The method of computing these relative numbers from the averages of the hours and wages shown in Table 1 is explained on pages 13 and 14.

In addition to the relative numbers in this table, percentages have been computed showing the per cent of increase or decrease in 1915 as compared with each preceding year back to 1910, while in another column is given the per cent of increase or decrease in each year, compared with the year immediately preceding.

Referring, for example, to the weekly earnings of laborers, it is seen that in 1915 they were the same as in 1913, 3 per cent higher than in 1912, etc., and that they were 1 per cent higher in 1911 than in 1910, 3 per cent higher in 1912 than in 1911, and so on.

TABLE 2.—RELATIVE FULL-TIME HOURS PER WEEK, RATES OF WAGES PER HOUR, AND FULL-TIME WEEKLY EARNINGS, 1910 TO 1915, TOGETHER WITH PER CENT OF INCREASE OR DECREASE IN SPECIFIED YEARS, IN THE PRINCIPAL OCCUPATIONS AND THE INDUSTRY.

Occupation and year.	Hours per week.			Wages per hour.			Weekly earnings.		
	Relative full-time hours per week (1915=100).	Per cent of increase (+) or decrease (-) in—		Relative rate of wages per hour (1915=100).	Per cent of increase (+) or decrease (-) in—		Relative full-time weekly earnings (1915=100).	Per cent of increase (+) or decrease (-) in—	
		1915 as compared with each specified year.	Each specified year as compared with year preceding.		1915 as compared with each specified year.	Each specified year as compared with year preceding.		1915 as compared with each specified year.	Each specified year as compared with year preceding.
Bench hands:									
1910.....	101	-1		98	+2		98	+2	
1911.....	101	-1	(1)	98	+2	(1)	99	+1	+1
1912.....	100	(1)	-1	99	+1	+1	99	+1	(1)
1913.....	100	(1)	(1)	100	(1)	+1	100	(1)	+1
1915.....	100		(1)	100		(1)	100		(1)
Laborers:									
1910.....	101	-1		92	+9		93	+8	
1911.....	101	-1	(1)	92	+9	(1)	94	+6	+1
1912.....	101	-1	(1)	96	+4	+4	97	+3	+3
1913.....	100	(1)	-1	99	+1	+3	100	(1)	+3
1915.....	100		(1)	100		+1	100		(1)
Machine hands:									
1910.....	102	-2		94	+6		96	+4	
1911.....	102	-2	(1)	96	+4	+2	98	+2	+2
1912.....	101	-1	-1	99	+1	+3	100	(1)	+2
1913.....	100	(1)	-1	104	-4	+5	104	-4	+4
1915.....	100		(1)	100		-4	100		-4
The industry:									
1910.....	101	-1		95	+5		96	+4	
1911.....	101	-1	(1)	96	+4	+1	99	+2	+2
1912.....	101	-1	(1)	99	+1	+3	100	(1)	+2
1913.....	100	(1)	-1	101	-1	+4	102	-2	+2
1915.....	100		(1)	100		-1	100		-1

¹ No change.

The general tendency of the 6-year period is toward a reduction of hours and an increase in wages, but as Table 2 shows, there was no change in the hours between 1913 and 1915, and there was a decrease in the average wages per hour and earnings per full week between these two years.

FLUCTUATIONS IN EMPLOYMENT DURING YEAR.

Data were obtained from 322 establishments concerning the number of days the plant was in operation, the number of employees on the pay roll, and the amount of the pay roll for each pay-roll period for a year; also a statement of the number of days the plant was closed during the year by causes. Table 3 shows these facts and also shows the percentages that the number of employees, amount of pay rolls, and earnings per employee, respectively, for each two weeks are of the averages for the year. These data are given on a two-week basis, because in a large number of establishments the pay-roll periods cover two weeks and it was not

practicable to separate the figures so as to show them for one week; but for establishments with a weekly pay roll the wage payments for two consecutive weeks were combined so as to place all establishments upon the same basis. The column "Average days in operation" has reference to the establishment as a whole and not to the number of employees shown in the next column. These average days are based on the running days of the several establishments regardless of the number of employees in each.

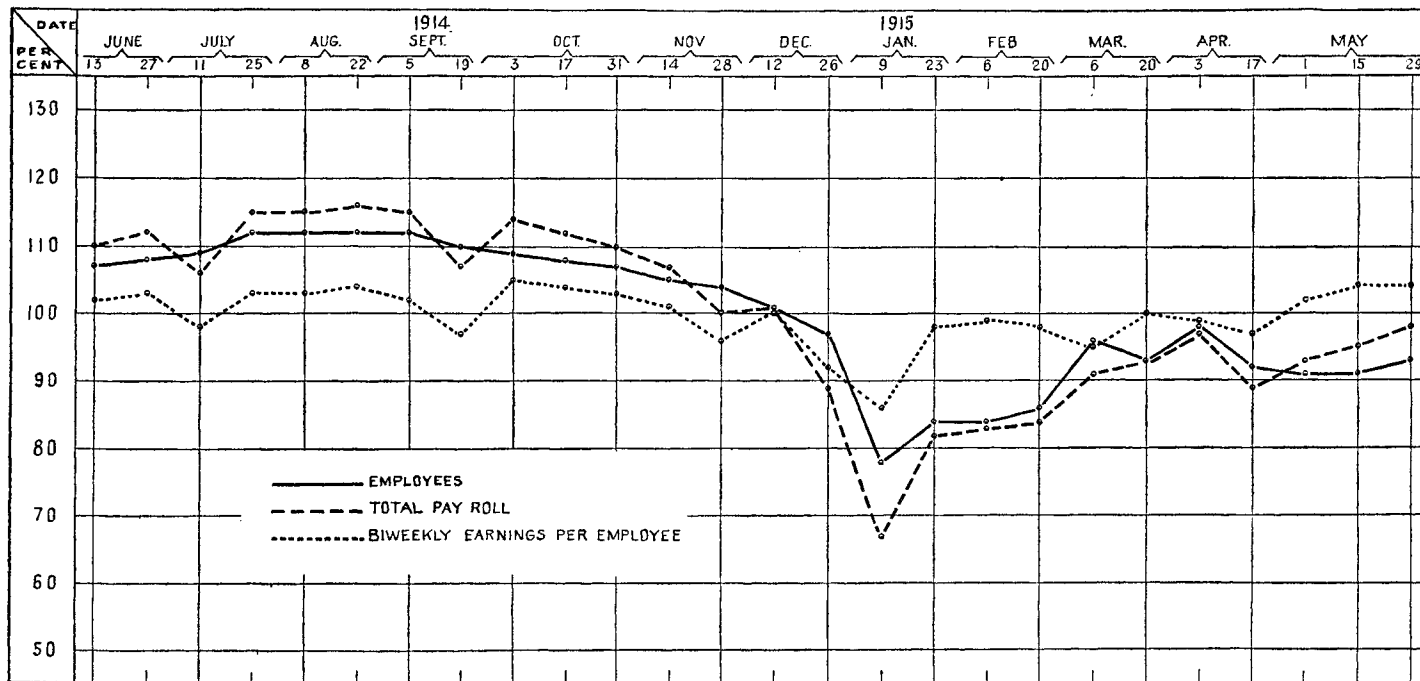
The figures reflect considerable uniformity in the volume of employment during the first part of the year ending with May, 1915. But, beginning with December, 1914, there was a considerable reduction in the number of employees and in the total pay rolls, from which the industry did not recover during the remainder of the year shown. The fluctuations in the amount of earnings per employee during the year were not so great as in the number of employees and in the total pay rolls. In only four pay-roll periods during the year did the average earnings in two weeks fall below \$24, while \$24.82 was the average for the year.

TABLE 3.—AVERAGE DAYS ESTABLISHMENTS WERE IN OPERATION, EMPLOYEES, TOTAL PAY ROLLS, AND AVERAGE EARNINGS PER EMPLOYEE, BY TWO-WEEK PERIODS, FOR THE YEAR ENDING APPROXIMATELY MAY 29, 1915.

Two-week period ending approximately—	Average days in operation.	Employees.		Total pay rolls.		Average earnings per employee.	
		Number.	Per cent of average for year.	Amount.	Per cent of average for year.	Amount.	Per cent of average for year.
1914.							
June 13.....	11.5	24,243	107	\$615,428.79	110	\$25.39	102
June 27.....	11.9	24,463	108	626,984.03	112	25.60	103
July 11.....	10.9	24,553	109	597,559.66	106	24.34	98
July 25.....	11.9	25,295	112	647,573.94	115	25.60	103
August 8.....	11.9	25,342	112	646,985.25	115	25.53	103
August 22.....	11.9	25,271	112	650,089.95	116	25.72	104
September 5.....	11.8	25,354	112	643,068.56	115	25.36	102
September 19.....	11.0	24,830	110	598,815.18	107	24.12	97
October 3.....	11.9	24,733	109	611,722.50	114	25.95	105
October 17.....	11.8	24,467	108	629,288.27	112	25.72	104
October 31.....	11.9	24,141	107	614,947.22	110	25.47	103
November 14.....	11.7	23,772	105	597,907.24	107	25.15	101
November 28.....	11.0	23,413	104	558,805.80	100	23.87	96
December 12.....	11.6	22,893	101	566,034.69	101	24.73	100
December 26.....	10.5	21,927	97	498,924.54	89	22.75	92
1915.							
January 9.....	9.3	17,731	78	377,600.48	67	21.30	86
January 23.....	11.4	18,912	84	460,731.60	82	24.36	98
February 6.....	11.4	19,043	84	466,566.21	83	24.50	99
February 20.....	11.3	19,503	86	472,403.79	84	24.22	98
March 6.....	11.2	21,710	96	512,397.99	91	23.60	95
March 20.....	11.6	21,061	93	520,724.14	93	24.72	100
April 3.....	11.7	22,133	98	542,399.57	97	24.51	99
April 17.....	11.4	20,706	92	498,220.19	89	24.06	97
May 1.....	11.3	20,550	91	520,654.52	93	25.34	102
May 15.....	11.3	20,654	91	534,998.38	95	25.90	104
May 29.....	11.3	21,130	93	547,573.31	98	25.91	104
Average for year..	11.4	22,610	100	561,002.57	100	24.82	100

The accompanying graphic chart is based on the percentages given in Table 3, and presents at a glance the trend of the items shown.

CHART B.—FLUCTUATIONS IN NUMBER OF EMPLOYEES, TOTAL PAY ROLLS, AND BIWEEKLY EARNINGS PER EMPLOYEE.



FLUCTUATIONS IN EMPLOYMENT DURING YEAR.

The change in the volume of employment during the year ending with May, 1915, so far as this may be brought out by the pay rolls, is still further developed in Table 4.

TABLE 4.—NUMBER OF ESTABLISHMENTS HAVING LARGEST AND SMALLEST PAY ROLLS IN MONTHS SPECIFIED.

Month.	Number of establishments having—			Number of establishments entirely closed down in the month for—			
	Largest pay roll in specified months.	Smallest actual pay roll in specified months. ¹	Smallest full-time pay roll in specified months.	One week.	Two weeks.	Three weeks.	Four weeks.
1914.							
June.....	53	9	19	2			1
July.....	37	8	11	1		1	
August.....	44	2	4				
September.....	42	9	8				
October.....	49	9	9				
November.....	19	11	7				
December.....	17	101	15	40	5		
1915.							
January.....	5	62	75	11	6	2	2
February.....	5	55	77	6	2		1
March.....	10	23	38	2	1	1	
April.....	7	22	33	1	1	1	11
May.....	34	8	23	1		3	10
Total.....	322	322	322				

¹ Not including pay-roll periods during which shop was idle all the time.

The table shows for 322 establishments the months during which the largest pay-roll, the smallest full-time pay-roll, and the smallest actual pay-roll periods occur, and the number of establishments closed down entirely for one or more weeks each month.

As will be seen the figures in this table bear out the facts shown in Table 3, in that during the first part of the year the largest and smallest pay rolls are so distributed through the various months as to indicate a general uniformity of employment. During the last part of the year, however, the decided falling off in the number of largest pay rolls, and the corresponding increase in the number of smallest pay rolls seem to show a falling off in industrial activity and consequently in volume of employment. The figures indicate that in May, 1915, conditions had returned more nearly to those of the latter half of 1914.

Attention is called to the fact that the same month may show a considerable number of both large and small pay rolls, because, as a rule, each pay-roll period covers only one week or at most two weeks, so that it is possible for an establishment to have a very large and a very small pay roll in the same month.

Table 5 shows the number of days that each of the 322 establishments reporting was in operation during the year and the number of days idle, by specified causes. It will be seen that in addition

to holidays and vacations, which are the result of custom or of an accepted policy of the establishments, there was an average idleness per establishment of 6 days on account of slack work, and of 1.9 days on account of strikes and lockouts. The latter, however, were confined to a few establishments in Illinois and Ohio. The total average number of days idle during the year was 16.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR.

State and establishment number.	Days in operation during year of 52 weeks.	Number of week days idle during year of 52 weeks on account of—					Total week days idle during year.
		Holidays and vacations.	Strikes and lockouts.	Slack work.	In-ventory.	Other causes.	
California:							
1.....	304	8					8
2.....	304	8					8
3.....	262	6		25		16	50
4.....	305	7					7
5.....	301	11					11
6.....	235	6		10	1		17
7.....	301	6		5			11
8.....	302	10					10
9.....	301	7		4			11
10.....	218	11		81	2		94
11.....	* 317	5					5
12.....	284	10		18			28
13.....	300	12					12
14.....	299	10		3			13
15.....	300	12					12
Georgia:							
16.....	283	4		24		11	29
17.....	301	6				15	11
18.....	224	4		84			88
19.....	261	4		41		16	51
20.....	294	4		14			18
21.....	300	4				18	12
22.....	303	5				14	9
23.....	266	4		32		10	46
24.....	303	4				15	9
25.....	252	4		56			60
26.....	300	4		8			12
27.....	301	6				5	11
28.....	283	6		23			29
29.....	297	2				13	15
Illinois:							
30.....	303	8		1			9
31.....	240	6	45	15	6		72
32.....	249	6	42	11	4		63
33.....	260	5	44		3		52
34.....	258	5	48	1			54
35.....	259	5	48				53
36.....	259	5	48				53
37.....	290	6		12	4		22
38.....	306	6					6
39.....	258	5	48	1			54
40.....	278	5	23	6			34
41.....	259	5	48				53
42.....	301	6			5		11
43.....	254	5	48		5		53
44.....	275	7		30			37
45.....	303	6		3			9
46.....	279	8		10	15		33
47.....	293	6		13			19
48.....	256	5	48	3			56
49.....	257	5	48	2			55
50.....	259	5	48				53
51.....	307	5					5
52.....	287	8		11	2	14	25
53.....	304	7			1		8
54.....	305	5			1		6
55.....	303	9					9

¹ Repairs.

² Including 10 Sundays on which mill was operated.

³ Not specified.

⁴ Inventory and repairs.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR—Continued.

State and establishment number.	Days in operation during year of 52 weeks.	Number of week days idle during year of 52 weeks on account of—					Total week days idle during year.
		Holidays and vacations.	Strikes and lockouts.	Slack work.	In-ventory.	Other causes.	
Illinois—Concluded.							
56.....	306	6					6
57.....	297	8				17	15
58.....	297	6			2	17	15
59.....	300	6			2	14	12
Iowa:							
60.....	305	7					7
61.....	295	5			2 12		17
62.....	307	5					5
63.....	296	6			2 10		16
64.....	297	6		9			15
65.....	289	16		7			23
66.....	298	9		2		3 3	14
67.....	297	7				1 8	15
68.....	287	6		8		1 11	25
69.....	301	8		3			11
70.....	302	5		5			10
71.....	303	8			1		9
Massachusetts:							
72.....	306	6					6
73.....	306	6					6
74.....	301	9				1 2	11
75.....	303	6		3			9
76.....	307	5					5
77.....	301	9				1 2	11
78.....	306	6					6
79.....	299	12				1 1	13
80.....	297	6		8		1 1	15
81.....	306	6					6
82.....	305	7					7
83.....	304	8					8
84.....	302	9				1 1	10
85.....	305	7					7
86.....	304	8					8
87.....	301	8				1 3	11
88.....	303	6				1 3	1
89.....	301	8				1 3	19
90.....	301	8				1 2	16
91.....	303	9					1
Michigan:							
92.....	300	2		10			12
93.....	292	3		17			20
94.....	306	6					6
95.....	305	7					7
96.....	300	6			6		12
97.....	289	4		18		4 1	23
98.....	297	6		9			15
99.....	294	6		12			18
100.....	307	5					5
101.....	304	8					8
102.....	306	2		4			6
103.....	305	7					7
104.....	306	6					6
105.....	297	6			9		15
106.....	307	5				1 1	5
107.....	305	6					7
108.....	299	4		9			13
109.....	301	8				1 3	11
110.....	302	10					10
111.....	302	10					10
112.....	306	6					6
113.....	306	6					6
114.....	304	8					8
115.....	299	7			6		13
116.....	307	5					5
117.....	307	5					5
118.....	308	4					4
119.....	308	4					4
120.....	285	10		14	3		27
121.....	291	3		18			21
122.....	301	6			5		11
123.....	306	6					6

1 Repairs.

2 Inventory and repairs.

3 Death of member of firm.

4 Funeral.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR—Continued.

State and establishment number.	Days in operation during year of 52 weeks.	Number of week days idle during year of 52 weeks on account of—					Total week days idle during year.
		Holidays and vacations.	Strikes and lockouts.	Slack work.	In-ventory.	Other causes.	
Minnesota:							
124.....	289	5				1 18	23
125.....	302	6		4			10
126.....	306	6					6
127.....	298	6		8			14
128.....	305	6		1			7
129.....	261	6		45			51
130.....	304	5		3			8
131.....	307	5					5
132.....	307	5					5
New York:							
133.....	302	7		3			10
134.....	304	8					8
135.....	301	6		5			11
136.....	290	9		13			22
137.....	283	5		1		2 23	29
138.....	302	10					10
139.....	305	7					7
140.....	267	7		35	3		45
141.....	306	6					6
142.....	305	7					7
143.....	300	4		3		1 5	12
144.....	268	10		34			44
145.....	305	7					7
146.....	299	8				1 5	13
147.....	300	8			4		12
148.....	300	8				1 4	12
149.....	297	10		4		2 1	15
150.....	271	10		31			41
151.....	307	5					5
152.....	304	7			1		8
153.....	300	10		2			12
154.....	307	5					5
155.....	265	8		39			47
156.....	300	12					12
157.....	298	9		5			14
158.....	296	7		2	4	4 3	16
159.....	306	6					6
160.....	300	11		1			12
161.....	298	10		4			14
162.....	296	9		7			16
163.....	305	7					7
164.....	289	7		11	5		23
165.....	289	11		12			23
166.....	299	8			5		13
167.....	297	8		7			15
168.....	300	12					12
169.....	299	10		3			13
170.....	303	9					9
171.....	307	5					5
172.....	307	5					5
173.....	294	7		11			18
174.....	279	5		28			33
175.....	306	6					6
176.....	306	6					6
177.....	296	9		7			16
178.....	300	6		6			12
179.....	292	6		12	2		20
180.....	289	7		16			23
181.....	290	8		14			22
182.....	305	7					7
183.....	303	6			2	1 1	9
184.....	292	4		8		1 8	20
185.....	303	7				6 2	9
186.....	286	5		21			26
187.....	299	6		1		1 6	13
188.....	309	3					3
189.....	267	5		40			45
190.....	267	6		39			45
191.....	305	7					7
192.....	299	7		6			13
193.....	270	5		31	6		42
194.....	306	6					6

¹ Repairs.

