

UNITED STATES DEPARTMENT OF LABOR

L. B. SCHWELLENBACH, *Secretary*

BUREAU OF LABOR STATISTICS

A. F. Hinrichs, *Acting Commissioner*

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Wage Structure in the Machinery Industries

January 1945



Bulletin No. 861

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Letter of Transmittal

UNITED STATES DEPARTMENT OF LABOR,
BUREAU OF LABOR STATISTICS
Washington, D. C., March 1, 1946

The SECRETARY OF LABOR:

I have the honor to transmit herewith a report on wage structure in the machinery industries, January 1945. This report was prepared in the Bureau's Wage Analysis Branch by Lily Mary David. Edyth Bunn was responsible for the section on the labor force.

A. F. HINRICHES, *Acting Commissioner.*

HON. L. B. SCHWELLENBACH,

Secretary of Labor

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(IV)

Bulletin No. 861 of the
United States Bureau of Labor Statistics

[Reprinted from the MONTHLY LABOR REVIEW, February 1946.]

**Wage Structure in the Machinery Industries,
January 1945**

Summary

IN January 1945 straight-time hourly earnings of plant workers in the machinery industries in the United States as a whole averaged 98 cents per hour. Only about 1 out of 20 workers in the industry group earned less than 65 cents an hour, about half had earnings ranging from 65 cents to \$1.00, and over two-fifths earned \$1.00 or more. Men's earnings averaged \$1.01 while women (employed primarily in the less-skilled jobs) earned an average of 81 cents per hour. A comparison of men's and women's earnings in the same jobs revealed an average variation in earnings of 10 percent in favor of men.

Considerable variation in earnings was found among several regions. In the Southeast, workers averaged 75 cents per hour, whereas in the Pacific Coast region the average was \$1.14. In the three leading machinery-producing regions (New England, Middle Atlantic, and Great Lakes), average earnings were 93 cents, 97 cents, and \$1.00, respectively. The interregional differences in earnings were greater for less-skilled than for skilled jobs.

Hourly pay was highest in large establishments, in large communities, and in union as compared with nonunion plants. These relationships, however, were less characteristic of the rates of skilled occupations than of less-skilled jobs. Earnings of incentive workers were distinctly higher than those of time workers in jobs in which both methods of pay were important.

During the war, straight-time average hourly earnings were supplemented substantially by overtime work at premium rates and by shift differentials. Various other benefits, monetary and otherwise, were provided in substantial numbers of plants. Among these benefits, paid vacations and insurance plans were common. Bonuses not directly related to production were paid in about half of the establishments studied, but amounted to relatively little when averaged over all workers.

Background and Scope of Study

The extension of collective bargaining and the increased participation of Government in wage administration during the war increased considerably the need for wage statistics on an occupational basis.

Wages by occupation constitute one important aspect of the wage structure of an industry, but there are also other significant aspects. It is important also to know, for example, the distribution of individual workers by average hourly earnings, the relation between union and nonunion wages as well as the variation of wage levels with size of establishment, location of plants, and method of wage payment.

The present report summarizes the results of a study of machinery industries made early in 1945.¹ The survey was a cross section of these industries during the war period and included all except those producing electrical machinery, machine tools, and machine-tool accessories.² The reconversion to peacetime production proceeds from approximately the wage structure described here.

During the war, much of the labor force and productive capacity of these industries was concentrated on equipment needed directly or indirectly by the armed forces. In peacetime they normally serve practically all of American industry, producing a wide variety of basic equipment for manufacturing, agriculture, mining, and other non-manufacturing industries as well as consumer durable equipment. Among the consumer durable goods produced are washing machines, air-conditioning equipment, refrigerators, sewing machines, and other household equipment. Producer goods made are general and specialized industrial and commercial machinery, engines and turbines (except locomotives, air engines, automobile engines, and turbo-generators), agricultural, construction, oil-field and mining equipment, and office and store machinery. As the machinery industries employ about 5 percent of all manufacturing wage earners, their wage structure affects a substantial segment of the country's labor force.

A representative sample of establishments employing 8 or more workers and primarily engaged in the manufacture of machinery in the early months of 1945 was studied. Altogether the survey covered 2,034 establishments, with 495,000 employees, although some of the special analyses summarized here were based on a smaller sample. The total sample represented over a third of the 5,600 establishments with 8 or more employees and almost half of the 1,033,000 workers in the industry group in January 1945. The data for the survey were collected by field representatives of the Bureau, who obtained information from pay rolls or other basic records and classified workers by occupation on the basis of uniform job descriptions.³

The Labor Force

OCCUPATIONAL GROUPS

Practically every metalworking occupation, from unskilled to highly skilled, can be found in the machinery industries. The most characteristic processes, machining and assembling, accounted for about

¹ In the main, a January 1945 pay roll was studied; in some cases an April period was utilized.

² The scope of the present study corresponds to that of Industry Group No. 35 of the Standard Industrial Classification Manual (issued by the Bureau of the Budget) except for the exclusion of machine tools and machine-tool accessories.

