

the electric power industry may be obtained from local electric utility companies, industry trade associations, or from the local offices of unions which have electric utility workers among their membership. Additional information may be obtained from:

Edison Electric Institute, 750 3rd Avenue, New York, New York 10017.

International Brotherhood of Electrical Workers, 1200 15th St. NW., Washington, D.C. 20005.

Utility Workers' Union of America, 1875 Conn. Ave. NW., Washington, D.C. 20006.

## POWERPLANT OCCUPATIONS

### Nature of the Work

Operators are key workers in a powerplant. They observe, control, and keep records of the operation of various kinds of powerplant equipment. They make sure the equipment functions efficiently and

detect any trouble that arises. There are four basic classes of operators—boiler, turbine, auxiliary equipment, and switch-board operators. In many new steam plants, the duties of these operators are combined, and operators and their assistants are known as steam operators, powerplant operators, or central control room operators. Of increasing importance in this highly mechanized industry are the maintenance men and repairmen, including electrical, instrument, and mechanical repairmen. Other powerplant workers include helpers and cleaners, and the custodial staff, including janitors and watchmen. Coal handlers are employed in steam generating plants that use coal for fuel. Hydroelectric plants employ gate tenders who open and close the headgates that control the flow of water to the turbines. Supervision of powerplant operations is handled by a chief engineer and by his assistants, the watch engineers.

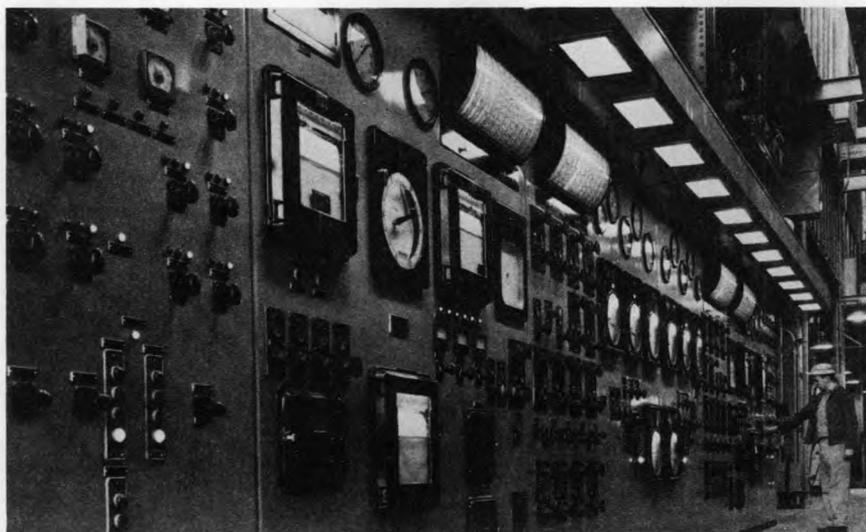
*Boiler operators* (D.O.T. 950.782) regulate the fuel, air, and water supply in the boilers and maintain proper steam pressure needed to turn the turbines, on the basis of information shown by

gages, meters, and other instruments mounted on panel boards. One man may operate one or more boilers. Boiler operators, are employed only where steam is used to generate electricity.

*Turbine operators* (D.O.T. 952.138) control the operation of steam- or water-powered turbines which drive the generators. (In small plants, they also may operate auxiliary equipment or a switch-board.) Modern steam turbines and generators operate at extremely high speeds, pressures, and temperatures; therefore, close attention must be given the pressure gages, thermometers, and other instruments which show the operations of the turbogenerator unit. Turbine operators record the information shown by these instruments and check the oil pressure at bearings, the speed of the turbines, and the circulation and amount of cooling water in the condensers which change the steam back into water. They also are responsible for starting and shutting down the turbines and generators, as directed by the switchboard operator in the control room. Other workers, such as helpers and junior operators, assist the turbine operators.