² Moving.

³ Fire.

⁴ Death.

⁵ Not specified.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR—Continued.

State and establishment number.	Days in operation during year of 52 weeks.	Number of week days idle during year of 52 weeks on account of—					Total week days idle during year.
		Holidays and vacations.	Strikes and lockouts.	Slack work.	In-ventory.	Other causes.	
New York—Concluded.							
195.....	272	9		31			40
196.....	278	9		25			34
197.....	302	7		3			10
198.....	300	12					12
Ohio:							
199.....	303	6			1	1 2	9
200.....	299	6				2 7	13
201.....	299	7			6		13
202.....	308	4					4
203.....	306	5		1			6
204.....	304	8					8
205.....	304	8					8
206.....	304	6				2 2	8
207.....	305	7					7
208.....	305	7					7
209.....	307	5					5
210.....	303	7		2			9
211.....	304	8					8
212.....	270	6		31		5	42
213.....	305	7					7
214.....	266	5	9	26		2 6	46
215.....	272	5		19	3 11	4 5	40
216.....	297	6			9		15
217.....	305	7					7
218.....	290	6		6		2 10	22
219.....	303	9					9
220.....	304	8					8
221.....	303	8				6 1	9
222.....	295	8		7		2 2	17
223.....	247	5		60			65
224.....	302	10					10
225.....	306	6					6
226.....	302	8			2		10
227.....	281	6		22	3		31
228.....	305	7					7
229.....	305	4		3			7
230.....	254	6	43	9			58
231.....	304	6		2			8
232.....	293	6		7		6	19
233.....	306	6					6
Pennsylvania:							
234.....	304	6		2			8
235.....	299	5		8			13
236.....	306	6					6
237.....	298	5		9			14
238.....	303	6				7 3	9
239.....	292	5		15			20
240.....	308	4					4
241.....	303	4				2 5	9
242.....	309	3					3
243.....	307	5					5
244.....	222	3		87			90
245.....	289	6		17			23
246.....	304	5		1	2		8
247.....	302	6		4			10
248.....	306	6					6
249.....	307	3		2			5
250.....	307	5					5
251.....	306	6					6
252.....	296	7		5	4		16
253.....	305	7					7
254.....	306	6					6
255.....	301	8					8
256.....	305	6		1			7
257.....	300	6			6		12
258.....	306	6					6
259.....	306	6					6
260.....	302	7				6 3	10
261.....	300	7		5			12
262.....	307	5					5
263.....	288	6		18			24
264.....	306	6					6

1 Not specified.

2 Repairs.

3 Inventory and slack work.

4 Plant destroyed by fire.

5 Death.

6 Holidays and inventory.

7 Death in family.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR—Concluded.

State and establishment number.	Days in operation during year of 52 weeks.	Number of week days idle during year of 52 weeks on account of—					Total week days idle during year.
		Holidays and vacations.	Strikes and lockouts.	Slack work.	In-ventory.	Other causes.	
Pennsylvania—Concluded.							
265	305	5		2			7
266	306	6					6
267	301	5		6			11
268	306	6					6
269	306	6					6
270	307	5					5
271	307	5					5
272	306	6					6
273	307	5					5
274	306	6					6
275	300	4		8			12
276	307	5					5
277	307	5					5
278	305	6		1			7
279	305	7					7
280	307	5					5
281	306	6					6
282	305	5		2			7
283	302	8		2			10
284	305	7					7
285	300	5		7			12
286	305	7					7
287	306	6					6
288	308	4					4
289	305	7					7
290	304	8					8
291	305	5		2			7
292	306	6					6
293	297	7		8			15
294	295	6		11			17
295	306	6					6
296	306	5		1			6
297	284	7		21			28
298	278	5		29			34
299	308	4					4
300	306	6					6
301	306	6					6
302	306	7					7
303	299	7		7			14
304	291	8		6			13
305	305	5		13			21
306	305	5		2			7
307	301	5		2			7
						16	11
Wisconsin:							
308	257	5		50			55
309	304	6			2		8
310	294	6			12		18
311	305	5			2		7
312	263	5		21	23		49
313	301	6			5		11
314	300	6			6		12
315	303	5			4		9
316	300	6		1	5		12
317	260	6		46			52
318	298	7		1	6		14
319	296	7		9			16
320	305	5			2		7
321	304	6			2		8
322	301	6			5		11
Average	296.0	6.4	1.9	6.0	0.8	0.8	16.0

¹ Repairs.

As stated on page 5, data have been secured showing, for 1915, the hours actually worked by employees. Table 6, which is a summary of General Table D, shows the number and per cent of employees working certain classified percentages of full time, by States. This table is divided into two sections, one relating to employees whose time was reported for one week; the other relating to those whose time was reported for two weeks, in such a way that it could not be divided. Three establishments having monthly pay rolls are omitted altogether from this table.

TABLE 6.—NUMBER AND PER CENT OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES.

One-week pay rolls.

[This table includes data from all establishments from which information was secured for 1915, except 3 establishments having monthly pay rolls.]

State.	Number of establishments.	Number of employees.	Employees working each classified per cent of full time.									
			100 per cent and over.		Under 100 per cent.		Under 75 per cent.		Under 50 per cent.		Under 25 per cent.	
			Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
California.....	14	1,143	687	60	456	40	145	13	81	7	29	3
Georgia.....	15	839	307	37	532	63	113	13	25	3	7	1
Illinois.....	12	636	297	55	239	45	58	11	31	6	14	3
Iowa.....	10	1,110	727	65	383	35	105	9	65	6	34	3
Massachusetts..	21	991	807	81	184	19	65	7	44	4	19	2
Michigan.....	15	577	360	62	217	38	44	8	17	3	4	1
Minnesota.....	4	599	420	78	119	22	25	5	11	2	6	1
New York.....	65	3,756	2,379	63	1,377	37	328	9	125	3	48	1
Ohio.....	26	1,494	942	63	552	37	97	6	38	3	14	1
Pennsylvania..	43	1,540	1,064	69	476	31	113	7	61	4	19	1
Wisconsin.....	4	392	186	47	206	53	144	37	10	3	4	1
Total.....	229	12,917	8,176	63	4,741	37	1,237	10	508	4	198	2

Two-week pay rolls.

California.....	1	284	152	54	132	46	57	20	39	14	15	5
Illinois.....	20	1,404	449	32	955	68	206	15	90	6	35	2
Iowa.....	2	499	129	26	370	74	35	7	15	3	2	(1)
Michigan.....	18	1,187	530	45	657	55	127	11	71	6	41	3
Minnesota.....	5	429	201	47	228	53	46	11	22	5	11	3
New York.....	2	122	28	23	94	77	16	13	7	6	4	3
Ohio.....	11	358	113	32	245	68	34	9	22	6	11	3
Pennsylvania..	43	1,313	589	45	724	55	108	8	42	3	12	1
Wisconsin.....	11	2,788	454	16	2,334	84	327	12	130	5	39	1
Total.....	113	8,384	2,645	32	5,739	68	956	11	438	5	170	2

¹ Less than 1 per cent.

Table 7 shows, by States, the number of employees in the industry, as reported by the United States Census Office, 1910, the number of establishments from which the bureau secured data for 1915, and the number of employees for whom data are shown in this report:

TABLE 7.—TOTAL NUMBER OF EMPLOYEES IN MILLWORK INDUSTRY AND NUMBER OF EMPLOYEES FOR WHICH DATA ARE SHOWN FOR 1915.

State.	Number of employees reported by United States Census, 1910.	Establishments and employees for which data for 1915 are shown in this report.	
		Number of establishments.	Number of employees.
New York.....	15,126	67	3,889
Pennsylvania.....	9,267	86	2,853
Illinois.....	8,710	33	2,132
Michigan.....	6,793	33	1,764
Wisconsin.....	6,673	15	3,180
California.....	6,341	18	1,845
Ohio.....	5,846	38	1,879
Iowa.....	3,440	12	1,609
Georgia.....	3,410	15	839
Massachusetts.....	3,296	21	991
Minnesota.....	3,154	9	968
Other States.....	40,336	.....	.....
Total.....	112,392	347	21,949

According to the census of 1910 more than 64 per cent of the total number of employees in the industry are found in the States in which the establishments furnishing information to the Bureau of Labor Statistics are located. The number of employees for whom the bureau secured 1915 data, and for whom detailed information for 1915 is presented in this report, is equal to 19.5 per cent of the total number in the industry in 1909 (the year to which the census figures apply).

DESCRIPTION OF INDUSTRY AND PRINCIPAL PRODUCTIVE OCCUPATIONS.

This industry, as treated in this report, includes establishments engaged in the manufacture of sash, doors, blinds, window frames, doorframes, moldings, stair material, newels, mantels, store fixtures, and all kinds of builders' trim or finish.

A large number of the establishments are comparatively small and confine their operations wholly to custom work. Many of them are operated in connection with a retail lumber business. Some are run by contractors who carry on large building operations, and manufacture trim mostly for their own use. Some custom mills in the larger cities are quite extensive and employ a large number of workmen.

A few establishments manufacture for the general market. Such establishments, as a rule, employ a larger number of workmen than do the custom mills or factories, have their work better systematized, and pay somewhat lower wages. The latter fact may be accounted for by the greater division of labor whereby an employee, while being expert in the operation of a particular machine or in performing certain work, is not an all-round skilled workman, and so can not command as high wages.

There is hardly such a thing as a typical factory in this industry in the sense that there is a typical sawmill or cotton factory. The work may be done in a part of a building, the power being rented with the room; or the factory may consist of one or more large buildings with so much machinery that a considerable force of machinists is regularly employed to keep the machines in order. Nor is there any regular or established ratio between the number of employees in different occupations. One establishment may have an approximately equal number of benchmen, machine woodworkers, and laborers; another will have three or four times as many benchmen as machine men; and in another the proportion will be reversed, depending on the particular class of work the factory turns out. The arrangement of the factory and machines will depend upon the class of work done, the space at the disposal of the management, and the latter's ideas as to convenience and economy. The differences that are found are between establishments rather than between different sections of the country or different localities.

The work in these factories resolves itself into three general classes—bench work, common labor, and machine work, and the occupational terms used in this report are bench hands, laborers, and machine hands. Practically all the work is done by males. A few females are employed in a limited number of establishments, but the extent of their work is so insignificant that data relating to females are omitted from this report. A brief description of the terms used follows.

BENCH HANDS.

The men engaged in this occupation are known also as benchmen, bench carpenters, shop carpenters, inside carpenters, and cabinet-makers. Most of the work is done with hand tools at a bench, as distinguished from building or outside carpentering work. These employees make doors, sash, blinds, window frames, cabinets, etc., fitting and putting together the parts that have previously been prepared by machine hands. The better grades of the articles are united at the joints by gluing each mortise and tenon and by forcing the pieces together with clamps, using a square and a hammer to make the joints true and tight. On other grades the joints are fastened with steel or wooden pins instead of being glued. Bench hands also shape and form such articles as can not be made by machines. In some shops work is done by hand that in other establishments is done by machinery. In some establishments men are employed who are able to work interchangeably at the bench and at the machines. Carpenters or bench hands differ greatly in ability, some being able to do all kinds of difficult work, while others can do only the simpler kinds of work or, perhaps, only one kind or, at most, a few kinds.

LABORERS.

The work of those engaged in this occupation about the factory is of a miscellaneous character, such as handling lumber, material, and the finished product, and assisting other workmen, particularly machine hands. They bring material to the machines and take it away after it has been worked, assemble parts that are to be put together, pack goods in the storehouse or load them on wagons or in cars for shipment, and do any other common or unskilled work about the shop or yard. The number of laborers, as compared with that of the other employees, is usually larger in establishments employing a large number of machine hands.

MACHINE HANDS.

By the use of various machines employees in this occupation plane the lumber, saw it into lengths, widths, and shapes, mortise and tenon the parts of doors, sash, blinds, etc., make moldings, turn spindles, posts, and balusters, sandpaper or smooth material or finished product, etc. The principal machines used in millwork are the automatic dovetail glue jointer, boring machine, dovetailer, molding machine, mortiser, mitering machine, sander, shaper, sticker, tenoner, etc. A first-class machine hand is able to operate any of the machines usually found in a factory, and is supposed also to be able to keep his machines in order. In the smaller establishments, and in the shops doing a high grade of work, the machine hands often, if not generally, actually use different machines, as the character of their work may require, one man doing all the machine work on a given piece of work. In larger establishments, where there is a greater division of labor, a man will be employed continuously on one machine and may know nothing about the operation of any other. It has been found impracticable to separate these two classes of machine hands.

In addition to the text tables already shown four general tables are presented as follows:

Table A.—Average and classified full-time hours per week and rates of wages per hour, and average full-time weekly earnings, in the United States, by years, 1907 to 1915.

Table B.—Average and classified full-time hours per week and rates of wages per hour, and average full-time weekly earnings, in each State, by years, 1913 and 1915.

Table C.—Average and classified full-time hours per week and rates of wages per hour, and average full-time weekly earnings, by States, 1915.

Table D.—Average full-time hours, average hours actually worked, and number of employees working each classified per cent of full time, by States, 1915.

TABLE A.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS, IN THE UNITED STATES, BY YEARS, 1907 TO 1915.

[The figures opposite each group of years are for identical establishments. When a second line is shown for 1915 it contains all data secured for 1915, whether or not comparable data for 1913 were available.]

Occupation and number of establishments.	Year.	Number of employees.	Average full-time hours per week.	Average rate of wages per hour.	Average full-time weekly earnings.	Employees whose full-time hours per week were—							Employees whose rates of wages per hour were—												
						48 and under.	Over 48 and under 51.	51 and under 54.	54.	Over 54 and under 57.	57 and under 60.	60.	Over 60.	Under 10 cts.	10 and under 12 cts.	12 and under 14 cts.	14 and under 16 cts.	16 and under 18 cts.	18 and under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 40 cts.	40 and under 50 cts.	50 and under 60 cts.	60 cts. and over.
Bench hands:																									
62 establishments.....	1907	1,076	55.6	\$0.298	\$16.57	143	78	283	21	115	436	14	64	19	196	336	294	42	108	3
	1908	945	55.6	.294	16.35	132	59	266	95	393	10	54	25	185	277	282	46	86
	1909	1,041	55.7	.294	16.38	131	75	298	104	433	7	50	31	212	314	296	63	78
	1910	1,083	55.5	.305	16.93	129	104	11	278	16	99	446	5	42	35	188	201	367	74	79	2
226 establishments.....	1910	3,695	55.1	.307	16.51	458	289	86	1,056	339	441	1,026	15	118	72	719	908	1,440	233	162	29
	1911	3,553	55.2	.309	16.74	490	192	113	996	292	443	1,027	12	115	65	653	842	1,461	262	119	24
267 establishments.....	1911	4,131	55.1	.310	16.76	561	332	113	1,215	285	471	1,115	39	15	149	74	730	924	1,772	297	146	24
	1912	4,148	54.8	.311	16.74	612	254	419	975	333	382	1,173	3	2	26	159	92	710	867	1,808	304	175	2
343 establishments.....	1912	4,947	54.6	.311	16.68	838	324	405	1,185	475	515	1,205	.....	3	5	29	176	96	828	999	2,219	395	195	2
	1913	5,033	54.5	.315	16.90	847	344	512	1,127	438	603	1,162	.....	2	17	140	97	872	999	1,875	782	242	7	.....
339 establishments.....	1913	5,119	54.4	.318	17.00	914	353	518	1,052	490	650	1,152	.....	.....	2	16	147	101	878	1,002	1,869	783	296	25
	1915	4,874	54.2	.318	16.92	826	717	155	961	549	534	1,132	.....	.....	2	48	124	92	764	1,053	1,779	767	242	3
346 establishments.....	1915	4,931	54.3	.317	16.91	826	717	155	961	554	562	1,156	.....	.....	2	48	126	94	781	1,072	1,792	769	243	4
Laborers:																									
60 establishments.....	1907	1,578	58.5	.155	9.07	56	48	14	118	.....	228	1,114	.....	158	303	416	495	67	99	20	20	.....	.....	.....
	1908	1,300	58.2	.155	9.02	68	32	13	122	.....	206	859	.....	173	265	313	342	70	84	28	25	.....	.....	.....
	1909	1,451	58.0	.159	9.22	81	31	18	147	.....	233	941	.....	163	293	296	427	110	94	29	39	.....	.....	.....
	1910	1,522	58.3	.161	9.39	64	38	35	140	.....	239	1,006	.....	129	313	259	491	136	140	25	29	.....	.....	.....
223 establishments.....	1910	4,885	57.6	.171	9.73	216	236	64	615	376	667	2,711	.....	.....	281	520	988	1,604	476	721	231	64	.....	.....
	1911	4,762	57.6	.171	9.79	240	164	59	593	388	632	2,686	.....	.....	221	542	936	1,571	467	739	231	55	.....	.....
253 establishments.....	1911	4,456	57.6	.172	9.86	201	80	88	642	371	557	2,514	3	.....	201	429	898	1,493	492	675	201	67	.....	.....
	1912	4,121	57.4	.178	10.15	181	93	186	704	323	388	2,246	.....	3	115	302	700	1,494	510	663	257	69	8	.....