Further information and a fuller discussion of the methods used are provided in three mimeographed bulletins entitled "Occupational Wage Relationships, Machinery 1945"; "Wage Structure, Machinery, 1945"; and "Industry Wage Studies, A Descriptive Statement." The latter bulletin lists other industries for which similar data are or will be available. Local summaries of wage data (forms OWR-17 and 18) are provided by the Bureau for important cities of 100,000 or more in each industry studied.

³ Copies of the job descriptions used in the survey are available on request.

three-fifths of all processing workers in the industry group in January 1945. However, some machinery establishments operated their own foundries and forge shops in addition to machine shops. Stamping operations were found to a limited extent in most machinery establishments, but in some they constituted sizable departments. Significant, too, were such functions as tool and die making, welding, heat treating, polishing, plating, and painting.

A relatively high degree of specialization of machining and assembling operations exists in the machinery industries. As table 1 indicates, the largest single group of workers were machine-tool operators whose work was limited to one machine; they comprised about a fifth of all employees and over a third of all processing workers in January 1945. Not only were machine-tool operators generally classified on the basis of type of machine operated, such as turret or engine lathes, but frequently the grouping in individual plants was according to specific make of machines. Moreover, as operators on a given type of machine varied widely in skill,⁴ for wage-study purposes they were classified by grade. Next in importance to machine-tool operators were assemblers, accounting for 8 percent of all workers. Production machinists and operators of several types of machine tools comprised only 2 percent of the labor force.

Only about half of the labor force of the machinery industries were engaged in processing operations.⁵ The other workers performed a wide variety of tasks, such as maintenance of plant and equipment, product inspection, and material handling, or were employed in office jobs. Like processing work, these operations call for workers varying widely in skill. Thus, although relatively unskilled labor is needed in some material-movement jobs and in other auxiliary operations, the adjustment, repair, and installation of complex equipment require substantial numbers of skilled workers.

VARIATION OF OCCUPATIONAL STRUCTURE WITH SIZE OF ESTABLISHMENT

As might be expected, small machinery establishments, because of their limited scale of operation, have a labor force that is specialized to a less extent than larger plants (table 1). In January 1945, processing operations accounted for less than half of the labor force in the largest establishments, compared to over three-fifths in the smallest establishments.

Maintenance work was found to be only about half as important in small as in large plants; in the former, skilled processing or supervisory workers performed some of these functions while in the latter

⁴ The specialized machine-tool operator on a specific machine tool is frequently as skilled as the machinist and, in fact, often has served an apprenticeship. Modern industry, however, has found it most efficient to use him at one machine. He generally sets up his machine, cares for it as well as its tools, and adjusts it during operation. When he performs these operations on a specific machine tool he is considered a class A worker. At the other extreme is the worker who is not required to set up a machine (the set-up man performs this function for him) but merely tends it and, when something goes wrong, stops the machine and relies on the set-up man or adjuster to put things right. Such workers were classified as class C operators. In the intermediate group, class B workers generally maintain an operation set up by others and make all necessary adjustments. This category also includes workers who set up and work at standard operations. Similar distinctions on the basis of skill requirements were made in classifying assemblers and inspectors.

⁵ The proportion of processing workers shown in table 1 (44.2 percent) understates the actual situation to the extent that some apprentices, learners, and helpers as well as some workers classified as "other plant workers" are engaged in processing jobs. The latter category also includes workers engaged in semiprofessional operations in engineering departments, in experimental work, in laboratories, and in production control. Laborers, handymen, yardmen, woodworkers, storage men, installers, salvagers, washers, first-aid attendants, and elevator operators were also classified as "other plant workers." This merging of occupations was resorted to because it was impractical to classify each occupational specialty separately without obscuring the relationships between the major groups of related jobs. In general, broader occupational categories are used in this table than in presentation of occupational wage rates.

TABLE 1.—*Percentage Distribution of Workers in Machinery Establishments, by Occupational Group and Size of Establishment, January 1945*

