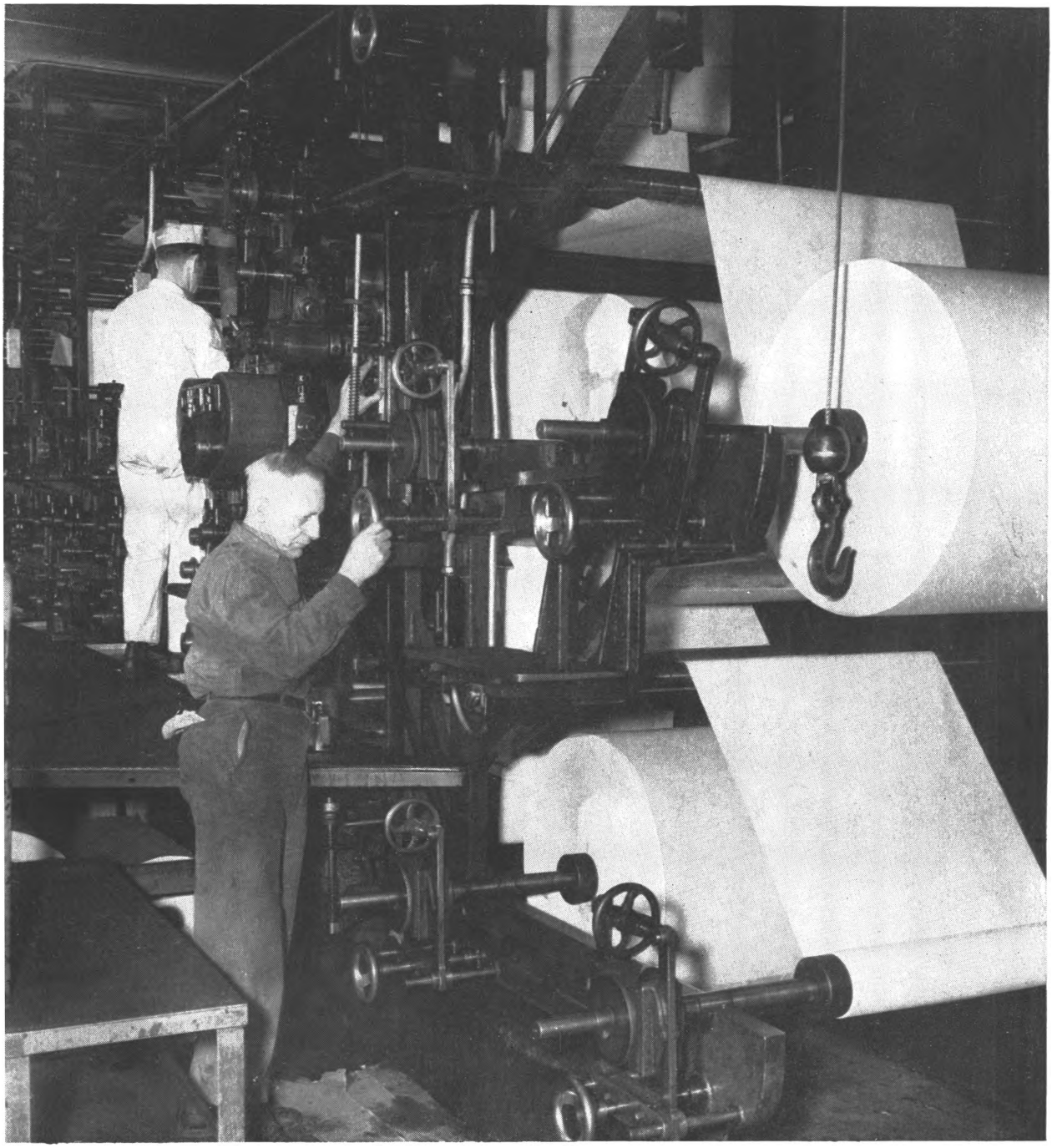
EMPLOYMENT OUTLOOK IN

PRINTING OCCUPATIONS

Duties ● Qualifications ● Outlook ● Earnings ● Working Conditions



UNITED STATES DEPARTMENT OF LABOR • BUREAU OF LABOR STATISTICS

OCCUPATIONAL OUTLOOK SERIES • BULLETIN NO. 902

View of web rotary press showing pressman checking the tension of the paper before starting the run. Journeyman in background is fitting stereotype plates on the rollers and regulating the flow of ink.

Cover picture:
Photograph by U. S. Department of Labor.

UNITED STATES DEPARTMENT OF LABOR
L. B. Schwellenbach, Secretary

BUREAU OF LABOR STATISTICS
Ewan Clague, *Commissioner*

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Employment Outlook in Printing Occupations

Bulletin No. 902

UNITED STATES
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LETTER OF TRANSMITTAL

UNITED STATES DEPARTMENT OF LABOR,
BUREAU OF LABOR STATISTICS,
Washington, D. C., June 1, 1947.

THE SECRETARY OF LABOR:

I have the honor to transmit herewith the report on a study of employment outlook in printing occupations. This is one of a series of occupational studies, conducted in the Bureau's Occupational Outlook Division for use in vocational counseling of veterans, young people in school, and others interested in choosing a field of work.

The report was prepared by Samuel Vernoff, under the supervision of Helen Wood. Doris M. Graham performed the library research and assisted in the preparation of the report. Sections on earnings were prepared with the help of Donald H. Gerrish, of the Bureau's Wage Analysis Branch, and are based largely on data collected by that Branch. The Bureau wishes to acknowledge the generous assistance received from the Printing Industries of America (Fred J. Hartman, educational director), the Graphic Arts Association of Washington, D. C. (George I. Mallonee, executive secretary), other trade associations, and the Joint Lithographic Advisory Council; from officials of many unions; from members of the staffs of the Government Printing Office, Bureau of Engraving and Printing, U. S. Employment Service, and other Government agencies.

EWAN CLAGUE, *Commissioner of Labor Statistics.*

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

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EMPLOYMENT OUTLOOK IN PRINTING OCCUPATIONS

Introduction

Printing is an art, a great industry, and one of our chief means of communication. Developed in Germany about five hundred years ago, printing made possible the extension of education. As printed books and pamphlets multiplied and newspapers began to be published, they played a great part in spreading ideas, influencing public opinion, and aiding the people to obtain a voice in government. Their contribution to the growth of democracy was so fundamental that freedom of the press was one of the basic rights incorporated in the first amendment to the United States Constitution.

Over 600,000 men and women made their living in the printing industries in 1946. More workers were employed in printing than in such large manufacturing industries as furniture, leather, and rubber or such important public utilities as telephone and electric-light companies. Printing is especially important as a field of employment for skilled men, affording opportunities in many different skilled occupations and, as a rule, paying better-than-average wages. Jobs are to be found in all parts of the country, in small towns as well as big cities. Many printing craftsmen are in business for themselves.

The Printing Industries

Printing plants supply us with a great variety of products—ranging from newspapers to greeting cards, from books to advertising circulars, from paper money to labels.

The establishments engaged in newspaper printing and publishing make up by far the largest printing industry in terms of employment (see chart 1).[1] More than a third of the people working in the printing industries in 1939 were in newspaper shops. Furthermore, the dollar value of items produced in newspaper plants was much greater than for that of the products of any other printing industry.

General commercial or job printing is the second largest printing industry. There are many more commercial shops than newspaper plants, but the average job shop is so small that commercial printing as a whole has both fewer employees and a smaller dollar value of output than newspaper printing.

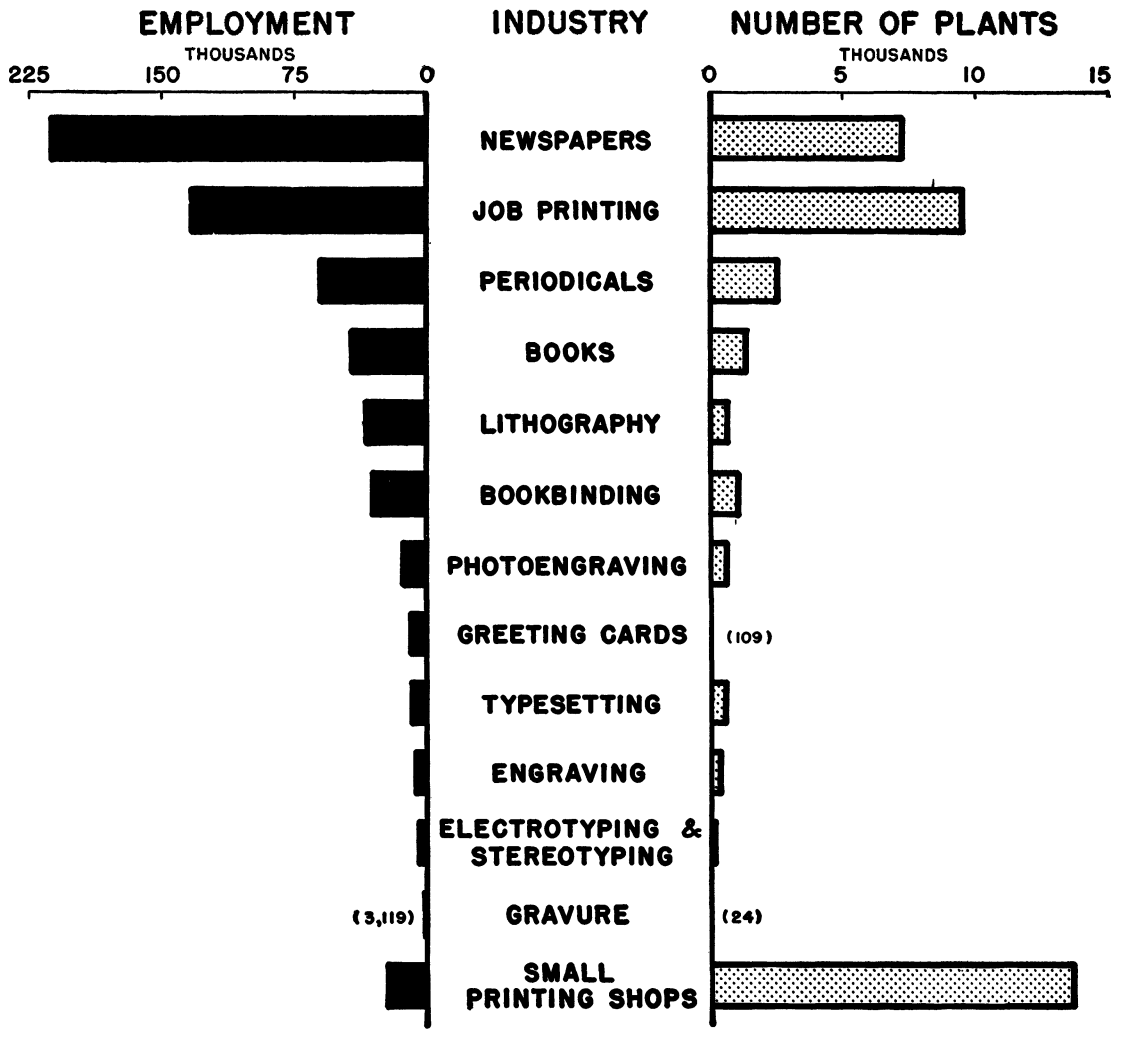
Periodicals and books are the next largest printing industries. Smaller industries are engaged mainly in producing lithographed items of various types, greeting cards, or gravure products, or in doing bookbinding and other bindery work. The so-called service industries for the printing trades do mainly typesetting, photoengraving, or other work for printing shops. In addition, many printing and bindery workers are employed by government agencies, libraries, and manufacturers and other firms doing some printing in connection with a business of another type. The largest printing plant in the world is the United States Government Printing Office in Washington, D. C.

[1] The classification of printing plants in this bulletin is that used by the Census of Manufactures. It is discussed in the appendix, which also gives figures on the number of establishments, value of products, and number of proprietors and employees in each industry (see p. 30).

CHART 1

NEWSPAPER AND JOB SHOPS EMPLOY MOST PRINTING WORKERS

NUMBERS EMPLOYED AND NUMBERS OF PLANTS IN PRINTING AND ALLIED INDUSTRIES, 1939



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Source: CENSUS OF MANUFACTURES AND CENSUS OF BUSINESS
REFER TO APPENDIX FOR FIGURES AND EXPLANATIONS

The number of separate printing plants is great—about 39,000 in 1939, not counting shops outside the printing industries. Only one group of manufacturing industries (food processing) included more establishments than this. Some printing plants are million-dollar enterprises with hundreds of employees, but a great number of printing plants are very small. In 1939, there were about 14,000 shops (over a third of the total) with an output valued at less than $5,000 a year and often with only 1 worker, the owner himself.

Almost every small town has a printing shop of some kind—frequently a small newspaper plant which also handles any job printing needed in the community. However, a large part of the country's printing is done in 10 industrial centers—New York, Chicago, Philadelphia, Los Angeles, San Francisco, Detroit, Cleveland, St. Louis, Cincinnati, and Minneapolis-St. Paul. In 1939, about half of all employees in the printing and allied industries were in these centers. In job and periodical printing, and some of the smaller industries, the proportion of employees in the 10 major centers was even greater. The proportion was, however, much less (only 32 percent) in the newspaper industry, since there are a great many small local newspapers scattered throughout the country. In addition, some large plants are located in other centers, including Boston, Cambridge, Clinton, and Norwood, Mass.; Albany and Garden City, N. Y.; Rahway, N. J.; Richmond, Va.; Hammond, Ind.; and Kingsport, Tenn.

The Methods of Printing

The three main methods of printing are letterpress, lithography, and gravure.

In letterpress (or relief) printing, the letters and designs to be reproduced are raised above the nonprinting areas of the type or the press plate. When the actual printing is done, ink is applied only to the letters and designs, usually by means of an inking roller.

In lithography (or offset printing), the plate is smooth or nearly so, with both the image and nonimage areas on the same level, instead of on different levels as in letterpress and gravure work. Lithography makes use of the principle that grease and water repel each other. The image areas of the plate are coated with a greasy substance to which the greasy printing ink will adhere. On the press, the plate is moistened with water before each inking, with the result that only the image areas take up the greasy ink from the inking roller.

In gravure (or intaglio) work, the relation between the printing and nonprinting areas of the plate is opposite to that in letterpress. The letters and designs to be printed are cut or etched into the plate and are below the nonprinting surface. Ink has to be applied to the entire plate, but the surface is then wiped or scraped, leaving ink only in the depressions. In printing, suction is created, which lifts the ink out onto the paper.

Letterpress is the oldest and by far the most common printing process. Practically all newspapers, most books and magazines, and most commercial jobs are printed by this method. The work done by photoengraving shops (which make plates for use in relief printing of illustrations and other copy that cannot be set up in type) and by stereotyping and electrotyping shops (which produce metal duplicates of type forms and photoengravings, for use as press plates) is also part of letterpress printing.

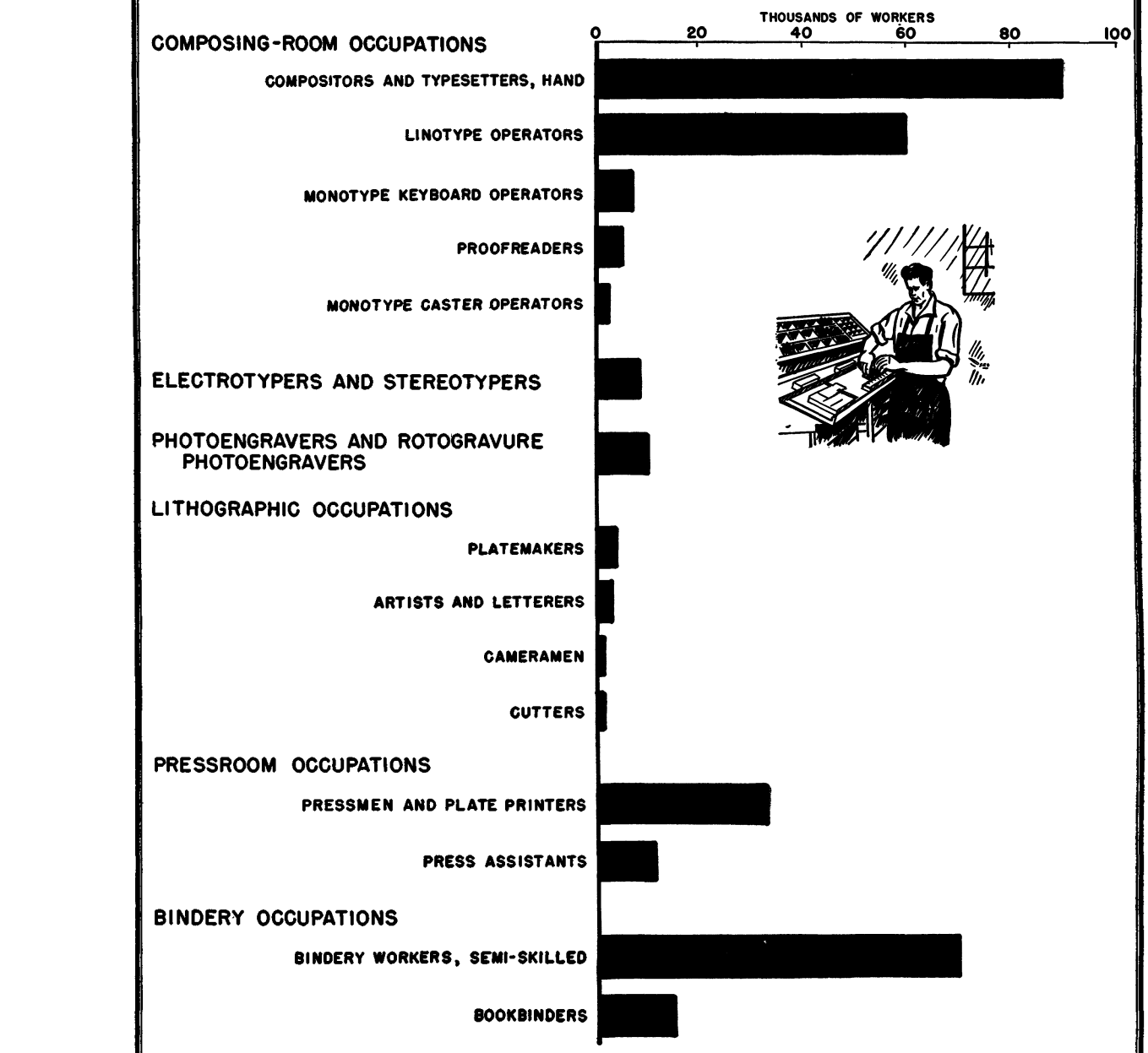
Lithography, though still much less common than letterpress work, is the most rapidly growing method of reproduction. Practically all items printed by the relief process are also produced by lithography—including, for example, books, calendars, maps, posters, labels, office forms, sheet music, and even newspapers. Almost all printing on metal and much of the printing on rough paper is done by this method.