319 establishments.....	1912	4,641	57.0	.179	10.15	265	126	240	842	377	590	2,201	3	106	256	797	1,701	612	799	266	72	8	.....	
	1912	5,144	56.7	.186	10.47	325	210	353	881	392	631	2,352	.....	88	198	557	1,824	719	1,342	318	83	15	.....	
317 establishments.....	1913	5,267	56.8	.183	10.34	308	208	337	853	442	686	2,438	.....	58	223	586	1,877	746	1,373	304	85	15	.....	
	1915	5,018	56.6	.181	10.37	282	414	112	882	493	740	2,092	3	11	154	262	715	1,332	639	1,509	338	58	.....	
329 establishments.....	1915	5,224	56.7	.184	10.40	283	414	112	887	500	783	2,242	3	27	179	267	727	1,340	641	1,626	358	59	.....	
Machine hands:																									
62 establishments.....	1907	1,508	56.9	.253	14.40	175	38	.....	297	15	157	826	.....	.....	6	101	235	66	382	378	223	38	71	8
	1908	1,372	57.1	.249	14.22	148	33	.....	273	.....	136	782	.....	.....	6	98	218	90	320	344	191	41	55	9
	1909	1,488	57.2	.251	14.36	153	37	.....	275	.....	156	867	.....	.....	9	81	210	116	377	364	220	45	57	9
	1910	1,580	57.3	.257	14.73	152	33	7	294	.....	153	941	.....	.....	8	69	197	125	397	382	279	53	61	9
232 establishments.....	1910	5,438	57.0	.255	14.28	348	286	79	993	392	621	2,716	.....	5	28	230	839	397	1,259	1,159	1,204	199	89	29
	1911	5,363	56.8	.261	14.55	511	229	100	850	384	639	2,650	.....	6	29	229	755	305	1,264	1,135	1,272	242	98	28
268 establishments.....	1911	5,615	56.7	.263	14.63	541	249	99	934	459	626	2,693	14	6	28	240	808	313	1,282	1,149	1,394	253	108	34
	1912	5,054	56.2	.270	14.88	588	193	298	831	462	502	2,180	.....	3	21	199	559	268	1,116	1,045	1,438	257	112	36
342 establishments.....	1912	5,970	55.8	.273	14.97	846	315	284	1,028	546	732	2,219	.....	3	26	214	592	286	1,279	1,208	1,897	306	121	38
	1913	6,074	55.5	.286	15.57	872	339	400	1,088	581	791	2,003	.....	.....	22	125	426	340	1,243	1,319	1,874	553	136	36
339 establishments.....	1913	6,154	55.6	.294	16.09	878	342	368	1,012	633	864	2,057	.....	.....	22	131	445	353	1,302	1,348	1,816	546	153	38
	1915	5,835	55.4	.284	15.47	742	595	161	989	729	775	1,843	1	.....	22	151	391	304	1,202	1,285	1,747	571	138	24
347 establishments.....	1915	5,973	55.5	.283	15.46	742	595	161	992	734	813	1,935	1	.....	29	157	397	314	1,227	1,330	1,783	574	138	24
Other employees:																									
345 establishments.....	1915	5,821	57.6	.247	14.11	571	399	131	1,091	546	779	1,894	410	177	390	436	320	477	291	1,128	926	1,022	408	189	57

TABLE B.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS, IN EACH STATE, BY YEARS, 1913 AND 1915—Concluded.

BENCH HANDS.

Occupation and number of establishments.	Year.	Number of employees.	Average full-time hours per week.	Average rate of wages per hour.	Average full-time weekly earnings.	Employees whose full-time hours per week were—						Employees whose rates of wages per hour were—													
						48 and under.	Over 48 and under 51.	51 and under 54.	54.	Over 54 and under 57.	57 and under 60.	60.	Over 60.	Under 10 cts.	10 and under 12 cts.	12 and under 14 cts.	14 and under 16 cts.	16 and under 18 cts.	18 and under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 40 cts.	40 and under 50 cts.	50 and under 60 cts.	60 cts. and over.
California: 17 establishments.....	1913	411	51.6	\$0.404	\$20.46	211	19		124			57						21	42	162	66	86	34		
	1915	412	52.2	.392	20.14	173			187			52						19	47	166	69	77	24		
Georgia: 11 establishments.....	1913	189	56.6	.222	12.59				51	69		69		12	23	24	5	41	59	25					
	1915	169	55.5	.218	12.06				63	76		30		4	28	20	2	52	41	22					
Illinois: 33 establishments.....	1913	523	54.2	.351	18.32		20	255	93		102	53					1		62	81	88	289	2		
	1915	577	52.7	.354	18.36		337		61	50	84	45				15	12	59	68	92	329	2			
Iowa: 12 establishments.....	1913	422	58.6	.237	13.86				69		138	215			6	42	34	144	139	55	2				
	1915	421	59.0	.240	14.11				53		123	245		1	6	40	28	143	138	65					
Massachusetts: 21 establishments.....	1913	306	50.6	.329	16.53	87	121	19	79								5	9	37	54	126	71	4		
	1915	250	49.8	.332	16.45	105	101		44								1	7	22	49	114	56	1		
Michigan: 33 establishments.....	1913	422	56.8	.275	15.48		43		56	93	89	141		1	11	36	24	81	87	148	34				
	1915	446	56.4	.271	15.15		34	48	43	100	112	109			3	6	36	28	107	85	151	29	1		
Minnesota: 9 establishments.....	1913	247	59.8	.246	14.70						45	202			9	13	9	85	91	40					
	1915	246	59.8	.248	14.80						27	219			6	19	13	67	95	46					
New York: 66 establishments.....	1913	1,237	53.2	.302	15.76	506	45	11	114	123	280	158			2	9	25	20	231	271	592	38	45	4	
	1915	1,048	53.8	.301	15.91	391	5	19	87	116	264	165	1			11	13	17	198	258	471	31	49		
Ohio: 38 establishments.....	1913	552	55.5	.307	16.95	9	49	24	147	133	111	79				11	23	6	86	156	245	15	10		
	1915	521	55.9	.298	16.56	7	37	55	122	93	121	86				4	3	70	155	266	18	5			

TABLE C.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS, BY STATES, 1915.

[This table includes all data secured for 1915, whether or not comparable data for 1913 were available.]

BENCH HANDS.

State.	No. of establishments	Number of employ-ees.	Average full-time hours per week.	Average rate of wages per hour.	Average full-time weekly earnings.	Employees whose full-time hours per week were—						Employees whose rates of wages per hour were—													
						48 and under.	Over 48 and under 51.	51 and under 54.	54.	Over 54 and under 57.	57 and under 60.	60.	Over 60.	Under 12 cts.	12 and under 14 cts.	14 and under 16 cts.	16 and under 18 cts.	18 and under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 and under 40 cts.	40 and under 50 cts.	50 cts. and over.		
California.....	17	290	52.5	\$0.423	\$21.86	100			162			28								2	20	159	20	89	
Georgia.....	15	105	55.9	.260	14.47				27	53	11	14				2	4	2		28	40	29			
Illinois.....	33	651	52.1	.372	19.22		429		81	16	81	44									33	70	109	436	3
Iowa.....	12	317	58.6	.259	15.16				58			88	171					12	14		96	99	95	1	
Massachusetts.....	21	228	49.8	.344	17.04	98	90		40												28	44	96	51	9
Michigan.....	33	386	54.8	.320	17.43		69	36	61	127	34	59				1	2	7		31	79	202	60	4	
Minnesota.....	9	252	59.8	.266	15.90						36	216				1	9	2		62	96	82			
New York.....	67	975	52.1	.341	17.28	491		4	74	65	208	133				4	2	12	145	172	419	87	134		
Ohio.....	38	418	55.2	.307	16.87	5	29	40	128	104	66	46				1	1	1		45	147	200	18	5	
Pennsylvania.....	86	852	53.2	.304	16.08	132	100	75	330	139	35	41				1	6	30	10	140	202	366	94	3	
Wisconsin.....	15	457	59.4	.221	13.11						50	3	404							33	66	47	171	103	2
Total.....	346	4,931	54.3	.317	16.91	826	717	155	961	554	582	1,156				2	48	126	94	781	1,072	1,792	769	247	

LABORERS.

California.....	17	646	54.9	\$0.230	\$12.55	108			331			207			2	10	20	47	42	258	219	48		
Georgia.....	15	281	56.0	.114	6.37				98	104	31	47	1	164	88	19	8	1			1			
Illinois.....	31	391	53.5	.187	9.99		201		52	8	98	32				1	46	104	99	129	12			
Iowa.....	12	467	59.0	.179	10.54				53			146	268		1	15	87	154	78	129	3			
Massachusetts.....	20	210	50.9	.208	10.53	46	100		40	24							28	8	19	125	28	2		
Michigan.....	32	451	57.4	.182	10.42		37	21	32	62	151	147	1	10	29	33	147	44	177	10	1			
Minnesota.....	9	270	59.8	.187	11.21						30	240		7	15	27	81	15	104	18		3		
New York.....	65	705	56.3	.185	10.38	103	11	29	73	92	205	191	1		14	123	178	81	280	29				
Ohio.....	38	353	55.7	.197	10.95	2	30	48	70	62	87	54				2	16	87	29	205	11	3		
Pennsylvania.....	75	404	54.7	.178	9.68	24	35	14	138	107	34	52			15	34	72	89	74	99	19	2		
Wisconsin.....	15	1,046	59.8	.169	10.12						41	1,004		7	59	256	437	159	119	9				
Total.....	329	5,224	56.7	.184	10.40	283	414	112	887	500	783	2,242	3	206	267	727	1,340	641	1,626	358	59			

MACHINE HANDS.

California.....	18	488	53.4	\$0.375	\$19.66	173				187				128					3	7		28	83	196	70	101
Georgia.....	15	196	55.9	.210	11.73					63	81	15	37			11	34	23	7	58	41	22				
Illinois.....	33	577	52.7	.354	18.36		337			61	50	84	45					15	12	59	68	92	329		2	
Iowa.....	12	421	59.0	.240	14.11					53		123	245			1		6	40	28	143	138	65			
Massachusetts.....	21	250	49.8	.332	16.45	105		101		44								1	7	22	49	114	56		1	
Michigan.....	33	446	56.4	.271	15.15			34	48	43	100	112	109			3		6	36	28	107	85	151	29	1	
Minnesota.....	9	246	59.8	.248	14.80							27	219					6	19	13	67	95	46			
New York.....	67	1,057	53.9	.301	15.91	391	5	19	87	116	264	174	1					11	13	17	201	262	473	31	49	
Ohio.....	38	521	55.9	.298	16.56	7	37	55	122	93	121	86							4	3	70	155	266	18	5	
Pennsylvania.....	86	845	54.1	.280	15.07	66	81	39	332	215	62	50				8		19	43	37	142	230	322	41	3	
Wisconsin.....	15	926	59.6	.204	12.14					79	5	842				6		72	196	162	330	124	36			
Total.....	347	5,973	55.5	.288	15.46	742	595	161	992	734	813	1,935	1	29	157	397	314	1,227	1,330	1,783	574	162				

OTHER EMPLOYEES.

California.....	18	421	53.3	\$0.368	\$19.47	149				206				56	10		2	2	6	4	19	116	136	49	87
Georgia.....	15	257	58.2	.166	9.67					67	110	17	40	23	97	53	22	10	2	20	14	33	5	1	
Illinois.....	33	513	56.5	.278	15.65		182	1		80	18	91	99	42	18	53	23	42	18	75	79	95	86	24	
Iowa.....	12	404	59.2	.222	13.10					54	42	93	197	18	56	64	10	22	7	79	77	69	16	4	
Massachusetts.....	21	303	52.7	.282	14.76	70	109	1		85	16	4		18	3	6	15	32	28	42	52	78	33	14	
Michigan.....	33	481	60.3	.241	14.51		13	10		64	36	36	276	46	6	13	25	52	36	138	113	74	17	7	
Minnesota.....	9	200	61.2	.240	14.68							22	160	18	23	18	4	10	14	38	27	57	7	2	
New York.....	67	1,152	57.2	.250	14.18	260	14	59	133	91	251	240	104	126	90	73	84	68	242	121	188	95	65		
Ohio.....	38	587	57.6	.258	14.71	16	41	43	101	72	184	99	31	10	13	31	57	16	188	118	96	36	22		
Pennsylvania.....	84	752	56.2	.225	12.65	66	40	17	301	117	74	89	48	105	40	69	82	43	149	104	96	46	18		
Wisconsin.....	15	751	60.8	.203	12.36	10				44	7	638	52	123	84	46	80	55	138	105	100	18	2		
Total.....	345	5,821	57.6	.247	14.11	571	399	131	1,091	546	779	1,894	410	567	436	320	477	291	1,128	926	1,022	408	246		

GENERAL TABLES.

TABLE D.—AVERAGE FULL-TIME HOURS, AVERAGE HOURS ACTUALLY WORKED, AND NUMBER OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES, 1915.

[This table includes data from all establishments from which information was secured for 1915, except 3 establishments having monthly pay rolls.]

ONE-WEEK PAY ROLLS.

BENCH HANDS.

State.	Number of establishments.	Number of employees.	Average full-time hours per week of establishments.	Average hours worked per employee in one week.	Employees working each classified per cent of full time in one week.					
					Under 25 per cent.	25 and under 50 per cent.	50 and under 75 per cent.	75 and under 100 per cent.	100 per cent.	Over 100 per cent (overtime).
California.....	13	240	51.5	50.9	6	7	11	24	95	97
Georgia.....	15	105	55.9	50.1	2	1	8	53	34	7
Illinois.....	12	163	53.6	47.7	6	1	11	63	59	23
Iowa.....	10	212	58.9	57.3	1	1	3	51	151	5
Massachusetts.....	21	228	49.8	47.2	4	7	8	27	167	15
Michigan.....	15	113	56.6	53.8	.....	.....	6	46	60	1
Minnesota.....	4	157	59.9	57.7	2	1	3	35	115	1
New York.....	64	949	52.2	49.0	8	9	47	282	554	49
Ohio.....	26	348	55.1	50.5	2	4	13	119	150	60
Pennsylvania.....	43	504	53.0	46.9	6	23	17	119	284	55
Wisconsin.....	4	48	59.9	50.3	.....	.....	13	25	10	.....
Total.....	227	3,067	53.8	50.0	37	54	140	844	1,679	313

LABORERS.

California.....	13	287	51.7	45.9	10	18	21	105	82	51
Georgia.....	15	281	56.0	47.8	2	13	44	144	66	12
Illinois.....	11	70	55.2	47.6	4	7	4	22	13	20
Iowa.....	10	305	59.1	51.8	18	16	15	82	165	9
Massachusetts.....	20	210	50.9	47.9	5	12	7	26	118	42
Michigan.....	15	99	57.3	53.6	3	3	4	22	45	22
Minnesota.....	4	156	59.9	57.3	.....	3	6	23	120	4
New York.....	63	676	56.1	50.6	16	29	52	207	272	100
Ohio.....	26	258	56.0	52.0	6	9	16	69	100	58
Pennsylvania.....	39	203	55.3	50.6	10	8	12	43	90	40
Wisconsin.....	4	129	60.0	50.6	.....	1	54	14	58	2
Total.....	220	2,674	55.9	50.3	74	119	235	757	1,129	360

MACHINE HANDS.

California.....	14	329	50.8	49.0	5	16	13	111	106	78
Georgia.....	15	196	55.9	50.4	2	1	17	106	56	14
Illinois.....	12	139	53.9	48.5	2	5	8	47	60	17
Iowa.....	10	304	59.0	54.9	3	9	10	92	184	6
Massachusetts.....	21	250	49.8	48.2	5	3	5	30	191	16
Michigan.....	15	159	57.3	54.3	.....	1	8	66	68	16
Minnesota.....	4	131	59.9	57.8	2	1	3	27	98	.....
New York.....	65	1,009	53.7	49.6	9	21	58	357	506	58
Ohio.....	26	433	55.7	52.8	3	7	19	142	180	82
Pennsylvania.....	43	441	53.9	51.7	1	6	13	133	225	63
Wisconsin.....	4	119	60.0	50.1	1	4	44	10	59	1
Total.....	229	3,510	54.6	51.1	33	74	198	1,121	1,733	351

OTHER EMPLOYEES.

California.....	14	287	51.8	48.2	8	11	19	71	129	49
Georgia.....	15	257	58.2	54.1	1	3	19	116	77	41
Illinois.....	12	164	57.2	53.5	2	4	4	49	82	23
Iowa.....	10	289	59.1	55.2	12	5	12	53	166	41
Massachusetts.....	21	303	52.7	51.8	5	3	1	36	202	56
Michigan.....	15	206	60.0	56.9	1	9	9	39	121	27
Minnesota.....	4	95	61.1	59.5	.....	2	2	9	75	7
New York.....	65	1,122	57.1	54.7	15	18	46	203	721	119
Ohio.....	26	455	57.8	56.4	3	4	11	125	162	150
Pennsylvania.....	42	392	56.4	55.7	2	5	10	68	205	102
Wisconsin.....	4	96	60.4	52.4	3	1	23	13	55	1
Total.....	228	3,686	56.9	54.4	54	63	156	782	1,995	616

TABLE D.—AVERAGE FULL-TIME HOURS, AVERAGE HOURS ACTUALLY WORKED, AND NUMBER OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES, 1915—Concluded.

TWO-WEEK PAY ROLLS.

BENCH HANDS.

State.	Number of establishments.	Number of employees.	Average full-time hours per two weeks of establishments.	Average hours worked per employee in two weeks.	Employees working each classified per cent of full time in two weeks.					
					Under 25 per cent.	25 and under 50 per cent.	50 and under 75 per cent.	75 and under 100 per cent.	100 per cent.	Over 100 per cent (overtime);
Illinois.....	20	416	104.0	87.8	15	21	28	233	103	16
Iowa.....	2	105	116.2	107.1	1	2	2	73	26	1
Michigan.....	18	273	108.2	99.9	6	10	11	125	71	50
Minnesota.....	5	95	119.0	108.8	1	2	6	38	47	1
New York.....	2	20	103.0	92.7	.....	1	1	10	8	.....
Ohio.....	11	64	111.9	106.5	.....	1	1	46	1	14
Pennsylvania.....	43	348	107.7	101.6	4	4	18	163	110	49
Wisconsin.....	11	409	118.8	106.4	3	11	21	312	37	25
Other States.....	1	22	108.0	99.9	1	1	.....	4	13	3
Total.....	113	1,752	110.7	100.0	31	53	89	1,004	416	159

LABORERS.

Illinois.....	19	282	107.2	92.3	10	12	37	136	45	42
Iowa.....	2	162	117.6	105.6	.....	7	11	102	33	9
Michigan.....	17	352	114.8	104.8	21	13	23	164	68	63
Minnesota.....	5	114	119.5	108.2	5	5	4	37	37	26
New York.....	2	20	117.4	97.4	2	1	2	21	3	.....
Ohio.....	11	91	106.7	99.8	3	6	4	53	2	23
Pennsylvania.....	36	201	108.2	98.6	3	10	12	98	28	50
Wisconsin.....	11	917	119.6	104.0	11	35	65	737	37	32
Other States.....	1	152	108.0	92.3	9	6	15	50	50	22
Total.....	104	2,300	115.0	101.5	64	95	173	1,398	303	267

MACHINE HANDS.