Occupational group	Percent of workers in establishments of—				
	All sizes	501 or more workers	251-500 workers	51-250 workers	8-50 workers
Maintenance.....	3.8	4.5	2.9	2.8	2.1
Carpenters.....	.3	.3	.3	.3	.1
Electricians.....	.4	.5	.4	.3	(1)
Machinists.....	.4	.5	.4	.4	.1
Maintenance men, general utility.....	.2	.1	.4	.5	.8
Mechanics.....	.3	.3	.3	.2	.1
Millwrights.....	.3	.4	.3	.1	(1)
Other maintenance workers.....	1.9	2.4	.8	1.0	1.5
Supervision.....	3.2	3.1	2.8	3.5	4.9
Working foremen, processing departments.....	1.7	1.1	1.8	2.7	4.0
Other supervisory workers.....	1.5	2.0	1.0	.8	.9
Processing ¹	44.2	37.7	52.8	55.8	61.6
Casting.....	3.6	3.6	5.3	4.1	2.4
Coremakers and molders.....	1.9	1.8	2.4	2.4	1.2
Other foundry workers.....	1.7	1.8	2.9	1.7	1.2
Forging.....	.2	.2	.2	.2	.1
Machining.....	23.7	18.6	26.7	31.8	40.4
Set-up men, machine tools.....	.8	1.0	.6	.4	.4
Machine-tool operators, class A.....	4.7	3.8	5.6	6.2	7.0
Machine-tool operators, class B.....	5.9	4.9	6.2	7.8	8.7
Machine-tool operators, class C.....	4.6	4.2	4.8	5.0	6.8
Machine-tool operators, miscellaneous machines.....	.9	.4	.4	1.9	5.3
Other unclassified machine-tool operators.....	5.5	3.9	8.2	7.9	5.8
Machinists, production.....	1.3	.4	.9	2.6	6.4
Assembling.....	8.2	7.4	10.3	9.9	10.0
Assemblers, class A.....	2.0	1.9	2.3	2.5	2.1
Assemblers, class B.....	3.2	2.8	4.0	4.0	4.4
Assemblers, class C.....	3.0	2.7	4.0	3.4	3.5
Other selected processing.....	8.9	7.9	10.3	9.8	8.7
Tool and die makers.....	1.4	1.3	1.5	1.8	1.9
Welders, solderers, and brazers.....	2.2	1.9	2.6	2.8	3.1
Chippers and grinders, sand blast and tumbler operators.....	1.5	1.5	1.6	1.4	.7
Filers and burrs.....	.9	.8	1.3	.9	.4
Stamping and forming workers.....	1.6	1.3	1.7	1.7	1.8
Heat treaters.....	.5	.4	.4	.3	.1
Painters.....	.6	.5	.8	.7	.7
Polishers and buffers.....	.2	.2	.4	.2	(1)
Inspection.....	4.4	5.5	3.8	2.3	1.1
Inspectors, class A.....	.6	.7	.6	.4	.2
Inspectors, class B.....	1.1	1.4	1.3	.7	.3
Inspectors, class C.....	2.7	3.4	1.9	1.2	.6
Apprentices, learners and helpers.....	4.0	3.6	5.9	2.7	6.6
Apprentices.....	.4	.2	.3	.3	1.1
Learners and helpers.....	3.6	3.4	5.6	2.4	5.5
Factory clerical.....	3.9	4.3	4.4	2.9	2.7
Stock clerks.....	1.2	1.3	1.4	1.1	.7
Other factory clerks.....	2.7	3.0	3.0	1.8	2.0
Packing and crating.....	1.2	1.4	1.2	1.0	.4
Material handling.....	2.3	2.6	2.5	1.7	.8
Custodial (guards, janitors, and watchmen).....	2.6	2.6	2.8	2.7	2.3
Other plant workers.....	16.1	19.2	8.3	13.4	7.4
Office workers.....	13.9	15.5	12.6	11.2	10.1
Total.....	100.0	100.0	100.0	100.0	100.0

¹ Less than 0.05 of 1 percent.

² As pointed out in greater detail in footnote 8 (page 267), the proportion of processing workers understates the actual situation to the extent that some apprentices, learners, and helpers as well as some employees classified as "other plant workers" are engaged in processing jobs.

there were generally sufficient maintenance duties for workers to be employed on a full-time basis. Inspection, too, as a separate function seemed to grow more important as plant size increased. In addition, small establishments generally performed little laboratory or experi-

mental work and employed few workers in handling materials or in general labor.

A closer examination of the processing operations revealed that about half of the labor force in the smallest establishments was engaged in machining and assembling, compared to only a fourth of the workers in the largest plants. In machining, all-round machinists constituted over 6 percent of the labor force in establishments with 8 to 50 workers and less than half of 1 percent in those with 500 workers or more. Machine-tool operators, who regularly work on more than one machine, were about as important as machinists in small establishments; in the large plants they were rarely found. Conversely, specialized machine-tool operators and assemblers were a relatively bigger group in large plants. Of the specialized workers employed in small plants, moreover, somewhat larger proportions were class A workers who carried on the most skilled phases of work.

EMPLOYMENT OF WOMEN

In January 1945 about 1 out of every 4 workers and about 1 out of every 6 plant workers in the machinery industries was a woman. Office workers accounted for about two-fifths of all women in these industries. Most of the women plant workers were employed in the less-skilled operations, notably as class C machine-tool operators, class C assemblers, and class C inspectors.

UNIONIZATION

Operation under union agreements was fairly extensive in January 1945, particularly among the larger machinery establishments. About a third of the plants, employing about two-thirds of the workers, had agreements with unions involving a major portion of their employees.

Wage Structure

The wage structure of the machinery industries is discussed here in terms of hourly rates (straight-time average hourly earnings in the case of piece-rate or other incentive workers), excluding premium overtime payments and shift differentials. Incentive earnings were included but nonincentive bonuses were omitted. Cost-of-living bonuses were considered as part of the workers' regular pay and hence were included.

