

UNITED STATES DEPARTMENT OF LABOR

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BUREAU OF LABOR STATISTICS
A. F. Hinrichs, *Acting Commissioner*



Wage Structure of Electroplating
and Polishing Industry
January 1945



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Letter of Transmittal

UNITED STATES DEPARTMENT OF LABOR,
BUREAU OF LABOR STATISTICS,
Washington, D. C., June 5, 1946.

The SECRETARY OF LABOR:

I have the honor to transmit herewith a report on wage structure of electroplating and polishing industry, January 1945. This report was prepared in the Wage Analysis Branch by Joseph W. Bloch. Field work for the survey was conducted under the direction of the Bureau's Regional Wage Analysts.

A. F. HINRICHS, *Acting Commissioner.*

HON. L. B. SCHWELLENBACH,
Secretary of Labor.

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(II)

Wage Structure of Electroplating and Polishing Industry, January 1945¹

Summary

PLANT workers employed by job electroplaters earned an average of 88 cents an hour in straight-time pay in January 1945. Men averaged 94 cents an hour, compared with 70 cents earned by women; a twelfth of the men and a third of the women received less than 65 cents an hour. Men platers and platers' helpers averaged \$1.00 and 78 cents an hour, respectively; straight-time earnings of women in these jobs were about 15 percent lower. Among men, both polishers and buffers and polishing- and buffing-machine operators earned an average of \$1.18 an hour. Workers in these four occupations constituted 60 percent of the industry's labor force.

Electroplating establishments in the Pacific region paid the highest rates in the industry; Great Lakes plants generally ranked second. Workers paid on an incentive basis received higher rates than time workers. It was also found that wage rates were commonly higher in the larger cities.

Background and Scope of Survey

The electroplating and polishing industry in peacetime serves manufacturers of motor-vehicle accessories, lighting fixtures, electrical appliances, and other consumer goods requiring a smooth surface and high polish. During the war years, plating parts for airplanes, radios, and other military equipment constituted the greater part of the industry's activity. The requirements of war production and critical shortages of materials also compelled changes in the type and amount of plating metals used. Although the scarcity of certain metals curtailed plating operations, the substitution of available, sometimes inferior, metals created a compensatory demand for plating services, particularly for corrosion proofing.

Because electroplating will play an important role in the production of consumer durable goods in the postwar period, the Bureau of Labor Statistics included this industry in its series of Industry Wage Studies. This study, covering wages and wage practices early in 1945, is the first made on a national scale by the Bureau in the electroplating industry.

¹ More detailed information on wages in the industry is available in a mimeographed report (Wage Structure, Electroplating and Polishing, 1945). Wage data by locality may be obtained from the Bureau's regional offices.

The establishments studied are engaged primarily in coating metal objects with various metal finishes by means of an electrolytic bath and in polishing and buffing them to impart a smooth finish and high luster. These plants operate on a jobbing or contract basis, plating and polishing metal parts owned by other manufacturing establishments. Thus, metalworking establishments that do their own electroplating were excluded from this survey.²

Included in the survey were 252 establishments with 9,717 workers; they constituted three-fifths of all establishments with 8 or more workers and accounted for over two-thirds of the workers in the industry. The establishments scheduled were selected to be representative in terms of location, number of workers, unionization, and other significant factors. The proportion of establishments selected for study varied from region to region, hence in the computation of average hourly earnings for all workers and for selected occupations certain intraregional weighting factors were applied in order to correct for partial coverage. It should be noted, however, that the unweighted data were used in the discussion of wage determination and sources of supplementary income.

Field representatives obtained the wage data from pay rolls and other plant records and classified the workers by occupation on the basis of standard occupational descriptions.³ Most of the pay rolls used referred to a January 1945 period; in some establishments an April pay roll was used. With the exception of data relating to earnings by occupation, which apply solely to the designated jobs, the information presented covers all plant workers, excluding technicians, supervisors, and administrative personnel. Apprentices, learners, and handicapped workers were excluded from the occupational wage data but were included in the distributions of all plant workers by straight-time hourly earnings.

Characteristics of the Industry

ESTABLISHMENT SIZE AND LOCATION

Electroplating and polishing establishments are concentrated in and around the large cities; in January 1945 about 85 percent of the plants were in communities with populations exceeding 100,000.

As in metalworking generally, the greater part of the electroplating industry is in the Great Lakes and Middle Atlantic regions. The New England and Pacific regions are less important, and only a scattering of small plants was found elsewhere in the country.⁴

Job-electroplating establishments are typically small; in January 1945—a period of relatively high production—employment per plant, in plants employing 8 or more workers, averaged about 35 workers.