Illinois.....	20	397	105.8	90.7	7	14	31	241	85	19
Iowa.....	2	117	117.7	108.3	.....	2	4	98	13	.....
Michigan.....	18	287	111.8	107.0	5	3	12	150	81	36
Minnesota.....	5	115	119.4	107.0	1	3	7	67	34	3
New York.....	2	43	115.9	96.7	2	.....	3	34	4	.....
Ohio.....	11	77	112.9	106.8	1	1	3	57	2	13
Pennsylvania.....	43	404	108.6	100.0	3	9	22	228	94	48
Wisconsin.....	11	807	119.0	105.2	5	21	64	615	64	38
Other States.....	1	31	108.0	103.3	.....	1	.....	10	14	6
Total.....	113	2,278	113.5	102.1	24	54	146	1,500	391	163

OTHER EMPLOYEES.

Illinois.....	20	309	113.4	104.3	3	8	20	139	115	24
Iowa.....	2	115	119.0	112.5	1	2	3	62	31	16
Michigan.....	18	275	120.8	115.4	9	4	10	91	89	72
Minnesota.....	5	105	122.5	114.1	4	1	7	40	36	17
New York.....	2	30	120.7	108.3	.....	1	3	13	12	1
Ohio.....	11	126	113.3	108.3	7	3	3	55	20	38
Pennsylvania.....	42	360	111.9	109.0	2	7	14	127	118	92
Wisconsin.....	11	655	121.6	109.3	20	24	47	343	131	90
Other States.....	1	79	108.0	88.0	5	16	3	11	24	20
Total.....	112	2,054	117.4	108.9	51	66	110	881	576	370

FURNITURE MANUFACTURING.

SUMMARY.

The full-time weekly earnings of employees engaged in furniture manufacturing in 1915 were 1 per cent higher than in 1913, 3 per cent higher than in 1912, 4 per cent higher than in 1911, and 5 per cent higher than in 1910.

Full-time hours per week in 1915 were 1 per cent lower than in 1913, 2 per cent lower than in 1912, and 3 per cent lower than in 1911 and 1910.

The average rate of wages per hour in 1915 was 2 per cent higher than in 1913, 5 per cent higher than in 1912, 8 per cent higher than in 1911, and 11 per cent higher than in 1910.

The number of establishments from which data were secured has varied considerably during the period covered as follows:

1907 to 1910.....	52 identical establishments.
1910 and 1911.....	128 identical establishments.
1911 and 1912.....	199 identical establishments.
1912 and 1913.....	231 identical establishments.
1913 and 1915.....	232 identical establishments.

In addition to the 232 establishments furnishing information for 1913 and 1915, data were secured from 8 establishments for 1915 only, making a total of 240 establishments for which data for 1915 are presented. Figures based upon data for all establishments covered for 1915 are included in certain tables, as indicated by prefatory notes.

Summary figures for the several occupations included in this report are given in Table 1 which follows. In this table direct comparisons can be made between the data for different years only when the data are from identical establishments. The comparable data for different years are grouped together.

TABLE 1.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS, IN THE PRINCIPAL OCCUPATIONS, 1907 TO 1915.

[The figures opposite each group of years are for identical establishments. When a second line is shown for 1915 it contains all data secured for 1915, whether or not comparable data for 1913 were available.]

Occupation and number of establishments.	Year.	Number of employ-ees.	Average full-time hours per week.	Per cent of employ-ees whose full-time hours per week were—					Average rate of wages per hour.	Per cent of employ-ees whose rates of wages per hour were—					Average full-time weekly earnings.
				Under 54.	54.	Over 54 and under 57.	57 and under 60.	60 and over.		Under 16 cts.	16 and under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 cts. and over.	
Cabinetmakers:															
50 establishments...	1907	890	56.7	15	18	11	9	47	\$0.235	11	16	37	17	19	\$13.32
	1908	632	57.1	13	16	7	21	44	.229	12	17	34	15	20	13.08
	1909	771	56.9	14	16	11	18	42	.228	12	16	38	17	17	12.97
	1910	862	56.7	11	18	16	18	37	.237	12	15	33	21	19	13.44
112 establishments...	1910	1,801	58.0	7	9	12	15	58	.231	14	15	38	19	13	13.28
	1911	1,846	57.7	8	6	16	21	49	.232	13	13	39	21	13	13.29
169 establishments...	1911	2,455	58.3	6	4	12	19	58	.233	14	16	37	21	11	13.46
	1912	2,427	58.1	6	4	20	14	57	.232	11	16	37	25	11	13.43
199 establishments...	1912	2,939	58.1	6	4	18	17	55	.228	11	20	38	22	10	13.20
	1913	3,184	57.2	6	25	9	18	42	.234	11	19	33	25	11	13.30
171 establishments...	1913	2,811	57.2	5	29	8	12	45	.233	10	19	33	26	13	13.24
	1915	2,735	56.9	9	26	10	13	42	.239	7	17	34	26	15	13.54
203 establishments...	1915	3,176	57.0	7	27	11	13	43	.240	6	16	35	27	16	13.62
Carvers, hand:															
25 establishments...	1907	169	54.2	30	29	2	15	24	.311	1	3	9	21	65	16.86
	1908	127	54.5	28	26	3	25	17	.314	1	4	9	29	58	17.11
	1909	151	53.0	35	32	2	20	11	.326	...	3	9	22	66	17.28
	1910	148	52.7	39	32	3	15	11	.338	...	2	8	18	71	17.81
65 establishments...	1910	315	55.7	18	17	9	19	37	.313	...	3	13	17	68	17.36
	1911	345	55.5	22	13	13	18	34	.322	...	3	13	14	71	17.57
76 establishments...	1911	367	56.2	13	17	12	19	38	.312	1	2	13	17	68	17.28
	1912	334	56.3	18	12	19	11	40	.315	...	1	10	22	67	17.52
82 establishments...	1912	350	56.3	17	11	19	16	37	.313	...	1	10	23	66	17.44
	1913	355	55.1	13	51	3	18	15	.319	...	...	8	17	75	17.41
80 establishments...	1913	352	55.2	10	54	3	14	20	.317	...	2	11	21	66	17.32
	1915	290	55.2	14	47	6	10	24	.325	...	3	9	21	67	17.77
97 establishments...	1915	321	55.5	12	43	5	11	28	.322	...	3	10	22	65	17.73
Chair assemblers:															
6 establishments...	1910	165	57.7	...	...	52	24	24	.193	32	36	21	10	1	11.16
	1911	141	58.0	...	...	45	22	33	.202	18	36	31	14	2	11.73
15 establishments...	1911	227	58.3	2	...	31	18	48	.202	25	25	30	16	3	11.77
	1912	237	57.8	7	...	34	17	42	.206	21	30	28	15	7	11.86
23 establishments...	1912	453	57.8	7	...	20	44	28	.193	24	37	25	10	4	11.10
	1913	519	57.3	4	14	15	56	11	.199	22	33	29	11	5	11.32
23 establishments...	1913	562	57.5	4	13	14	51	19	.197	23	30	29	11	6	11.27
	1915	497	57.5	4	11	14	47	23	.211	18	30	29	12	12	12.06
31 establishments...	1915	591	57.6	4	9	17	42	28	.211	19	27	29	12	13	12.09
Finishers:															
52 establishments...	1907	1,217	57.3	4	21	17	18	40	.197	24	31	29	12	5	11.29
	1908	927	57.5	4	18	17	22	40	.201	21	29	32	13	5	11.56
	1909	1,127	57.3	4	18	20	20	39	.195	26	28	29	12	5	11.17
	1910	1,164	57.3	4	18	18	24	36	.199	23	30	29	12	7	11.40
128 establishments...	1910	3,132	58.5	2	7	14	19	58	.195	24	37	28	8	3	11.40
	1911	3,206	58.0	3	7	21	22	47	.198	21	36	31	8	4	11.43
192 establishments...	1911	4,407	58.5	2	5	15	20	59	.194	25	37	29	6	2	11.31
	1912	4,357	58.1	4	5	24	15	53	.200	21	34	33	8	3	11.55
228 establishments...	1912	5,290	58.2	4	4	21	22	50	.197	21	34	32	9	3	11.44
	1913	5,287	57.2	2	29	10	24	34	.207	15	31	37	14	4	11.81

TABLE 1.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS, IN THE PRINCIPAL OCCUPATIONS, 1907 TO 1915—Concluded.

Occupation and number of establishments.	Year.	Number of employees.	Average full-time hours per week.	Per cent of employees whose full-time hours per week were—					Average rate of wages per hour.	Per cent of employees whose rates of wages per hour were—					Average full-time weekly earnings.
				Under 54.	54.	Over 54 and under 57.	57 and under 60.	60 and over.		Under 16 cts.	16 and under 20 cts.	20 and under 25 cts.	25 and under 30 cts.	30 cts. and over.	
Finishers—Concluded.															
219 establishments..	1913	5,132	57.3	2	32	9	15	42	\$0.206	14	29	37	15	4	11.79
	1915	5,000	56.9	5	32	12	14	38	.208	16	28	35	17	5	11.76
238 establishments..	1915	5,300	56.9	4	31	13	14	38	.208	16	27	35	17	5	11.80
Machine hands:															
51 establishments...	1907	1,347	58.2	4	10	14	18	54	.211	15	24	33	18	9	12.28
	1908	1,047	58.1	5	9	11	26	48	.212	17	21	33	18	11	12.32
	1909	1,153	57.9	5	10	13	26	47	.214	16	21	34	18	12	12.39
	1910	1,239	57.4	4	10	17	30	39	.219	15	18	33	22	13	12.57
121 establishments..	1910	3,151	58.7	2	4	13	21	60	.212	17	22	36	18	8	12.39
	1911	3,107	58.3	3	4	17	25	51	.216	16	21	34	20	8	12.55
192 establishments..	1911	4,855	58.8	2	2	13	20	62	.211	17	23	35	19	6	12.35
	1912	4,797	58.4	2	3	21	16	58	.216	15	23	34	21	8	12.39
226 establishments..	1912	6,212	58.5	3	3	17	26	52	.211	16	24	33	19	7	12.30
	1913	6,700	57.6	3	3	21	10	28	.218	13	22	34	22	9	12.50
223 establishments..	1913	6,686	57.8	2	23	8	19	48	.217	14	22	34	22	8	12.49
	1915	5,561	57.5	3	23	13	16	45	.224	11	21	32	24	11	12.82
232 establishments..	1915	5,817	57.5	3	22	14	15	46	.223	13	21	32	24	11	12.74
Upholsterers:															
19 establishments...	1907	383	53.6	26	53	5	7	8	.300	1	5	17	32	46	16.08
	1908	310	53.5	27	53	5	12	3	.298	4	4	13	28	51	15.94
	1909	307	53.8	26	52	5	13	3	.296	8	10	32	50	15.92	
	1910	325	53.8	23	54	9	10	5	.311	.....	4	14	27	55	16.73
38 establishments...	1910	501	55.0	15	43	16	7	20	.297	3	5	15	28	48	16.20
	1911	518	54.7	21	45	8	11	15	.312	2	3	11	29	55	16.90
49 establishments...	1911	558	55.8	9	42	12	18	20	.300	3	3	13	29	52	16.55
	1912	552	55.5	14	35	16	18	18	.307	1	5	13	26	56	16.85
54 establishments...	1912	583	56.4	7	32	15	31	15	.291	2	9	17	27	45	16.33
	1913	635	55.8	7	44	11	29	9	.296	2	8	18	24	49	16.42
43 establishments...	1913	493	56.2	8	34	11	31	16	.295	2	8	16	27	46	16.46
	1915	480	56.1	8	34	17	22	19	.283	4	12	22	22	41	15.78
62 establishments...	1915	755	55.3	8	47	16	15	13	.312	3	8	17	19	53	17.12
Veneers:															
58 establishments...	1910	333	58.8	.....	.....	20	20	59	.200	16	31	43	7	3	11.75
	1911	317	58.4	.....	.....	26	24	49	.202	15	31	40	11	3	11.81
94 establishments...	1911	430	58.7	.....	.....	21	23	56	.206	12	27	43	15	3	12.10
	1912	407	58.3	1	.....	33	12	54	.219	4	23	48	19	5	12.74
123 establishments..	1912	563	58.3	2	1	28	17	53	.213	10	24	44	17	5	12.36
	1913	698	57.2	3	31	9	16	41	.218	10	23	39	22	6	12.45
117 establishments..	1913	687	57.3	1	32	9	14	43	.217	9	23	40	22	5	12.43
	1915	610	57.1	1	33	11	16	38	.216	15	21	33	23	8	12.25
124 establishments..	1915	640	57.0	2	34	12	16	37	.218	14	21	33	23	9	12.34
Other employees, male:															
240 establishments..	1915	8,560	58.2	3	23	12	15	47	.191	42	21	17	10	12	11.14
Other employees, female:															
33 establishments..	1915	325	54.1	8	62	24	1	5	.145	64	23	9	2	1	7.83

In 1915 the average full-time weekly earnings of employees in the selected occupations shown varied from \$11.80 for finishers to \$17.73 for hand carvers. The full-time hours in the different establishments

ranged from 44 to 60. An exception to this is the regular time of watchmen, firemen, and some others who are included in "other employees," and whose hours are often as high as 84, or in some instances, 91 per week. The average full-time hours per week of all employees for 1915 was 57.1.

In the years 1907 to 1912 it was not possible to get the wage data for individual employees from all of the establishments canvassed, hence the wage rates of employees in such establishments could not be included in the tabulation of classified rates although included in the average rates. The wage-rate percentages in the above table are based on the employees for whom individual rates were secured.

As wages and hours differ in different establishments, the inclusion or exclusion of any establishment in a group may raise or lower the average for the group, so that exact comparisons can not be made between the actual wages shown for different years unless the data for the several years are from identical establishments. This is brought out on page 11. To aid in making comparisons where the establishments are changing more or less from year to year relative (or index) numbers have been computed from the averages in Table 1 for full-time hours per week, rates of wages per hour, and full-time weekly earnings for each occupation and for the industry, for the years 1910 to 1915, inclusive. These relative numbers, which are shown in Table 2, following, are simply percentages in which the figures for 1915 are taken as the base, or 100 per cent. Thus the facts for each preceding year are brought into direct comparison with the facts for the latest year available, namely, 1915. The relative for each year preceding 1915 is the per cent that the average in that year is of the average for 1915. For example, the table shows that the relative full-time weekly earnings of machine hands in 1910 were 94 per cent of the weekly earnings in 1915. In 1911 they had increased to 96 per cent, in 1912 they remained the same as in 1911, and in 1913 they had increased to 97 per cent of the earnings in 1915.

The relative number of full-time hours per week of machine hands decreased from 104 in 1910 to 100 in 1915. That is, the average full-time hours of work per week in 1910 were 104 per cent of the average full-time hours in 1915. The heavy-faced figures of the table are relative numbers, and may be read in like manner. The method of computing these relative numbers from the averages of the hours and wages shown in Table 1 is explained on pages 13 and 14.

In addition to the relative numbers in this table, percentages have been computed showing the per cent of increase or decrease in 1915 as compared with each preceding year back to 1910, while in another column is given the per cent of increase or decrease in each year compared with the year immediately preceding.

Referring, for example, to the weekly earnings of finishers, it is seen that in 1915 they were the same as in 1913, and 3 per cent higher

than in 1912, etc.; that they were 2 per cent higher in 1912 than in 1911, 3 per cent higher in 1913 than in 1912, and so on.

TABLE 2.—RELATIVE FULL-TIME HOURS PER WEEK, RATES OF WAGES PER HOUR AND FULL-TIME WEEKLY EARNINGS, 1910 TO 1915, TOGETHER WITH PER CENT OF INCREASE OR DECREASE IN SPECIFIED YEARS, IN THE PRINCIPAL OCCUPATIONS AND THE INDUSTRY.

Occupation and year.	Hours per week.			Wages per hour.			Weekly earnings.		
	Relative full-time hours per week (1915=100).	Per cent of increase (+) or decrease (-) in—		Relative rate of wages per hour (1915=100).	Per cent of increase (+) or decrease (-) in—		Relative full-time weekly earnings (1915=100).	Per cent of increase (+) or decrease (-) in—	
		1915 as compared with each specified year.	Each specified year as compared with year preceding.		1915 as compared with each specified year.	Each specified year as compared with year preceding.		1915 as compared with each specified year.	Each specified year as compared with year preceding.
Cabinetmakers:									
1910.....	103	-3	.....	95	+5	.....	97	+3	.....
1911.....	102	-2	-1	95	+5	(1)	97	+3	(1)
1912.....	102	-2	(1)	95	+5	(1)	97	+3	(1)
1913.....	101	-1	-1	98	+2	+3	98	+2	+1
1915.....	100	.....	-1	100	.....	+2	100	.....	+2
Carvers, hand:									
1910.....	103	-3	.....	92	+9	.....	95	+5	.....
1911.....	102	-2	-1	95	+5	+3	96	+4	+1
1912.....	102	-2	(1)	96	+4	+1	98	+2	+2
1913.....	100	(1)	-2	98	+2	+2	98	+2	(1)
1915.....	100	.....	(1)	100	.....	+2	100	.....	+2
Chair assemblers:									
1910.....	101	-1	.....	85	+18	.....	86	+16	.....
1911.....	102	-2	+1	89	+12	+5	91	+10	+6
1912.....	101	-1	-1	91	+10	+2	92	+9	+1
1913.....	100	(1)	-1	93	+8	+2	93	+8	+1
1915.....	100	.....	(1)	100	.....	+8	100	.....	+8
Finishers:									
1910.....	104	-4	.....	90	+11	.....	95	+5	.....
1911.....	103	-3	-1	91	+10	+1	95	+5	(1)
1912.....	102	-2	-1	94	+6	+3	97	+3	+2
1913.....	101	-1	-1	99	+1	+5	100	(1)	+3
1915.....	100	.....	-1	100	.....	+1	100	.....	(1)
Machine bands:									
1910.....	104	-4	.....	90	+11	.....	94	+6	.....
1911.....	103	-3	-1	92	+9	+2	96	+4	+2
1912.....	102	-2	-1	94	+6	+2	96	+4	(1)
1913.....	101	-1	-1	97	+3	+3	97	+3	+1
1915.....	100	.....	-1	100	.....	+3	100	.....	+3
Upholsters:									
1910.....	102	-2	.....	95	+5	.....	98	+2	.....
1911.....	102	-2	(1)	100	(1)	+5	102	-2	+4
1912.....	101	-1	-1	102	-2	+2	104	-4	+2
1913.....	100	(1)	-1	104	-4	+2	104	-4	(1)
1915.....	100	.....	(1)	100	.....	-4	100	.....	-4
Veneerers:									
1910.....	104	-4	.....	92	+9	.....	95	+5	.....
1911.....	103	-3	-1	92	+9	(1)	96	+4	+1
1912.....	102	-2	-1	98	+2	+7	101	-1	+5
1913.....	100	(1)	-2	101	-1	+3	102	-2	+1
1915.....	100	.....	(1)	100	.....	-1	100	.....	-2
The industry:									
1910.....	103	-3	.....	90	+11	.....	95	+5	.....
1911.....	103	-3	(1)	93	+8	+3	98	+4	+1
1912.....	102	-2	-1	95	+5	+2	97	+3	+1
1913.....	101	-1	-1	98	+2	+3	99	+1	+2
1915.....	100	.....	-1	100	.....	+2	100	.....	-1

¹ No change.