Occupational averages are presented only for key plant and office jobs; no attempt has been made to present separate information for all occupations in the machinery industries. However, all plant workers rather than only those in key occupations were included in the general averages and frequency distributions. All averages, however, excluded administrative, executive, professional, and office employees. The wages of inexperienced beginners, apprentices, and handicapped workers were omitted from the wage data for specific occupational groups, but were included in the general averages and distributions. The number of workers reported represents the approximate employment on all shifts in all establishments in the machinery industries (excluding those below the minimum size covered by the study) rather than the employment in the establishments actually studied.

UNITED STATES AS A WHOLE

In January 1945, straight-time hourly earnings of plant workers in the machinery industries in the United States as a whole averaged 98 cents. Of the 800,000 plant workers in the industry only 1 out of 20 earned less than 65 cents per hour (table 2). About half had earnings ranging from 65 cents to \$1.00, while over two-fifths earned \$1.00 or more.

TABLE 2.—*Percentage Distribution of all Plant Workers in Machinery Establishments, by Straight-Time Average Hourly Earnings¹ and Region, January 1945*

Average hourly earnings	United States	New England	Middle Atlantic	Border States	South-east	Great Lakes	Middle West	South-west	Mountain	Pacific
Percent of workers in each classified earnings group										
Under 45.0 cents.....	0.1	0.1	0.1	0.9	2.6	(2)	0.1	1.0	-----	(2)
45.0-49.9 cents.....	.2	.1	.1	1.1	4.1	0.1	.1	1.5	0.2	(2)
50.0-54.9 cents.....	1.0	1.0	.7	2.6	15.2	.6	1.0	2.3	.7	(2)
55.0-59.9 cents.....	1.5	2.0	1.4	4.1	9.3	.9	2.5	4.2	.2	(2)
60.0-64.9 cents.....	2.8	3.8	2.9	10.0	12.5	1.9	3.1	6.3	1.8	0.4
65.0-69.9 cents.....	5.0	6.3	5.7	9.2	7.3	4.1	9.0	7.9	7.2	.6
70.0-74.9 cents.....	6.4	9.0	6.9	15.9	7.7	5.3	10.0	8.7	10.0	1.0
75.0-79.9 cents.....	8.3	7.9	8.7	10.3	5.6	8.7	12.5	6.7	7.8	2.7
80.0-84.9 cents.....	8.3	10.4	7.8	7.4	5.0	8.5	10.0	7.2	11.9	5.2
85.0-89.9 cents.....	8.0	9.2	8.0	6.2	4.8	8.3	8.8	7.0	6.1	4.6
90.0-94.9 cents.....	8.1	8.9	7.8	5.1	4.5	8.6	8.5	4.1	10.4	5.9
95.0-99.9 cents.....	7.0	8.6	6.8	3.8	2.9	7.1	6.2	3.4	4.1	8.9
100.0-104.9 cents.....	7.5	7.2	8.2	6.1	4.6	7.5	7.3	4.0	6.1	7.9
105.0-109.9 cents.....	6.0	5.1	6.4	3.1	3.3	5.9	9.4	5.2	14.5	4.9
110.0-114.9 cents.....	6.3	4.8	6.2	4.2	2.7	6.9	2.5	9.5	4.3	8.8
115.0-119.9 cents.....	5.0	3.1	4.8	2.0	2.6	5.8	3.9	3.8	4.4	4.8
120.0-124.9 cents.....	4.2	2.6	4.3	3.1	2.1	4.6	1.4	4.5	2.8	6.2
125.0-129.9 cents.....	4.3	2.7	4.2	1.6	1.4	3.9	1.3	4.8	3.3	16.6
130.0-134.9 cents.....	2.5	1.6	2.4	1.1	.5	2.7	.5	2.5	1.5	5.5
135.0-139.9 cents.....	2.3	1.4	1.9	1.0	.3	2.3	1.1	2.4	.8	7.5
140.0-144.9 cents.....	1.4	1.1	1.2	.3	.1	1.6	.2	1.4	.6	2.7
145.0-149.9 cents.....	.9	.9	.9	.2	(2)	1.1	.1	.5	.3	1.4
150.0-159.9 cents.....	1.3	1.1	1.1	.4	.6	1.5	.3	.7	.6	2.5
160.0-169.9 cents.....	.7	.5	.7	.2	.2	.8	.1	.3	.2	1.0
170.0-179.9 cents.....	.4	.2	.3	.1	.1	.5	.1	.1	.2	.5
180.0-189.9 cents.....	.2	.2	.2	(2)	(2)	.3	(2)	(2)	(2)	.2
190.0-199.9 cents.....	.1	.1	.1	(2)	(2)	.2	(2)	-----	-----	.1
200.0 cents and over.....	.2	.1	.2	(2)	(2)	.3	(2)	-----	(2)	.1
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total number of workers.....	828,000	91,600	202,500	15,600	15,300	404,200	35,700	17,300	2,500	43,300
Average hourly earnings.....	\$0.98	\$0.93	\$0.97	\$0.82	\$0.75	\$1.00	\$0.88	\$0.91	\$0.93	\$1.14

¹ Excluding premium pay for overtime and night work.

² Less than 0.05 of 1 percent.