² For data on earnings of plating and polishing workers in machinery establishments, see *Wage Structure in the Machinery Industries, January 1945*, in *Monthly Labor Review* for February 1946.

³ These descriptions are contained in a mimeographed report (*Job Descriptions for Wage Studies—Metalworking*), available on request to the Bureau.

⁴ 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; *South-east*—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. Electroplating establishments were not found in all States.

Four-fifths of the establishments surveyed employed fewer than 51 workers, and only 4 employed over 200.

Electroplating establishments exhibit other characteristics common to job or contract shops, chiefly the high ratio of labor costs to total production costs. The industry's annual wage bill ordinarily exceeds all other prime costs, including those of materials, supplies, and power.

LABOR FORCE, AND TYPES OF WORK PERFORMED

The total employment in electroplating establishments at the time of the survey was estimated at 14,000 workers, of whom women constituted about a fourth. This high incidence of women was a wartime development common to many metalworking operations traditionally considered as men's work.

Technically, electroplating is a complex process. However, the job structure is relatively simple, even though methods may vary from plant to plant or even within a single plant (depending upon the nature of the surface to be plated and the character of the finish desired). Metal objects to be plated, usually small and easily handled, are initially cleaned by buffing or by immersion in alkaline cleaner solutions, acid, water, or grease solvent, in order to produce a surface suitable for adhesion. After those parts that are not to be plated are masked or insulated, the pieces are submerged in a solution of metallic salts in a tank or barrel where an electric current accomplishes the deposit of metal to any thickness desired. Further rinses or dips follow this operation and the plated objects are then ready for the polishing and buffing wheels, there to receive the smooth surface and high luster characteristic of electroplated metal. Almost all commercial metals are used for electroplating; among these are zinc, cadmium, chromium, copper, nickel, tin, and lead.

About two-thirds of the industry's labor force were engaged in direct processing jobs in January 1945. Four occupations—platers, platers' helpers, polishers and buffers, and polishing- and buffing-machine operators—accounted for almost all of the processing workers. Other significant operations were performed by rack makers, warehouse workers, craters and packers, general laborers, power-house workers, and supervisors in other than processing departments. A fifth of the processing workers, more than half of other plant workers, and nine-tenths of the office workers were women.

Except for the polishing operations, a comparison of the occupational structures of small and large establishments revealed differences caused mainly by the greater division of labor and the more diversified operations normally found in the larger plants. The smaller shops generally employed a higher proportion of polishers in relation to the number of platers employed. Since the corrosion-proof coating applied to many parts of military equipment required little or no polishing, plants that had a higher proportion of military work employed a smaller proportion of polishers.

Workers in electroplating plants come into daily contact with processes and materials which create unusual industrial hazards. Routine familiarity with harmful acids, alkalis, certain metallic salts, such as cyanides, polishing compounds, etc., is part of the job. Acid mists, vapors, and gases rising from the tanks, and dust and grit thrown

off by the polishing and buffing wheels, may cause respiratory diseases if not carefully controlled. Skin irritations, diseases, or abrasions are ever-present dangers. These hazards can, however, be effectively minimized by protective clothing, respirators, guards, proper ventilation, and care.

At the time of the survey, slightly more than a fourth of the establishments in the industry operated under the terms of trade-union agreements, with either A. F. of L. or C. I. O. unions participating. Some 30 percent of the industry's workers were employed in union establishments.

Wage Structure

Two types of basic data relating to wage rates and the level of earnings prevailing in the electroplating industry in January 1945 are summarized here: (1) straight-time average hourly earnings and a distribution of workers according to their individual hourly earnings, for all plant workers in the industry, and (2) straight-time average hourly earnings for representative occupations (accounting for about 70 percent of the workers).⁵

As the term is used here, "average straight-time" hourly wages do not include premium overtime pay, shift differentials, or any additional money income accruing to workers in the form of non-production bonuses. They do include incentive earnings and any cost-of-living bonuses.

Because the present survey was conducted on a sample basis, it was necessary to make allowance for those areas and regions in which less than 100 percent coverage was obtained. Employment and wage data in the following tables, consequently, represent industry levels rather than partial coverage, and provide a balanced picture of the industry.

DISTRIBUTION OF WORKERS BY STRAIGHT-TIME AVERAGE HOURLY EARNINGS

On the average, plant workers employed by job electroplaters earned 88 cents an hour in January 1945 (table 1). On a straight-time basis, 15 percent of the workers earned less than 65 cents an hour and 29 percent averaged \$1.00 or more. Separate tabulations revealed that men's earnings averaged 94 cents an hour as compared with 70 cents for women. Earnings of less than 65 cents an hour were reported for about a twelfth of the men and a third of the women.