The general tendency is toward a reduction of hours and an increase in wages. On account of reduced hours the increase in the full-time weekly earnings is a little less than in the hourly rates.

FLUCTUATIONS IN EMPLOYMENT DURING YEAR.

Data were obtained from 232 establishments concerning the number of days the plant was in operation, the number of employees on the pay roll, and the amount of the pay roll for each pay-roll period for a year; there is also a statement of the number of days the plant was closed during the year, by causes. Table 3 shows these facts and also the percentages that the number of employees, amount of pay rolls, and earnings per employee, respectively, for each two weeks, are of the averages for the year. These data are given on a two-week basis, because in a large number of establishments the pay-roll periods cover two weeks and it was not practicable to separate the figures so as to show them for one week; for establishments with a weekly pay roll the wage payments for two consecutive weeks were combined so as to place all establishments upon the same basis. The column "average days in operation" has reference to the establishment as a whole and not to the number of employees shown in the next column. These average days are based on the running days of these several establishments regardless of the number of employees in each.

The figures reflect considerable uniformity in the volume of employment during the first part of the year ending with May, 1915. The low figures for the two-week period ending July 11 are probably caused by the general shutdown over July fourth. But, beginning with the latter part of December, 1914, there is shown a reduction in the number of employees, which extends throughout the remainder of the year included in the table with the exception of the latter part of March and the first of April. The fluctuations in the amount of earnings per employee during the year are not so great as in the number of employees and in the total pay rolls. In only four pay-roll periods during the year do the average earnings in two weeks fall below \$20, while \$20.65 is the average for the year.

TABLE 3.—AVERAGE DAYS ESTABLISHMENTS WERE IN OPERATION, EMPLOYEES' TOTAL PAY ROLLS, AND AVERAGE EARNINGS PER EMPLOYEE IN TWO WEEKS, FOR THE YEAR ENDING APPROXIMATELY MAY 29, 1915, BY TWO-WEEK PERIODS.

Two-week period ending approximately—	Average days in operation.	Employees.		Total pay rolls.		Average earnings per employee in two weeks.	
		Number.	Per cent of average for year.	Amount.	Per cent of average for year.	Amount.	Per cent of average for year.
1914.							
June 13.....	11.1	28,507	104	\$589,524.95	104	\$20.68	100
June 27.....	11.1	28,146	103	579,961.48	103	20.61	100
July 11.....	8.8	26,508	97	460,343.18	81	17.37	84
July 25.....	10.9	27,442	100	573,284.96	101	20.89	101
August 8.....	11.3	28,456	104	604,461.96	107	21.24	103
August 22.....	11.2	28,252	103	595,759.85	105	21.09	102
September 5.....	11.2	28,269	103	599,020.15	106	21.19	103
September 19.....	10.6	28,159	103	571,973.34	101	20.31	98
October 3.....	11.3	28,654	105	617,899.21	109	21.56	104

TABLE 3.—AVERAGE DAYS ESTABLISHMENTS WERE IN OPERATION, EMPLOYEES, TOTAL PAY ROLLS, AND AVERAGE EARNINGS PER EMPLOYEE IN TWO WEEKS, FOR THE YEAR ENDING APPROXIMATELY MAY 29, 1915, BY TWO-WEEK PERIODS—Concluded.

Two-week period ending approximately—	Average days in operation.	Employees.		Total pay rolls.		Average earnings per employee in two weeks.	
		Number.	Per cent of average for year.	Amount.	Per cent of average for year.	Amount.	Per cent of average for year.
1914.							
October 17.....	11.2	28,669	105	\$622,523.86	110	\$21.71	105
October 31.....	11.2	28,408	104	616,904.94	109	21.72	105
November 14.....	10.8	27,919	102	584,929.29	103	20.95	101
November 28.....	10.2	27,910	102	554,779.66	98	19.88	96
December 12.....	10.9	27,580	101	587,423.45	104	21.30	103
December 26.....	9.5	26,313	96	512,606.34	91	19.48	94
1915.							
January 9.....	7.2	23,970	88	389,092.54	65	15.40	75
January 23.....	10.5	25,991	95	523,027.93	93	20.12	97
February 6.....	10.7	26,792	98	560,812.27	99	20.93	101
February 20.....	11.0	26,892	98	577,116.09	102	21.46	104
March 6.....	10.9	27,152	99	572,632.77	101	21.09	102
March 20.....	11.2	27,341	100	591,275.16	105	21.63	105
April 3.....	11.1	27,270	100	589,587.84	104	21.62	105
April 17.....	11.1	26,993	99	573,391.81	101	21.24	103
May 1.....	11.1	26,531	97	560,631.96	99	21.13	102
May 15.....	11.1	26,028	95	552,363.83	98	21.22	103
May 29.....	11.1	26,120	96	553,045.49	98	21.17	103
Average for year..	10.7	27,318	100	565,168.24	100	20.65	100

The accompanying graphic chart is based on the percentages shown in Table 3, and presents at a glance the trend of the items shown.

The change in the volume of employment during the year ending with May, 1915, so far as this may be brought out by the pay rolls, is still further developed in Table 4.

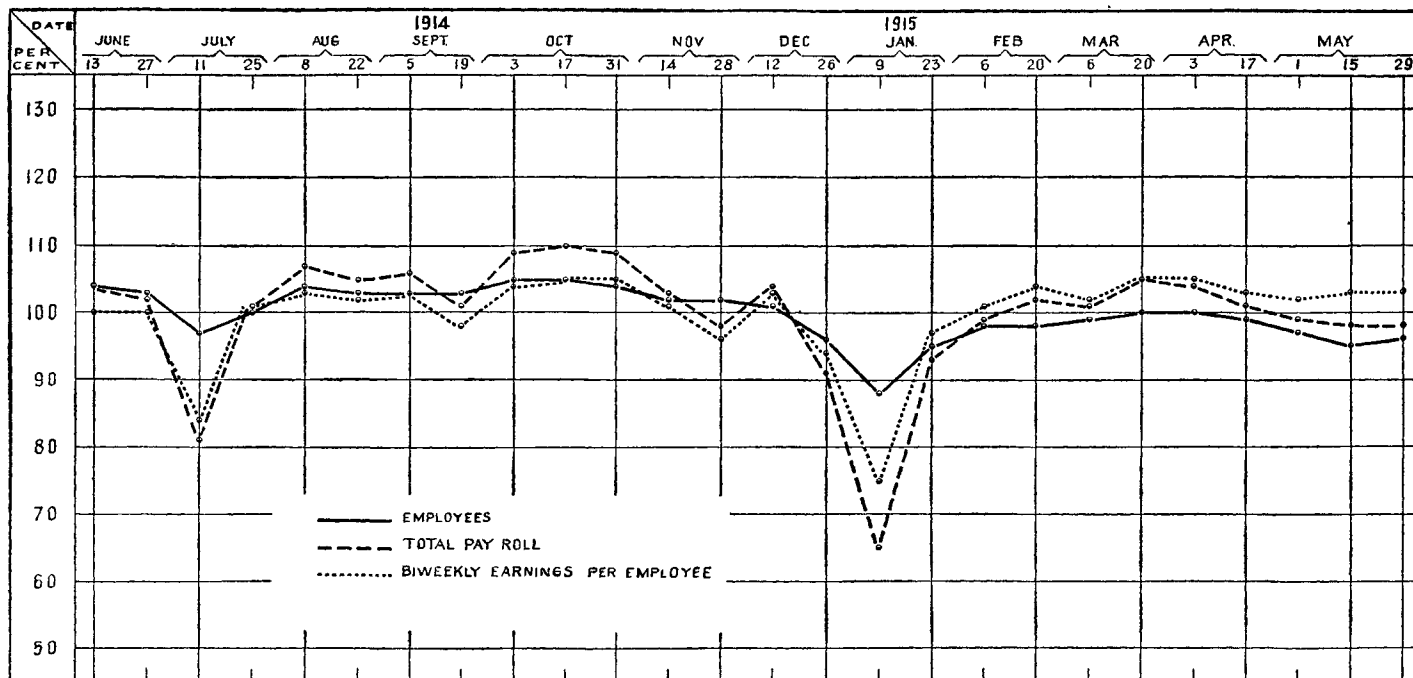
TABLE 4.—NUMBER OF ESTABLISHMENTS HAVING LARGEST AND SMALLEST PAY ROLLS IN MONTHS SPECIFIED.

Month.	Number of establishments having—			Number of establishments entirely closed down in the month for—			
	Largest pay roll in specified months.	Smallest actual pay roll in specified months. ¹	Smallest full-time pay roll in specified months.	One week.	Two weeks.	Three weeks.	Four weeks.
1914.							
June.....	39	17	29	7	2		
July.....	22	49	31	45	13	1	1
August.....	20	3	9	3	1		
September.....	18	8	11	3	1		
October.....	43	1	2	7	2	1	
November.....	15	13	7	2	3	3	1
December.....	18	63	17	71	9	3	1
1915.							
January.....	3	42	26	41	10	3	1
February.....	10	8	28	4	5	1	
March.....	17	5	13	2	1		
April.....	7	9	19	3	1	1	
May.....	20	14	25	4	1		
Total.....	232	232	² 217				

¹ Not including pay-roll periods during which factory was idle all the time.

² Not including 15 establishments having no full-time pay rolls during the year.

CHART C.—FLUCTUATIONS IN NUMBER OF EMPLOYEES, TOTAL PAY ROLLS, AND BIWEEKLY EARNINGS PER EMPLOYEE.



FLUCTUATIONS IN EMPLOYMENT DURING YEAR.

The table shows for 232 establishments the months during which the largest pay-roll, the smallest full-time pay-roll, and smallest actual pay-roll periods occur, and the number of establishments closed down entirely for one or more than one week each month.

Attention is called to the fact that the same month may show a considerable number of both large and small pay rolls, because as a rule each pay-roll period covers only one week or at most two weeks, so that it is possible for an establishment to have a very large and a very small pay roll in the same month.

Table 5 shows the number of days that each of the 232 establishments reporting was in operation during the year and the number of days each was idle, by specified causes. It will be seen that in addition to holidays and vacations, which are the result of custom or of an accepted policy of the establishments, there was an average of 25.2 days idleness per establishment on account of slack work. This, taken in connection with the facts brought out by Table 3, indicates a dullness in the industry which extended throughout the year covered by the report. The total average days idle during the year was 35.4.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR.

State and establishment number.	Days in operation during year of 52 weeks.	Number of week days idle during year of 52 weeks on account of—				Total week days idle during year.
		Holidays and vacations.	Slack work.	Inventory.	Other causes.	
Illinois:						
1.....	304	6	2			8
2.....	306	6				6
3.....	292	6	12	2		20
4.....	277	6	25	4		35
5.....	305	5	2	2		7
6.....	306	6				6
7.....	272	6	29	2	1 3	40
8.....	306	5	1			6
9.....	273	5	31	3		39
10.....	306	6				6
11.....	307	5				5
12.....	277	6	21	3	1 5	35
13.....	307	5				5
14.....	306	6				6
15.....	253	6	47	6		59
16.....	250	6	53	3		62
17.....	267	6	37	2		45
18.....	250	6	54	2		62
19.....	284	6	19	3		28
20.....	301	7		1	1 3	11
21.....	306	5	1			6
22.....	276	6	27	3		36
23.....	302	6		4		10
24.....	304	6		2		8
25.....	299	7	3	3		13
Indiana:						
26.....	251	7	42	6	1 6	61
27.....	289	6	5	2 12		23
28.....	295	4	9	4		17
29.....	286	4	19	3		26
30.....	254	6	40	12		58
31.....	277	5	23	7		35
32.....	270	6	31	2	1 3	42
33.....	266	7	27	6	1 6	46

¹ Repairs.

² Inventory and repairs.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR—Continued.

State and establishment number.	Days in operation during year of 52 weeks.	Number of week days idle during year of 52 weeks on account of—				Total week days idle during year.
		Holidays and vacations.	Slack work.	Inventory.	Other causes.	
Indiana—Concluded.						
34.....	264	7	39	2		48
35.....	236	6	4	3	¹ 63	76
36.....	271	7	26	8		41
37.....	239	6	61	6		73
38.....	271	6	21	4	² 10	41
39.....	292	11		9		20
40.....	289	6		2	³ 15	23
41.....	248	6	52	6		64
42.....	290	4		6	⁴ 12	22
43.....	257	7	31	6	⁵ 11	55
44.....	248	6	52	6		64
45.....	256	8	42	6		56
46.....	229	6	50	6	⁶ 21	83
47.....	220	6	⁶ 68	18		92
48.....	229	6	59	12	⁷ 6	83
49.....	288	6	18			24
50.....	270	12	26	4		42
Maryland:						
51.....	249	4	42	11	⁸ 6	63
52.....	275	4	2	13	⁹ 18	37
53.....	307	5				5
54.....	305	7				7
55.....	243	7	62			69
56.....	303	5	4			9
57.....	283	6	23			2
58.....	307	5				59
Massachusetts:						
59.....	271	7	25	9		41
60.....	302	8			¹⁰ 2	10
61.....	304	7			¹¹ 1	8
62.....	289	8	9	6		23
63.....	245	17	44	6		67
64.....	304	8				8
65.....	230	3	61		¹² 18	82
66.....	285	5	16	6		27
67.....	275	12	25			37
68.....	295	9	8			17
69.....	299	6		6	¹³ 1	13
70.....	266	7	30	9		46
Michigan:						
71.....	260	9	43			52
72.....	302	4	3	3		10
73.....	286	4	20	2		26
74.....	265	4	43			47
75.....	288	4	18	2		24
76.....	247	10	55			65
77.....	297	6	5	4		15
78.....	270	4	32	6		42
79.....	278	8	26			34
80.....	252	4	56			60
81.....	306	6				6
82.....	272	8	26	6		40
83.....	289	6	17			23
84.....	275	4	31	2		37
85.....	306	6				6
86.....	237	2	73			75
87.....	295	4	12	1		17
88.....	262	7	34	3	¹⁴ 6	50
89.....	286	5	21			26
Missouri:						
90.....	256	9	35	¹⁵ 12		56
91.....	227	6	76	3		85
92.....	275	11	20	2	¹⁶ 4	37
93.....	245	8	54	5		67
94.....	224	6	78	4		88
95.....	300	6		6		12
96.....	302	5		5		10
97.....	219	6	81	6		93
98.....	217	6	79	10		95

¹ Packing, moving, and resetting, 60 days; death, 3 days.

² Repairs.

³ Repairs and vacation.

⁴ Not specified.

⁵ Slack work and repairs.

⁶ Repairs and installing new boiler.

⁷ Inventory and repairs.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR—Continued.

State and establishment number.	Days in operation during year of 52 weeks.	Number of week days idle during year of 52 weeks on account of—				Total week days idle during year.
		Holidays and vacations.	Slack work.	Inventory.	Other causes.	
New York:						
99.....	283	6	21	2	29	
100.....	292	5	3	12	20	
101.....	289	5	6	12	23	
102.....	299	6	7	.....	13
103.....	289	6	17	.....	23
104.....	284	6	22	.....	28
105.....	257	6	41	1	55	
106.....	293	8	10	.....	19
107.....	297	7	6	2	15	
108.....	222	6	84	.....	90
109.....	286	7	19	.....	26
110.....	296	8	3	5	16	
111.....	296	6	10	.....	16
112.....	301	8	.....	.....	11
113.....	277	6	23	6	35	
114.....	272	8	28	4	40	
115.....	293	7	6	6	19	
116.....	287	5	8	12	25	
117.....	305	7	.....	.....	7
118.....	300	7	1	4	12	
119.....	298	5	9	.....	14
120.....	276	7	24	5	36	
121.....	302	10	.....	.....	10
122.....	291	6	15	.....	21
123.....	305	7	.....	.....	7
124.....	261	6	40	5	51	
125.....	266	5	19	22	46	
126.....	298	6	2	6	14	
127.....	302	8	.....	.....	10
128.....	286	7	19	.....	26
129.....	303	3	.....	6	9
130.....	256	6	45	5	56	
131.....	289	6	10	7	23	
132.....	296	8	6	.....	16
133.....	293	5	7	7	19	
134.....	302	8	2	.....	10
135.....	299	5	3	5	13	
136.....	284	8	15	5	28	
137.....	300	5	3	4	12	
138.....	243	6	42	21	69	
139.....	302	5	5	.....	10
140.....	285	5	.....	12	27
141.....	291	6	12	3	21	
142.....	276	6	28	1	35	
143.....	299	8	5	.....	13
North Carolina:						
144.....	236	3	73	.....	76
145.....	271	3	38	.....	41
146.....	203	3	106	.....	109
147.....	195	3	114	.....	117
148.....	173	3	136	.....	139
149.....	229	3	80	.....	83
150.....	265	3	44	.....	47
151.....	229	3	80	.....	83
152.....	179	3	130	.....	133
153.....	224	3	85	.....	88
154.....	184	3	125	.....	128
155.....	223	3	86	.....	89
156.....	182	3	127	.....	130
157.....	247	3	62	.....	65
Ohio:						
158.....	301	6	.....	5	11
159.....	280	7	25	.....	32
160.....	200	4	102	6	112	
161.....	303	6	3	.....	9
162.....	277	5	16	14	35	
163.....	270	6	36	.....	42
164.....	266	6	40	.....	46
165.....	285	9	15	3	27	
166.....	178	5	111	12	134	
167.....	278	5	27	2	34	

1 Fire.

2 Repairs.

3 Death.

4 Inventory and slack work.

5 Slack work, Saturdays, etc.

6 Installing new machines, 7 days; death, 3 days.

7 Slack work and repairs.

TABLE 5.—NUMBER OF DAYS ESTABLISHMENTS WERE IN OPERATION AND NUMBER OF DAYS IDLE, BY SPECIFIED CAUSES, DURING YEAR—Concluded.