The average earnings for plant workers as a whole are a composite of the earnings of workers in a wide variety of occupations; average rates of pay for a group of key occupations are presented in table 3. Rates in these jobs varied from 67 cents for watchmen, 69 cents for janitresses, and 74 cents for janitors, to \$1.33 for men employed as machine coremakers and \$1.58 for men operating large steam drop hammers (with force of 5,000 pounds or more). Average hourly rates in excess of \$1.20 were relatively uncommon; most of the skilled production jobs had average rates falling between \$1.10 and \$1.20; the averages for most skilled maintenance jobs ranged from \$1.00 to \$1.20. Average rates for men in the majority of other occupations studied fell within a range of 85 cents to \$1.10.

TABLE 3.—Average Hourly Wage Rates (Straight-Time Hourly Earnings¹) for Selected Occupations in Machinery Establishments, January 1945

PLANT WORKERS

Occupation, grade, and sex	Number of workers	Average hourly rate	Occupation, grade, and sex	Number of workers	Average hourly rate			
Men								
Acid dippers.....	490	\$0.90	Power-shear operators, class A.....	626	\$1.00			
Assemblers, class A.....	21,037	1.13	Power-shear operators, class B.....	775	.93			
Assemblers, class B.....	30,437	1.00	Punch-press operators, class A.....	1,818	1.12			
Assemblers, class C.....	16,488	.87	Punch-press operators, class B.....	3,653	.94			
Automatic-lathe operators, class A.....	1,243	1.19	Sand mixers, hand and machine.....	1,560	.80			
Automatic-lathe operators, class B.....	1,752	1.07	Screw-machine operators, automatic:					
Automatic-lathe operators, class C.....	1,340	1.08	Class A.....	2,021	1.22			
Bulldozer operators.....	244	1.05	Class B.....	2,256	1.11			
Carpenters, maintenance.....	2,976	1.01	Class C.....	1,638	1.04			
Chippers and grinders.....	11,110	.91	Set-up men, machine tools.....	8,106	1.17			
Coremakers, hand.....	4,628	1.15	Shake-out men.....	3,364	.84			
Coremakers, turn-over-draw machine.....	403	1.33	Sheet-metal machine operators, miscellaneous machines.....	2,126	.99			
Crane operators, electric bridge.....	5,881	.93	Sheet-metal workers, production.....	1,981	1.11			
Die setters.....	576	1.04	Stock clerks.....	9,759	.85			
Drill-press operators, radial, class A.....	4,080	1.12	Tool and die makers.....	12,283	1.29			
Drill-press operators, radial, class B.....	5,284	1.00	Truck drivers.....	3,511	.87			
Drill-press operators, radial, class C.....	1,918	.91	Truckers, hand.....	11,132	.79			
Drill-press operators, single and multispindle:			Truckers, power.....	3,169	.85			
Class A.....	2,529	1.11	Turret-lathe operators, hand (including hand-screw machine):					
Class B.....	7,468	.99	Class A.....	11,255	1.17			
Class C.....	6,921	.88	Class B.....	11,469	1.05			
Drop-hammer operators:			Class C.....	4,875	.90			
Board, under 3,000 pounds.....	241	1.16	Watchmen.....	3,918	.67			
Steam, under 5,000 pounds.....	435	1.30	Welders, hand, class A.....	10,384	1.17			
Steam, 5,000 pounds and over.....	129	1.58	Welders, hand, class B.....	6,131	1.07			
Electricians, maintenance.....	4,012	1.10	Welders, machine, class A.....	784	1.15			
Engine-lathe operators, class A.....	13,786	1.16	Welders, machine, class B.....	1,448	1.08			
Engine-lathe operators, class B.....	11,025	1.03	Working foremen, processing departments.....	17,175	1.22			
Engine-lathe operators, class C.....	4,134	.90	Women					
Fitters, boiler shop.....	201	1.12	Assemblers, class B.....	3,549	.92			
Fitters, structural, class A.....	396	1.20	Assemblers, class C.....	14,786	.81			
Fitters, structural, class B.....	364	1.10	Chippers and grinders.....	918	.83			
Flame-cutting-machine operators.....	515	1.07	Coremakers, hand.....	280	.92			
Forging-press operators, hydraulic (vertical).....	182	1.21	Drill-press operators, radial, class B.....	207	.91			
Grinding-machine operators, class A.....	6,078	1.20	Drill-press operators, radial, class C.....	374	.84			
Grinding-machine operators, class B.....	8,701	1.16	Drill-press operators, single and multi-spindle, class A.....	127	1.05			
Grinding-machine operators, class C.....	5,694	1.04	Drill-press operators, single and multi-spindle, class B.....	1,513	.95			
Guards.....	6,341	.84	Drill-press operators, single and multi-spindle, class C.....	7,168	.82			
Heat treaters, class A.....	784	1.12	Engine-lathe operators, class B.....	501	.99			
Heat treaters, class B.....	1,978	.96	Engine-lathe operators, class C.....	1,561	.81			
Heaters, forge—light work.....	312	1.10	Grinding-machine operators, class B.....	1,020	1.05			
Heaters, forge—heavy work.....	418	1.27	Grinding-machine operators, class C.....	3,452	.92			
Inspectors, class A.....	5,938	1.15	Inspectors, class A.....	120	1.07			
Inspectors, class B.....	9,606	1.02	Inspectors, class B.....	2,553	.90			
Inspectors, class C.....	5,769	.86	Inspectors, class C.....	21,320	.76			
Janitors.....	11,786	.74	Janitresses.....	1,776	.69			
Lay-out men, class A.....	1,281	1.15	Machine-tool operators, miscellaneous machines.....	361	.93			
Lay-out men, class B.....	486	1.00	Milling-machine operators, class B.....	628	.98			
Machinists, maintenance.....	4,306	1.17	Milling-machine operators, class C.....	2,396	.88			
Machinists, production.....	13,040	1.19	Painters, rough.....	287	.82			
Machine-tool operators, miscellaneous machines.....			Platers' helpers.....	220	.79			
Maintenance men, general utility.....	9,803	1.03	Polishing and buffing-machine operators.....	454	.81			
Mechanics, maintenance.....	2,375	.98	Punch-press operators, class B.....	3,022	.80			
Milling-machine operators, class A.....	2,793	1.10	Screw-machine operators, automatic, class B.....	161	1.16			
Milling-machine operators, class B.....	7,497	1.16	Screw-machine operators, automatic, class C.....	303	.87			
Milling-machine operators, class C.....	7,417	1.05	Stock clerks.....	2,836	.79			
Millwrights.....	3,730	.96	Turret-lathe operators, hand (including hand-screw machine), class B.....					
Molders, floor.....	2,824	1.06	Turret-lathe operators, hand (including hand-screw machine), class C.....	1,813	.85			
Molders, hand, bench.....	5,490	1.15	Welders, hand, class A.....	142	1.16			
Molders, machine.....	2,199	1.10	Welders, hand, class B.....	597	.94			
Painters, finish.....	4,612	1.19	Welders, machine, class B.....	295	.95			
Painters, rough.....	1,985	.99						
Patternmakers, wood.....	3,936	.91						
Platers.....	1,896	1.23						
Platers' helpers.....	559	.98						
Polishers and buffers, metal.....	373	.88						
Polishing and buffing-machine operators.....	658	1.14						
Pourers, metal.....	1,309	1.07						
Power-brake operators, class A.....	1,002	.90						
Power-brake operators, class B.....	278	1.17						