Gravure printing, the least common process, is of two main types: rotogravure (in which press plates are made from pictures by a method based on photography) and hand or machine engraving. The beautiful picture supplements of some Sunday newspapers are the best known rotogravure products, but some magazine and other pictures are printed by this means. The process is used also in some printing on metal and metal foil. Hand or machine engraving is used in making engraved stationery, greeting cards, and similar products.

CHART 2

HAND COMPOSITORS AND LINOTYPE OPERATORS ARE LARGEST SKILLED TRADES

EMPLOYMENT IN THE IMPORTANT SKILLED AND SEMI-SKILLED PRINTING AND BINDERY OCCUPATIONS, 1940



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BASED ON 1940 CENSUS OF POPULATION AND OTHER SOURCES

The Printing Workers

The all-round printer, skilled in typesetting and also in operating a press, was the typical printing worker up to the closing years of the nineteenth century. Some craftsmen who are adept in both these kinds of work are still employed in small newspaper and job shops. In the printing industries as a whole, they are, however, greatly outnumbered by specialized craftsmen and semiskilled employees.

The largest group of skilled and semiskilled workers are in the composing room, the department responsible for typesetting. Other major groups are the printing pressmen and their assistants, photoengravers and rotogravure photoengravers, electrotypers and sterotypers, lithographic workers, and bookbinders and bindery workers. Chart 2 shows the number of people employed in 1940 in each of the main occupations in these categories.

Besides the occupations shown in chart 2, there are many other small groups of skilled or semiskilled printing workers. In some plants, especially in the newspaper industry, the composing-room work force includes Ludlow operators, who run a typecasting machine known as the Ludlow Typograph. Big composing rooms nearly always employ one or more "stonemen," who place the pages of type in the large type forms in which they leave the department. Another small group of workers found in large plants are the mechanics who specialize in repairing and adjusting typesetting machines, printing presses, or bindery machines. Steel- and copper-plate engravers, on the other hand, work mainly in small engraving shops. They cut or etch lettering and designs in the plates, by hand or machine.

Most of the occupations indicated in the chart and the preceding paragraph are skilled jobs. The main exceptions are press assistants and bindery workers whose jobs are semiskilled, as are those of many monotype caster operators and some lithographic workers. Proofreaders in nonunion shops are sometimes classed as clerical employees.

In skilled occupations practically all the workers are men. However, many of the semiskilled workers, especially in binderies, are women. Negroes are rarely employed in skilled jobs, except in shops which print newspapers or other items for the Negro community. A greater number are employed in semiskilled occupations.

To complete the picture of the printing work force, the professional, administrative, clerical, and unskilled employees of printing plants should be mentioned. The chief professional workers are the reporting and editorial staffs of newspapers and other houses that do their own publishing. In addition, all sizable plants have executives, estimators, salesmen, stenographers and other clerks, and laborers of various types. These employees usually have duties much like those of comparable personnel in other industries.

Employment Prospects

There will be many thousands of job openings in printing during the next few years, including a much larger number of training opportunities than usual.

At the end of World War II there were marked labor shortages in almost all occupations. However, before the war (in 1940), about 1 out of every 10 skilled and semiskilled printing workers was unemployed. This situation quickly changed after Pearl Harbor, when many workers went into the armed forces and into war industries. In addition, there were, of course, some retirements and deaths. Replacements could not be obtained in sufficient numbers, because of the Nation-wide labor shortage. As would be expected, it was particularly hard to recruit young men for training.

Since the end of the war, employers have been rehiring former employees and have taken on a good many new trainees. The number of production workers employed has risen steadily (by about a fourth between September 1945 and December 1946 in the printing industries as a whole). There are still shortages of journeymen in many parts of the country, however. The outlook is for greater and greater activity and employment in all branches of printing, at least during the next few years, because of growing demands for printed products such as advertising materials and text-

books, ending of wartime controls, increasing availability of new machinery and supplies, and other factors. Unusually large numbers of job openings owing to retirements and deaths may also be expected for a while, because of the postponement of retirements during and since the war and the fact that the average age of journeymen is therefore higher than before. For all these reasons, it will generally be easy for skilled workers to get jobs during the years immediately ahead. In addition, there should continue to be a good many training opportunities, although the numbers of apprentices who may be employed at any time are limited by the ratios of apprentices to journeymen established by union agreements. Veterans with related civilian or military training and experience will generally be given preference for apprentice positions. Some of them should be able to obtain advanced status as learners, instead of being hired as beginners.

Openings for newcomers will probably be fewer after the next year or two. In fact, the peak in hiring may already have been reached. However, workers who now have jobs in the printing field or who obtain them "while the getting is good" are likely to be able to hold them indefinitely. Printing employment tends to be less affected by declines in general business activity than employment in manufacturing as a whole. Moreover, the long-run trend in employment is upward in most printing occupations.

In general, the largest number of job openings will be in the printing centers previously mentioned (p. 3). Opportunities will, however, be more scattered in some branches of printing than in others. They will, for example, be more widespread in newspaper than in job printing; but in lithography, they will be concentrated in the major centers to a greater extent than in either of these industries. In all branches of printing, competition for jobs is likely to be keenest in largest cities.

Earnings

Earnings tend to be higher in printing than in many other industries, owing to the large number of skilled workers employed, the strong influence of the printing unions, and other factors. In 1940, wage earners in book and job shops averaged 81 cents an hour; newspaper and periodical plants, $1.03. By comparison, the average for all manufacturing was only 66 cents an hour. In no other manufacturing industry for which information was available were average earnings as high as in newspaper and periodical plants. This was still true during 1946, when earnings averaged $1.21 an hour in book and job shops and $1.46 in newspapers and periodicals, compared with $1.08 in all manufacturing.

What an individual printing worker can expect to make varies greatly from one occupation to another, as well as from city to city, and in other ways. The best source of information on wages in different occupations are union wage scales. These scales are the minimum rates paid under collective-bargaining agreements and are usually uniform for each occupation in a given locality. They are, in general, representative of wage rates in skilled and semiskilled printing trades, which are all highly organized.[2]

In July 1946, union wage scales averaged about $1.58 an hour. For the skilled workers, rates were generally between $1.30 and $2.00 an hour; for the others, they were usually between 70 cents and $1.30. Since July 1946, wage scales have increased further in many large cities. Chart 3 shows the average wage rates for most of the major trades. Later sections of this bulletin give additional information on wages in these and other occupations. A detailed table on union wage rates in different cities is included in the appendix (p. 31).

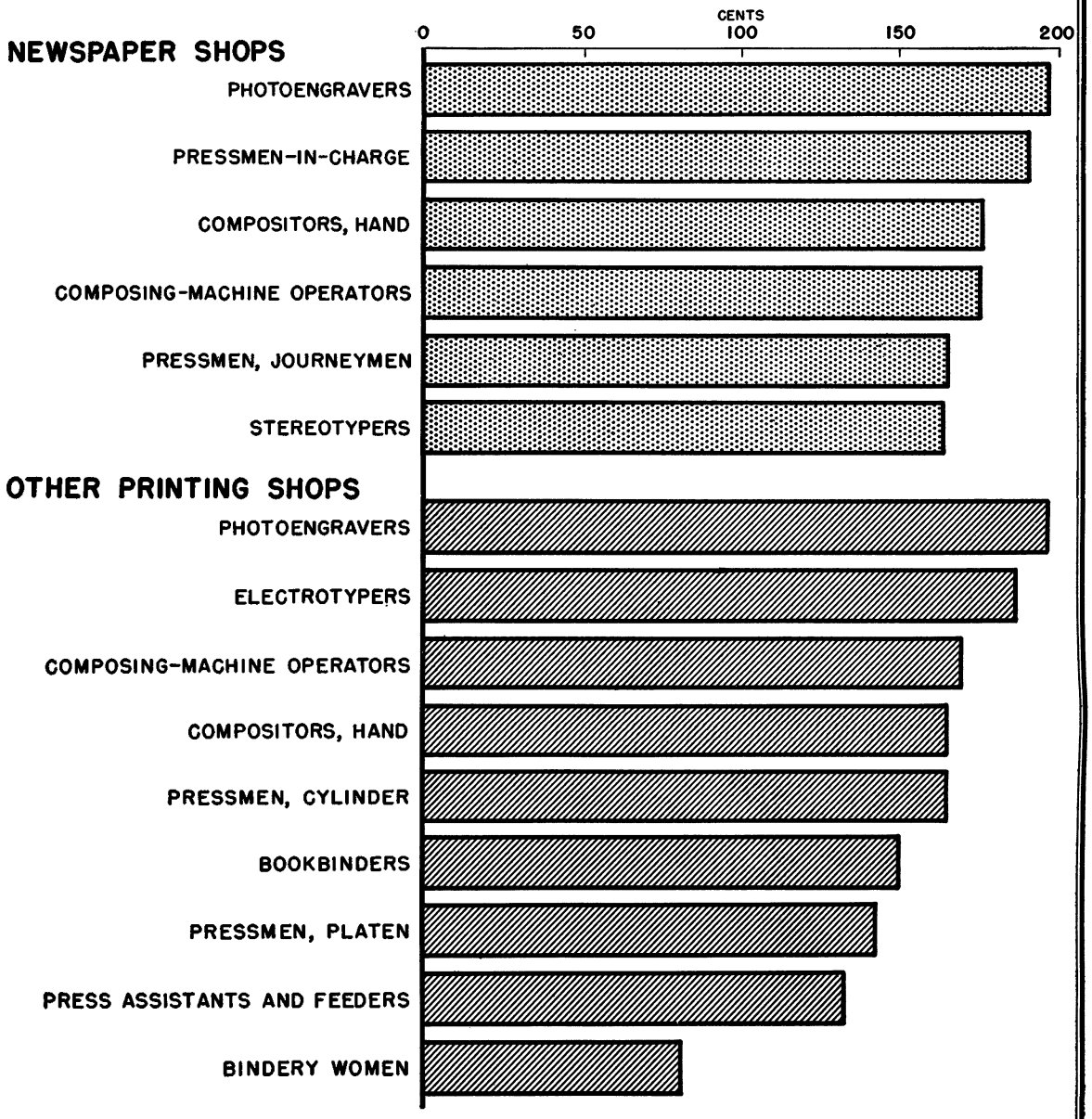
The wage scales that have been cited are the basic rates received by employees on day shifts. In most printing plants, as in many other manufacturing establishments, workers are paid time and a half for overtime work not only above a standard number of hours a week but also above 8 hours a day. The standard workweek is usually 37½ hours in newspaper plants. In other printing shops, it is usually 40 hours. Work on Sundays and holidays is customarily paid for at time-

[2] Union wage scales are not available for unskilled jobs. Moreover, they do not include premium pay for overtime or other special payments or bonuses. As a result, they are not comparable with the average earnings figures given in the preceding paragraph, which include all types of wage payments and cover all wage earners.

CHART 3

WAGE RATES IN PRINTING TRADES

AVERAGE UNION RATES PER HOUR IN NEWSPAPER AND OTHER PRINTING PLANTS, FOR SELECTED OCCUPATIONS JULY 1, 1946



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and-a-half or double-time rates in most branches of printing. In newspaper plants, the standard workweek often includes Sundays and work has to go on as usual on holidays; however, time and a half or double time is paid for these days only when they are not part of the employee's regular shift. Night-shift workers in union shops generally receive about $5 extra for a 37½- or 40-hour week. There are many other types of provisions for overtime and special rates of pay.

How much workers earn during a year depends not only on their rates of pay but also on how regularly they are employed. Printing workers are fortunate in having steadier employment and earnings than those in many other industries. Earnings tend to be especially steady in newspaper work.

Paid vacations are called for by most wage agreements. The majority of union workers receive 2 weeks' vacation with pay after 1 year of employment. In addition, the printing unions are noted for welfare provisions for their members; for example, pensions, sanitarium facilities, and educational programs.

Labor Organization

Workers seeking jobs in printing trades will find that the printing unions not only influence wages and working conditions but often have a strong voice in determining hiring policies. Many plants are covered by closed-shop agreements, under which all workers in specified trades have to belong to the appropriate union. Union members are also often employed in plants having no union contracts.

There are six major unions of printing workers. Five are craft unions affiliated with the American Federation of Labor—the International Typographical Union, International Printing Pressmen's and Assistants' Union of North America, International Photo-Engravers' Union of North America, International Stereotypers' and Electrotypers' Union, and the International Brotherhood of Bookbinders. The sixth, the Amalgamated Lithographers of America, organizes workers in all lithographic occupations. It is a member of the Congress of Industrial Organizations.

Most typesetters and other composing-room workers are represented by the International Typographical Union. In newspaper and job printing, either shop foremen who are themselves union men or the union shop chairmen usually do the hiring, disciplining, and firing of composing-room employees, in accordance with union rules. Pressroom workers, too, are usually covered by union agreements. Practically all the letterpress and rotogravure pressmen who are organized belong to the International Printing Pressmen and Assistants' Union. The large majority of lithographic and offset pressmen, as of other lithographic workers, are in the Amalgamated Lithographers of America.

Photoengravers are almost completely organized by the International Photo-Engravers' Union of North America. The proportion of stereotypers and electrotypers unionized by the International Stereotypers' and Electrotypers' Union is likewise extremely high.

Although employees in binderies are not so strongly organized as the groups discussed in the last two paragraphs, many skilled bookbinders and other bindery workers are represented by the International Brotherhood of Bookbinders. The proportion of workers belonging to this union is higher among journeymen than among less-skilled employees.

How To Enter Printing Occupations

Apprenticeship is the accepted way of entering skilled printing occupations. With very rare exceptions, it is the only means by which one may qualify as a journeyman in a union shop.

Printing apprenticeships usually last from 4 to 6 years, depending on the occupation and whether the shop is union or nonunion. The training program covers all phases of the particular trade and almost always includes classes in related technical subjects as well as training on the job. When an apprentice starts out, he is usually paid 30 or 40 percent of the wage rate for journeymen. However, his pay is increased once or twice a year, until, in the final year or half-year of training, he re-

ceives 80 or 90 percent of the journeyman rate. Men who have had some experience in the trade, in either civilian life or in the armed forces, can often obtain credit for this. They will then start out at a wage above the beginning apprentice rate, and the length of time before they become journeymen will be reduced. Veterans who qualify under the GI bill of rights may also receive allowances from the Federal Government during part or all of the training period.

To be eligible for apprenticeship, applicants are generally required to be 18 (though sometimes only 17) years of age and not over 30. A physical examination is usually given to find out whether the applicant is free from communicable diseases, has eyesight adequate for the particular occupation, and is in good enough physical condition to do the work which will be involved in his job. Exceptional physical strength is rarely required. Moreover, printing is, on the whole, a relatively good field of employment for handicapped people. A considerable number of workers with speech or hearing defects—even some who are totally deaf—are employed, particularly as linotypists and compositors. Men who have lost 1 or both legs or do not have the use of all 10 fingers have proved satisfactory in some composing-room occupations. In general, success in a job depends on the individual's ability to do the work and to adjust himself to specific working conditions. Therefore, handicapped people should not consider themselves automatically disqualified for employment in the industry but should seek competent professional advice.

Education is another factor which employers consider in selecting apprentices. High-school graduation is usually required and always preferred. A thorough knowledge of spelling, punctuation, and grammar is essential for most trades. Technical training in a printing trade school is desirable. If a person had printing courses in high school (thousands of junior and senior high schools offer such courses as a part of their industrial arts programs), this will also be greatly in his favor. In addition, courses in art, such as drawing, design, color, and lettering, are helpful for many kinds of printing work.