*Auxiliary equipment operators* (D.O.T. 952.782) check and record the readings of instruments that indicate the operating condition of pumps, fans, blowers, condensers, evaporators, water conditioners, compressors, and coal pulverizers. Since auxiliary equipment may break down occasionally, these operators must be able to detect trouble quickly, make accurate judgments, and sometimes make repairs. Some small plants do not employ auxiliary equipment operators; these duties are performed by turbine operators.

*Switchboard operators* (D.O.T.



952.782) control the flow of electric power in the generating station from generators to outgoing powerlines. They usually work in a control room equipped with switchboards and instrument panels. Switches control the movement of electricity through the generating station circuits and onto the transmission lines.

Instruments mounted on panelboards show the power demands on the station at any instant, the powerload on each line leaving the station, the amount of current being produced by each generator, and the voltage. The operators use switches to distribute the power demands among the generators in the station, to combine the current from two or more generators, and to regulate the flow of the electricity onto various powerlines to meet the demands of the users served by each line. When power requirements on the station change, they order generators started or stopped and, at the proper time, connect them to the power circuits in the station or disconnect them. In doing this work, they follow telephone orders from the load dispatcher who directs the flow of current throughout the system.

Switchboard operators and their assistants also check their instruments frequently to see that electricity is moving through and out of the powerplant properly, and that correct voltage is being maintained. Among their other duties, they keep records of all switching operations and of load conditions on generators, lines, and transformers. They obtain this information by making regular meter readings.

In most powerplants constructed in recent years, the operation of boilers, turbines, auxiliary equipment, and the switching required for efficient balancing of generator out-

put has been centralized in a single control room. Here, central control room operators or power plant operators, by monitoring instrument panels and manipulating switches, regulate all the power generating equipment, which in older plants requires specialists such as boiler and turbine operators. Control room operators have several assistants who patrol the plant and check the equipment. The central control room operators report to the plant superintendent or watch engineers when equipment is not operating properly.

*Watch engineers* (D.O.T. 950.131) the principal supervisors in a powerplant oversee the employees who operate and maintain boilers, turbines, generators, auxiliary equipment, switchboards, trans-

formers, and other machinery and equipment. Watch engineers are supervised by a chief engineer or a plant superintendent who is in charge of the entire plant.

### Training, Other Qualifications, and Advancement

New powerplant workers generally begin at the bottom of the ladder—usually on cleanup jobs. Such work gives beginners an opportunity to become familiar with the equipment and the operations of a powerplant. They advance to the more responsible job of helper, as job openings occur. Formal apprenticeships in these jobs are rare. Applicants generally are required to have a high school education or its equivalent. Advancement on the job de-



pends primarily on one's ability to master the skills required.

It takes from 1 to 3 years to become an auxiliary equipment operator and from 4 to 8 years to become a boiler operator, turbine operator, or switchboard operator. A person leaning to be an auxiliary equipment operator progresses from helper to junior operator to operator. A boiler operator generally spends from 2 to 6 months as a laborer before being promoted to the job of helper. Depending on openings and the worker's aptitude, the helper may advance to junior boiler operator and eventually to boiler operator, or transfer to the maintenance department and work his way up to boiler repairman. In most large cities, boiler operators, who operate high-pressure boilers, are required to be licensed.

Powerplant workers employed in atomic-powered electric plants must have special training to work with fissionable, radioactive fuel, in addition to the knowledge and skills required for conventional steam generated electric power.

Turbine operators are selected from among auxiliary equipment operators in many plants. The line of advancement in other plants is from laborer to turbine helper. The helper then may advance either to junior turbine operator and eventually to turbine operator, or he may transfer to turbine repairman, depending on job openings and his aptitude. Turbine operators in most large cities are required to be licensed.

Where a system has a number of generating plants of different size, operators first get experience in the smaller stations and then are promoted to jobs in the larger stations as vacancies occur. New workers in the switchboard operators section begin as helpers, advance to junior

operators, and then to switchboard operators. They also may advance from jobs in small stations to those in larger stations where operating conditions are much more complex. Some utility companies promote substation operators to switchboard operating jobs. The duties of both classes of operators have much in common. Switchboard operators can advance to work in the load dispatcher's office.