See footnotes at end of table.

TABLE 3.—*Average Hourly Wage Rates (Straight-Time Hourly Earnings¹) for Selected Occupations in Machinery Establishments, January 1945—Continued*

OFFICE WORKERS

Occupation, grade, and sex	Num- ber of work- ers	A ver- age hour- ly rate	Occupation, grade, and sex	Num- ber of work- ers	A ver- age hour- ly rate
<i>Men</i>					
Bookkeepers, hand.....	524	\$1.13	Clerks, accounting.....	3,402	\$0.73
Clerks, accounting.....	1,116	.98	Clerks, file, class A.....	580	.69
Clerks, general.....	752	.88	Clerks, file, class B.....	2,218	.58
Clerks, order.....	765	.98	Clerks, general.....	6,634	.68
Clerks, pay roll.....	386	.90	Clerks, order.....	1,222	.71
Office boys.....	390	.53	Clerks, pay roll.....	2,737	.70
<i>Women</i>					
Billing-machine operators.....	699	.71	Clerk-typists.....	5,256	.63
Bookkeepers, hand.....	2,121	.91	Office girls.....	819	.53
Bookkeeping-machine operators, class A.....	414	.86	Stenographers, class A.....	3,903	.79
Bookkeeping-machine operators, class B.....	697	.73	Stenographers, class B.....	6,153	.67
Calculating-machine operators, class A.....	1,085	.74	Switchboard operators.....	647	.69
Calculating-machine operators, class B.....	1,223	.65	Switchboard-operator-receptionists.....	1,538	.68
			Transcribing-machine operators, class A.....	295	.74
			Transcribing-machine operators, class B.....	431	.67
			Typists, copy, class A.....	762	.68
			Typists, copy, class B.....	1,641	.59

¹ Excluding premium pay for overtime and night work.

The variation in wage rates for a somewhat more limited list of jobs is presented graphically in the accompanying chart; the average wage rates for men time workers were expressed in terms of their relation to the average pay of janitors and hand truckers.⁶ These indexes were constructed to show for the industry, on a Nation-wide basis, the step-like arrangement of wages in different occupations. Attention is focused primarily on the spread in wages between occupations requiring varying degrees of skill and the base occupations which are unskilled; differences in actual wages for any particular group can be measured from the data presented in table 2. The variations from the average relationships are indicated in the chart by the range within which the indexes for half the wage areas fall.