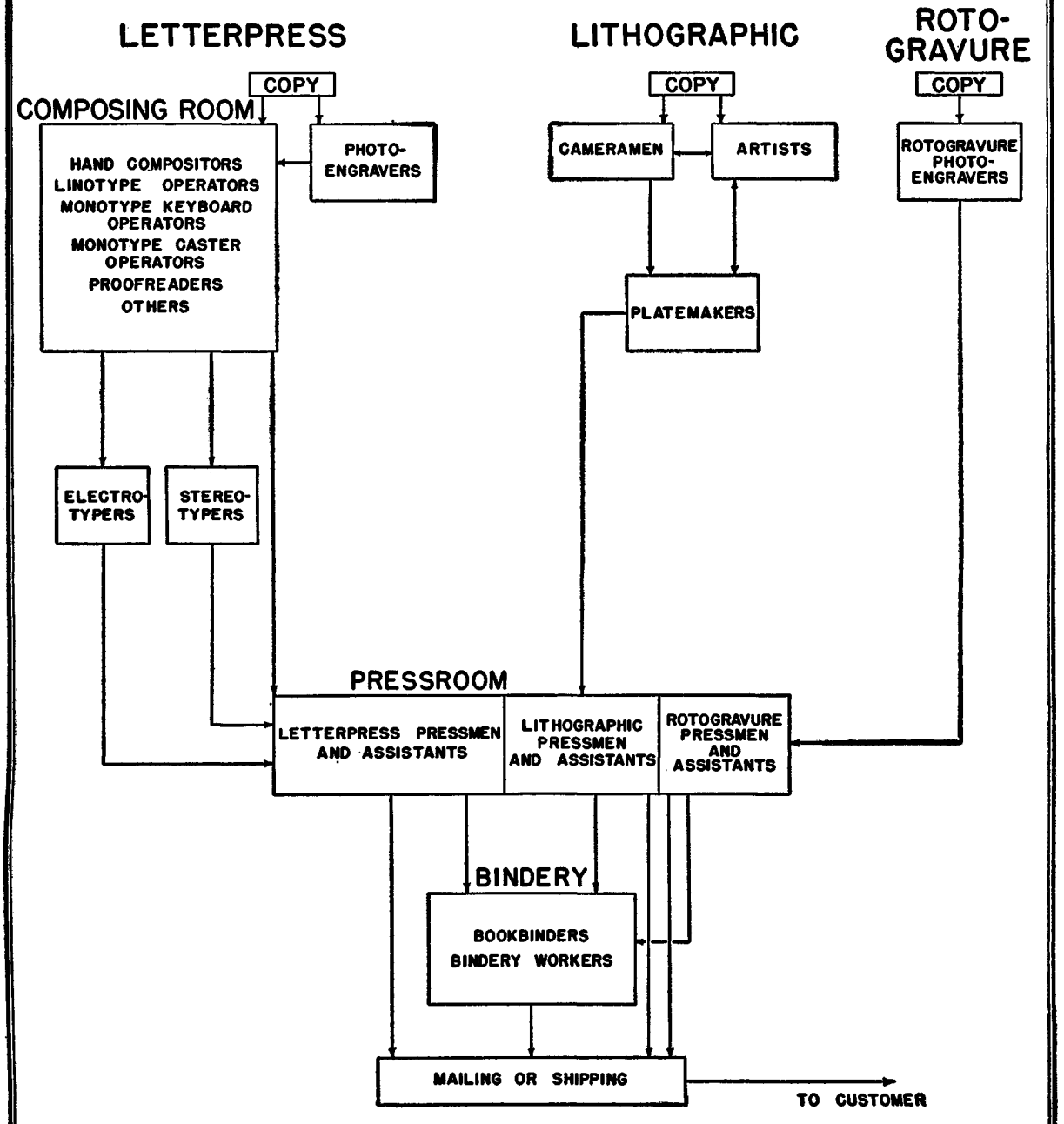
Information on opportunities for apprenticeship or other types of printing employment in a particular locality may be obtained from several different sources. Applicants may go to the nearest office of their State employment service, affiliated with the U. S. Employment Service, or to any printing plants in the neighborhood (the addresses can be obtained from the classified section of the local telephone directory). Local unions and local employer associations can be of great assistance. If none are listed in the telephone directory, an applicant may write to the national headquarters of these organizations (the addresses are given in the appendix, p. 33) and ask them to refer the letters to their nearest branches. Editors of hometown newspapers can also give valuable information and advice. Veterans may find out about opportunities for on-the-job training and other questions at veterans' information centers or offices of the Veterans Administration or from veterans' representatives in offices of their State employment service.

The employment outlook in many important skilled and semiskilled occupations is discussed in the following sections of this bulletin, which also presents information on the nature of the work, qualifications for employment, and earnings in each trade.[3]

[3] A list of books and pamphlets, which contain additional information on printing occupations and are available in many public libraries, is given in the appendix (p. 34).

CHART 4

A GENERAL PICTURE OF THE FLOW OF WORK IN PRINTING



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Composing-Room Occupations

Copy to be printed by the letterpress process starts its trip through a printing plant in the composing room, as shown in chart 4. There the type is set and assembled in type forms, ready for the pressroom—or for electrotyping or stereotyping, if printing is to be done from press plates instead of directly from the type forms.

Hand Compositors and Typesetters

The oldest and largest composing-room occupation is that of hand compositor or typesetter. About 90,000 of these journeymen printers were employed in 1940. In some small shops, all the type is still set by hand. This involves setting each line of type in a "composing stick"—letter by letter and line by line (as shown in the accompanying picture)—and, when the stick is full, sliding the completed lines onto a shallow metal tray or "galley." In many shops, all "straight matter" (such as you are now reading) is set by machine, but hand compositors are still needed to set some of the type required for headlines, titles, and other special work, and to assemble the machine- and hand-set type. Taking proofs of type that has been set (that is, printing a few copies on a proof press), checking the proofs against the original copy, and correcting errors in typesetting are among the other duties sometimes performed by compositors, particularly in small shops. These workers may be responsible also for page make-up (arranging type and any needed engravings into pages) and for locking the completed pages into forms. In large plants, however, page make-up is usually done by special "make-up men," chosen from among the compositors, and the type forms are generally locked up by "stonemen."

All the major branches of printing—newspaper, job, book, and periodical—employ large numbers of hand compositors. Smaller numbers work in other kinds of printing shops or in service shops doing typesetting on contract for printing establishments. A good many men in the occupation have their own small job or service shops.

Qualifications for Employment

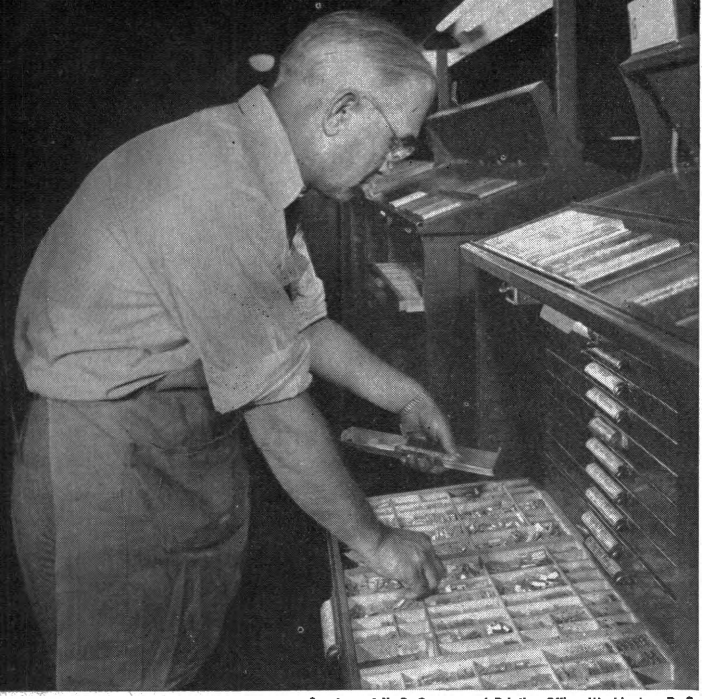
A 6-year apprenticeship is usually required for employment as a journeyman compositor or typesetter. In union shops, apprenticeship is always of this length, except in the case of some veterans with military experience related to printing and apprentices for whom shop foremen recommend shorter training periods in recognition of their outstanding abilities. The apprenticeship includes a considerable amount of classroom and correspondence study. Printed manuals of instruction have been prepared by the International Typographical Union and the Printing Industry of America; these are used not only in apprenticeship programs but also in vocational schools.

Besides having the educational qualifications needed for all skilled printing occupations (p. 9), a compositor should be good in arithmetic, so that he can calculate spacing of type on pages. A knowledge of English is especially important in this occupation, since the worker should be able to catch errors in copy before setting type. Imagination and artistic ability in planning page lay-outs are assets which may help him to advance to lay-out work or make a success in business for himself.

For a job in this trade, the worker should be in good enough physical condition to enable him to be on his feet 8 hours a day and move around considerably. He should also be able to use hands, arms, and eyes constantly.

Employment Prospects

Employment opportunities for journeymen compositors are expected to be good in most parts of the country during the next few years. In some areas, however, an oversupply of craftsmen developed after VJ-day, and experienced men are still available for employment in a few localities. For inexperienced men, there will be large numbers of openings as trainees for several years. After that, training opportunities will become



Courtesy of U. S. Government Printing Office, Washington, D. C.

Hand compositor setting type in a composing stick.

much fewer. Contrary to the upward trend in most printing occupations, employment in this field will no doubt tend to decrease (as it was doing before the war) owing to continued advances in machine typesetting and to other factors. The decline will be slow and will probably not involve many lay-offs. Men in the occupation, including those who enter during the current period of expansion, should have a good chance of holding their jobs indefinitely, especially if they have machine (linotype or monotype) as well as hand skills.

For years there have been so many small general printing shops that competition for business has been keen in most parts of the country and earnings have often been very inadequate. Some veterans and others wishing to go into business for themselves may, however, find opportunities during the next few years, as machinery and paper become more readily available. Generally, those with good all-round civilian experience will have the best chance of success. Men with composing-room skills plus supervisory and managerial abilities will also find some immediate openings in salaried positions with large and well-established firms and, in general, good opportunity for advancement to such positions.

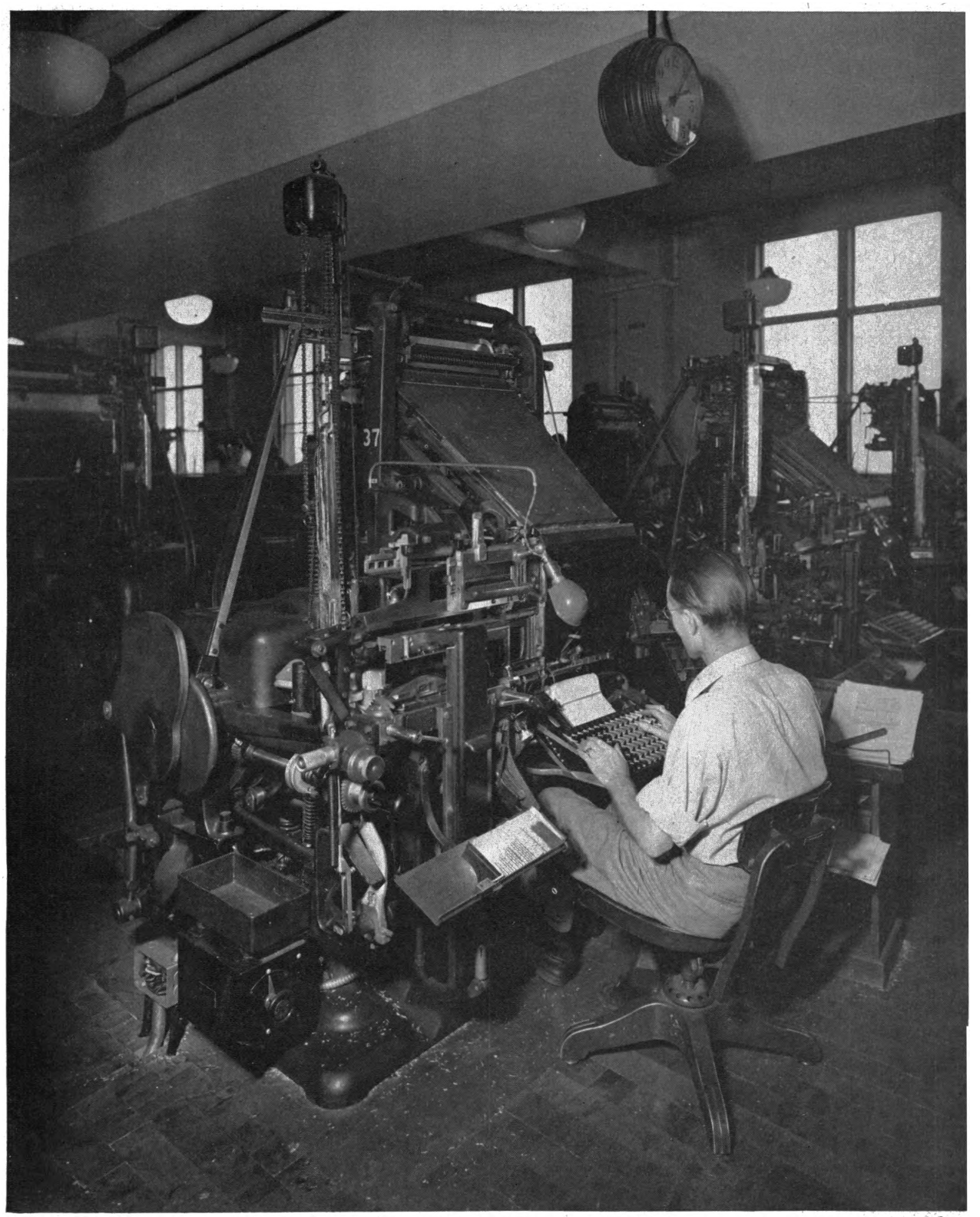
Earnings

Hand compositors are among the better-paid printing trades workers. Union wage rates in this trade averaged $1.85 an hour in newspaper shops and $1.65 an hour in other shops in July 1946. Both these averages were well above the average union scale for all printing trades ($1.58 an hour). Wage scales for compositors in newspaper plants ranged from $1.16 in Binghamton, N. Y., to $2.08 in Chicago, Ill. In other shops, wage scales ranged from $1.01 an hour in Portland, Maine, to $1.86 in Seattle, Wash.

Linotype Operators

In the late 1880's, a new machine, which was to revolutionize the composing room and the printing industries generally, came into use. This machine, the now famous linotype, sets type very much more rapidly than is possible by hand (as does the "intertype," a similar machine invented some years later). Reading from copy clipped to the machine's copyboard, the linotype or intertype operator selects the letters and other characters to be printed by operating a keyboard which has about 90 keys. After he completes each line, he works a lever, and the machine then casts the lines of type automatically in solid strips known as slugs. Other duties performed by the operator include removing type from the machine, putting new pigs (blocks) of type metal into the melting pot, and making adjustments. In shops having a considerable number of linotype machines, however, a machinist is usually employed who makes all but the minor adjustments directly connected with machine operation.

As linotype and intertype machines have come into wider and wider use, the number of operators needed has increased, until they are now the second largest group of composing-room workers. In 1940, about 60,000 of them were employed. The largest numbers of such workers are in newspaper and job shops, but some are employed in book and periodical houses and in service shops doing machine typesetting for printing firms. Some linotype operators have their own service shops.



Courtesy of U. S. Government Printing Office, Washington, D. C.

Linotype operator at the keyboard of a linotype machine.

Qualifications for Employment

Like hand compositors and typesetters, these machine operators are skilled journeymen. The apprenticeship requirements for their occupation are usually the same as for hand compositors, except that in the last 6 months of training the linotypist apprentice specializes and receives training in machine work. Qualifications needed by apprentices are much the same for machine as for hand typesetting. However, there is less need for artistic ability and more for mechanical aptitude, to help the linotypist understand the mechanism of his machine and make adjustments.

Employment Prospects

The employment outlook for skilled linotype (and intertype) operators during the next few years is very good in the country as a whole, although there may be an oversupply of workers in a few local areas, as in the case of hand compositors. There will also be a great many training opportunities in the next couple of years, and fewer openings for newcomers thereafter. The long-range outlook is, however, more favorable than for hand compositors. Employment of linotype operators has so far tended to rise. This upward trend is expected to continue for an indefinite number of years, although eventually technological and other factors may lead to a stable or even a declining trend in employment.

Earnings

Linotype operators tend to have much the same rates of pay as hand compositors. In July 1946, the average union scale for linotypists in newspaper shops was $1.85 an hour; in others, $1.69. Wage rates in newspaper plants ranged from $1.15 in York, Pa., to $2.08 in Chicago. Of the other shops, those in Portland, Maine, had the lowest scale, $1.01; those in Detroit, the highest, $1.85.