Watch engineers are selected from among experienced powerplant operators. At least 5 to 10 years of experience as a first-class operator usually are required to qualify for a watch engineer's job.

### Employment Outlook

The total number of jobs for powerplant operators is expected to show little change through the 1970's, although the production of electrical energy will increase at a rapid rate. However, several hundred job openings will occur each year because of the need to replace operators who retire, die, or leave the industry for other work.

The use of increasingly larger and more efficient equipment is expected to make possible great increases in capacity and production with little increase in the number of powerplant operators. For example, one operator can control a large modern turbogenerator as readily as he can control a much smaller one. Also, the growing use of more automatic equipment reduces the number of operators needed, and makes it possible to direct all operating processes from a central control room. However, because of the expected increased demand for electric power, it will be necessary to build and operate many new generating stations.

Generally, operating a nuclear-powered plant required about the same number of employees as running a steam-generating plant using fossil fuels.

### Earnings and Working Conditions

The earnings of powerplant workers depend on the type of job, the section of the country in which they work, and many other factors. The following tabulation shows estimated average hourly earnings for selected powerplant occupations in privately operated utilities in 1970:

	<i>Average hourly earnings</i>
Auxiliary equipment operator.....	\$4.14
Boiler operator .....	4.80
Control room operator.....	5.28
Switchboard operator:	
Switchboard operator,	
Class A .....	4.92
Switchboard operator,	
Class B .....	4.35
Turbine operator .....	4.71
Watch engineer .....	5.54

A powerplant is typically well lighted and ventilated, clean, and orderly, but there is some noise from the whirring turbines.

Switchboard operators in the control room often sit at the panel boards, but boiler and turbine operators are almost constantly on their feet. The work of powerplant operators generally is not physically strenuous, particularly in the newer powerplants. Since generating stations operate 24 hours a day, 7 days a week, powerplant employees sometimes must work nights and weekends.

## TRANSMISSION AND DISTRIBUTION OCCUPATIONS

### Nature of the Work

One-fifth of the workers employed by electric light and power systems are in transmission and distribution jobs maintaining the flow of electric power to the users. The principal workers in transmission and distribution jobs are those who control the flow of electricity—load dispatchers and substation operators—and the men who construct and maintain powerlines—linemen, cable splicers, troublemen, groundmen, and helpers. Linemen make up the largest single occupation in the industry.

*Load dispatchers* (D.O.T. 950.168) (sometimes called system operators or power dispatchers) are the key operating workers of the transmission and distribution departments. They control the flow of electricity throughout the area served by the utility. The load dispatcher's room is the nerve center of the entire utility system. From this location, he controls the plant equipment used to generate electricity and directs its flow throughout the system. He telephones his instructions to the switchboard operators at the generating plants and the substations. He tells the operators when additional boilers and generators are to be started or stopped in line with the total power needs of the system.

The load dispatcher must anticipate demands for electric power so that the system will be prepared to meet them. Power demands on utility systems may change from hour to hour. A sudden afternoon rainstorm can cause a million lights to