VARIATION IN WAGES BY SEX

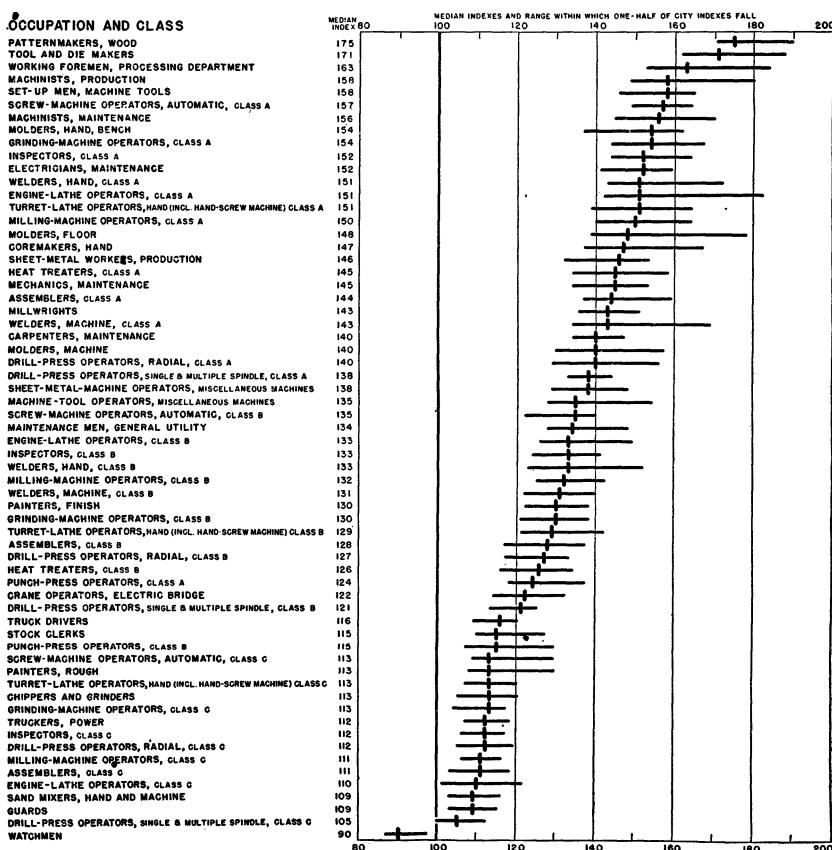
In January 1945 all women plant workers in the machinery industries averaged 81 cents an hour, while men averaged \$1.01. This difference did not arise primarily from a lack of uniformity in pay for identical work; to a large extent it was a result of a concentration of women in semiskilled and unskilled jobs. A comparison eliminating the effect of differences in the proportion of men and women employed on the same job indicated that, on the average, men earned about a tenth more than women. In some jobs the difference was less than 5 percent, whereas in others it amounted to more than 20 percent.

⁶ The indexes were based on data for wage areas built around cities of 100,000 or more and were derived as follows: In each wage area the weighted average wage of men employed as janitors and hand truckers was used as a base (100); the wages of other key occupations in each wage area were related to the base wage in terms of percentages or index numbers; the median of all wage area indexes for each occupation was chosen to represent the national average.

Indexes for time and incentive workers combined are presented in the report, *Occupational Wage Relationships, Machinery 1945*. The relationship of wages in the different occupations is practically the same for all workers (time and incentive combined) and for time workers alone. Although the indexes for time workers are generally lower, the ranking of the occupations in the two lists is similar.

**INDEXES OF AVERAGE WAGE RATES FOR MALE WORKERS
IN KEY OCCUPATIONS IN MACHINERY
INDUSTRIES**
JANUARY 1945

WEIGHTED AVERAGE WAGES FOR MALE JANITORS AND HAND TRUCKERS = 100



UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

REGIONAL VARIATIONS IN WAGE RATES⁷

Average hourly earnings varied among regions from 75 cents in the Southeast to \$1.14 in the Pacific region. In the three leading machinery-producing regions, New England, Middle Atlantic, and Great Lakes, average earnings were 93 cents, 97 cents, and \$1.00, respectively. Regional differences in wages were greater among less-skilled than among skilled jobs. The relatively high rates for skilled

⁷ The regions used in this study are as follows: *New England*.—Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. *Middle Atlantic*.—New Jersey, New York, and Pennsylvania. *Border States*.—Delaware, District of Columbia, Kentucky, Maryland, Virginia, and West Virginia. *Southeast*.—Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, and Tennessee. *Great Lakes*.—Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. *Middle West*.—Iowa, Kansas, Missouri, Nebraska, North Dakota, and South Dakota. *Southwest*.—Arkansas, Louisiana, Oklahoma, and Texas. *Mountain*.—Arizona, Colorado, Idaho, Montana, New Mexico, Utah, and Wyoming. *Pacific*.—California, Nevada, Oregon, and Washington.

workers in the low-wage regions as compared with other jobs in these regions can be traced to the greater tightness of the labor market for skilled workers there. The prevalence of incentive pay for the less-skilled processing jobs in the higher-wage regions also explains in part the greater regional variation in pay for these jobs.

Wages for selected office occupations were more uniform among the regions than were rates of plant workers. Pay in the Pacific region tended to be higher than in the rest of the country but there was relatively little consistent variation in the earnings of office workers among the other regions.