State and establishment number.	Days in operation during year of 52 weeks.	Number of week days idle during year of 52 weeks on account of—				Total week days idle during year.
		Holidays and vacations.	Slack work.	Inventory.	Other causes.	
Ohio—Concluded.						
168.....	284	10	¹ 17	.....	² 1	28
169.....	273	6	22	.....	² 1	29
170.....	290	6	10	6	.....	22
171.....	243	5	45	12	² 7	69
172.....	272	6	34	.....	.....	40
173.....	270	6	31	5	.....	42
174.....	305	7	.....	.....	.....	7
175.....	300	6	.....	6	.....	12
176.....	288	6	18	.....	.....	24
177.....	274	6	19	13	.....	38
178.....	219	6	75	6	² 6	93
179.....	273	5	16	18	.....	39
180.....	298	7	6	1	.....	14
181.....	260	6	46	.....	.....	52
182.....	297	8	7	.....	.....	15
183.....	297	4	11	.....	.....	15
184.....	284	6	15	6	³ 1	28
Pennsylvania:						
185.....	301	5	6	.....	.....	11
186.....	301	7	4	.....	.....	11
187.....	305	7	.....	.....	.....	7
188.....	306	3	.....	3	.....	6
189.....	306	6	.....	.....	.....	6
190.....	220	6	86	.....	.....	92
191.....	283	5	16	8	.....	29
192.....	298	7	.....	.....	² 7	14
193.....	305	7	.....	.....	.....	7
194.....	305	7	.....	.....	.....	7
195.....	235	5	72	.....	.....	77
196.....	276	5	31	.....	.....	36
197.....	300	5	7	.....	.....	12
198.....	254	5	53	.....	.....	58
199.....	297	4	5	6	.....	15
200.....	260	5	47	.....	.....	52
201.....	306	6	.....	.....	.....	6
202.....	304	8	.....	.....	.....	8
203.....	279	5	28	.....	.....	33
204.....	302	5	5	.....	.....	10
205.....	299	5	8	.....	.....	13
206.....	299	7	6	.....	.....	13
207.....	307	5	.....	.....	.....	5
208.....	305	5	.....	2	.....	7
209.....	294	5	6	7	.....	18
210.....	303	4	.....	5	.....	9
211.....	296	10	6	.....	.....	16
212.....	296	6	2	8	.....	16
Tennessee:						
213.....	268	3	41	.....	.....	44
214.....	289	3	20	.....	.....	23
215.....	308	3	1	.....	.....	4
216.....	302	3	7	.....	.....	10
217.....	200	4	108	.....	.....	112
218.....	205	3	104	.....	.....	107
Wisconsin:						
219.....	307	4	1	.....	.....	5
220.....	281	5	26	.....	.....	31
221.....	297	4	.....	11	.....	15
222.....	294	6	.....	12	.....	18
223.....	297	6	9	.....	.....	15
224.....	307	5	.....	.....	.....	5
225.....	302	5	2	3	.....	10
226.....	259	6	47	.....	.....	53
227.....	303	5	4	.....	.....	9
228.....	299	6	.....	7	.....	13
229.....	274	6	28	4	.....	38
230.....	309	2	1	.....	.....	3
231.....	299	5	6	2	.....	13
232.....	304	6	.....	2	.....	8
Average.....	276.6	5.9	25.2	3.1	1.2	35.4

¹ Slack work and inventory.

² Repairs.

³ Death.

As stated on page 5, data have been secured showing, for 1915, the hours actually worked by employees. Table 6, which is a summary of General Table D, shows the number and per cent of employees working certain classified percentages of full time, by States. This table is divided into two sections, one relating to employees whose time was reported for one week, and the other relating to those whose time was reported for two weeks in such a way that it could not be divided. Two establishments having monthly pay rolls are omitted altogether from this table.

TABLE 6.—NUMBER AND PER CENT OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES, 1915.

[This table includes data from all establishments from which information was secured for 1915, except 2 establishments having monthly pay rolls.]

One-week pay rolls.

State.	Number of establishments.	Number of employees.	Employees working each classified per cent of full time.									
			100 per cent and over.		Under 100 per cent.		Under 75 per cent.		Under 50 per cent.		Under 25 per cent.	
			Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Illinois.....	9	1,260	712	57	548	43	142	11	58	5	11	1
Indiana.....	24	2,408	416	17	1,992	83	587	24	100	4	34	1
Maryland.....	7	443	184	42	259	58	55	12	23	5	4	1
Michigan.....	14	2,583	283	11	2,300	89	321	12	37	1	12	(1)
Missouri.....	2	91	11	12	80	88	35	38	.....	.....	.....	.....
North Carolina.	1	63	6	10	57	90	50	79	4	6	4	6
Ohio.....	25	1,431	588	41	843	59	250	17	86	6	12	1
Pennsylvania...	14	1,748	659	38	1,089	62	324	19	60	3	22	1
Wisconsin.....	4	561	256	46	305	54	84	15	18	3	5	1
Massachusetts..	12	1,398	405	29	993	71	312	22	93	7	30	2
New York.....	45	4,129	1,577	38	2,552	62	579	14	139	3	42	1
Tennessee.....	6	458	161	35	297	65	117	26	37	8	17	4
Total.....	163	16,573	5,258	32	11,315	68	2,856	17	655	4	193	1

Two-week pay rolls.

Illinois.....	16	1,584	151	10	1,433	90	452	29	172	11	19	1
Indiana.....	1	495	10	2	485	98	99	20	21	4	6	1
Maryland.....	1	186	21	11	165	89	16	9	4	2	.....	.....
Michigan.....	6	1,025	220	21	805	79	169	16	92	9	16	2
Missouri.....	7	514	201	39	313	61	180	35	14	3	7	1
North Carolina.	16	1,157	32	3	1,125	97	663	57	179	15	52	4
Ohio.....	4	289	19	7	270	93	33	11	18	6	9	3
Pennsylvania...	14	1,424	216	15	1,208	85	527	37	156	11	33	2
Wisconsin.....	10	2,070	670	32	1,400	68	239	12	82	4	29	1
Total.....	75	8,744	1,540	18	7,204	82	2,378	27	738	8	171	2

¹ Less than 1 per cent.

Table 7 shows, by States, the number of employees in the industry as reported by the United States Census Office, 1910, the number of establishments from which the bureau secured data for 1915, and the number of employees for whom data are shown in this report:

TABLE 7.—TOTAL NUMBER OF EMPLOYEES IN FURNITURE MANUFACTURING, AND NUMBER OF EMPLOYEES FOR WHICH DATA ARE SHOWN FOR 1915.

State.	Number of employees reported by United States Census, 1910.	Establishments and employees for which data for 1915 are shown in this report.	
		Number of establishments.	Number of employees.
New York.....	19,619	45	4,129
Michigan.....	15,171	20	3,608
Illinois.....	13,310	25	2,887
Indiana.....	10,745	25	2,903
Wisconsin.....	10,583	16	2,854
Pennsylvania.....	9,733	28	3,172
Ohio.....	8,019	29	1,720
Massachusetts.....	7,148	12	1,398
North Carolina.....	5,533	17	1,220
Missouri.....	3,368	9	605
Tennessee.....	2,303	6	458
Maryland.....	1,856	8	622
Other States.....	16,038	.....	.....
Total.....	123,426	240	25,576

According to the census of 1910 more than 87 per cent of the total number of employees in the industry are found in the States in which the establishments furnishing information to the Bureau of Labor Statistics are located. The number of employees for whom the bureau secured 1915 data, and for whom detailed information for 1915 is presented in this report, is equal to 20.7 per cent of the total number in the industry in 1909 (the year to which the census figures apply).

DESCRIPTION OF THE INDUSTRY AND THE PRINCIPAL PRODUCTIVE OCCUPATIONS.

This report includes only data from establishments manufacturing household furniture, including bedroom, dining-room, and parlor suites, library and hall pieces, tables, chairs, etc., and in a few instances from those making office desks, tables, and chairs. Establishments manufacturing metallic furniture and those which make a specialty of expensive made-to-order articles have not been included.

Apart from the varying character of the output, which is influenced to some extent by local conditions as to timber and labor supply as well as by local market demands, few differences are found in furniture-manufacturing establishments in different sections of the country. Much the same processes and much the same kinds of machinery are employed everywhere. A workman from a furniture factory in one of the North Atlantic or North Central States would find little difficulty in adapting himself to conditions in a similar establishment located in a South Central or South Atlantic State, and vice versa. The occupation terms and the operations embraced under such terms are practically identical in all sections.

The work of furniture making, as observed everywhere, falls roughly into three principal divisions: Machine work, cabinet-making, and finishing. Upholstering forms another division of work in many establishments, while the increasing amount of veneered furniture being turned out has led to the creation of veneering departments in some of the larger plants.

In the machine department the rough lumber is cut and dressed, and the various parts which enter into the completed piece are fashioned. Employees in this department are classed either as machine hands or helpers, in many cases the line of demarcation between the two classes being a very vague one, since it is often the practice gradually to promote helpers to positions as machine operators as they develop sufficient skill for the work. In addition to the helpers on machines there is usually a number of common laborers, whose work consists in handling heavy materials, sweeping floors, and making themselves generally useful. Regarding the pay of machine woodworkers it has been observed that length of service with the establishment and general proficiency are as a rule more important factors in determining the wages of a workman than is the mere fact that he happens to be operating a particular kind of machine. For this reason a classification of machine hands according to machines operated would be of little, if any, value.

In the cabinetmaking department the pieces of furniture are assembled or set up. In some lines of product, as in the manufacture of extension tables of the cheaper grades, the work of the cabinetmaker is quite simple and requires little skill, consisting merely in fitting together the parts of tops, pedestals, etc. Men engaged in this kind of work, while not cabinetmakers in the strict sense of the term, are generally so designated in the trade. In some localities the term "case fitters" is applied to men doing cabinetwork. In chair factories the duties of the chair assembler correspond in a general way to those of the cabinetmaker in case-goods establishments. This work consists in gluing and fitting together the different parts of the chair, a frame being used to hold the parts in proper shape until the glue is dry. A variety of terms, such as "framers," "stoolers," "chair makers," "drivers up," etc., is used to describe this class of workmen in different establishments. In many factories, particularly those making the heavier and more expensive grades of chairs, as at Grand Rapids, the designation cabinetmakers, instead of chair assemblers, is in common use. It should be emphasized in this connection that few all-round, skilled cabinetmakers, as the term was formerly employed, are now found in furniture-manufacturing establishments, the introduction of improved labor-saving machinery and the modern tendency toward specialization in industry, with the desire to effect a lowering of the cost of

production, having caused such workmen to be replaced in large measure by a cheaper type of labor.

The finishing department, as the term implies, is where the assembled piece of furniture is given its final treatment before being packed for shipment. The finishing process includes staining, filling, sanding, varnishing, and, in furniture of the better grades, rubbing and polishing. In a few establishments there has been noticed a tendency to restrict the term "finisher" to the men doing varnish work only, but in the vast majority of furniture plants it is now used to include all persons in the finishing department except those classed as "common labor." In some factories located in the North Central States women and girls have been found among the workers in the varnishing room, but this work is usually performed by males.

Practically all of the work of the other occupations is done by males. The few females employed are shown in the tables under "other employees." Detailed data are shown in this report for eight occupations. Brief descriptions of these occupations and processes follow:

CABINETMAKERS.

These men assemble the parts that have been cut and dressed in the machine department. They are often designated as "bench hands" or "carpenters." Their work is necessarily done by hand, though in some cases clamps or other devices are used for forcing joints up tight. These joints are held together with glue, or iron braces screwed to each section at point of union. The work consists in fitting together the parts that form a complete piece of furniture.

This occupation includes also builders of heavy and expensive chairs. They are known as cabinetmakers on the pay rolls, and the class of work would give them that designation, as such work is of a much higher class than the construction of many other pieces of furniture. The good construction of high-grade chairs is considered a test of workmanship.

On the simple kinds of work, such as is found in table factories and any large plant, specializing is practiced to a great extent. This enables the operator to become thoroughly acquainted with every necessary movement. He can therefore accomplish more than if he were shifted from one kind of work to another; but without the knowledge of other kinds of work, he is of less value to his employer.

There are now very few all-round cabinetmakers, in the sense in which the term was formerly used.

Very little manual labor is connected with this occupation, but considerable skill and experience are required on certain classes of work, the simpler kinds going to the less capable men.

CARVERS, HAND.

This occupation is being largely superseded by machine carving, though in establishments producing high-grade furniture many hand carvers are still employed. Hand carving requires a high degree of skill and some artistic ability. It consists in carving or fashioning designs in wood for ornamental purposes, as the arms and backs of chairs, the posts and headboards of beds, the feet of cabinets, panels in sideboards, etc. The work is done with highly tempered steel chisels, or knives with curved, straight, or "V-shaped" edges, and a mallet. Carved work is often roughed out on a machine and finished by hand. Hand carvers usually command good wages.

CARVERS, MACHINE.

The carving machine is usually arranged to hold four new pieces and the pattern. The copies are derived from the original pattern, by causing this pattern to control the movements of the revolving tools (one against each new piece). The operator traces every outline of the pattern and in doing so the revolving tools of the other four pieces make the same impressions, curves, etc., as shown by the pattern.

This machine enables the carver to reproduce the pattern any number of times in succession. The work is usually gone over by hand carvers for slight imperfections.

Other devices, operated on the order of a lathe, holding only one piece of wood, are used; this revolves against set chisels that are guided by automatic slide rests. These rests force the chisels into or guide them from the material, thus giving a square, round, or varied product according to the set pattern of the slides.

One of the most skilled machine hands is generally assigned to these machines. There is practically no labor attached to the work.

CHAIR ASSEMBLERS.

In the manufacture of chairs the work of the chair assembler corresponds in a general way to that of the cabinetmaker in case goods. In many of the factories producing the finer grades of chairs this work is called cabinetmaking, and such employees have been so classified in this report. "Chair assembling," as applied to lower grade chairs, is an appropriate term to indicate the kind of work done, although this term is not in common use. Most of the shaping operations on the different parts of the chair are performed in the machine department. The chair assembler, however, usually does some machine work, as boxing, mortising, etc., the amount of which depends on the extent to which division of labor is carried. Ordinarily chair assembling is done by a group of several men working together. When all parts of the chair have finally been shaped

and fitted, the dowel pins are glued in and the different pieces are put together and placed in a press or clamp, which holds them firmly in place until the glue has had time to harden. In the case of flush joints the chair assembler shaves or trims the parts forming the joint until they are smooth. Frame makers, who may be included with chair assemblers, fit up and put together the frames for chair seats. Much of their work, as sawing, boring, mortising, etc., is done on machines.

The skill and experience required for this work depend upon the grade of chair which is being built and upon whether the materials have been properly cut and fitted in the machine department. Very little manual labor is necessary.

FINISHERS.

The term "finisher," as used in this report, includes all classes of skilled or semiskilled workmen in the finishing department. Ordinarily the first operation in finishing is staining, which is done by dipping the piece into a vat of stain or, if the piece is large, rubbing the stain in with a brush or rag. The piece is next filled to close up the pores. This is done by rubbing in a mineral filling with a rag. Staining and filling are usually regarded as semiskilled occupations, although in many establishments the work is done largely by unskilled help. After the filling is completed the article is sanded, to make it smooth. This is generally done by boys or unskilled men. It is next treated with shellac and then sanded again, after which it is ready for the varnisher. Usually from one to three coats of varnish are applied, depending on the degree of "finish" desired. Between coats of varnish it is rubbed with oil or water and rotten stone, or is sandpapered. Polishers or rubbers, who do the final finishing, are often highly skilled men and are well paid. In some establishments the rubbing of flat surfaces is done by machines. The rubbing or polishing device has a rapid back-and-forth movement and may be shifted at will by the operator. It makes the work much easier than when done by hand. Spraying machines for applying varnish by means of compressed air have been found in use in a few factories. The above operations, with some variations, comprise the finishing work in all furniture establishments. In the treatment of chairs and tables of the cheaper grades the varnish is usually applied by dipping. Grain printing, which may be considered a finishing process, is done by running the piece to be grained, if it is flat, between two rollers, one of which is made of gelatin, with its surface so prepared that it prints an imitation grain upon the part coming in contact with it. Irregular surfaces and edges are grained by being held against the roller. An inking device keeps the gelatin roller constantly inked. Usually the parts that have been grained are shellacked and allowed

to dry thoroughly before being put together. Hand sanders and all other unskilled employees have been excluded from finishers in the present report.

MACHINE HANDS.

These men operate various types of power-driven machines and often shift from one machine to another, according to the exigencies of their work. The principal machines used in furniture manufacture are the boring machine, carver, dovetailer, jointer, or facer, molding machine, mortiser, planer, router, sander (belt or drum), saw (band, cut-off, jig, miter, rip, etc.), scraper, sticker, tenoner, and turning lathe. A machine called the "universal woodworker," built on the plan of a planer or jointer, is used in some factories. This machine is adapted to a number of different uses, as grooving, rabbeting, crosscutting, ripping, dadoing, routing, panel raising, etc.

In the collection of data on the wages and hours of labor of machine hands, for inclusion in the present report, care was taken to confine the information entirely to men engaged in the actual operation of machines; persons classed as helpers, learners, unskilled laborers, etc., being omitted in all cases.

UPHOLSTERERS.

There is much specialization in this occupation at the present time, and few all-round upholsterers are now found. In many establishments the work is divided into processes, all more or less simple, in which much unskilled labor can be employed. Thus, spring setting, pad making, sewing, etc., represent distinct subdivisions of upholstering in many chair and lounge factories. The persons doing this work, usually boys or women, can not be regarded as upholsterers in the strict sense of the term and are not included as such in this report. The all-round upholsterer cuts the materials, puts in the springs and fillings, makes the tufts, and performs all the other operations of upholstering. He is usually assisted by one or more helpers. Only men of this class rank as regular upholsterers. In many lounge factories a tufting device is now used which enables this work to be done much more quickly and easily than by hand.

VENEERERS.

The work of veneering is that of overlaying or facing wood of a less expensive quality with a thin piece of a finer or more beautiful kind.