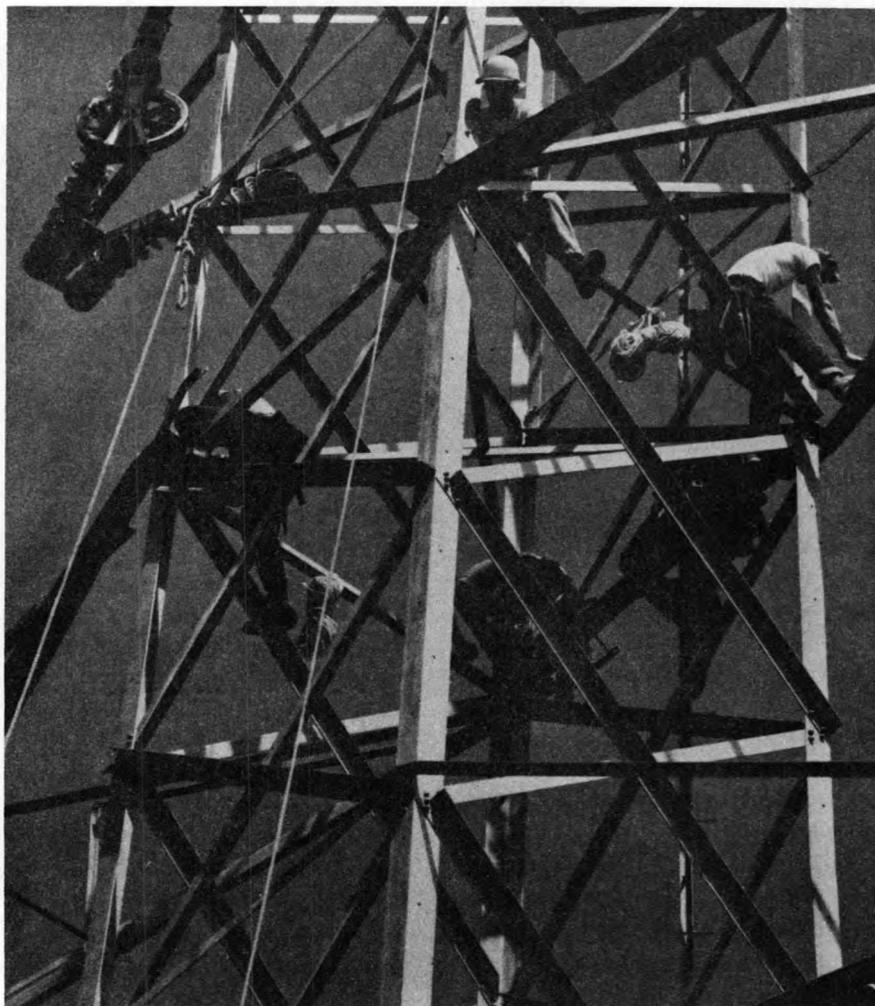
be switched on in a matter of minutes.

He also directs the handling of any emergency situation, such as a transformer or transmission line failure, and routes current around the affected area. Load dispatchers also may be in charge of interconnections with other systems, and they direct the transfer of current between systems as the need arises.

The load dispatcher's source of information for the entire transmission system centers in the pilot board. This pilot board, which dominates the load dispatcher's room, is a complete map of the utility's transmission system. It enables the

dispatcher to determine, at a glance, the conditions that exist at any point in the system. Lights may show the positions of switches which control generating equipment and transmission circuits, as well as high voltage connections with substations and large industrial customers. The board also may have several recording instruments which make a graphic record of operations for future analysis and study.

*Substation operators* (D.O.T. 952.782) generally are responsible for the operation of the substation. Under orders from the load dispatcher, they direct the flow of current out of the station by means of a



switchboard. Ammeters, voltmeters, and other types of instruments on the switchboard register the amount of electric power flowing through each line. The flow of electricity from the incoming to the outgoing lines is controlled by circuit breakers. The substation operators connect or break the flow of current by manipulating levers on the switchboard which control the circuit breakers. In some substations, where alternating current is changed to direct current to meet the needs of special users, the operator controls converters which perform the change.

In addition to switching duties, the substation operators check the operating condition of all equipment to make sure that it is in good working condition. They supervise the activities of the other substation employees on the same shift, assign them tasks, and direct their work. In smaller substations, the substation operator may be the only employee.

*Linemen* (D.O.T. 821.381) construct and maintain the network of powerlines which carry electricity from generating plants to consumers. Their work consists of installations, equipment replacements, repairs, and routine maintenance work. Although in many companies the installation of new lines and equipment is important, in other companies this work is performed by outside contractors. When wires, cables, or poles break, it means an emergency call for a line crew. Linemen splice or replace broken wires and cables and replace broken insulators or other damaged equipment. Most linemen now work from "bucket" trucks with pneumatic lifts that take them to the top of the pole or adjacent to the overhead conductor at the touch of a lever.