Monotype Keyboard Operators

Another step forward in typesetting was the invention of the monotype keyboard and monotype casting machines. With these machines, it is possible to cast individual letters and other type characters automatically (instead of solid lines, as in linotyping) and to assemble the type automatically in long shallow trays known as galleys. The monotype has a keyboard similar to that of a typewriter, but with some 200 keys. Unlike the linotype, which does the whole typesetting job, the monotype keyboard machine only perforates a narrow roll of paper for use later in the separate casting machine.

Photograph by U. S. Department of Labor.

Journeyman operating monotype keyboard.

The workers who operate the keyboard and make the many different adjustments needed are called monotype keyboard operators (sometimes simply monotype operators). They are a rather small occupational group; only about 6,000 were employed in 1940. Most of them work for book or periodical houses; some few, for job and service shops.

In general, qualifications for employment are the same as for linotype operators.

Employment Prospects

In the country as a whole, qualified journeymen should find it easy to get jobs in this occupation for the next 2 or 3 years. In addition, employers will, for a few years, need many more trainees than usual. The actual number of training opportunities will not be large, however, because the occupation is so small.

Openings are likely to become fewer after the next few years, as in other composing-room occupations. Employment will probably tend to rise indefinitely, however.

Earnings

Wage rates for monotype keyboard operators are generally the same as those for linotype operators.

Photograph by U. S. Department of Labor.

Monotype caster operator adjusting position of newly cast type as it comes out of the machine.

Monotype Caster Operators

Workers in this occupation operate the monotype casting machines previously referred to, which cast and assemble type automatically, guided by the perforations in the rolls of paper prepared by the monotype keyboard operators. The caster operators not only adjust and tend the machines but usually are required to know the mechanism in order to make repairs. In shops having several casting machines, the operator may supervise unskilled workers who tend the machines.

Up to the present time, only one caster operator has been employed to about every three keyboard operators, taking the printing industries as a whole. The occupation is therefore very small, employing only about 2,000 workers in 1940. The types of plants using caster operators are of course the same as for keyboard operators—chiefly book and periodical houses and, to some extent, job and service shops.

Qualifications for Employment

Most newcomers to this occupation learn to operate the machine at a monotype school. Training is then rounded out on the job. This experience is especially needed for the most skilled and best paying jobs in the occupation, which require an understanding of the mechanism of the caster and ability to make adjustments and repairs. Persons entering the occupation should be physically strong and in good health.

Employment Prospects

This is another occupation in which employment opportunities for experienced workers should be good, especially during the next few years. Employment is expected to rise at an even faster rate than among keyboard operators. There will be many more openings for newcomers than in the past. There is room, however, for only a limited number of new workers in this small occupation, and competition for the openings is likely to be keen.

Earnings

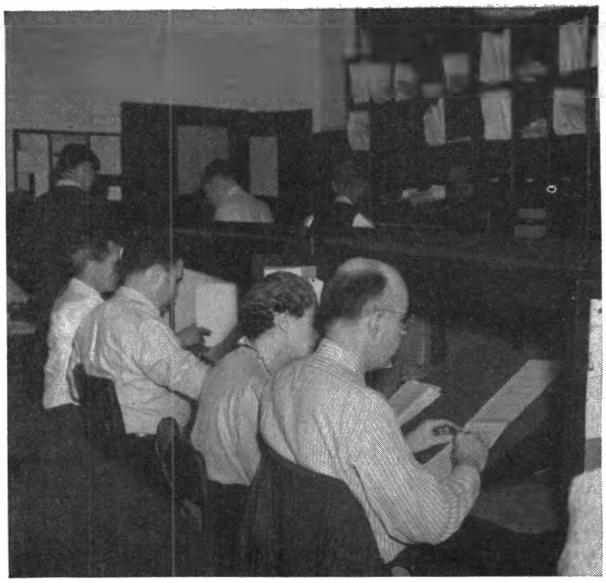
Most monotype caster operators have about the same wage rates as linotypists (p. 14). Those without responsibility for adjustments or repairs earn less.

Proofreaders

To guard against errors in the final printed product, it is customary to make proofs of type set-ups and read these carefully against the original copy. In small shops, journeyman typesetters and advanced apprentices may do the proofreading, which is considered very responsible work. In most large plants, however, particularly in the newspaper, book, and periodical industries, there are special proofreaders. Altogether, about 5,000 such workers were employed in 1940, including a good many women.

The work is done in one of two ways. Either the proofreader puts the proof and the copy side by side and reads one against the other, a line at a time, by himself, or he has the material read to him by a copyholder while he follows the proof. Where there are errors, he notes the corrections needed, using standard proofreaders' marks.

Workers usually enter the occupation from another composing-room job or a front-office job with the same company. Skilled compositors and composing-machine operators who are no longer able to do typesetting at the speeds required may take positions as proofreaders. Those who do so are allowed to keep their journeyman status, at least in union shops.



Photograph by U. S. Department of Labor.

Proofreaders following copy as copyholders read to them.

Knowledge of grammar, spelling, and punctuation is very important to help the proofreader find and correct errors. The work requires good hearing and good eyesight.

Employment Prospects

Increased printing activity is expected to mean rising employment of proofreaders in the next few years and also in the long run. Though most of the jobs will be filled by workers already in the printing industries, there will be a few openings for veterans and others with experience related to proofreading. Persons completely new to the field will have little if any chance for jobs.

Earnings

In union shops, proofreaders generally have the same wage scales as hand compositors (p. 12). In nonunion shops, however, the wage rates for proofreaders, particularly women, are likely to be lower. In January 1942, for example, straight-time hourly earnings were typically 95 cents to $1.30 for men but only 50 to 80 cents for women, taking union and nonunion shops together. Since that time, there have been sizable wage increases in this as in other printing occupations.

From the composing room, type forms often go to the electrotyping or stereotyping department (or to an independent service shop doing such work for printing firms). Electrotyping and stereotyping are two different processes, which have the same purpose—making metal press plates from the type forms. One reason why it may be necessary to use such plates, instead of printing directly from the forms, is that a number of duplicate plates may be needed (any number can be turned out by either electrotyping or stereotyping). When a large edition of a book or magazine is printed, several plates must be used one after the other, to prevent the printing surfaces from becoming too worn to make clear impressions. By means of duplicate plates, printers can also use several presses on the same job at the same time and thus finish a big run quickly. This is especially important in daily newspaper plants, which have to rush many thousands of papers onto the streets with news that is no more than an hour or two old. Furthermore, the rotary presses used in many big plants require curved plates (which can be made by either process), and type forms are always flat.

In electrotyping, a wax mold of the type form is usually made, though lead or some other material may be used instead. To make a wax mold, the electrotyper first lays the type form on the bed of a power molding press. He then places on top of the press a metal sheet coated with wax and applies the pressure, thus obtaining an impression of the type form in the wax. The next major steps are to give the mold a thin coating of copper by pouring copper-sulphate solution over it (sometimes nickel is used instead) and to suspend it in a battery tank filled with the same solution. When the current is turned on, a shell of copper is deposited on top of the copper coating. When stripped from the mold, backed with metal, carefully finished, and mounted, this shell becomes a plate ready for use in the pressroom.

The stereotyping process is much simpler, quicker, and less expensive than electrotyping, but it does not yield as fine a plate. Stereotypers make molds of papier mâché (a strong material composed of paper pulp), instead of wax or lead. Their work involves placing a damp papier mâché pad on top of the type form and running both through a rolling machine. After the paper mold has been dried, it is used in casting a composition-lead plate, which needs only trimming to be ready for the pressroom.

Journeymen electrotypers and stereotypers must know how to handle all the tasks involved in their respective processes, although in practice they are often assigned to only one phase of the work.

Neither occupation is a large one. In 1940, only about 7,500 or 8,000 journeymen were employed in both trades. Electrotypers work mainly in large book and periodical plants or shops (often owned and run by one or two journeymen) which service the book and periodical industries. Stereotypers work mainly in newspaper plants or shops servicing newspaper publishers. Some large commercial shops and other kinds of printing plants also use a few men in these occupations.

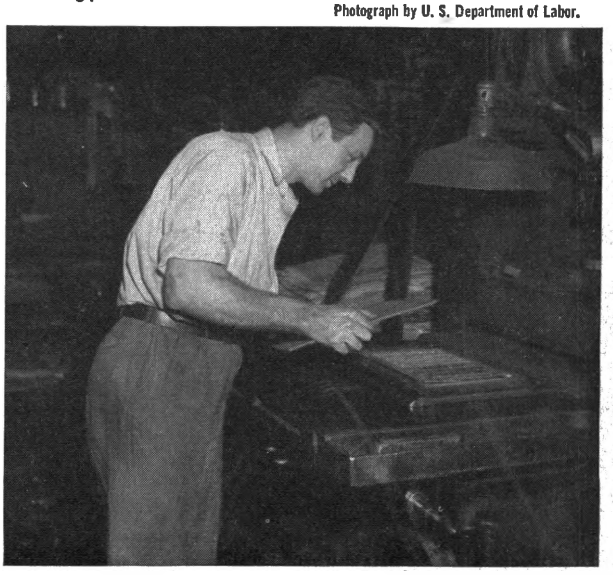
Qualifications for Employment

To qualify for either type of work, a 5- or 6-year apprenticeship is usually required. The training is quite different for each trade; rarely do journeymen change from one occupation to the other.

Young men who wish to become electrotyper or stereotyper apprentices need the same educa-

Electrotyper placing wax mold on top of type form which is on bed of power molding press.

Photograph by U. S. Department of Labor.



tional qualifications as are required for all printing trades (p. 9). In addition, mechanical training and courses in chemistry and metallurgy are useful.

In work rooms where electrotyping or stereotyping is done, there are frequently fumes and dust and the temperature and humidity are often extremely high. Moreover, the work involves lifting of very heavy plates and type forms. People entering the occupations should be strong enough and in good enough health to work under these conditions.

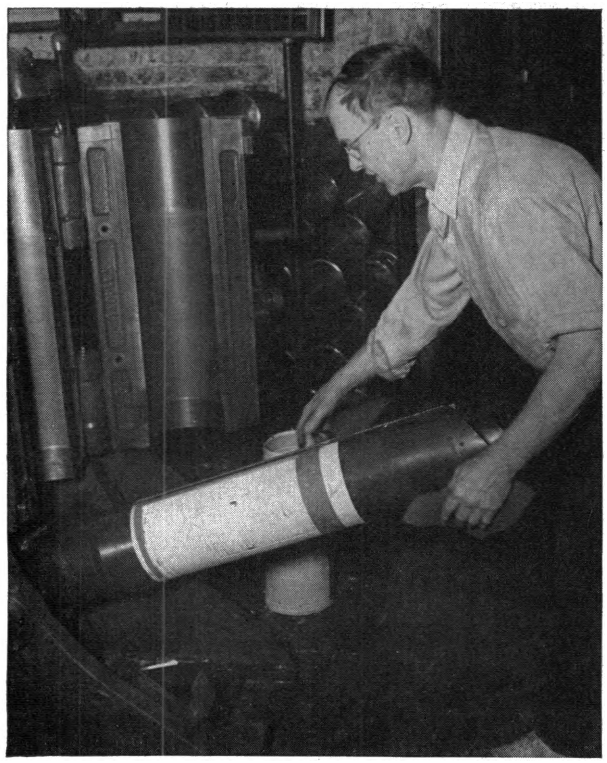
Employment Prospects

Journeyman electrotypers and stereotypers, like most other groups of skilled printing craftsmen, will generally find it easy to get jobs in the immediate future and will have a good chance of holding their jobs indefinitely. Some men with all-round experience and managerial abilities will be able to go into business for themselves, with fair chances of success. There will also be more training opportunities than usual at least for a year or two. Openings for both journeymen and trainees will, at best, total no more than a few hundred a year, however—including vacancies due to turnover and also the new jobs which are expected to arise in the immediate future and over the long run.

Jobs and business opportunities for electrotypers and stereotypers are available in fewer localities than for most other groups of printing workers. They will seldom be found outside large industrial areas and will be mainly in or around New York, Chicago, Philadelphia, Detroit, and Cincinnati.

Earnings

Wage rates for electrotypers tended to be higher than those for any other occupation except photoengravers. The average union scale for electrotypers was $1.87 an hour in July 1946.



Photograph by U. S. Department of Labor.

Stereotyper holding mold which he has just removed from newly cast lead plate. He is about to pull the plate from the machine (an automatic tubular vacuum casting machine). Hot lead plate shows white in picture.

Stereotypers (in newspaper printing) had considerably lower pay, the average rate being $1.73 an hour.

The pay of electrotypers and stereotypers varies rather widely from one city to another. The lowest union rate for electrotypers in July 1946 was $1.15 an hour in Nashville, Tenn.; the highest, $2.10 in New York City, Chicago, and Newark. Rates for stereotypers ranged from $1.15 an hour in Little Rock, Ark., to $2.00 in San Francisco, Calif. Stereotyper rates also varied considerably from one branch of printing to another; the comparatively few men in periodical printing tended to have the highest pay.

Photoengravers and Rotogravure Photoengravers

Photoengravers enter into the printing process when copy to be reproduced by letterpress includes pictures or designs. As has already been mentioned, the photoengraving department supplies the composing room with any needed plates of illustrations and other material that cannot be set up in type. On these plates, the printing surfaces stand out in relief above the nonprinting spaces, as do the letters on the accompanying type.

Rotogravure photoengravers also make plates for use in reproducing pictures, but these are gravure plates with the image etched below the surface. The printing has to be done on special rotogravure presses, and often the entire process, from preparation of the plates through printing, is carried out in separate plants specializing in this kind of work.

Photoengravers

Photoengravers are skilled journeymen, able to handle all the operations involved in their process. Sometimes, the entire job of producing a plate is done by one man. More often, however, especially in large shops, the work is divided among a number of photoengravers, who may then be known by such titles as photographer, printer, etcher, finisher, router, blocker, or prover, according to the particular phase of the work handled.

The photographer starts the process by photographing the material to be reproduced, using the necessary screens or color filters, and develops the negative. Making a print from the negative on a metal plate coated with sensitized solution is the job of the printer. Since the coating over the image areas of the plate is hardened by exposure to light during the printing process or by further chemical treatment, these areas are protected against the acid into which the plate is put by the etcher. The background areas are, however, etched away by this acid, leaving the image standing out in relief. After that, there are still a few more operations to be carried out—including finishing (careful inspection and touching up with hand tools), routing (cutting away metal from the nonprinting parts of the plate to prevent them from touching the inking roller during printing), blocking (mounting the engraving on a wooden block to make it the right height), and proving (printing a sample copy on a proof press).

Somewhat less than 10,000 men were employed as photoengravers in 1940, including both all-round men and specialists. The largest number work in service shops whose main business is making photoengravings for use by others; many journeymen have their own shops. Newspaper plants, book and periodical houses, and the United States Government Printing Office and Bureau of Engraving and Printing also employ considerable numbers of photoengravers.

Qualifications for Employment

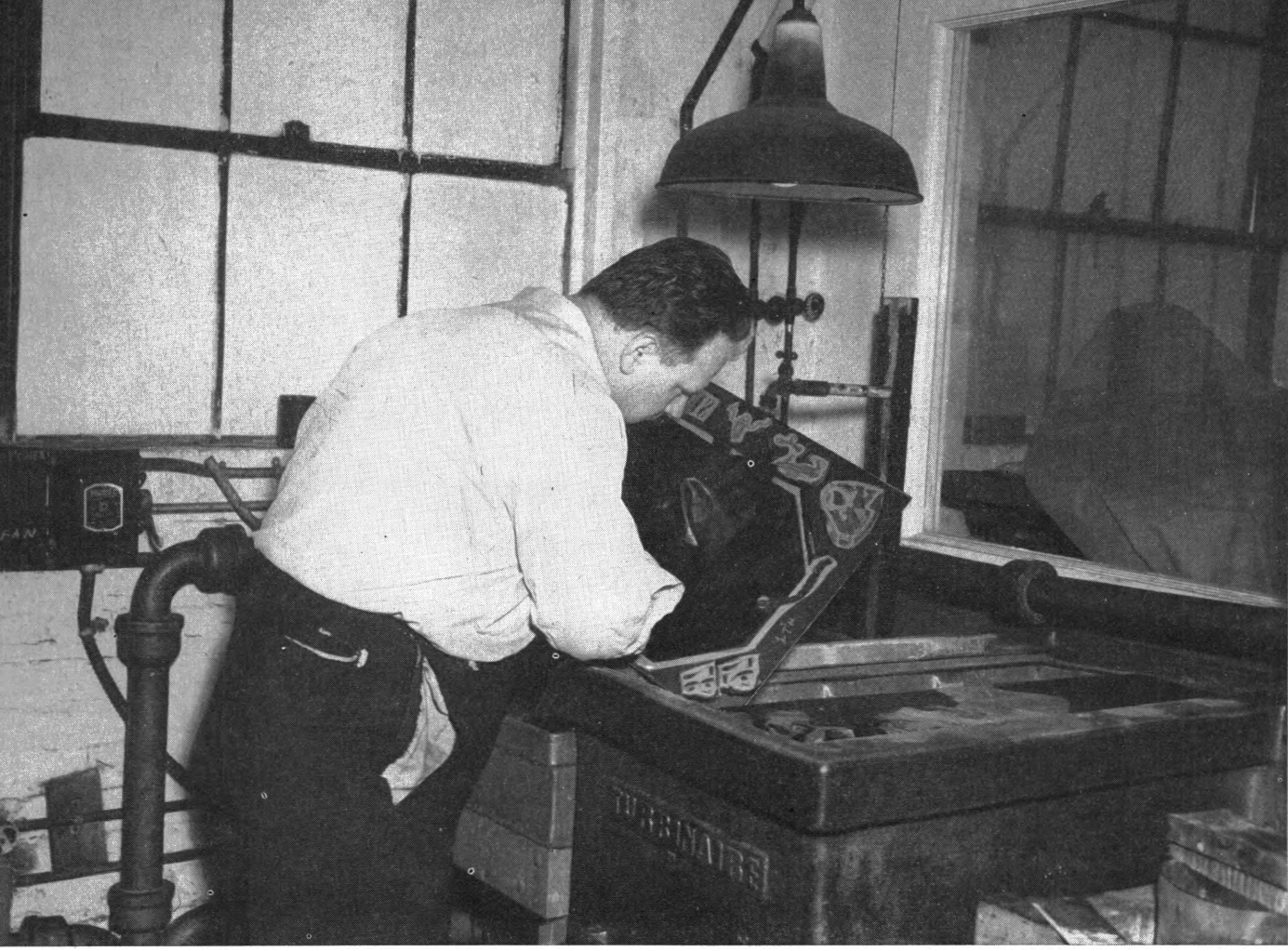
A 6-year apprenticeship is generally required to become a journeyman. The training covers all phases of the process and includes a large amount (864 hours) of classroom instruction.