The processes in the veneering department include the cutting, matching, and jointing of the veneer, the spreading of the glue either by hand or by machine (usually a roller of gelatine revolving in a glue tank) on the piece, the laying on of the veneer, and the placing of the veneered pieces in a press which forces the veneer down tight against

the solid wood, and finally the shifting of the press load to a retainer, where it is left until the glue is thoroughly dried. Owing to the growing scarcity of woods and the improvement in methods of veneering, this occupation is becoming a very important one in the furniture industry. Many establishments now have distinct veneering departments, employing a considerable number of men at good wages. Cutting and matching the veneer is considered highly skilled work, and is usually done by a man who does nothing else. Common laborers, employed solely to handle materials, are not regarded as veneerers and have not been included.

Under "other employees" are included lumber handlers, machine-hand helpers, truckers, packers or craters, laborers, and all employees not included in the selected occupations described above.

In addition to the text tables already shown four general tables are presented as follows:

Table A.—Average and classified full-time hours per week and rates of wages per hour, and average full-time weekly earnings, in the United States, by years, 1907 to 1915.

Table B.—Average and classified full-time hours per week and rates of wages per hour, and average full-time weekly earnings, in each State, by years, 1913 and 1915.

Table C.—Average and classified full-time hours per week and rates of wages per hour, and average full-time weekly earnings, by States, 1915.

Table D.—Average full-time hours, average hours actually worked, and number of employees working each classified per cent of full time, by States, 1915.

TABLE A.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS, IN THE UNITED STATES, BY YEARS, 1907 TO 1915.

The figures opposite each group of years are for identical establishments. When a second line is shown for 1915 it contains all data secured for 1915, whether or not comparable data for 1913 were available. Complete data for years prior to 1913 not available from all establishments. See Table 1 and explanation following.]

	Year.	Num-ber of em-ploy-ees.	Aver-age full-time hours per week.	Aver-age rate of wages per hour.	Aver-age full-time weekly earnings.	Employees whose full-time hours per week were—							Employees whose rates of wages per hour were—										
						48 and under.	Over 48 and under 51.	51 and under 54.	54	Over 54 and under 57.	57 and under 60.	60	Over 60.	Under 12 cents.	12 and under 14 cents.	14 and under 16 cents.	16 and under 18 cents.	18 and under 20 cents.	20 and under 25 cents.	25 and under 30 cents.	30 and under 40 cents.	40 and under 50 cents.	50 cents and over.
Cabinetmakers:																							
50 establishments.....	1907	890	56.7	\$0.235	\$13.32	58	53	27	156	102	77	417											
	1908	632	57.1	.229	13.08	30	42	11	99	45	130	275											
	1909	771	56.9	.228	12.97	25	75	5	121	85	138	322											
	1910	862	56.7	.237	13.44	43	42	7	154	140	155	321											
112 establishments.....	1910	1,801	58.0	.231	13.28	43	74	7	161	209	271	1,019	17										
	1911	1,846	57.7	.232	13.29	45	68	30	114	302	381	882	24										
169 establishments.....	1911	2,455	58.3	.233	13.46	45	80	19	108	296	478	1,405	24										
	1912	2,427	58.1	.232	13.43	26	72	36	106	481	331	1,352	23										
199 establishments.....	1912	2,939	58.1	.228	13.20	26	125	36	106	537	489	1,597	23										
	1913	3,184	57.2	.234	13.30	14	127	58	801	272	588	1,304	20										
171 establishments.....	1913	2,811	57.2	.233	13.24	14	97	37	823	230	346	1,244	20	5	67	207	313	220	728	916	323	31	1
	1915	2,735	56.9	.239	13.54	26	98	109	718	285	342	1,157	11	41	142	263	201	940	715	341	70		
203 establishments.....	1915	3,176	57.0	.240	13.62	26	98	109	850	335	404	1,354	12	42	150	284	234	1,105	856	408	74		11
Carvers, hand:																							
25 establishments.....	1907	169	54.2	.311	16.86	22	26	2	49	4	26	40											
	1908	127	54.5	.314	17.11	14	20	2	33	4	32	22											
	1909	151	53.0	.326	17.28	31	21	1	48	3	30	17											
	1910	148	52.7	.338	17.81	25	31	2	48	4	22	16											
65 establishments.....	1910	315	56.1	.313	17.36	25	31	2	52	27	61	116	1										
	1911	345	55.5	.322	17.57	38	34	5	45	45	62	115	1										
76 establishments.....	1911	367	56.2	.312	17.28	38	5	5	64	45	69	140	1										
	1912	334	56.3	.315	17.52	25	6	29	40	64	38	131	1										
82 establishments.....	1912	350	56.3	.313	17.44	25	6	30	40	65	55	129											
	1913	355	55.1	.319	17.41	22	5	19	180	10	64	55											
80 establishments.....	1913	352	55.2	.317	17.32	22	5	8	190	10	48	69				1	5	39	75	200	24	8	
	1915	290	55.2	.325	17.77	15	16	9	135	16	30	69				2	6	27	62	161	18	14	
97 establishments.....	1915	321	55.5	.322	17.73	15	16	9	139	16	35	91				3	6	31	72	176	19	14	

TABLE A.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS, IN THE UNITED STATES, BY YEARS, 1907 TO 1915—Concluded.

	Year.	Number of employees.	Average full-time hours per week.	Average rate of wages per hour.	Average full-time weekly earnings.	Employees whose full-time hours per week were—							Employees whose rates of wages per hour were—										
						48 and under.	Over 48 and under 51.	51 and under 54.	54	Over 54 and under 57.	57 and under 60.	60	Over 60.	Under 12 cents.	12 and under 14 cents.	14 and under 16 cents.	16 and under 18 cents.	18 and under 20 cents.	20 and under 25 cents.	25 and under 30 cents.	30 and under 40 cents.	40 and under 50 cents.	50 cents and over
Upholsterers:																							
19 establishments.....	1907	383	53.6	\$0.300	\$16.08	33	49	19	204	18	28	32											
	1908	310	53.5	.298	15.94	28	37	19	163	16	37	10											
	1909	307	53.8	.296	15.92	11	52	18	161	16	39	10											
	1910	325	53.8	.311	16.73	9	52	14	174	28	33	15											
38 establishments.....	1910	501	55.0	.297	16.20	9	52	14	216	79	33	98											
	1911	518	54.7	.312	16.90	12	49	48	231	43	56	79											
49 establishments.....	1911	558	55.8	.300	16.55	12	16	20	233	68	98	111											
	1912	552	55.5	.307	16.85	37	15	24	192	87	97	100											
54 establishments.....	1912	583	56.4	.291	16.33		18	24	184	88	182	87											
	1913	635	55.8	.296	16.42		25	18	279	71	183	59											
43 establishments.....	1913	493	56.2	.295	16.46		21	18	167	56	154	77		1	8	15	25	80	135	181	48		
	1915	480	56.1	.283	15.78		18	20	165	83	104	90		3	2	13	19	38	104	105	150	45	1
62 establishments.....	1915	755	55.3	.312	17.12	20	23	20	356	123	112	101		3	4	15	20	41	131	142	257	120	22
Veneers:																							
58 establishments.....	1910	333	58.8	.200	11.75				1	67	68	186	11										
	1911	317	58.4	.202	11.81				1	84	76	140	16										
94 establishments.....	1911	430	58.7	.206	12.10		1		1	89	98	225	16										
	1912	407	58.3	.219	12.74		1	3	2	133	49	210	9										
123 establishments.....	1912	563	58.3	.213	12.36		5	6	6	155	94	288	9										
	1913	698	57.2	.218	12.45		9	11	218	62	111	274	13										
117 establishments.....	1913	687	57.3	.217	12.43		4	6	221	64	99	280	13		2	62	93	68	274	153	35		
	1915	610	57.1	.216	12.25		4	5	203	68	97	233		5	17	68	74	57	204	139	46		
124 establishments.....	1915	640	57.0	.218	12.34	4	4	5	215	75	100	237		5	17	68	78	59	214	144	52	3	
Other employees, male:																							
240 establishments.....	1915	8,560	58.2	.191	11.14	100	91	61	1,940	996	1,326	3,695	351	1,437	963	1,155	1,181	576	1,418	823	719	187	101
Other employees, female:																							
33 establishments.....	1915	325	54.1	.145	7.83	22	2	2	201	78	4	16		104	72	33	47	29	30	7	2	1	

TABLE B.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS, IN EACH STATE, BY YEARS, 1913 AND 1915.

[The figures for both years are for identical establishments.]

CABINETMAKERS.

State and number of establishments.	Year.	Number of employees.	Average full-time hours per week.	Average rate of wages per hour.	Average full-time weekly earnings.	Employees whose full-time hours per week were—							Employees whose rates of wages per hour were—											
						48 and under.	Over 48 and under 51.	51 and under 54.	54	Over 54 and under 57.	57 and under 60.	60	Over 60.	Under 12 cents.	12 and under 14 cents.	14 and under 16 cents.	16 and under 18 cents.	18 and under 20 cents.	20 and under 25 cents.	25 and under 30 cents.	30 and under 40 cents.	40 and under 50 cents.	50 cents and over.	
Illinois: 17 establishments.....	1913	298	58.1	\$0.272	\$15.76		14		70		15	199				2	9	12	78	93	98	6		
	1915	330	57.4	.272	15.56		26	68	15		14	207				3	7	20	92	100	90	17	1	
Indiana: 20 establishments.....	1913	294	59.0	.224	13.16			12	6	32	24	200	20		1	15	48	27	119	61	23			
	1915	309	58.2	.243	14.08		8		14	28	94	165			2	10	23	16	126	88	37	5	2	
Maryland: 6 establishments.....	1913	70	56.5	.206	11.55				24	21	3	22				11	13	8	22	14	2			
	1915	57	55.5	.204	11.24				21	20		13			1	2	7	12	5	16	13	1		
Massachusetts: 7 establishments.....	1913	116	50.7	.312	15.68		14	83	13			6					1	6	22	24	44	18	1	
	1915	96	50.1	.351	17.43		26	58	8			4					3	1	21	10	20	34	7	
Michigan: 16 establishments.....	1913	485	54.2	.257	13.91				411	74								3	20	171	222	68	1	
	1915	426	54.1	.277	14.99				376	50								2	115	186	111	11	1	
Missouri: 5 establishments.....	1913	57	60.0	.222	13.32							57				1	7	11	7	11	10	9	1	
	1915	44	58.1	.240	13.85				14			30				2	2	7	14	11	8			
New York: 35 establishments.....	1913	526	55.9	.240	13.39			12	308	13	153	40						12	37	51	193	182	46	5
	1915	480	55.7	.243	13.52		1	10	277	48	99	45						4	19	42	197	173	44	1
North Carolina: 11 establishments.....	1913	172	59.9	.150	8.96						10	162				5	53	58	42	5	9			
	1915	131	60.0	.156	9.33						4	127				9	30	31	36	11	14			
Ohio: 17 establishments.....	1913	158	58.9	.239	14.08				4	25	13	116						2	1	8	5	71	52	19
	1915	134	56.5	.244	13.82		2	23	1	29	46	33							3	4	3	59	52	13
Pennsylvania: 20 establishments.....	1913	312	58.5	.220	12.84						65	110	137					1	39	75	34	111	43	9
	1915	393	58.6	.207	12.12						101	75	217					2	34	83	38	170	50	15

GENERAL TABLES.

CARVERS, MACHINE.

Illinois.....	11	24	57.4	\$0.286	\$16.46		2		7			15			2			14	8		
Indiana.....	6	10	58.6	.312	18.30				1	1	1	7						2	1	8	
Michigan.....	9	13	54.0	.290	15.68				13									2	4	7	
New York.....	12	15	56.3	.291	16.39				7	2	5	1						4	5	5	1
Other States.....	17	29	56.6	.272	15.40		3		7	3	6	10				1		13	9	3	1
Total.....	55	91	56.6	.286	16.12		3	2	35	6	12	33			2	1		20	33	31	2

CHAIR ASSEMBLERS.

Massachusetts.....	6	191	57.4	\$0.221	\$12.63		21			18	94	58			2	14	36	20	80	12	20	6	1
Michigan.....	4	89	55.1	.234	12.36				45	44							14	12	25	23	15		
New York.....	3	56	58.0	.205	11.83				10		46					1	12	17	7	5	8	6	
North Carolina.....	6	63	59.2	.128	7.57					9	3	51		8	47	5	3						
Ohio.....	5	62	57.1	.244	13.91					30	25	7			5	3	1	1	19	17	16		
Wisconsin.....	3	93	59.2	.184	10.90						51	42				17	35	11	29	1			
Other States.....	4	37	58.3	.266	15.48						28	9					3	2	15	7	7	1	2
Total.....	31	591	57.6	.211	12.09		21		55	101	247	167		8	55	51	109	53	173	68	64	7	3

FINISHERS.

Illinois.....	25	596	57.5	\$0.243	\$13.99		36	75	90		45	350			1	11	39	33	209	233	70		
Indiana.....	25	457	57.7	.211	12.17		6		100	42	87	222			6	72	73	49	157	71	25	4	
Maryland.....	8	130	56.0	.175	9.78		13			24	42	18	33		7	11	31	23	22	33	1	2	
Massachusetts.....	12	182	55.9	.238	13.00	22	38	8			7	107			1	4	22	23	10	57	25	32	3
Michigan.....	20	969	54.2	.210	11.36				848	121							47	126	173	479	131	13	
Missouri.....	8	88	57.4	.206	11.80				38			50			1	6	15	10	39	17			
New York.....	45	889	55.7	.288	12.64		2		563	75	107	142			8	53	102	96	296	267	67		
North Carolina.....	16	203	59.6	.137	8.17					10	22	171			47	62	66	19	5	3	1		
Ohio.....	29	395	57.1	.216	12.04		4	23	4	115	139	110			1	2	26	64	52	177	50	22	1
Pennsylvania.....	28	766	58.2	.195	11.33					235	205	326			24	26	114	162	88	244	97	9	2
Tennessee.....	6	73	60.0	.159	9.52							73			6	15	19	10	9	13	1		
Wisconsin.....	16	552	59.5	.179	10.66					18	118	416			8	11	143	160	83	127	9	11	
Total.....	238	5,300	56.9	.208	11.80	22	97	108	1,667	665	741	2,000		94	147	610	816	630	1,834	903	251	10	5

TABLE C.—AVERAGE AND CLASSIFIED FULL-TIME HOURS PER WEEK AND RATES OF WAGES PER HOUR, AND AVERAGE FULL-TIME WEEKLY EARNINGS, BY STATES, 1915—Concluded.

MACHINE HANDS.

State.	Number of establishments	Number of employees.	Average full-time hours per week.	Average rate of wages per hour.	Average full-time weekly earnings.	Employees whose full-time hours per week were—							Employees whose rates of wages per hour were—										
						48 and under.	Over 48 and under 51.	51 and under 54.	54	Over 54 and under 57.	57 and under 60.	60	Over 60.	Under 12 cents.	12 and under 14 cents.	14 and under 16 cents.	16 and under 18 cents.	18 and under 20 cents.	20 and under 25 cents.	25 and under 30 cents.	30 and under 40 cents.	40 and under 50 cents.	50 cents and over.
Illinois.....	22	590	58.3	\$0.258	\$14.97	14	46	85	31	414	3	20	21	19	160	220	139	8					
Indiana.....	25	717	57.6	.217	12.51	13	129	66	194	315	2	9	30	97	58	332	151	38					
Maryland.....	8	164	57.0	.199	11.28	13	24	30	31	66		4	33	46	16	35	22	10					
Massachusetts.....	12	340	57.7	.242	13.73	11	44	9	33	243	5	7	17	32	26	140	49	35	18	11			
Michigan.....	20	737	54.4	.270	14.70		534	203				3	14	20	167	316	207	9	1				
Missouri.....	9	168	57.5	.230	13.24		70		98			1	2	10	19	74	50	12					
New York.....	44	866	56.3	.231	12.94		3	444	75	179		1	42	102	66	311	277	66	1				
North Carolina.....	16	380	59.6	.152	9.10			26	11	343	11	106	138	79	15	29	1	1					
Ohio.....	27	426	57.5	.222	12.76	6	20	7	98	141	154	1	10	30	52	22	169	103	34				
Pennsylvania.....	28	764	58.4	.208	12.11			226	158	380	6	29	81	139	74	256	138	38	3				
Tennessee.....	6	94	60.0	.192	11.50				94		5	9	10	18	13	24	10	5					
Wisconsin.....	15	571	59.4	.186	11.08			30	134	407	2	12	117	172	70	144	45	9					
Total.....	232	5,817	57.5	.223	12.74	11	90	78	1,293	787	879	2,679	32	191	523	782	418	1,839	1,387	594	39	12	

UPHOLSTERERS.

Illinois.....	7	242	53.8	\$0.338	\$18.05		20	222					1	2	4	9	31	40	98	41	16	
Indiana.....	4	47	56.0	.262	14.69				28	19				1	2	22	12	10				
Massachusetts.....	6	42	50.0	.437	21.64	20	18			4					1	1	1	5	32	2		
Michigan.....	7	37	54.1	.351	18.98			35	2							2	4	19	12			
New York.....	10	166	56.2	.317	17.69			86	12	60	8		2	3	8	29	31	66	23	4		
Ohio.....	9	41	57.5	.265	15.24				21	1	19		1	1	4	7	13	14				
Pennsylvania.....	6	45	57.9	.239	13.84				23	8	14	3	1	5	3	4	8	10	11			
Wisconsin.....	8	86	58.8	.237	13.86			13		18	55		1	4	8	10	26	20	17			
Other States.....	5	49	54.9	.327	17.89		5		37	6	1			1		3	5	11	17	12		
Total.....	62	755	55.3	.312	17.12	20	23	20	356	123	112	101	3	4	15	20	41	131	142	257	120	22

VENEERERS.

Illinois.....	18	82	58.7	\$0.230	\$13.48			5	11		5	61				3	5	8	34	24	8	
Indiana.....	13	52	58.3	.211	12.29				3	5	23	21			5	12	3	20	7	5		
Massachusetts.....	4	9	50.2	.323	15.98	4	4					1						3	1	2	3	
Michigan.....	16	130	54.1	.247	13.35				119	11						1	7	58	48	16		
Missouri.....	3	8	57.0	.242	13.81				4			4						2		6		
New York.....	28	115	55.4	.234	12.94				78	11	8	18			2	17	18	28	35	15		
Ohio.....	11	49	58.0	.220	12.71					9	26	14			4	2	4	29	8	2		
Pennsylvania.....	19	97	58.3	.195	11.34					33	12	52		1	3	16	21	11	31	11	3	
Tennessee.....	2	25	60.0	.144	8.62							25		4	11	5	2	1	1	1		
Wisconsin.....	10	73	59.1	.172	10.13					6	26	41			3	33	18	5	10	4		
Total.....	124	640	57.0	.218	12.34	4	4	5	215	75	100	237		5	17	68	78	59	214	144	52	3

OTHER EMPLOYEES, MALE.