In some power companies, line-

men specialize in particular types of work. Those in one crew may work only on new construction, and others may do only repair work. In some instances, linemen specialize on high voltage lines using special "hot line" tools to avoid interruptions in the flow of current.

*Troublemakers* (D.O.T. 821.281) are experienced linemen who are assigned to special crews that handle emergency calls for service. They move from one special job to another, as ordered by a central service office which receives reports of line trouble. Often troublemakers receive their orders by direct radio communication with the central service office.

These workers must have a thorough knowledge of the company's transmission and distribution network. They first locate and report the source of trouble and then attempt to restore service by making the necessary repairs. Depending on the nature and extent of the trouble, a troublemaker may restore service in the case of minor failure, or he may simply disconnect and remove damaged equipment. He must be familiar with all the circuits and switching points so that he can safely disconnect live circuits in case of line breakdowns.

*Groundmen* (D.O.T. 821.887) dig poleholes and assist the linemen and apprentices to erect the wooden poles which carry the distribution lines. The linemen bolt crossarms to the poles or towers and bolt or clamp insulators in place on the crossarms. With the assistance of the groundmen, they raise the wires and cables and install them on the poles or towers by attaching them to the insulators. In addition, with assistance from groundmen, linemen attach a wide variety of equipment to the poles and towers, such as

lightning arrestors, transformers, and switches.

*Cable splicers* (D.O.T. 829.381) install and repair single- and multiple-conductor insulated cables on utility poles and towers, as well as those buried underground or installed in underground conduits. When cables are installed, the cable splicers pull the cable through the conduit and then join the cables at connecting points in the transmission and distribution systems. At each connection in the cable, they wrap insulation around the wiring. They splice the conductors leading away from each junction of the main cable, insulate the splices, and connect the cable sheathing. Many cables have a lead sheath which requires making a lead joint. Most of the physical work in placing new cables or replacing old cables is done by helpers.

Cable splicers spend most of their time repairing and maintaining the cables and changing the layout of the cable systems. They must know the arrangement of the wiring systems, where the circuits are connected, and where they lead to and come from. They make sure that the conductors do not become mixed up between the substation and the customer's premises. The splicers connect the ends of the conductor to numbered terminals, making certain that they have the same identifying number at the remote panel box in an underground vault as they have in the control office. Cable splicers also make sure the insulation on the cables is in good condition.

### **Training, Other Qualifications, and Advancement**

Load dispatchers are selected from among the experienced switch-

board operators and from operators of the larger substations. Usually, 7 to 10 years of experience as a senior switchboard or substation operator are required for promotion to load dispatcher. To qualify for this job, an applicant must demonstrate his knowledge of the entire utility system.

Substation operators generally begin as assistant or junior operators. Advancement to the job of operator in a large substation requires from 3 to 7 years of on-the-job training.

Skilled linemen (journeymen) usually qualify for these jobs after about 4 years of on-the-job training. In some companies, this training consists of a formal apprenticeship program. Under formal apprenticeship, there is a written agreement, usually worked out with a labor union, which covers the content of the training and the length of time the apprentice works in each stage of the training. The apprenticeship program combines on-the-job training and classroom instructions in blue-print reading, elementary electrical theory, electrical codes,

and methods of transmitting electrical currents.

The apprentice usually begins his training by helping the groundman to set poles in place and by passing tools and equipment up to the lineman. After a training period of approximately 6 months, the apprentice begins to do simple linework on lines having low voltage. While performing this work, he is under the immediate supervision of a journeyman lineman or the line foreman. After about a year, he is assigned more difficult work but is still under close supervision. During the last 6 months of his apprenticeship, the trainee does about the same kind of work as the journeyman lineman but with more supervision. When he begins to work independently, he is first assigned simple, routine tasks. After he acquires several years of experience and demonstrates a thorough knowledge of the company's transmission and distribution systems, he may advance from lineman to troubleman.