Since photoengravers' duties involve constant, close work with their eyes, good eyesight is essential in this occupation. Because of the work with acids and other chemicals which give off fumes, the occupation is not a good one for people with respiratory disabilities. Many employers require physical examinations for prospective photoengravers, testing both eyes and lungs. Among the types of school training which are helpful, in addition to those needed for all printing trades (p. 9), are courses in chemistry and metallurgy.

Employment Prospects

Employment opportunities for qualified journeymen are expected to be fairly good in this small occupation in the immediate future. Some men with all-round experience and business abilities should find favorable opportunities to open their own shops. There will not be many openings for apprentices during the next year or two, however—probably no more than a hundred or so in the entire country.

In the long run, employment is likely to level off, and openings for both journeymen and apprentices will probably be few.



Photograph by U. S. Department of Labor.

Photoengraver (etcher) using magnifying glass to inspect depth of "bite" in plate which he has just removed from acid bath.

Earnings

Photoengravers have, on the whole, higher wage rates than any other group of printing craftsmen studied, with the exception of rotogravure men. In July 1946, the average union scale for photoengravers in newspaper plants was $2.06 an hour; in other shops, $1.97. Although rates were highest in the New York City area (about $2.25 an hour), other metropolitan areas also had high pay scales. The lowest scale for union photoengravers in any of the cities where a survey was made was $1.35.

Rotogravure Photoengravers

Rotogravure work is a relatively new process, which was being used increasingly before the war. So far, however, it has never employed more than a few hundred journeymen in the entire country.

These men are a very highly skilled group. Like regular photoengravers, they are required to know all phases of their process, although they usually specialize in one of them. The operations which they handle are much like those involved in photoengraving, except that a positive (instead of a negative) is used in making the plate and it is the image (rather than the background) areas which are etched away.

A few large newspaper and commercial plants have departments which reproduce pictures by this method. However, rotogravure men are employed mainly in independent rotogravure plants. Most of them work for half a dozen big firms which handle a large proportion of all rotogravure work.

Photograph by U. S. Department of Labor.

Photoengraver (router) cutting away metal from nonprinting areas of a plate.

Qualifications for Employment

It is possible to enter the occupation either by a 6-year apprenticeship in a rotogravure shop or by transferring from photoengraving. Photoengravers are usually required to complete a probationary training period before being classified as skilled rotogravure men. The qualifications needed by apprentices are the same for rotogravure work as for photoengraving.

Employment Prospects

There will be little room for newcomers in this occupation during the next year or so. During the war, the amount of rotogravure printing was much reduced, and a large proportion of the journeymen and apprentices either went into the armed services or transferred to photoengraving. The volume of rotogravure work is now rapidly returning to prewar levels, and there is frequent need for additional workers. However, these openings are being filled in most instances by former workers returning to the trade. Since the occupation is expected to go on expanding for an indefinite period, there should be some opportunities for newcomers after another year or two—but only a very few each year, because the total number of men employed is so small.

Earnings

As already indicated, rotogravure men are among the highest paid printing craftsmen. In general, their wage scales are above even the high rates for photoengravers doing letterpress work (p. 20).

Lithographic Occupations

Any kind of printing job that can be done by letterpress or gravure can be done also by lithography (or offset printing). Which method is used, however, depends on many practical considerations. Lithography has special advantages when the copy to be reproduced includes photographs, drawings, or paintings and particularly when these are in color. In present-day lithographic work, the plates are usually made by a photographic process, and the method is often referred to as photolithography. There are a few types of work—posters, for example—in which some of the plates are still made by hand.

The largest group of lithographic workers is made up of platemakers; other major occupational groups are cameramen, artists and letterers, pressmen, and press assistants. This section deals with the first three of these groups and with an occupation not yet mentioned, that of cutter. Information on lithographic pressmen is given in the section on pressroom occupations (p. 25).

Nature of the Work

Cameramen

The cameramen who photograph the copy to be printed are highly skilled workers. They do several different kinds of photography—in black and white or in color; of drawings or photographs; on glass plates or negative paper or film. The work includes not only taking the pictures and developing the negatives, but also related duties. Almost always, cameramen specialize in only one type of photography.

Artists and Letterers

After negatives have been made and developed, they frequently have to be retouched, to lighten or intensify certain parts. This is done by hand, with chemicals and dyes, and is one of the many highly skilled operations handled by craftsmen in the art department. Artists may have to correct colors

Artists preparing copy for reproduction by lithography.

Courtesy of U. S. Government Printing Office, Washington, D. C.

in the final press plates. They also draw posters or other pictures on stone or metal plates or on special paper, on the comparatively rare occasions when hand methods are used in place of photolithography. Lettering is usually done by hand, although sometimes by machine.

To be journeymen, artists have to be adept either in one or more of the various retouching methods or in hand drawing with lithographic crayon. Like cameramen, they are customarily assigned to only one phase of the work and may then be known, for example, as dot etchers (who do a highly specialized type of retouching), retouchers, crayon artists, or letterers, depending on their particular job.

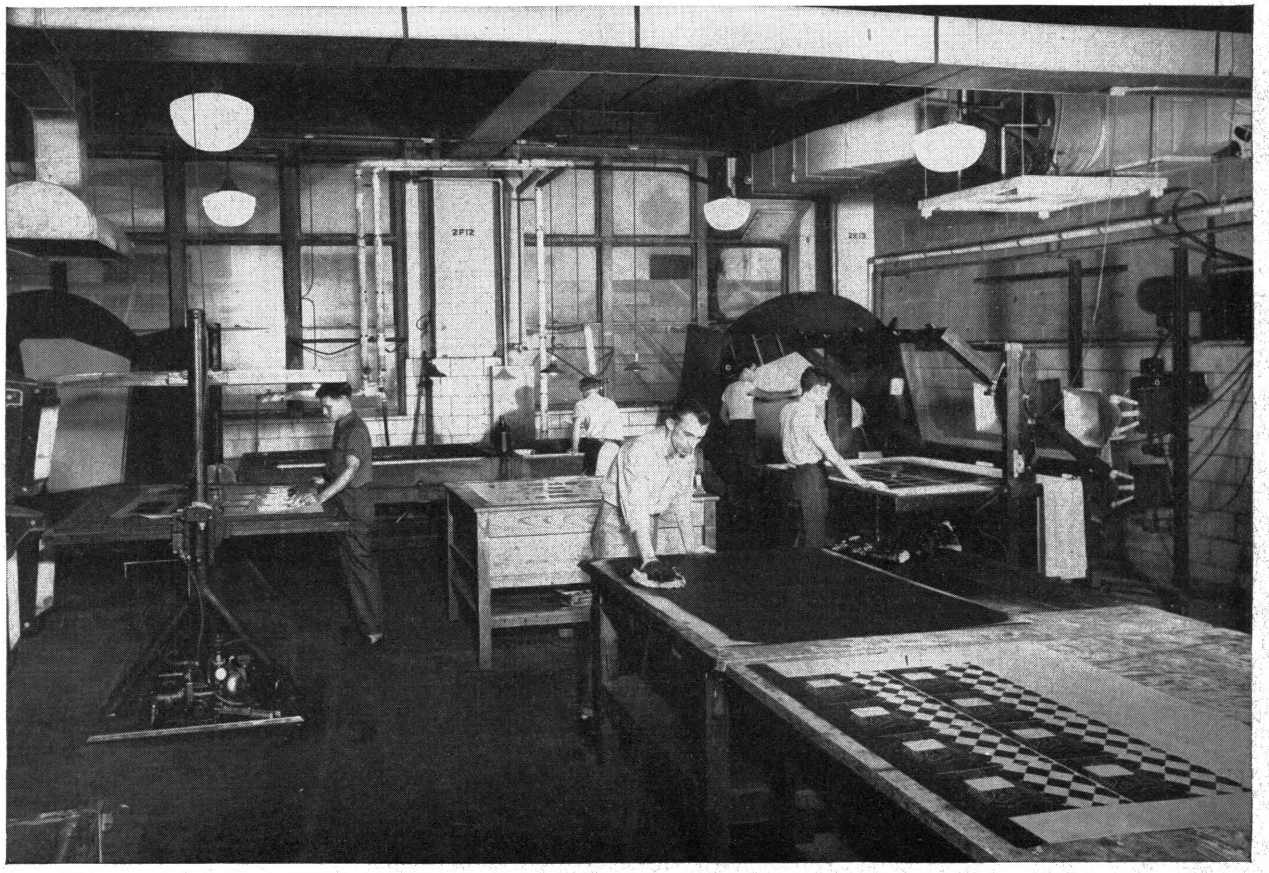
Platemakers

In photolithography, negatives and positives made by cameramen and corrected by artists are transferred onto press plates by workers in the platemaking or chemical department. The worker first places a metal plate with a light-sensitive coating in a vacuum frame or photocomposing machine; puts a photographic negative (or, sometimes a positive) on top of it; and makes an exposure under an arc lamp. The plate is then developed and chemically treated, so as to make the nonimage areas repellant to grease when damp but to leave the image areas receptive to it. The foregoing indicates only a few of the main steps in this highly complicated and technical process. Platemakers in small shops often perform all the different operations. Those in large shops, however, are likely to be more specialized; they may, for example, operate only a vacuum frame or a photocomposing machine.

Besides platemakers using these photomechanical methods, there are some who do hand transferring—although this process has been largely displaced by photomechanical platemaking. The hand-transfer platemaker places special transfer paper on a design and runs both through a transfer

Platemakers coating and developing lithographic plates.

Courtesy of U. S. Government Printing Office, Washington, D. C.



press. Next, he carefully removes this paper, which now has on it the image to be reproduced, places it on the press plate, and presses the design into the grain of the plate. Finally, he treats the plate in various ways. He may also have other duties to perform.

Cutters

For persons who wish jobs in lithography but who are unable to qualify for work in the other occupations discussed, one of the most interesting possibilities is a position as paper trimmer or cutter. The work is similar in many ways to that done by cutters in other branches of printing and in some industries outside the printing group. These workers may use cutting machines not only to cut paper to the sizes needed for the press, but also to cut the large press sheets after printing, in order to separate the different items which were printed together. The cuts must be carefully planned and accurately carried out. Cutters are also responsible for adjusting the knives, clamps, and other devices on their cutting machines and for the upkeep of the machines.

Numbers Employed and Places of Employment

Since lithography is used to only a limited extent compared with letterpress printing, all the occupations that have been discussed are small. About 5,000 platemakers were employed in 1946. Pressmen totaled about 3,300 or 3,400, and their assistants around 4,000. Artists and letterers numbered approximately 3,000; cameramen, about 1,200, and cutters, roughly 1,000.

Most workers in these occupations are employed in plants specializing in lithography. However, a good many work in job shops or other letterpress plants which have lithographic departments, or for firms in other industries which do printing of their own by the lithographic process.

Qualifications for Employment

To become an all-round, skilled cameraman, artist, or platemaker generally requires a 4- or 5-year apprenticeship covering all phases of the given department's work. For less-skilled jobs in these departments and also for the job of cutter, shorter periods of training are needed. Besides on-the-job training, many plants give supplementary training courses. Training programs are offered also in organized trade schools and other places.

The educational and physical qualifications needed for lithographic occupations are much the same as for printing occupations in general (p. 9). Men with physical handicaps of many types can qualify for jobs.

Employment Prospects

Qualified craftsmen should have little trouble getting jobs in lithographic occupations during the years immediately ahead. The labor shortages which developed during the war have been relieved only in part since VJ-day. Moreover, this is the fastest growing printing process. Employment opportunities will probably be very good also for men with training and experience in semiskilled lithographic occupations. In addition, employers will, for some time, need more trainees than usual, but the actual number of openings for newcomers will not be large in any occupation in any one year.

A few men will find favorable opportunities to open their own shops. The chances are likely to be best in localities which do not already have a well-established lithographic business.

The long-run outlook is for continued rapid rises in employment in all major lithographic occupations. Although by far the largest numbers of job openings—probably half of the total—will be in three cities (New York, Chicago, and San Francisco) during the next few years, opportunities will become more and more widespread as time goes on.

Earnings

Skilled cameramen, artists, and platemakers were generally paid more than $1 an hour—frequently much more—in the last years before the war. Cutters usually made between 80 cents and $1 an hour. By the fall of 1946, wage rates had increased on the average by at least 25 percent in these occupations. Since that time, wages have risen still higher.

Pressroom Occupations

Type forms from composing rooms, press plates from electrotyping and stereotyping departments, rotogravure plates, and lithographic plates all go to a pressroom, when the time comes for the actual printing to be done. In small shops, this department may consist of only one or two small presses in a back room or a corner of the shop. In big plants, however, pressrooms are large, with many workers and, frequently, huge presses. Often these machines are so heavy and create so much vibration that the department has to be located on the ground floor or in the basement.

Pressmen

Skilled pressmen, the key workers in the department, are the third largest group of printing craftsmen. In 1940, about 33,000 of them were employed. Only hand compositors and linotype operators were more numerous.

Pressmen's basic duties are to "make-ready" and then tend the presses while in operation. The object of the make-ready, which is one of the most delicate and difficult parts of the work, is to ensure printing impressions that are distinct and even and neither too dark nor too light. This is accomplished by such means as placing pieces of paper of exactly the right thicknesses underneath low areas of the press plate or type form to level it, and attaching pieces of tissue paper to the surface of the cylinder or flat platen which makes the impression. Pressmen also have to make many other adjustments—for example, those controlling

Pressman using paper to level plate. Press is a small flatbed cylinder press for letterpress printing.

Photograph by U. S. Department of Labor.

margins and the flow of ink to the inking roller. In some shops, they are responsible not only for tending the presses but for oiling and cleaning them and making at least minor repairs. In many cases they have assistants whose work they supervise.

Within this broad outline, pressmen's work varies greatly from one type of shop to another, because of the great differences in the kinds and sizes of presses used. Small commercial shops, many of which are owned and run by pressmen themselves in partnership with compositors, generally have small and relatively simple platen (or job) presses that are often fed paper by hand. At the other extreme are the big newspaper plants with their tremendous web-rotary presses. These giant presses are fed paper in big rolls (or webs). They print the paper on both sides by means of a series of cylinders; cut the pages apart, and assemble, and fold them; and finally count the finished newspaper sections, which emerge from the press ready for the mailing room. To do all this automatically requires many different mechanisms, all of which must have frequent attention while a run is being made. Presses of this kind are therefore operated by crews of journeymen and less-skilled workers, under the direction of a pressman-in-charge.

Another type of press on which men specialize is that used in offset printing. An offset press has three cylinders, the first carrying the curved plate; the second, a rubber blanket; and the third, the paper on which an impression is to be made. The plate does not print directly onto the paper but instead transfers the impression to the rubber blanket around the second cylinder which then offsets the image onto the paper. Another special feature is the dampening rollers which pass over the plate before each inking, to prevent the greasy ink from adhering to the nonprinting areas of the plate. Both these features create extra complications for the pressman. Experts emphasize also that, in printing by this method, "kiss" pressure only is needed (much less pressure than is involved in relief and gravure printing), and that delicate and skillful adjustments by the pressman are required to attain exactly the right pressure.

Pressmen may specialize also in operating direct lithographic presses, which make impressions on paper directly from lithographic plates instead of using the offset principle. There are, in addition, other types of presses including the rotogravure press, a rotary press with a "doctor" blade which scrapes the surplus ink off the surface of the plate.