VARIATION OF WAGE RATES WITH SIZE OF ESTABLISHMENT, SIZE OF COMMUNITY, UNIONIZATION, AND METHOD OF WAGE PAYMENT

On the whole, hourly earnings of plant workers in the machinery industries tended to vary with method of pay, unionization, size of establishment, and size of community, although there were exceptions and the extent of variation differed among jobs. Hourly pay was higher in large establishments, in large communities, and in union as compared with nonunion plants. Average earnings of incentive workers were consistently above those of time workers in jobs in which both methods of pay were important. It was found that unionization and incentive payment were more prevalent in large than in small plants; the interrelationship of these factors was apparent. The variation with unionization and size of establishment tended to be greater for the less-skilled processing jobs; this fact appears to be related to the more extensive use of incentive payment, which was more common in union and in large establishments, for these jobs. The relatively small spread in rates for the more-skilled workers can be traced to the greater scarcity of such workers and the wider market for their services, as well as the fact that skilled workers were more commonly paid on a time basis.

Regional differences in pay on the basis of all 4 factors were generally comparable with the differences observed in the country as a whole, although there was no uniformity in the degree of variation. The Pacific region, however, where practically all work was on a time basis, showed no consistent variation in rates with size of establishment or unionization.

Wage and Related Practices

As a result of wartime stabilization of wage rates, interest was aroused in the methods followed by individual plants in determining rates of pay. A further consequence of wage stabilization was that "fringe issues," covering working conditions and other provisions that affect real income without raising hourly rates of pay, became increasingly important in the formulation of wage policies and in wage administration during the war. In the aggregate these practices in the machinery industries in January 1945 supplemented substantially the straight-time hourly earnings just described.

Methods of wage determination.—By January 1945, two-thirds of the establishments manufacturing machinery had formalized their wage structure by providing a written or other generally recognized rate or schedule of rates. This development may be traced in part to the wartime wage policy of the Government, with its emphasis on stabilization of rates of pay for a given job.

Although most of the machinery establishments had formal rate structures and, therefore, established occupational pay scales, these scales were adjusted relatively infrequently through a formal process of job evaluation. Job-evaluation plans were reported by only about 1 out of every 10 establishments studied. Such plans, although varying in specific characteristics, attempted to rationalize the structure of occupational wage rates within a plant by evaluating each job in terms of certain standards.

Only about a seventh of the machinery establishments paid a significant proportion of their plant workers on an incentive basis. Since incentive systems were found more frequently in large than in small establishments, a higher proportion (between a fourth and a fifth) of the plant workers in the industry were paid in this manner.⁸ Piece-rate systems were more common than bonus systems.

Work schedules and premium pay.—In order to maximize the utilization of available manpower and equipment during the war, the machinery industries, like many others, resorted to lengthened hours of work for their employees and to multiple-shift operations. Accordingly, premium payments for overtime and night-shift work resulted in gross hourly earnings substantially above the hourly rates reported previously in this article.

The typical workweek in January 1945 was 48 hours, and workweeks in excess of 48 hours were common. Almost half of the machinery establishments operated at least two shifts and about a sixth operated three or more shifts in January 1945. Of the total number of plant workers in these industries, three-fourths were employed on the first shift, about a fifth on the second shift and about a twentieth on third or other shifts. Approximately three-fourths of the establishments operating extra shifts provided extra pay for such work. The most common differential for both second and third shifts was 5 cents an hour; the next most common was 10 percent, added to the first-shift hourly pay.

Supplementary benefits.—Half of the establishments studied provided some type of nonproduction bonus for plant workers and a slightly higher proportion paid such bonuses to office employees. Although some establishments paid relatively large bonuses of this kind (in certain cases amounting to more than 10 cents an hour), the total amount paid out was small when averaged over all workers; these bonuses amounted to roughly 1 cent per hour for plant workers and eight-tenths of 1 cent per hour for office employees.

As a result of wartime developments and of prewar adoption of such plans, formal provisions for paid vacations and insurance or pension plans had been adopted by a large number of firms in the machinery industries by January 1945. Paid sick-leave plans, on the other hand, were relatively uncommon in these industries.

About two-thirds of the establishments provided paid vacations for plant workers who had a year or more of service, and over four-fifths had similar provisions for office employees with comparable service. Most commonly, 1 week's vacation with pay was provided for plant workers. For office employees 2-week vacations were slightly more numerous than 1-week periods.

⁸ For purposes of reporting the number of establishments with incentive systems, establishments with a fourth or more of their plant workers paid on this basis were classified as predominantly incentive. However, in determining the proportion of employees paid on an incentive basis, incentive workers in all establishments were included regardless of the predominant method of wage payment in the plant.

Only about 50 of the approximately 2,000 reporting establishments had formal sick-leave provisions for plant workers, while about a seventh of the establishments employing office workers had plans for their office personnel. About half of the machinery establishments had one or more types of insurance or pension plans for plant workers and a similar proportion reported such plans for office employees. About 8 out of 10 of the reporting establishments provided life insurance, while 6 out of 10 provided health insurance.