The training of linemen who learn their skills on the job generally is similar to the apprenticeship program; it usually takes about the same length of time but does not involve classroom instruction. The worker begins as a groundman and progresses through increasingly difficult stages of linework before becoming a skilled lineman.

Candidates for linework should be strong, in good physical condition, and without fear of height. Climbing poles and lifting lines and equipment is strenuous work. They also must have steady nerves and good balance to work at the tops of the poles and to avoid the hazards of live wires and falls.

Most cable splicers get their training on the job, usually taking about 4 years to become fully quali-

fied. Workers begin as helpers and then are promoted to assistant or junior splicers. In these jobs, they are assigned more difficult tasks as their knowledge of the work increases.

### Employment Outlook

Several thousand job opportunities are expected to be available in transmission and distribution occupations through the 1970's. Most of these opportunities will occur because of the need to replace experienced workers who retire, die, or transfer to other fields of work.

Some increase in the employment of transmission and distribution workers is expected, although employment trends will differ among the various occupations in this category. In spite of the need to construct and maintain a rapidly growing number of transmission and distribution lines, the number of linemen and troublemen is expected to increase only slightly because of the use of more mechanized equipment. Some increase in the number of cable splicers is expected because of the growing use of underground lines in suburban areas. The need for substation operators will be reduced substantially, since the introduction of improved and more automatic equipment makes it possible to operate most substations by remote control.

### Earnings and Working Conditions

The earnings of transmission and distribution workers depend on the type of job they have, and the section of the country in which they work. The following tabulation shows the average hourly earnings for major transmission and distribu-



tion occupations in privately operated utilities in 1970:

	<i>Average hourly earnings</i>
Groundman .....	\$3.50
Lineman .....	5.05
Load dispatcher .....	5.74
Substation operator .....	4.63
Troubleman .....	5.27

Load dispatchers and substation operators generally work indoors in pleasant surroundings. Linemen, troublemen, and groundmen work outdoors and, in emergencies, in all kinds of weather. Cable splicers do most of their work in manholes beneath city streets—often in cramped quarters. Safety standards developed over the years by utility companies, with the cooperation of labor unions, have reduced greatly the accident hazards of these jobs.

## CUSTOMER SERVICE OCCUPATIONS

### Nature of the Work

Workers in customer service jobs include those who install, test, and repair meters, and those who read the meters. Also in this group are company agents in rural areas and appliance servicemen working in company-operated shops which repair electrical equipment owned by customers.

*Metermen* (D.O.T. 729.281) (or meter repairmen) are the most skilled workers in this group. They install, test, maintain, and repair meters on customers' premises, particularly those of large industrial and commercial establishments. Some metermen can handle all

types of meters, including the more complicated ones used in industrial plants and other places where large quantities of electric power are used. Others specialize in repairing the simpler kinds, like those in homes. Often, some of the large systems have meter specialists, such as *meter installers* (D.O.T. 821.381) and *meter testers* (D.O.T. 729.281). Meter installers put in and take out meters. Meter testers specialize in testing the small meters on homeowners' property and some of the more complicated ones used by commercial and industrial customers.

*Meter readers* (D.O.T. 239.588) go to customers' premises—homes, stores, and factories—to read meters which register the amount of electric current used. They record the amount of current used in a specific period so that each customer can be charged for the amount he used. Meter readers also watch for, and report, any tampering with meters.

*District representatives* usually serve as company agents in outlying districts which are too small to jus-

tify the use of more specialized workers. They collect overdue bills, make minor repairs, and read, connect, and disconnect meters. They receive and send service complaints and reports of line trouble to a central office.