OCCUPATIONAL RATES

Average wage rates for key occupations, representative of the range of skills and wage rates in the electroplating industry, are presented in table 2. For men, these rates varied from 65 cents an hour, paid to watchmen, to \$1.20 an hour, paid to working foremen. Both polishers and buffers and polishing- and buffing-machine operators earned an average of \$1.18 an hour. The high national level of earnings in the latter group was strongly influenced by the \$1.50 average reported for polishing- and buffing-machine operators in the

⁵ Information regarding minimum establishment entrance rates and job rates, intercity variations in wage rates, and detailed data relating to other topics treated briefly in this article are presented in the mimeographed report, *Wage Structure, Electroplating and Polishing, 1945*.

TABLE 1.—Percentage Distribution of Plant Workers in Electroplating and Polishing Establishments, by Straight-Time Average Hourly Earnings and Region, January 1945

Average hourly earnings ¹	Percent of workers in each classified earnings group						
	United States ²	New England	Middle Atlantic	Border States	Great Lakes	Middle West	Pacific
Under 45.0 cents.....	0.2		0.3		0.2		
45.0-49.9 cents.....	.3	0.7	(³)		.1		
50.0-54.9 cents.....	2.5	4.8	3.6	3.2	1.2	1.7	0.3
55.0-59.9 cents.....	3.9	5.5	6.4	1.0	2.7	2.5	
60.0-64.9 cents.....	8.1	10.8	14.8	13.8	3.9	11.6	2.3
65.0-69.9 cents.....	7.1	9.3	8.8	4.8	5.6	6.7	6.7
70.0-74.9 cents.....	9.9	7.9	10.4	19.0	11.3	24.7	2.6
75.0-79.9 cents.....	8.6	7.1	9.6	16.4	7.9	1.7	9.2
80.0-84.9 cents.....	8.5	8.8	9.5	11.2	8.5	8.2	5.6
85.0-89.9 cents.....	8.9	8.8	7.3	5.9	10.5	9.0	8.9
90.0-94.9 cents.....	7.6	8.4	6.2	4.3	9.4	2.5	4.8
95.0-99.9 cents.....	5.5	5.1	2.8	3.2	7.7	8.2	4.4
100.0-104.9 cents.....	7.2	9.2	6.2	2.7	7.7		7.5
105.0-109.9 cents.....	3.8	2.3	2.4	3.2		1.7	4.2
110.0-114.9 cents.....	4.6	4.1	4.1	2.7	4.2	21.5	7.5
115.0-119.9 cents.....	3.6	1.2	3.1	2.7	3.2		10.5
120.0-124.9 cents.....	1.7	1.5	1.1	1.6	1.5		5.4
125.0-129.9 cents.....	3.2	1.6	1.1	1.6	3.4		11.8
130.0-134.9 cents.....	1.0	.6	.1		1.7		1.5
135.0-139.9 cents.....	.8	.7	.5	2.7	.5		2.8
140.0-144.9 cents.....	.5		.2		.7		1.4
145.0-149.9 cents.....	.1	.1	.1		.1		.6
150.0-159.9 cents.....	.6	.4	.6		.7		.8
160.0-169.9 cents.....	.3	.2	.1		.5		.2
170.0-179.9 cents.....	.3	.1	.6		.1		.6
180.0-189.9 cents.....	.2	.4	.1		.2		.2
190.0-199.9 cents.....	.2	.1			.3		
200.0-209.9 cents.....	.2	.3	(³)		.2		
210.0-219.9 cents.....	.1		(³)		.1		.2
220.0-229.9 cents.....	.1				.1		
230.0-239.9 cents.....	.1				.1		
240.0-249.9 cents.....	.1		(³)		.1		
250.0 cents and over.....	.2		(³)		.4		
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total number of workers.....	13,562	1,347	4,224	188	6,205	121	1,310
Average hourly earnings ¹	\$0.88	\$0.83	\$0.81	\$0.81	\$0.92	\$0.83	\$1.02

¹ Excluding premium pay for overtime and night work.

² Includes data for regions not shown separately.

³ Less than a tenth of 1 percent.