Qualifications for Employment

To become a skilled pressman requires 3 to 5 years of apprenticeship. Usually, men receive training on only one type of press, and opinion differs as to how readily journeymen can become skilled on other types of presses. The length of the apprenticeship and the content of the training largely depend on the kind of press involved. For work on an offset press, for example, the apprenticeship period is almost always 5 years.

Apprentices are generally chosen from among the press assistants and others already employed by the company. They must have completed at least the eighth grade in school; some employees require high-school graduation. Since they will often have to blend their own inks, a knowledge of color is necessary. Courses in art are therefore very helpful.

Physical strength and endurance are necessary for work on some kinds of presses, where the pressman has to lift heavy type forms and press plates and be on his feet all day. Another quality needed is mechanical aptitude, to assist the worker in making adjustments and repairs to the presses.

Employment Prospects

In this as in most other printing occupations, employers will need all qualified journeymen likely to be available during the next few years. In addition, there will be many apprenticeship opportunities, especially as new machinery becomes available. Proportionately speaking, the greatest increases in employment will be in lithographic work. Nevertheless, openings in this branch of the occupation will be few, because the total number of lithographic pressmen employed is small (about 3,300 or 3,400 in 1946). In the long run, employment of pressmen will probably have an upward trend, as it had before the war.

Earnings

Wage rates for pressmen depend on the make and style of press operated, as well as the type of printing plant and other factors. Rates were highest in the newspaper industry, where press-

men-in-charge averaged $1.91 an hour, and other journeymen, $1.76 in July 1946. Outside newspaper plants, the average union scale for cylinder pressmen was $1.65 an hour; for platen pressmen, $1.42. Of the pressmen for whom information was available, all but platen pressmen tended to have rates well above the average ($1.58) for all printing trades.

Press Assistants

The duties of press assistants range from merely feeding sheets of paper into hand-fed presses to helping pressmen make ready and operate large and complicated rotary presses. Workers whose main responsibility is feeding are often referred to simply as feeders.

The nonjourneymen on web-rotary crews in newspaper plants are commonly known as flyboys. They pick up the newspapers as they come out of the press and load them onto hand trucks; they also wheel the trucks out of the pressroom and do other work.

In 1940 the total number of press assistants employed was roughly 8 or 9 thousand, not counting flyboys in newspaper plants. The ratio of assistants to pressmen varies greatly from one establishment to another, depending on the size of the plant, the type of press used, and other factors. Many shops are too small to have any pressroom helpers.

Promotion to apprentice pressman and eventually to journeyman is possible for many though not all press assistants. Those who aspire to such promotions need the same general qualifications as are needed by apprentice pressmen (p. 26).

Employment Prospects

Several hundred job openings for press assistants may be expected each year for the next few years. After that, openings will probably become much fewer. Before the war, the printing industries tended not to hire as many press assistants as they lost owing to turn-over. It is likely that this tendency will appear again after the current need for labor has been met and that employment in the occupation will resume its long-range downward trend. However, lay-offs will probably be made only in exceptional circumstances.

Earnings

In July 1946, press assistants in union shops outside the newspaper industry had an average wage rate of $1.32 an hour. Those who were merely press feeders had somewhat lower pay than the ones whose main job was to assist journeymen in the make-ready and in operating the presses. Helpers in newspaper pressrooms made less than press assistants in other printing shops, although the reverse was true for skilled pressmen.

Bindery Occupations

Many products are finished when they leave the pressroom. This is true of a wide variety of items produced by job shops—business forms, printed stationery, labels, advertising flyers, and so forth. Newspapers, except the few that are bound for libraries, never see a bindery department. Nevertheless, binderies play a part in the manufacture of many products besides books. Whenever a magazine or pamphlet or even a small calendar is sewed or stapled together, this is considered a bindery operation.

Bookbinders

Making a book out of the big, flat sheets of paper that come into the bindery from the pressroom is by far the most complicated type of bindery work. The first step is to fold the printed sheets, each of which contains many pages, so that these pages will be in the right order. When so folded into sections of 16 or 32 pages, the sheets are known as signatures. The next steps are to insert any illustrations that have been printed separately, to assemble the signatures in proper order, and to sew them together. The resulting book bodies are shaped in various ways, usually with power presses and trimming machines, and fabric strips are glued to the backs to reinforce them. Sometimes, the edges of the pages are gilded or colored. Covers are glued or pasted onto the book bodies, after which the books undergo a variety of finishing operations and, frequently, are wrapped in paper jackets.

Skilled bookbinders seldom handle all these different tasks, although many journeymen have had training in all of them. Especially in large shops,

the bookbinders are likely to be assigned to one or a few operations, most often to the operation of complicated machines.

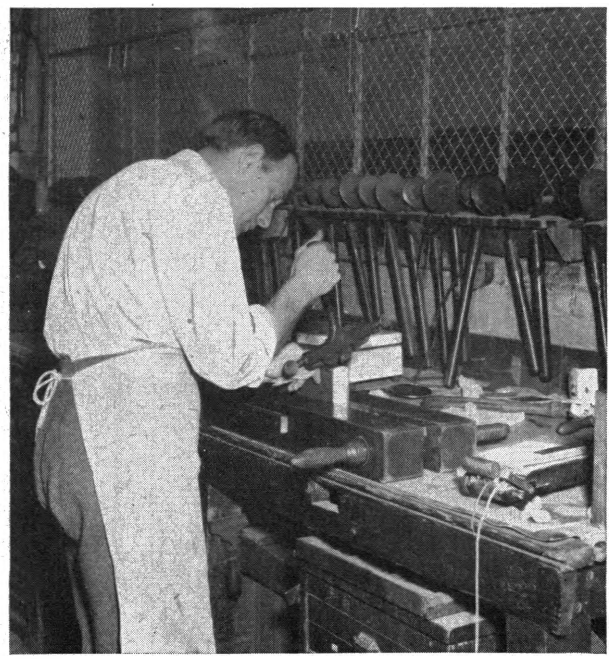
The majority of journeymen are employed in shops whose main business is bookbinding. However, a good many work in the bindery rooms of large book, periodical, and commercial printing plants. Some are employed in libraries, where the work is done mainly by hand and also differs in other respects from that performed elsewhere. Rough estimates suggest that, altogether, about 15 or 20 thousand men had journeyman jobs in 1940, making this the fourth largest group of printing craftsmen.

Qualifications for Employment

Completion of a 4-year apprenticeship is usually required of men seeking to qualify as skilled bookbinders. The apprenticeship programs may vary considerably between the different types of shops. Where large quantities of books are bound on a mass-production basis, emphasis is on the most modern machine methods. Where fine hand binding is done, the training is mainly in hand methods, including artistic designing and decorations of leather covers.

Bookbinder putting gold lettering on back of book with hand tool.

Photograph by U. S. Department of Labor.



Employment Prospects

Both journeyman and apprentice openings will be more numerous during the next few years than they were for many years before the war. The occupation was greatly overcrowded in the last prewar years; thousands of skilled workers were unemployed or had been forced to take jobs paying less than a journeyman's wage. During the war, a labor shortage developed in this occupation, as in printing crafts generally, and there are still many openings. The shortage is unlikely to last more than a few years longer, however. It is expected that eventually the number of opportunities will be small and that employment in the occupation will resume its long-run downward trend.

Earnings

Union rates for journeyman bookbinders averaged $1.50 an hour in July 1946. For over two-thirds of these skilled workers, wage scales were between $1.30 and $1.60 per hour. In general, pay scales in the occupation were below the average ($1.58) for all printing trades.

Bindery Workers

In many binderies, especially large ones, a great part of the work is done by employees trained in only one operation or in a small group of related tasks. These semiskilled workers are mostly women, though a few are men. The women handle a variety of hand or light-machine operations—such as hand folding, pasting-in of inserts, assembling signatures by hand, machine sewing, gluing fabric reinforcement on signatures, and feeding machines. The men are usually assigned to more intricate machine jobs; they may operate assembling, trimming, stamping, and many other types of machines.

The bindery workers are by far the largest group of semiskilled workers in the printing and allied industries. Roughly 70 or 80 thousand of them were employed in 1940. Large numbers are used both in independent binderies and in the bindery departments of big printing plants. For inexperienced men and women entering the occupation, a training period, which may be as long as 1 or 2 years, is frequently required. In union shops, there are always formal training programs.

Photograph by U. S. Department of Labor.

Bindery workers "casing-in" small booklets (putting covers on pages). Girl at far right is running cover through machine which puts glue on inside. Girl in the center is inserting pages in cover. Man is straightening pages and folding booklets.

Employment Prospects

For several years, experienced workers will probably have little difficulty in getting jobs in this occupation. There will also be hundreds of openings for inexperienced workers each year. After the next few years, opportunities are likely to become fewer and there may not be enough jobs for all persons seeking work. But the long-run trend of employment is upward, as in most printing occupations. Workers who now have jobs or who enter the field during the current expansion in employment will have a good chance of keeping their positions indefinitely.

Earnings

Women bindery workers have the lowest wage rates of any group of production workers in the printing and allied industries. In July 1946, the average union scale for these women was 81 cents an hour, with 9 out of 10 having rates between 70 cents and $1.00. These union scales were probably representative of all wage rates for women in the occupation although, unlike printing workers, many bindery employees, especially women, are not covered by union agreements.

Men doing semiskilled machine work were generally paid somewhat more than the usual top rate for women. The few doing hand operations had rates similar to those for women workers.

APPENDIXES

I. Number of Establishments, Value of Products, and Number of Persons Employed in Printing, Publishing, and Allied Industries, 1939 [1]

Industry [2]	Number of establishments	Value of products (millions of dollars)	Number employed	
			Proprietors	Employees
Total	38, 762	$2, 614	32, 322	561, 861
Plants reporting value of product more than $5,000	24, 878	2, 578	18, 147	552, 505
Newspapers	7, 309	910	6, 014	207, 429
General commercial (job) printing	9, 595	515	8, 216	126, 059
Periodicals	2, 558	469	782	61, 972
Books	1, 396	237	576	42, 559
Lithography [3]	749	154	278	34, 722
Greeting cards, not hand painted	109	39	70	9, 983
Gravure, rotogravure, and photogravure [4]	24	19	5	3, 114
Service shops:				
Photoengraving	694	56	384	13, 747
Machine and hand typesetting	641	25	538	8, 100
Engraving (steel, copperplate, and wood) [5]	436	22	329	6, 865
Electrotyping and stereotyping	234	29	62	6, 333
Bookbinding and related industries	1, 133	103	893	31, 622
Plants reporting value of product less than $5,000	13, 884	36	14, 175	9, 356
Printing and publishing	13, 570	35	13, 835	9, 046
Bookbinding	314	1	340	310

[1] Census of Manufactures, vol. II, pt. I, 1939; and Census of Business, vol. III, Service Establishments, 1939.

[2] The industry in which an establishment was classified by the Bureau of the Census was determined by its chief product or products (measured in dollar value of output during 1939), except in the case of newspaper printing. Plants which had done any work of this type during 1939 were classed in the newspaper industry, even if they had also done commercial or other work having a greater value. See the U. S. Department of Commerce, Bureau of the Census, *Industry Classifications for the Census of Manufactures, 1939*, pp. 1 and 46–48.

[3] This industry is made up of establishments primarily engaged in preparing lithograph plates and in printing from such plates. The greater part of the work is done to individual order, but in some cases lithographed calendars, commercial forms, maps, illustrated cards, posters, and other items are made for sale. Lithographing of books and pamphlets for publishers is classified in the book printing industry. A great many plants, classified in other printing industries or outside the printing group, do some lithographic work; the Joint Lithographic Advisory Council estimates that at least 2,000 separate establishments had lithographic equipment in 1939 and that, by 1946, the number had increased to about 2,600.

[4] Most establishments in this industry are rotogravure plants, which make plates of pictures by a photo-mechanical process and also print from these plates. Some few do other types of gravure printing.

[5] These shops service the printing industries with plates engraved by hand or machine and sometimes also print from the plates they make.

II. Union Wage Scales in Major Newspaper Printing Trades in Selected Cities, July 1, 1946[1]

City and State	Hand compositors	Composing-machine operators	Stereotypers	Photo-engravers	Journeyman pressmen	Pressmen-in-charge
Atlanta, Ga	$1.63	$1.63	$1.63	$1.79	$1.63	$1.78
Baltimore, Md	1.67	1.67	1.48	1.86	1.52	1.64
Binghamton, N. Y	1.40	1.40	1.40	----	1.40	----
Birmingham, Ala	1.55	1.55	1.48–1.50	1.70	1.44	1.53
Boston, Mass	1.73	1.73	1.73	1.87	1.89–2.04	2.04–2.12
Buffalo, N. Y	1.65	1.65	1.56	1.92	1.46–1.56	1.59–1.70
Butte, Mont	1.52	1.52	1.50	----	1.47	1.59
Charleston, S. C	1.45	1.45	----	----	----	----
Charleston, W. Va	1.38	1.38	1.45	----	1.40	1.63
Charlotte, N. C	1.32	1.32	1.28	----	1.23	----
Chicago, Ill	2.08	2.08	1.63	2.15	1.70	1.87
Cincinnati, Ohio	1.87	1.87	1.73	2.00	1.68	1.78
Cleveland, Ohio	1.90	1.90	1.75	2.13	1.68–1.99	1.84–2.19
Columbus, Ohio	1.70	1.70	1.65	2.03	1.59	1.92
Dallas, Tex	1.66	1.66	1.58	----	1.34	1.40
Davenport, Iowa	(2)	(2)	(2)	(2)	(2)	(2)
Dayton, Ohio	1.57	1.57	1.48	1.77	1.48	1.57
Denver, Colo	1.65	1.65	1.43–1.49	1.64	1.43	1.53
Des Moines, Iowa	1.59	1.59	1.56	1.64	1.56	2.56
Detroit, Mich	1.99	1.99	1.90	2.12	1.84–1.97	1.97–2.17
Duluth, Minn	1.44	1.44	1.29	1.53	1.29	1.36
El Paso, Tex	1.52	1.52	1.36	----	1.36	1.39
Erie, Pa	1.50	1.50	1.33	----	1.25	1.40
Grand Rapids, Mich	1.58	1.58	1.58	1.75	1.45	----
Houston, Tex	1.62	1.62	1.38	1.72	1.35	1.42
Indianapolis, Ind	1.87	1.87	1.85	1.69	1.48	1.62
Jackson, Miss	1.35	1.35	----	----	----	----
Jacksonville, Fla	1.65	1.65	1.65	1.65	1.65	1.78
Kansas City, Mo	1.60	1.60	1.45–1.50	1.75	1.36	1.42
Little Rock, Ark	1.37	1.37	1.13	----	1.29	1.39
Los Angeles, Calif	1.73	1.73	1.61	1.82	1.61	1.89
Louisville, Ky	1.65	1.65	1.50	1.70	1.50	1.63
Madison, Wis	1.45	1.45	1.45	----	1.45	1.53
Manchester, N. H	1.34	1.34	1.34	1.35	1.34	1.45
Memphis, Tenn	1.52	1.52	1.34	1.74	1.50	1.64
Milwaukee, Wis	1.81	1.81	1.52	2.00	1.67	1.83
Minneapolis, Minn	1.82	1.82	1.61	1.83	1.61	1.73
Mobile, Ala	1.55	1.55	1.29	----	1.27	----
Moline, Ill	(2)	(2)	(2)	(2)	(2)	(2)
Nashville, Tenn	1.37	1.37	1.36	1.50	1.26	1.34
Newark, N. J	1.75	1.75	1.58	----	1.65	1.84
New Haven, Conn	1.34	1.34	1.45	----	1.35	1.48
New Orleans, La	1.35	1.35	1.35	1.40	1.30	1.41
New York, N. Y	2.07	2.07	1.84	2.25	1.79	1.98
Norfolk, Va	1.41	1.41	1.25	1.48	1.25	1.38
Oklahoma City, Okla	1.53	1.53	1.41	1.73	1.50	1.63
Omaha, Nebr	1.51	1.51	1.51	1.57	1.50	1.62
Peoria, Ill	1.45	1.45	1.39	1.63	1.45	1.58
Philadelphia, Pa	1.54	1.54	1.49	1.79	1.43	1.57
Phoenix, Ariz	1.42	1.42	1.42	----	1.42	----
Pittsburgh, Pa	1.87	1.87	1.72	2.04	1.60	1.66
Portland, Maine	1.30–1.38	1.30–1.39	1.38	1.57	1.20–1.38	----
Portland, Oreg	1.72	1.72	1.67	1.58	1.60	1.70
Providence, R. I	1.67	1.67	1.65	1.86	1.68	1.76
Reading, Pa	1.46	1.46	1.46	----	1.46	1.59
Richmond, Va	1.40	1.40	1.34	1.54	1.34	1.59
Rochester, N. Y	1.55	1.55	1.60	1.92	1.55	1.68
Rock Island (Ill.) district [2]	1.47	1.47	1.55	1.50	1.54	1.70
St. Louis, Mo	1.84	1.84	1.78	2.00	1.78	1.89
St. Paul, Minn	1.76	1.76	1.54	1.73	1.52	1.64
Salt Lake City, Utah	1.48	1.48	1.38	1.60	1.46	1.59
San Antonio, Tex	1.47	1.47	1.30	1.75	1.30	1.46
San Francisco, Calif	1.87	1.87	1.75	1.94	1.76	1.94
Scranton, Pa	1.67	1.67	1.59	1.83	1.55	1.60
Seattle, Wash	1.86	1.86	1.73	1.98	1.73	1.87
South Bend, Ind	1.46	1.46	1.39	----	----	----
Spokane, Wash	1.63	1.63	1.57	----	1.52	1.65
Springfield, Mass	----	----	1.50	1.58	1.38	1.50
Tampa, Fla	1.43	1.43	1.43	1.45	1.43–1.44	1.57
Toledo, Ohio	1.77	1.77	1.71	1.76	1.54	1.69
Washington, D. C	1.83	1.83	1.56	2.00	1.58	1.71
Wichita, Kans	1.32	1.32	1.24	1.58	1.06	1.13
Worcester, Mass	1.47	1.47	1.45	1.50	1.32	1.45
York, Pa	1.15	1.15	1.06	----	----	----
Youngstown, Ohio	1.59	1.59	1.63	----	1.39	1.51

[1] U. S. Bureau of Labor Statistics, Wage Analysis Branch: *Union Wage Scales, Newspaper Printing Trades, 1946* (mimeographed report). These scales are the minimum rates paid under collective bargaining agreements and are, in most cases, uniform for each occupation in a given locality; where they are not uniform, the lowest and highest rates are shown. Where no rate is given, there was no union wage scale for the occupation in the particular city.