### Training, Other Qualifications, and Advancement

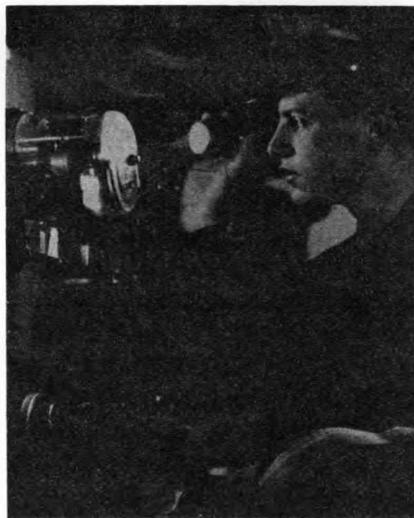
Metermen begin their jobs as helpers in the meter testing and meter repair departments. Young men entering this field should have a basic knowledge of electricity. About 4 years of on-the-job training are required to become a fully qualified meterman. Some companies have formal apprenticeship programs for this occupation in which the trainee progresses according to a specific plan.

Utility companies usually employ inexperienced men to work as meter readers. They generally accompany the experienced meter reader on his rounds until they have learned the job well enough to go on the rounds alone. This job can be learned in a few weeks.

The duties of district representatives are learned on the job. An important qualification for men in these jobs is the ability to deal tactfully with the public in handling service complaints and collecting overdue bills.

### Employment Outlook

Little change in employment in customer service occupations is expected through the 1970's. The need for meter readers will be limited because of the trend toward less frequent reading of meters. Moreover, automatic meter reading may become more common, and



Meter reader checks the amount of electric current used.

new meters will require less maintenance. However, some job openings for metermen and meter readers will occur each year to replace those workers who retire, die, or transfer to other fields of work.

of job they have, and the section of the country in which they work. The following tabulation shows the average hourly earnings for major customer service jobs in privately operated utilities in 1970:

	<i>Average hourly earnings</i>
District representative .....	\$5.18
Meterman A .....	4.97
Meterman B .....	4.44

### Earnings and Working Conditions

The earnings of customer service workers vary according to the type

Appliance serviceman .....	3.83
Meter reader .....	4.61

The job of the meter reader is not physically strenuous but involves considerable walking and some stair climbing. Metermen and appliance servicemen work indoors under typical repair shop conditions except when repairing or installing meters or appliances on customers' premises.

# MERCHANT MARINE OCCUPATIONS

The American merchant marine is a vital link in the Nation's transportation system. It is our life-line in both peace and war and links us to every corner of the world. It transports America's exports and, in return, brings imports from the rest of the world. In time of conflict, it carries troops, arms, and supplies to combat areas. Seafaring employment offers a wide variety of interesting and rewarding careers as well as travel and adventure.

## Nature and Location of the Industry

The U.S. Flag Merchant Fleet consists of ocean-going vessels of 1,000 gross tons or over which carry U.S. foreign and domestic water-borne commerce. In late 1970, about 7 out of every 8 of the approximately 770 ships in the active fleet were privately owned. Government-owned ships are operated by the Navy's Military Sealift Command (MSC) which has civilian seafaring personnel.

Three broad categories of ships constitute the merchant fleet: combination passenger-cargo vessels, tankers, and freighters. Ships in our "liner fleet" operate on regular schedules to specific ports. "Tramp" ships, on the other hand, sail for any port promising cargoes.

This country's 10 combination passenger-cargo ships carry passengers, mail, and highly valued cargo on a regularly scheduled basis. Its approximately 255 tankers carry liquid bulk products, primarily petroleum and petroleum products, almost exclusively in the domestic trade between Gulf Coast ports and

Atlantic Coast ports. The more than 500 freighters, on the other hand, are employed almost exclusively in foreign trade. More than half of the freighters are employed in liner service to carry relatively high valued packaged cargoes on fixed schedules. Freighters are of various types, including general cargo ships, and special purpose vessels such as bulk carriers and roll-on-roll-off container ships.

## Places of Employment

The U.S. Flag Merchant Fleet employed about 42,000 officers and seamen in mid-1970, more than 90 percent of whom were on freighters and tankers. Many additional men were employed during the year because many seamen leave their ships at the termination of a voyage; some take vacations which may average 100 days or more each year; others take temporary shoreside jobs or are unavailable for sea duty because of illness or injury.