Illinois.....	25	782	59.2	\$0.219	\$12.98	5	11	21	190		80	424	51	65	103	90	75	38	138	131	166	23	13
Indiana.....	25	1,207	58.3	.178	10.41		11		208	102	318	531	37	246	95	221	207	77	167	78	84	26	6
Maryland.....	8	201	58.2	.156	9.07		13		30	28	38	84	8	63	23	61	12	5	18	6	9	3	1
Massachusetts.....	12	491	58.6	.204	11.83	47	48	6			17	347	26	49	36	94	71	27	94	46	48	21	5
Michigan.....	20	1,002	55.5	.240	13.31				695	238		27	42	20	33	74	127	105	295	159	105	47	37
Missouri.....	9	266	58.1	.182	10.56	1			88			174	3	35	35	45	44	18	46	21	21	1	
New York.....	45	1,355	57.2	.209	11.95	11	3	4	719	89	224	226	79	160	157	117	185	134	235	157	153	36	21
North Carolina.....	17	436	60.1	.130	7.81				8	18	31	372	15	225	88	30	25	4	30	24	10		
Ohio.....	29	515	58.0	.203	11.75		5	30		133	162	159	18	49	73	72	59	24	110	56	56	12	4
Pennsylvania.....	28	1,007	58.8	.172	10.35					337	225	409	36	277	98	120	145	70	153	60	62	12	10
Tennessee.....	6	199	60.3	.149	9.00							194	5	53	56	40	14	6	10	4	13	3	
Wisconsin.....	16	1,099	59.6	.168	10.01	36			2	34	248	748	31	195	166	191	217	68	122	81	52	3	4
Total.....	240	8,560	58.2	.191	11.14	100	91	61	1,940	996	1,326	3,695	351	1,437	963	1,155	1,181	576	1,418	823	719	187	101

OTHER EMPLOYEES, FEMALE.

Illinois.....	3	12	53.5	\$0.155	\$8.26			2	10						7				2				
Indiana.....	3	8	56.3	.180	10.15					4	4				2		2	1	2	1			
Massachusetts.....	6	16	56.2	.181	9.94	3	2			1		10			5	1				2		1	
Michigan.....	5	110	54.0	.154	8.33				110						19	24	17	22	15	10	1	2	
New York.....	9	82	54.1	.160	8.64				81			1			14	16	10	17	7	15	3		
Ohio.....	4	11	57.5	.136	7.86					6		5			3	5	2			1			
Wisconsin.....	3	86	53.5	.107	5.74	19				67					63	17	2	2	2				
Total.....	33	325	54.1	.145	7.83	22	2	2	201	78	4	16			104	72	33	47	29	30	7	2	1

TABLE D.—AVERAGE FULL-TIME HOURS, AVERAGE HOURS ACTUALLY WORKED, AND NUMBER OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES, 1915.

This table includes data from all establishments from which information was secured for 1915, except 2 establishments having monthly pay rolls.]

ONE-WEEK PAY ROLLS.

CABINETMAKERS.

State.	Number of establishments.	Number of employees.	Average full-time hours per week of establishments.	Average hours worked per employee in one week.	Employees working each classified per cent of full time in one week.					
					Under 25 per cent.	25 and under 50 per cent.	50 and under 75 per cent.	75 and under 100 per cent.	100 per cent.	Over 100 per cent (overtime).
Illinois.....	7	170	54.1	52.4	.....	3	5	28	121	13
Indiana.....	23	301	57.2	48.4	.....	6	65	173	36	21
Maryland.....	7	60	55.3	49.1	.....	.....	5	33	18	4
Massachusetts.....	7	96	50.1	42.0	1	2	27	24	40	2
Michigan.....	14	337	54.0	46.2	.....	.....	56	266	13	2
Missouri.....	2	10	60.0	39.5	.....	.....	6	4	.....	.....
New York.....	41	532	55.9	50.5	3	3	44	245	206	31
Ohio.....	20	192	57.1	51.5	2	4	25	70	87	4
Pennsylvania.....	12	268	57.7	50.2	3	10	47	107	89	12
Tennessee.....	5	67	60.0	46.5	.....	3	17	33	13	1
Wisconsin.....	3	73	59.5	50.0	1	.....	4	42	26	.....
Total.....	141	2,106	56.0	49.1	10	31	301	1,025	649	90

CARVERS, HAND.

Illinois.....	5	59	54.4	50.3	1	1	3	18	36	.....
Indiana.....	11	14	57.2	46.8	1	.....	.....	13	4	.....
Massachusetts.....	7	28	49.1	39.5	2	.....	5	16	4	1
Michigan.....	10	62	54.0	43.7	2	.....	13	38	9	.....
New York.....	21	53	56.5	46.5	2	4	5	22	17	3
Ohio.....	6	10	57.6	52.7	.....	.....	2	3	5	.....
Pennsylvania.....	7	10	57.4	42.6	.....	2	3	2	3	.....
Other States.....	4	12	59.2	50.7	.....	.....	1	6	5	.....
Total.....	71	248	54.8	46.2	8	7	32	118	79	4

CARVERS, MACHINE.

Illinois.....	4	12	54.8	53.0				3	9
Michigan.....	7	7	54.0	46.1			1	6	
New York.....	12	15	56.3	49.8			1	10	4
Other States.....	13	18	55.4	48.9			2	10	6
Total.....	36	52	55.3	49.7			4	29	19

CHAIR ASSEMBLERS.

Massachusetts.....	6	191	57.4	48.0	3	5	25	107	48	3
Michigan.....	2	61	55.6	50.9				61		
New York.....	3	56	58.0	51.6	1		2	49	1	3
Ohio.....	3	32	55.6	48.8				4	28	
Other States.....	4	38	58.3	43.1		1	16	19	2	
Total.....	18	378	57.1	48.6	4	6	47	264	51	6

FINISHERS.

Illinois.....	9	249	54.7	51.2	1	4	7	153	72	12
Indiana.....	24	375	57.1	46.0	7	18	58	245	40	7
Maryland.....	7	100	54.8	48.8	1	2	3	47	47	
Massachusetts.....	12	182	55.9	47.1	3	7	19	104	38	11
Michigan.....	14	720	54.0	45.8	4	4	37	647	18	10
Missouri.....	2	18	60.0	45.7			8	10		
New York.....	45	889	55.7	48.9	10	20	112	384	260	103
Ohio.....	25	336	57.0	48.0	6	44	40	113	118	15
Pennsylvania.....	14	453	57.6	50.2	10	9	69	192	141	32
Tennessee.....	6	73	60.0	46.3	2	1	3	41	22	4
Wisconsin.....	4	116	60.0	50.0	1		29	38	47	1
Other States.....	1	5	60.0	42.4			1	4		
Total.....	163	3,516	56.0	48.1	45	109	386	1,978	803	195

TABLE D.—AVERAGE FULL-TIME HOURS, AVERAGE HOURS ACTUALLY WORKED, AND NUMBER OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES, 1915—Continued.

ONE-WEEK PAY ROLLS—Concluded.

MACHINE HANDS.

State.	Number of establishments.	Number of employees.	Average full-time hours per week of establishments.	Average hours worked per employe in one week.	Employees working each classified per cent of full time in one week.					
					Under 25 per cent.	25 and under 50 per cent.	50 and under 75 per cent.	75 and under 100 per cent.	100 per cent.	Over 100 per cent (overtime).
Illinois.....	7	191	54.9	52.1	3	4	4	45	112	23
Indiana.....	24	596	57.1	45.6	6	10	155	367	24	34
Maryland.....	7	101	55.2	48.7	.....	2	7	49	39	4
Massachusetts.....	12	340	57.7	45.7	7	16	82	156	78	1
Michigan.....	14	480	54.4	47.0	.....	6	62	368	37	7
Missouri.....	2	24	60.0	40.9	.....	.....	13	10	1	.....
New York.....	44	866	56.3	49.5	6	17	86	469	242	46
Ohio.....	23	346	57.2	49.3	1	16	58	165	98	8
Pennsylvania.....	14	363	57.5	50.1	1	5	59	202	85	11
Tennessee.....	6	94	60.0	47.8	1	2	32	28	29	2
Wisconsin.....	3	105	60.0	51.1	1	1	7	48	48	.....
Other States.....	1	22	60.0	28.5	2	.....	20	.....	.....	.....
Total.....	157	3,528	56.7	48.1	28	79	585	1,907	793	136

UPHOLSTERERS.

Illinois.....	5	219	54.0	44.8	2	21	37	84	56	19
Indiana.....	4	47	56.0	47.7	.....	1	12	23	11	.....
Maryland.....	3	42	54.3	34.6	3	12	9	15	3	.....
Massachusetts.....	6	42	50.0	35.8	4	7	5	14	12	.....
Michigan.....	7	37	54.1	42.1	.....	2	17	18	.....	.....
New York.....	10	166	56.2	43.3	4	18	45	80	16	3
Ohio.....	8	36	57.1	51.9	.....	2	1	20	9	4
Pennsylvania.....	3	12	58.3	41.0	.....	1	5	6	.....	.....
Wisconsin.....	3	30	57.4	45.2	.....	5	5	9	10	1
Total.....	49	631	54.9	43.6	13	69	136	269	117	27

VENERERS.

Illinois.....	4	21	54.8	51.0	.....	.....	2	7	10	2
Indiana.....	13	52	58.3	46.8	1	1	14	31	5	.....
Michigan.....	10	99	54.0	46.2	.....	2	6	86	3	2
New York.....	28	115	55.4	50.4	.....	1	16	40	43	15
Ohio.....	10	41	58.6	51.6	.....	3	6	15	16	1
Pennsylvania.....	10	59	57.6	50.4	.....	.....	9	33	17	.....
Tennessee.....	2	25	60.0	54.7	1	1	.....	7	12	4
Wisconsin.....	8	21	53.6	47.1	1	.....	2	9	7	2
Total.....	85	433	56.2	49.2	3	8	55	228	113	26

OTHER EMPLOYEES, MALE.

Illinois.....	9	329	57.2	52.8	4	13	25	60	191	36
Indiana.....	24	1,001	57.9	48.0	19	29	180	541	189	43
Maryland.....	7	123	56.5	51.3	.....	3	6	48	63	3
Massachusetts.....	12	491	58.6	48.7	9	25	48	247	152	10
Michigan.....	14	671	55.4	49.3	6	5	62	428	142	28
Missouri.....	2	39	60.0	49.4	.....	.....	8	21	10	.....
New York.....	45	1,355	57.2	50.9	16	29	118	624	445	123
North Carolina.....	1	26	60.4	39.9	2	.....	15	3	6	.....
Ohio.....	25	424	57.6	53.8	3	5	28	170	181	37
Pennsylvania.....	14	564	58.1	52.5	8	10	67	212	220	47
Tennessee.....	6	199	60.3	48.4	13	13	28	71	60	14
Wisconsin.....	4	223	58.4	49.8	2	7	21	80	107	6
Total.....	163	5,445	57.5	50.3	82	139	606	2,505	1,766	347

OTHER EMPLOYEES, FEMALE.

Illinois.....	2	10	54.0	45.4	.....	1	1	8	.....	.....
Indiana.....	3	8	56.3	49.8	.....	1	1	.....	6	.....
Massachusetts.....	6	16	56.2	40.6	.....	1	6	9	.....	.....
Michigan.....	4	109	54.0	43.6	.....	6	30	61	12	.....
New York.....	9	82	54.1	46.6	.....	5	11	50	16	.....
Ohio.....	4	11	57.5	51.1	.....	.....	.....	8	3	.....
Total.....	28	236	54.4	45.1	.....	14	49	136	37	.....

TABLE D.—AVERAGE FULL-TIME HOURS, AVERAGE HOURS ACTUALLY WORKED, AND NUMBER OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES, 1915—Continued.

TWO-WEEK PAY ROLLS.

CABINETMAKERS.

State.	Number of establishments.	Number of employees.	Average full-time hours per two weeks of establishments.	Average hours worked per employee in two weeks.	Employees working each classified per cent of full time in two weeks.					
					Under 25 per cent.	25 and under 50 per cent.	50 and under 75 per cent.	75 and under 100 per cent.	100 per cent.	Over 100 per cent (overtime).
Illinois.....	13	248	118.7	97.8	2	27	46	167	2	4
Michigan.....	4	104	109.0	99.6	2	1	4	66	15	16
Missouri.....	6	62	114.8	93.3	1	.....	31	4	26	.....
North Carolina.....	11	131	119.9	79.6	1	27	50	51	2	.....
Ohio.....	2	13	119.1	110.6	.....	.....	.....	13	.....	.....
Pennsylvania.....	12	171	118.5	93.5	3	12	42	94	20	.....
Wisconsin.....	8	185	119.5	107.0	3	1	9	151	20	1
Other States.....	2	94	120.0	96.1	1	1	11	81	.....	.....
Total.....	58	1,008	117.9	96.3	13	69	193	627	85	21

CARVERS, HAND.

Illinois.....	15	39	119.5	89.8	.....	11	4	22	2	.....
Michigan.....	4	18	108.0	77.0	1	3	3	10	.....	1
Pennsylvania.....	5	12	117.3	72.4	.....	2	7	3	.....	.....
Other States.....	2	4	117.5	85.4	.....	1	2	.....	1	.....
Total.....	26	73	116.2	83.5	1	17	16	35	3	1

CARVERS, MACHINE.

Illinois.....	7	12	120.0	94.7	.....	.....	6	5	1	.....
Michigan.....	2	6	108.0	98.4	.....	.....	.....	6	.....	.....
Wisconsin.....	3	6	117.8	107.5	.....	.....	.....	5	1	.....
Other States.....	6	14	116.4	102.1	.....	.....	2	9	3	.....
Total.....	18	38	116.5	100.0	.....	.....	8	25	5	.....

CHAIR ASSEMBLERS.

Michigan	2	28	108.0	97.8	.....	1	.....	27	.....	.....
North Carolina.....	5	53	118.1	83.9	4	2	20	27	.....	.....
Ohio.....	2	30	117.4	95.3	1	2	.....	27	.....	.....
Wisconsin.....	3	93	118.4	111.7	2	2	7	28	41	13
Other States.....	1	9	120.0	126.8	.....	.....	.....	6	.....	3
Total.....	13	213	116.9	101.3	7	7	27	115	41	16

FINISHERS.

Illinois.....	16	347	118.9	101.5	5	15	80	214	3	30
Michigan.....	6	249	108.7	90.5	4	17	26	175	19	8
Missouri.....	6	70	113.5	94.6	.....	.....	30	16	24	.....
North Carolina.....	16	198	119.2	75.8	19	27	71	82	.....	.....
Ohio.....	4	59	114.9	94.0	2	4	2	51	.....	.....
Pennsylvania.....	14	313	118.3	97.2	8	19	67	157	51	11
Wisconsin.....	10	403	118.9	113.7	5	4	16	237	97	44
Other States.....	2	112	120.0	93.5	.....	4	31	76	1	.....
Total.....	74	1,751	117.1	98.0	43	90	323	1,007	195	93

MACHINE HANDS.

Illinois.....	15	399	119.7	97.3	3	44	51	295	4	2
Michigan.....	6	257	108.9	94.8	5	27	10	161	15	39
Missouri.....	7	144	114.2	93.7	3	2	57	38	42	2
North Carolina.....	15	358	119.2	83.6	8	26	187	133	3	1
Ohio.....	4	80	117.5	102.8	2	.....	3	67	8	.....
Pennsylvania.....	14	401	118.6	87.0	7	42	139	178	24	11
Wisconsin.....	10	408	118.7	109.7	3	12	26	227	123	17
Other States.....	2	184	120.0	98.7	1	4	14	161	1	3
Total.....	73	2,231	117.6	95.3	32	157	487	1,260	220	75

UPHOLSTERERS.

Illinois.....	2	23	102.8	86.9	.....	1	.....	19	3	.....
Pennsylvania.....	3	33	115.5	76.3	1	4	22	6	.....	.....
Wisconsin.....	5	56	119.0	102.4	.....	.....	31	16	8	1
Other States.....	3	12	118.3	71.6	1	1	7	2	1
Total.....	13	124	115.0	89.6	2	6	60	43	11	2

GENERAL TABLES.

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TABLE D.—AVERAGE FULL-TIME HOURS, AVERAGE HOURS ACTUALLY WORKED, AND NUMBER OF EMPLOYEES WORKING EACH CLASSIFIED PER CENT OF FULL TIME, BY STATES, 1915—Concluded.

TWO-WEEK PAY ROLLS—Concluded.

VENERERS.

State.	Number of establishments.	Number of employees.	Average full-time hours per two weeks of establishments.	Average hours worked per employee in two weeks.	Employees working each classified per cent of full time in two weeks.					
					Under 25 per cent.	25 and under 50 per cent.	50 and under 75 per cent.	75 and under 100 per cent.	100 per cent.	Over 100 per cent (overtime).
Illinois.....	14	61	120.0	92.6		17	6	35	1	2
Michigan.....	6	31	108.6	87.8		5	3	19	4	
Pennsylvania.....	9	38	118.9	88.4		4	19	11	1	3
Wisconsin.....	7	64	118.0	109.6				44	20	
Other States.....	4	16	112.0	105.3			3	9	4	
Total.....	40	210	116.9	97.3		26	31	118	30	5

OTHER EMPLOYEES, MALE.

Illinois.....	16	453	121.4	104.3	9	38	87	224	83	12
Indiana.....	1	206	120.3	92.9	4	6	30	158	6	2
Maryland.....	1	78	121.8	106.6		4	4	52	18	
Michigan.....	6	331	111.5	100.8	4	22	31	171	49	54
Missouri.....	7	227	115.5	101.6	3	5	47	72	86	14
North Carolina.....	16	410	120.1	84.7	19	44	152	169	20	6
Ohio.....	4	91	119.3	103.9	4	2	3	72	8	2
Pennsylvania.....	14	443	119.7	99.0	14	40	73	224	72	20
Wisconsin.....	10	779	119.9	110.8	15	28	60	400	219	57
Total.....	75	3,018	118.9	101.2	72	189	487	1,542	561	167

OTHER EMPLOYEES, FEMALE.

Wisconsin.....	2	75	106.5	89.7	1	6	8	53	5	2
Other States.....	2	3	104.0	95.0				1	2	
Total.....	4	78	106.4	89.9	1	6	8	54	7	2