[2] Rock Island district includes Rock Island and Moline, Ill., and Davenport, Iowa.

III. Union Wage Scales in Major Book and Job Printing Trades in Selected Cities, July 1, 1946 [1]

City and State	Hand compositors	Composing-machine operators	Electrotypers	Photoengravers	Cylinder pressmen	Platen pressmen	Press assistants and feeders	Bookbinders	Bindery women
Atlanta, Ga	$1.53	$1.53	$1.54	$1.79–$1.80	$1.20–$1.45	$1.45	$0.80–$1.04	$1.44	$0.75
Baltimore, Md	1.50	1.50	1.30	1.77– 1.97	1.35– 1.73	1.24	.89– 1.21	1.32	.53– .65
Binghamton, N. Y	1.37– 1.38	1.38			1.00– 1.25	1.00– 1.25	.60– .89	.97– 1.40	.70– .75
Birmingham, Ala	1.55	1.55	1.56	1.75	1.20– 1.63	1.06	.85	1.25	.65
Boston, Mass	1.43	1.43– 1.47	1.40	1.87	1–39– 1.51	1.25– 1.32	.79– 1.30	1.39	.75
Buffalo, N. Y	1.48	1.55	1.50	1.67	1.46– 1.61	1.33	1.00– 1.28	1.30	.70
Butte, Mont	1.44	1.44			1.38	1.25	.57– .83	1.38	.80
Charleston, S. C	1.44	1.44							
Charleston, W. Va	1.50	1.50			1.50			1.50	.88
Charlotte, N. C	1.30	1.30		1.50	1.25	1.05		.90	.45
Chicago, Ill	1.82	1.82	2.10	2.07	1.71– 2.23	1.79	1.12– 1.76	1.56– 1.88	.87– .91
Cincinnati, Ohio	1.59	1.59	1.63	1.80	1.19– 1.73	1.16– 1.26	.84– 1.31	1.30	.75
Cleveland, Ohio	1.62	1.66	1.75	1.84– 2.18	1.33– 1.71		1.03– 1.35	1.47	.71– .78
Columbus, Ohio	1.60	1.60	1.60	1.50– 1.76	1.60	1.60	1.32	1.60	.87
Dallas, Tex	1.40	1.50	1.38	1.75	1.16– 1.38	1.19	.90– 1.00	1.35	.70
Davenport, Iowa	(2)	(2)	(2)	(2)	(2)		(2)		
Dayton, Ohio	1.80	1.80	1.70	1.80	1.46– 1.93	1.30– 1.53	.90– 1.28	1.45– 1.50	.78– .90
Denver, Colo	1.44	1.44	1.45	1.58	1.44	1.33	.68– 1.18	1.33	.80
Des Moines, Iowa	1.41	1.41	1.57	1.64	1.33– 1.47	1.25	.92– 1.16	1.32	.73
Detroit, Mich	1.83– 1.85	1.83– 1.85	1.80	1.93	1.70– 1.78	1.47	1.10– 1.42	1.10– 1.65	.83– .95
Duluth, Minn	1.20			1.50	1.05	.78	.45		
El Paso, Tex	1.52	1.52			1.36	1.36			
Erie, Pa	1.34	1.34			1.30	1.20			
Grand Rapids, Mich	1.35	1.35	1.60		1.10	.90	.90	1.00	.60
Houston, Tex	1.50	1.50	1.50	1.75	1.35	1.10– 1.18	1.05– 1.11	1.35	.70
Indianapolis, Ind	1.46	1.46	1.60	1.69	1.44	1.31– 1.44	.74– 1.32	1.44	.80
Jackson, Miss	1.25	1.25							
Jacksonville, Fla	1.50	1.50		1.38	1.30	1.30	.65– .90	1.25	.70
Kansas City, Mo	1.50		1.50	1.69	1.50	1.38– 1.45	.93– 1.30	1.38	.78
Little Rock, Ark	1.25	1.25			1.19	1.19	.60– .83	1.09	.60
Los Angeles, Calif	1.60	1.60	1.93	2.07	1.52	1.42	1.10– 1.33	1.52	.90
Louisville, Ky	1.38	1.38		1.57	1.18– 1.79	1.03– 1.18	.72– 1.29	1.15– 1.16	.66– .70
Madison, Wis	1.30	1.30		1.74					
Manchester, N. H	1.05	1.05		1.35	1.10	.90			
Memphis, Tenn	1.35	1.35	1.18	1.44	1.10	1.10	.60– .83	1.10	.60
Milwaukee, Wis	1.50	1.50	1.61	1.74	1.45– 1.55	1.33	.83– 1.24	1.35	.70
Minneapolis, Minn	1.50	1.50	1.65	1.50	1.05– 1.61	1.15– 1.38	.67– 1.18	1.11– 1.38	.60– .74
Mobile, Ala	1.31	1.31			1.30	1.30	.65		
Moline, Ill	(2)	(2)	(2)	(2)	(2)		(2)		
Nashville, Tenn	1.25– 1.38		1.15	1.50	1.11– 1.25	.88– .94	.63– 1.00	1.15– 1.18	.60– .63
Newark, N. J	1.77	1.78	2.10	2.14	1.30– 1.75	1.46– 1.64	.98– 1.48	1.28– 1.60	.80
New Haven, Conn	1.18	1.18	1.46	1.38	1.23– 1.45		.90– 1.15	1.25	.65
New Orleans, La	1.35	1.35	1.72	1.50	1.35	1.05	.63– 1.03	1.35	.75
New York, N. Y	1.83	1.83	2.10	2.23	1.83– 2.14	1.60– 1.76	1.13– 1.60	.69– 1.91	.75– .92
Norfolk, Va	1.40	1.40		1.50					
Oklahoma City, Okla	1.50	1.50	1.41	1.63		1.00– 1.08	.75– .85	1.30	.75
Omaha, Nebr	1.47	1.47	1.51	1.50	1.30	1.30	1.10		
Peoria, Ill	1.35	1.35	1.58	1.50	1.30	1.18	.90– 1.13		
Philadelphia, Pa	1.60	1.60	1.95	1.92	1.50– 1.84	1.46	1.10– 1.37	1.30– 1.35	.70– .75
Phoenix, Ariz	1.39	1.39			1.39	1.24	.98– 1.13		
Pittsburgh, Pa	1.60	1.60	1.50	1.94	1.60– 2.03	1.51	.94– 1.42	1.31	.72
Portland, Maine	1.01	1.01			.99	.89	.80		
Portland, Oreg	1.56	1.56	1.72	1.70	1.56	1.50	1.06– 1.25	1.56	.94
Providence, R. I	1.25	1.25	1.40	1.60	1.10– 1.45	1.10– 1.20	.90– 1.00		
Reading, Pa	1.30	1.35			1.19	1.14– 1.25	1.04– 1.25		
Richmond, Va	1.30	1.30	1.41	1.63	1.04– 1.69	1.10	.64– 1.38	1.23– 1.40	.58– .73
Rochester, N. Y	1.38– 1.45	1.38– 1.45		1.92	1.28– 1.54	1.20– 1.38	.92– 1.15	1.33– 1.38	.70– .80
Rock Island (Ill.) district [2]	1.32		1.44	1.63	1.33		1.09– 1.27		
St. Louis, Mo	1.49	1.52	1.50	1.68	1.28– 1.63	1.23– 1.33	.79– 1.39	1.41	.79
St. Paul, Minn	1.50	1.50	1.65	1.50	1.21– 1.68	1.04– 1.50	.67– 1.20	1.11– 1.38	.60– .74
Salt Lake City, Utah	1.50	1.50	1.38		1.50	1.50	1.25		
San Antonio, Tex	1.15	1.15		1.75	1.00	.75	.40– .60	1.25	.65
San Francisco, Calif	1.66	1.66	1.58	1.93	1.66– 1.81	1.59	1.04– 1.30	1.66	.95
Scranton, Pa	1.43	1.43	1.43	1.71	1.37– 1.47	1.10	.87– 1.14	1.31– 1.36	.75
Seattle, Wash	1.86		2.00	2.13	1.86	1.71	1.23– 1.47	1.86	1.05
South Bend, Ind	1.36	1.36	1.50	1.63	1.36– 1.50	1.20– 1.26	1.07	1.45	.75
Spokane, Wash	1.50				1.50	1.50	1.12– 1.15	1.50	.80
Springfield, Mass	1.30	1.30	1.42	1.58– 1.62	1.21		.87	1.30	.72– .83
Tampa, Fla	1.32	1.32				1.20			
Toledo, Ohio	1.50– 1.51	1.50– 1.51	1.43	1.68	1.45	1.32– 1.37	1.17	1.35	.75
Washington, D. C	1.53	1.53	1.90	1.89	1.43– 1.97	1.21– 1.35	.88– 1.38	1.25	.70
Wichita, Kans	1.33	1.33		1.58	1.27	1.06	.82– 1.00	1.24	.72
Worcester, Mass	1.10	1.10	1.40	1.63					
York, Pa	1.20	1.20	1.29		1.27– 1.32	1.15	1.00	1.15	.75
Youngstown, Ohio	1.45	1.45		1.68	1.28	1.24	.64	1.28	.65

[1] U. S. Bureau of Labor Statistics, Wage Analysis Branch: Union Wage Scales, Book and Job Printing Trades 1946 (mimeographed report). These scales are the minimum rates paid under collective bargaining agreements and are, in most cases, uniform for each occupation in a given locality. Where no rate is given, there was no union wage scale for the occupation in the particular city. In this table, book and job printing includes all branches of printing except newspaper.

[2] Rock Island district includes Rock Island and Moline, Ill., and Davenport, Iowa.

IV. Addresses of Labor Organizations and Trade Associations

Amalgamated Lithographers of America (CIO), 450 Seventh Avenue, New York, N. Y.

American Newspaper Publishers Association, 370 Lexington Avenue, New York City 17, N. Y.

American Photo-Engravers Association, 166 West Van Buren Street, Chicago 4, Ill.

Book Manufacturers Institute, 25 West Forty-third Street, New York City, N. Y.

Employing Bookbinders of America, 28 West Forty-fourth Street, New York City, N. Y.

Employing Printers Association of America, 53 West Jackson Boulevard, Chicago 4, Ill.

International Allied Printing Trades Association (AFL), 307 AFL Building, Washington 1, D. C.

International Association of Electrotypers and Stereotypers, Inc., 350 East Twenty-second Street, Chicago, Ill.

International Brotherhood of Bookbinders (AFL), 901 Massachusetts Avenue, Washington 1, D. C.

International Photo-Engravers' Union of North America (AFL), 292 Madison Avenue, New York City 17, N. Y.

International Printing Pressmen's and Assistants' Union of North America (AFL), Pressmen's Home, Tenn.

International Stereotypers' and Electrotypers' Union (AFL), 475 Fifth Avenue, New York, N. Y.

International Typographical Union (AFL), PO Box 728, Indianapolis 6, Ind.

Joint Lithographic Advisory Council, 70 Pine Street, New York, N. Y. Benjamin M. Robinson, Sec.

Library Binding Institute, 501 Fifth Avenue, New York City, N. Y.

Lithographers National Association, Inc., 420 Lexington Avenue, New York City 17, N. Y.

Lithographic Technical Foundation, Inc., 131 East Thirty-ninth Street, New York City 17, N. Y.

National Association of Photo-Lithographers, 1776 Broadway, New York City 19, N. Y.

National Publishers Association, 232 Madison Avenue, New York City 16, N. Y.

Printing Industry of America, Inc., 719 Fifteenth Street, NW, Washington 5, D. C.

V. Suggested Readings

American Photo-Engraver, International Photo-Engravers' Union of North America, St. Louis, Missouri. Published monthly.

American Pressman, International Printing Pressmen and Assistants' Union of North America, Pressmen's Home, Tennessee. Published monthly.

The Printing Trades and Their Workers, by Florence E. Clark, International Textbook Company, Scranton, Pennsylvania, 1939.

Dictionary of Printing Terms, Porte Publishing Co., Salt Lake City, Utah, 1941.

Dictionary of Occupational Titles, U. S. Department of Labor, and the U.S. Employment Service, Government Printing Office, Washington, D. C., 1939.

Earnings and Hours in Book and Job Printing, January 1942, U. S. Department of Labor, Bureau of Labor Statistics, Division of Wage Analysis, Government Printing Office, 1943.

Graphic Arts Education, by Fred J. Hartman, "A Compendium of Mechanical Workers in Printing and Allied Trades," Summer Issue, 1944.

International Bookbinder, International Brotherhood of Bookbinders, AFL Building, Washington, D. C. Published bimonthly.

Is There a Job for Me in Lithography? Joint Lithographic Advisory Council, January 1945.

Job Possibilities in the Printing, Publishing and Allied Graphic Arts Industries with particular emphasis on the Book Manufacturing Industry, Book Manufacturer's Institute, Inc., New York City, 1945.

Lithographers' Journal, Amalgamated Lithographers of America, 450 Seventh Avenue, New York City, N. Y.

The Printing Trades, by Jacob Loft, Farrar and Rinehart, Inc., 1944.

Marketing Opportunities, Lithographers National Association, Inc., New York City, vol. 4, number 5.

Modern Lithography, The Photo-Lithographer, Inc., New York City. Published monthly.

Occupational Data for Counselors, U.S. Department of Labor, in cooperation with Federal Security Agency, U.S. Office of Education, Government Printing Office, Washington, D. C., 1945.

Handbook of Labor Unions, by Florence Peterson, American Council on Public Affairs, Washington, D. C., 1944, pp. 53, 191, 278, 298, 357, and 393.

Printing, Walden, Sons and Mott, Inc., 41 Park Row, New York City. Published monthly.

The Lithographer's Manual, by Walter E. Soderstrom, Waltewin Publishing Company, New York City, 1940.

Union Wages and Hours in the Printing Trades, U. S. Department of Labor, Bureau of Labor Statistics. Published annually.

VI. Occupational Outlook Publications of the Bureau of Labor Statistics

Studies of employment trends and opportunities in the various occupations and professions are made by the Occupational Outlook Service of the Bureau of Labor Statistics.

Reports are prepared for use in the vocational guidance of veterans, young people in schools, and others considering the choice of an occupation. Schools concerned with vocational training and employers and trade-unions interested in on-the-job training have also found the reports helpful in planning programs in line with prospective employment opportunities.

Occupational outlook reports are issued as bulletins of the Bureau of Labor Statistics; sometimes they are also published in the Monthly Labor Review (subscription per year, $3.50; single copy 30 cents). Both the Monthly Labor Review and the bulletins may be purchased from the Superintendent of Documents, Washington 25, D. C.

Two types of reports are issued:

Occupational outlook bulletins describe the long-run outlook for employment in each occupation and give information on earnings, working conditions, and the training required.

Special bulletins are issued from time to time on such subjects as the general employment outlook, trends in the various States, and occupational mobility.

Occupational Outlook Bulletins

Employment Opportunities for Diesel-Engine Mechanics

Bulletin No. 813 (1945), price 5 cents. (Monthly Labor Review, February 1945).

Employment Opportunities in Aviation Occupations, Part I—Postwar Employment Outlook

Bulletin No. 837–1 (1945), price 10 cents. (Monthly Labor Review, April and June 1945).

Employment Opportunities in Aviation Occupations, Part II—Duties, Qualifications, Earnings, and Working Conditions

Bulletin 837–2 (1947), price 20 cents. Sections on hours of work and earnings in Monthly Labor Review, August 1946.

Employment Outlook for Automobile Mechanics

Bulletin No. 842 (1945), price 10 cents. (Monthly Labor Review, February 1946).