TABLE 2.—Average Straight-Time Hourly Earnings¹ for Selected Occupations in Electroplating and Polishing Establishments, by Region, January 1945

Occupation and sex	United States ¹		New England		Middle Atlantic		Border States	
	Number of workers	Average hourly rates	Number of workers	Average hourly rates	Number of workers	Average hourly rates	Number of workers	Average hourly rates
<i>Men</i>								
Janitors.....	111	\$0.73	6	(³)	32	\$0.70	3	(³)
Loaders and unloaders.....	206	.79	19	\$0.80	85	.73	9	(³)
Maintenance men, general utility.....	276	1.02	33	.94	83	1.02	5	\$1.04
Platers.....	2,277	1.00	249	.97	479	.93	31	.91
Platers' helpers.....	2,889	.78	224	.78	1,015	.72	41	.74
Polishers and buffers, metal.....	894	1.18	120	.98	245	1.16	10	1.04
Polishing- and buffing-machine operators.....	527	1.18	25	.79	261	.95	5	(³)
Truck drivers.....	182	.92	24	.83	58	.87	3	(³)
Watchmen.....	132	.65	8	(³)	31	.64	5	(³)
Working foremen, processing departments.....	586	1.20	80	1.16	112	1.21	4	(³)
<i>Women</i>								
Platers.....	.97	.85			14	.69		
Platers' helpers.....	1,437	.68	91	.68	416	.63	23	.72

See footnotes at end of table.

TABLE 2.—Average Straight-Time Hourly Earnings¹ for Selected Occupations in Electroplating and Polishing Establishments, by Region, January 1945—Continued

Occupation and sex	Great Lakes		Middle West		Pacific	
	Number of workers	Average hourly rates	Number of workers	Average hourly rates	Number of workers	Average hourly rates
<i>Men</i>						
Janitors.....	59	\$0.73	1	(²)	10	\$0.81
Loaders and unloaders.....	93	.85				
Maintenance men, general utility.....	136	1.02	2	(²)	16	1.20
Platers.....	1,231	1.01	12	\$0.99	258	1.15
Platers' helpers.....	1,323	.82	51	.72	195	.89
Polishers and buffers, metal.....	379	1.24	19	1.10	112	1.27
Polishing- and buffing-machine operators.....	231	1.50			4	(²)
Truck drivers.....	58	.97	4	(²)	33	1.02
Watchmen.....	84	.64	2	(²)	2	(²)
Working foremen, processing departments.....	242	1.15	3	(²)	137	1.30
<i>Women</i>						
Platers.....	82	.87			1	(²)
Platers' helpers.....	858	.70	12	.68	37	.84

¹ Excluding premium pay for overtime and night work.

² Includes data for other regions not shown separately.

³ Insufficient number of workers to justify presentation of an average.

Great Lakes area, which had the greatest concentration of incentive workers. In other regions the more highly skilled polishers and buffers held a wage advantage. Platers averaged \$1.00 and platers' helpers 78 cents an hour.

In the two occupations in which women were employed in significant numbers—platers and platers' helpers—rates averaged 85 cents and 68 cents an hour, respectively, or 15 and 13 percent below the earnings of men in similar jobs.

REGIONAL DIFFERENCES

The highest general level of earnings was found in the Pacific region where Los Angeles and San Francisco plants, representing the industry in that region, paid an average of \$1.02 an hour. Establishments in the Great Lakes area, employing approximately 47 percent of the industry's workers, reported an average wage of 92 cents an hour, second to the Pacific region. Earnings of men workers ranged from \$1.11 an hour on the Pacific Coast to 82 cents in the few plants in the Border States. Women plant workers also fared best on the West Coast but poorest in New England establishments (77 and 62 cents an hour, respectively).

The occupational wage data in table 2 also show the top ranking of Pacific establishments, with Great Lakes plants generally second. Among the other regions, however, no predominant pattern is indicated by the data.

VARIATION IN PAY LEVELS WITH SIZE OF ESTABLISHMENT AND COMMUNITY, UNIONIZATION, AND METHOD OF WAGE PAYMENT

In order to picture the variation of wage rates with factors that frequently play a role in wage determination, electroplating establishments were classified according to employment, size of community, size of establishment, union status, and method of wage payment. A distinct tendency was indicated for rates in the electroplating industry to be higher for incentive than for time workers. There was also some

tendency toward higher rates in the larger cities. For most of the occupations covered, a slight advantage was observed in favor of workers in small establishments as compared with those in the larger plants in the United States as a whole, but this advantage was not consistent on a regional basis.