Employment Opportunities for Welders

Bulletin No. 844 (1945), price 10 cents. (Monthly Labor Review, September 1945).

Postwar Outlook for Physicians

Bulletin No. 863 (1946), price 10 cents. (Monthly Labor Review, December 1945).

Employment Outlook in Foundry Occupations
Bulletin No. 880 (1946), price 15 cents. (Monthly Labor Review, December 1945, and April 1946).

Postwar Employment Prospects for Women in the Hosiery Industry
Bulletin No. 835 (1945), price 5 cents. (Monthly Labor Review, May 1945).

Employment Outlook for Business Machine Servicemen
Bulletin No. 892 (1947), price 15 cents.

Employment Outlook in Machine Shop Occupations
Bulletin No. 895 (1947), price 20 cents.

Employment Outlook in Hotel Occupations
Bulletin No. 905 (1947). In press.

Special Bulletins

Occupational Data for Counselors, A Handbook of Census Information Selected for Use in Guidance
Bulletin No. 817 (1945), price 10 cents. (Prepared jointly with the Occupational Information and Guidance Service, U. S. Office of Education).

Factors Affecting Earnings in Chemistry and Chemical Engineering
Bulletin No. 881 (1946), price 10 cents. (Monthly Labor Review, June 1946).

State and Regional Variations in Prospective Labor Supply
Bulletin No. 893 (1947), price 15 cents.

Supplement to Bulletin 902, Employment Outlook in Printing Occupations

II. (Rev.) Union Wage Scales in Major Newspaper Printing Trades in Selected Cities, July 1, 1949[1]

City and State	Hand compositors	Composing-machine operators	Stereotypers	Photoengravers	Journeyman pressmen	Pressmen-in-charge
Atlanta, Ga	$2.40	$2.40	$2.40	$2.56	$2.40	$2.60
Baltimore, Md	2.40	2.40	2.14	2.49	2.14	2.33
Birmingham, Ala	2.33	2.33	2.11	2.32	2.11	2.27
Boston, Mass	2.52	2.52	2.58	2.70	2.33–2.45	2.51–2.64
Buffalo, N. Y	2.40	2.40	2.31	2.67	1.88–2.31	2.02–2.51
Butte, Mont	2.31	2.31	2.29	----	2.27	----
Charleston, W. Va	[2] 2.00	[2] 2.00	2.05	----	1.95	2.18
Charlotte, N. C	2.05	2.05	2.05	----	2.05	----
Chicago, Ill	2.63–2.75	2.63–2.75	2.48	2.92	2.41	2.59
Cincinnati, Ohio	2.53	2.53	2.43	2.61	2.46	2.59
Cleveland, Ohio	2.53	2.53	2.44	2.76–2.81	2.42–2.78	2.66–2.78
Columbus, Ohio	2.48	2.48	2.41	2.84	2.40	2.53
Dallas, Tex	2.46	2.46	2.38	----	2.33	2.54
Davenport, Iowa	[3]	[3]	[3]	[3]	[3]	[3]
Dayton, Ohio	2.33	2.33	2.31	2.40	2.19	2.31
Denver, Colo	2.42	2.42	2.27	2.45	2.27	2.40
Des Moines, Iowa	2.33	2.33	2.31	2.33	2.30	2.46
Detroit, Mich	1.50–2.69	1.50–2.69	2.60	2.50–2.84	2.52–2.59	2.72–2.79
Duluth, Minn	2.09	2.09	1.83	2.32	1.93	2.07
El Paso, Tex	2.27	2.27	2.10	----	2.10	2.16
Erie, Pa	2.19	2.19	2.05	----	2.05	----
Grand Rapids, Mich	2.30	2.30	2.30	2.00	2.13	----
Houston, Tex	2.51	2.51	2.25	2.53	2.18	2.24
Indianapolis, Ind	2.45	2.45	2.30	2.65	2.28	2.46
Jacksonville, Fla	2.39	2.39	2.39	2.39	2.39	2.52
Kansas City, Mo	2.33	2.33	[2] 2.00–2.30	2.61	[2] 2.33	[2] 2.47
Little Rock, Ark	2.10	2.10	2.02	----	2.02	----
Los Angeles, Calif	2.48	2.48	2.35	2.64	2.40	2.60
Louisville, Ky	2.37	2.37	2.35	2.59	2.35	2.61
Manchester, N. H	2.03	2.03	2.03	1.92	1.87	----
Memphis, Tenn	2.35	2.35	1.94	2.39	2.53	2.51
Milwaukee, Wis	2.40	2.40	2.32	2.63	2.32–2.42	2.52
Minneapolis, Minn	2.60	2.60	2.50	2.60	2.50	2.69
Mobile, Ala	2.23	2.23	2.10	----	2.10	----
Moline, Ill	[3]	[3]	[3]	[3]	[3]	[3]
Newark, N. J	2.56	2.56	2.40	2.48	2.37	2.47
New Haven, Conn	2.13	2.13	2.00	----	2.00	2.13
New Orleans, La	2.08	2.08	2.08	2.13	2.03	2.18
New York, N. Y	1.81–2.73	1.81–2.73	2.43	2.92	2.58–2.76	2.78–3.01
Norfolk, Va	2.27	2.27	2.20	2.15	2.08	----
Oklahoma City, Okla	2.33	2.33	2.33	2.59	2.33–2.40	2.57
Omaha, Nebr	2.12	2.13	2.13	2.28	2.11	2.26
Peoria, Ill	2.18	2.18	[2] 2.22	2.38	2.18	2.31
Philadelphia, Pa	2.29	2.29	2.20	2.59	[2] 2.00–2.27	[2] 2.20–2.43
Phoenix, Ariz	2.27	2.27	2.27	----	2.27	----
Pittsburgh, Pa	2.53	2.53	2.37	2.71	2.16	2.23
Portland, Maine	1.95	----	1.92	2.03	1.92	----
Portland, Oreg	2.57	2.57	2.49	2.62	2.42	2.62
Providence, R. I	2.42	2.42	2.36	2.68	2.36	2.49
Reading, Pa	2.06	2.06	2.05	----	2.05	2.19
Richmond, Va	2.11	2.11	2.06	2.38	2.06	2.31
Rochester, N. Y	2.32	2.32	2.32	2.71	2.32	2.45
Rock Island (Ill.) District[3]	2.14	2.14	2.14	----	2.14	2.30
St. Louis, Mo	2.67	2.67	2.40	2.71	2.40	2.59
St. Paul, Minn	2.55	2.55	2.33	2.51	2.22	2.24
Salt Lake City, Utah	2.30	2.30	2.16	2.13	2.12	2.26
San Antonio, Tex	2.23	2.23	2.00	2.25	2.00	2.25
San Francisco, Calif	2.60	2.60	2.48	2.67	2.49	2.74
Scranton, Pa	2.31	2.31	2.23	[4] 2.82	2.19	2.57
South Bend, Ind	2.29	2.29	2.11	----	----	----
Seattle, Wash	2.71	2.71	2.71	2.70	2.53	2.67
Spokane, Wash	2.49	2.49	2.43	----	2.25	2.38
Springfield, Mass	1.95	1.95	----	2.08	1.95	2.08
Toledo, Ohio	2.48	2.48	2.41	2.72	2.38–2.47	2.45–2.75
Washington, D. C	2.60	2.60	2.26	2.67	2.35	2.55
Wichita, Kans	2.13	2.13	2.05	2.38–2.40	1.97	2.04
Worcester, Mass	2.29	2.29	2.16	----	2.05	----
York, Pa	1.96	1.96	1.96	----	1.78–1.96	----
Youngstown, Ohio	2.29	2.29	2.24	2.13	2.13	2.26

[1] U. S. Bureau of Labor Statistics, Division of Wage Statistics: *Union Wage Scales, Newspaper Printing Trades*, July 1, 1949 (available upon request). These scales are the minimum wage rates agreed upon through collective bargaining between employers and trade unions and are, in most cases, uniform for each occupation in a given locality. Where no rate is given, there was no effective union wage scale for the occupation in the particular city. Day rates are shown except where noted.

[2] Rate for preceding contract period. Negotiations under way at time of survey.

[3] Rock Island district includes Rock Island and Moline, Ill., and Davenport, Iowa.

[4] Night work.

Ill. (Rev.) Union Wage Scale in Major Book and Job Printing Trades in Selected Cities, July 1, 1949[1]

City and State	Hand compositors	Composing-machine operators	Electro-typers	Photoen-gravers	Cylinder pressmen	Platen pressmen	Press assistants and feeders	Book-binders	Bindery women
Atlanta, Ga	$2.25	$2.25	$2.37	$2.56	$2.20–2.36	$2.20	$1.49	$2.19	$1.13
Baltimore, Md	2.00	2.00	2.00	2.40–2.67	1 86–2.09	1.70	1.30–1.67	1.77	.65–.93
Birmingham, Ala	2.28	2.28	2.25	2.35	2.08	2.08	1.04–1.44	2.08	1.10
Boston, Mass	2.13	2.13	2.20	2.40	2.07–2.24	1.86–1.95	1.17–1.93	2.07	1.11
Buffalo, N. Y	2.24	2.30	2.10	2.40	2.16–2.40	2.00	1.56–2.02	1.95	1.00
Butte, Mont					2.21	2.07	.92–1.32	2.21	1.30
Charleston, W. Va	2.15	2.15			2.15	2.03		2.15	1.21
Charlotte, N. C	2.05	2.05		2.27	2.00	1.75		1.55–1.60	.93
Chicago, Ill	2.54	2.54–3.11	2.88	2.92–2.98	2.48–2.59	2.29–2.79	1.82–2.54	2.23–2.56	1.35–1.39
Cincinnati, Ohio	2.34	2.34	2.19	2.40	1.66–2.06	1.66–1.77	1.66–1.73	2.03	1.15
Cleveland, Ohio	2.35	2.40	2.55	2.56–2.86	2.31		1.57–1.95	2.20	1.05–1.12
Columbus, Ohio	2.35	2.35	2.25	2.25–2.40	[2] 2.24	[2] 2.24	[2] 1.85	2.30	1.25
Dallas, Tex	2.35	2.35	2.35	2.13	1.68	1.86	1.65–1.68	1.75	.90
Davenport, Iowa	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Dayton, Ohio	2.37–2.40	2.37–2.40	2.39	2.40	2.25–2.40	2.02–2.25	1.43–1.89	1.79–2.28	1.05–1.31
Denver, Colo	2.41	2.41	2.32	2.19	2.14	1.97	.95–1.65	1.98	1.15
Des Moines, Iowa	2.05	2.05	2.25	2.33	1.96–2.01	1.84	1.30–1.70	1.95	1.08
Detroit, Mich	2.53–2.64	2.53–2.64	2.66	2.50–2.67	2.48	2.20	1.60–2.11	1.60–2.11	1.09–1.23
Duluth, Minn	1.75	1.75		2.00	1.58	1.24–1.44	.90–1.13		
El Paso, Tex	2.27	2.27			1.84	1.84			
Erie, Pa	2.00	2.00			2.00	1.90			
Grand Rapids, Mich	2.05–2.30	2.05–2.30	2.25		2.00	1.75	1.30–1.60		
Houston, Tex	2.51	2.51	2.35	2.38	2.16–2.30	1.88–2.05	1.83–1.90	2.16	1.22
Indianapolis, Ind	2.21	2.21	2.25	2.40	2.18–2.27	2.04–2.18	1.18–2.05	2.18	1.21
Jacksonville, Fla	1.88	1.88		2.08	1.50	1.50	1.30		
Kansas City, Mo	2.30	2.30	2.30	2.28	2.30–2.37	2.14–2.24	1.45–1.83	2.20	1.24
Little Rock, Ark	1.90	1.90			1.84	1.62	.90–1.10	1.78	.92
Los Angeles, Calif	2.47	2.47	2.64	2.67	2.30	2.19	1.61–1.96	2.42	1.45
Louisville, Ky	2.06	2.06		2.11–2.15	1.83–1.95	1.60–1.68	1.25–1.85	1.68–1.80	1.00–1.03
Manchester, N. H	1.65	1.65		2.40	1.65	1.43–1.51			
Memphis, Tenn	2.00	2.00	2.00	2.35	1.95–2.05	1.68	.90–1.35	1.75	.88
Milwaukee, Wis	2.28	2.28	2.30	2.54	2.10	2.08–2.12	1.33–1.93	2.08	1.03
Minneapolis, Minn	2.35	2.35–2.48	2.56	[2] 2.40	1.52–2.51	1.72–2.29	1.39–1.96	2.00	1.00
Mobile, Ala	2.05	2.05			1.85	1.85			
Moline, Ill	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Newark, N. J	2.48	2.48	2.88	2.97	1.99–2.61	2.21–2.48	1.46–2.18	2.08–2.28	1.19
New Haven, Conn	1.88	1.88	2.25	2.13	1.83–2.35	1.70–2.03	1.45–1.81	1.90	.90–1.03
New Orleans, La	2.00	2.00	2.20	2.00	2.00–2.08	1.40–1.78	.98–1.53	1.80	.95
New York, N. Y	2.48	2.48	2.88	3.00–3.06	2.48–2.63	2.16–2.32	.99–2.12	.97–2.50	1.00–1.20
Norfolk, Va				2.13					
Oklahoma City, Okla	1.90	1.90		2.38	1.90	1.74	1.19–1.35	1.90–2.00	1.04–1.14
Omaha, Nebr	2.13	2.13	1.88	2.66	1.80	1.55	1.55		
Peoria, Ill	2.08	2.08	[2] 2.25	2.13	2.03	1.91	1.63–1.88		
Philadelphia, Pa	2.20	2.20	2.70	2.59	2.19–2.62	2.03	1.55–2.12	1.85–1.90	.95
Phoenix, Ariz	2.27	2.27			2.27	2.12	1.70		
Pittsburgh, Pa	2.40	2.40	1.85	2.52	2.40–2.57	2.31	1.41–2.08	2.06–2.19	1.12–1.25
Portland, Maine	1.23	1.23			1.21–1.33	1.10	.88		
Portland, Oreg	2.40	2.40	2.53	2.60	2.40	2.33	1.63–1.92	2.40	1.33
Providence, R. I	1.98	1.98	2.20	2.40	1.93	1.93	1.46–1.54		
Reading, Pa	1.96	1.96			1.92	1.81–1.86	1.55–1.86		
Richmond, Va	1.75	1.75	2.03		1.83–1.98	1.45	.76–1.59	1.13–1.63	.81–.88
Rochester, N. Y	2.15–2.21	2.15–2.21		2.47	1.97–2.39	1.77–2.19	1.39–1.81	2.07–2.27	1.09–1.20
Rock Island (Ill.) district [3]	1.85	1.85	1.96	2.18	1.76–1.80	1.50–1.59	1.09–1.62		
St. Louis, Mo	2.24	2.24	2.21	2.40	1.95–2.14	1.83–2.08	1.16–2.01	2.02–2.04	1.11
St. Paul, Minn	2.35–2.37	2.35–2.37	2.56	2.40–2.67	2.35–2.55	1.72–2.35	1.34–1.95	2.22	1.08–1.29
Salt Lake City, Utah	1.88	1.88			1.88	1.70			
San Antonio, Tex	2.13	2.13		2.25	1.75	1.60	1.00–1.25	1.75	.88
San Francisco, Calif	2.58	2.58	2.53	2.67	2.58	2.48	1.60–2.03	2.58	1.45
Scranton, Pa	2.20	2.20	2.12	2.07	2.11–2.22	1.80	1.42–1.80	1.84–1.91	1.08
Seattle, Wash	2.71		2.71	2.79	2.57	2.37	1.70–2.04	2.57	1.43
South Bend, Ind	2.10	2.10	2.24	2.16	1.92–1.97	1.92	1.72	1.97	1.10
Spokane, Wash	2.25				2.25	2.25	1.68–1.73	2.25	1.25
Springfield, Mass			2.30	2.08	1.95		1.39	1.95	1.00
Toledo, Ohio	2.06–2.07	2.06–2.07	2.19	2.23	2.06	1.94–1.99	1.79	1.91	1.20
Washington, D. C	2.36	2.36	2.50	2.51	2.28–2.74	2.06–2.19	1.55–2.06	2.13	1.00
Wichita, Kans	2.13	2.13		2.40	1.82–2.07		1.37–1.74	2.03	1.12
Worcester, Mass	1.73	1.73	2.20	2.13	1.75	1.38			
York, Pa	1.85	1.85	1.94		1.92–1.97	1.92	1.65–1.70	1.80–2.00	1.03
Youngstown, Ohio	2.07	2.07		2.13	2.00	2.00	.90–1.41	1.77	.85

[1] U. S. Bureau of Labor Statistics, Division of Wage Statistics: *Union Wage Scales, Book and Job Printing Trades* July 1, 1949 (available upon request). These scales are the minimum wage rates agreed upon through collective bargaining between employers and trade unions and are, in most cases, uniform for each occupation in a given locality. Where no rate is given, there was no effective union wage scale for the occupation in the particular city. Day rates are shown except where noted.

[2] Rate for preceding contract period. Negotiations under way at time of survey.

[3] Rock Island district includes Rock Island and Moline, Ill., and Davenport, Iowa.

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