In a comparison between union and nonunion establishments the data revealed no decisive wage advantage one way or the other. Union plant workers⁶ in the Pacific and Great Lakes areas had slightly higher earnings in most of the occupations listed, and in the Middle Atlantic region, where union representation was significant, no clear-cut difference was evident. In the industry as a whole, however, janitors, maintenance men, watchmen, and working foremen fared better in the union plants, while nonunion plant workers in the other occupations, except platers, had higher average straight-time hourly earnings. Men platers' earnings were identical in both types of establishments.

In general, earnings of incentive workers exceeded those of time workers, in some instances by a wide margin. In the 4 occupations and 3 regions in which incentive work was of some significance, time workers earned more than incentive workers in only one instance, that of platers in Middle Atlantic establishments. In the other 3 occupations incentive workers throughout the industry held a decided advantage.

Wage Practices and Sources of Supplementary Income

Straight-time rates have been of major interest in wage negotiations and Government labor policy. In addition, management and labor have long been interested in methods of wage determination and the various ways in which workers' income may be enhanced without altering the basic rate structure. Ordinarily, these "fringe" issues have been subordinated to the setting of wage rates, but the wartime wage-stabilization program gave these issues added importance. During the war it was not uncommon for union-employer negotiations to deal exclusively with wage factors other than job rates.

Methods of wage determination.—Less than 10 percent of the establishments studied operated under incentive-wage plans (piece rate or production bonus) covering at least a fourth of their plant workers; in most instances these plans were based on individual rather than group production. The ratio of union to nonunion establishments and of small to large establishments among the 23 plants in which incentive wages were of importance did not differ markedly (considering the small size of this group) from the ratios existing in the entire group of establishments surveyed.

Incentive-wage payments were more prevalent than the percentage of establishments predominantly on an incentive basis would indicate, since an additional 10 percent of the job-electroplaters had some workers—perhaps 3 or 4—on an incentive basis. However, only 1 of every 14 workers in the industry earned wages on a piece-rate or production-bonus basis. Incentive workers were found in significant numbers in certain occupations, particularly among polishers and buffers and polishing- and buffing-machine operators, and their earn-

⁶ Establishments were classified as unionized if more than half of the workers were employed under terms of a union agreement.

ings influenced considerably the regional and national averages for these jobs.

Work schedules and premium pay.—In this survey no attempt was made to obtain weekly earnings of workers; however, data regarding scheduled weekly hours of work, one of the chief determinants of weekly pay, and the payment of shift differentials, a source of premium pay, are presented here.

A study of scheduled weekly hours or the established plant workweek for first-shift workers in force at the time of the survey revealed that men in all but 7 plants worked in excess of 40 hours a week, in the majority of instances more than 48 hours. The industry's women workers also remained on the job for a considerable number of overtime hours during the war period. In 80 percent of the plants in which women were employed their scheduled workweek was 48 hours or more.

The study revealed that 10 establishments had adopted the practice of paying first-shift employees for 30-minute lunch periods.⁷

At the time of the survey 2 of every 5 electroplating plants operated extra shifts, and about a fifth of the industry's workers were employed on night shifts, with the third shift accounting for a fifth of this number. Slightly more than three-fifths of the multiple-shift plants paid a premium to workers on night shifts, the most frequent form of differential reported being an addition of 5 cents to the regular hourly rate.

Bonuses not directly related to production.—More than half the establishments surveyed reported the payment of a nonproduction bonus to plant workers. In most cases the bonus was paid at Christmas time. Information was obtained regarding the amount of money paid out in such bonuses, and a rough apportionment was made to show the net effect over the year upon the average worker's hourly earnings. When averaged over the entire industry the addition to plant workers' hourly earnings represented by such bonuses amounted to less than 1 cent per hour.⁸

Vacations, Sick Leave, and Insurance Provisions

Paid vacations were given to plant workers with a year or more of service by more than half of the establishments in the electroplating industry. In 9 out of 10 cases the vacation period was for 1 week. More liberal vacation policies were in effect for the industry's office workers.

Formal provisions for paid sick leave were not frequently encountered; only 3 establishments paid plant workers for a limited number of days of illness, while office workers in 10 establishments were covered by a formal sick-leave policy.

Slightly more than a fourth of the 252 establishments surveyed maintained one or more forms of insurance or pension plan for plant workers. In most of these establishments workers had life-insurance policies paid for in whole or in part by the employer, while health (or accident) insurance policies were in effect in 32 plants. Retirement pensions were rare. Office personnel received the benefits of insurance in approximately the same measure as plant workers.

⁷ Lunch periods of 20 minutes or less were not considered.

⁸ Nonproduction bonuses were not included in the data on straight-time hourly earnings presented earlier in this report.