Although the United States has about 70 ports, more than half of the Nation's shipping is carried on in 17 deep-sea ports along the Atlantic, Gulf, and Pacific Coasts. The Nation's largest port is New York. Other major Atlantic ports are Philadelphia, Baltimore, Norfolk, Boston, Charleston, Savannah, Tampa, and Jacksonville. Gulf ports handling substantial volumes of cargo include New Orleans, Houston, Galveston, Port Arthur, and Lake Charles. Shipping on the West Coast is concentrated in the areas of San Francisco Bay, Los Angeles, Seattle, and Portland.

The size and composition of

crews depend on the size and type of vessel. Cargo ships and tankers have crews varying from 36 to 65 men; passenger ships may have a crew of 300 or more.

The work aboard ship is divided among the deck, engine, and steward departments. The deck department is responsible for navigation, maintenance of the hull and deck equipment, and the supervision of loading, discharging, and storing of cargo. Personnel in the engine department operate and maintain the machinery that propels the vessel. The steward's department feeds the crew and maintains living and recreation areas.

About one-fourth of the jobs in the merchant marine are filled by officers. The remaining jobs are filled by skilled, semiskilled, and unskilled seamen.

## Training, Other Qualifications, and Advancement

No educational requirements are established for jobs in the merchant marine industry, but a good education is a definite advantage. Formal training for officers is conducted at the U.S. Merchant Marine Academy, at five State merchant marine academies, and through programs operated by trade unions. Unions also conduct training programs to upgrade the ratings of seamen and, to a limited degree, to train prospective seamen for entry ratings.

To obtain an officer's license, a candidate must be a U.S. citizen, physically fit, and pass a comprehensive written examination administered by the U.S. Coast Guard. Seamen must also obtain a license (merchant mariner's document) from the Coast Guard. An applicant must present proof that he has a job offer aboard a U.S. merchant vessel and pass a physical examination.

The prospective mariner should give serious thought to the department (deck, engine, steward) in which he would like to work. Once a man starts up the ladder in one department he cannot switch without beginning near the bottom again. Advancement to a higher rating depends not only upon specified sea experience, leadership ability, and an opening, but also upon passing a Coast Guard examination.

A young man who is considering the merchant marine as a career must be able to live and work with others as a team. Although peacetime service is relaxed, he must adjust to some military-like discipline, which is essential because of the nature of shipboard life.

More detailed information on training, other qualifications, and advancement appears in the statements on Licensed Merchant Marine Officers and Unlicensed Merchant Seamen.

### Employment Outlook

Except during periods of war and national emergency, there has been a long-term decline in the number of men and vessels in our merchant marine, and more of the same is expected through the 1970's. Nevertheless, some job openings will arise each year from the need to replace experienced men who retire, die, or quit the sea for other reasons. Competition for these openings, however, will be severe because the number of men seeking merchant marine jobs is expected to greatly exceed the number of openings.

Because of substantially higher shipbuilding and labor costs, our merchant fleet finds that competing in the worldwide shipping market is difficult. To insure that our country

has a merchant fleet operating in regular or essential trade routes, the Government subsidizes nearly two-fifths of the active fleet or about 300 vessels.

In 1970, the Government enacted legislation to subsidize the construction of 30 new ships annually over a 10-year period and to improve tax incentives for firms to purchase new ships. The number of new ships constructed, however, is not expected to be as great as the number of older ones retired from service each year. Thus, a continued decrease in the size of the fleet is anticipated, unless new innovations that cut shipping costs, such as barge-carrying ships, improve our competitive position in the world market.

Future ships will be larger and faster and will operate with fewer men. For example, a central console in the engine room of the newest ships controls engines, boilers, and most auxiliary equipment. Data loggers automatically print performance information such as temperatures and pressures of automated boiler systems.

The size of the deck crew is being reduced primarily by technological improvements such as hydraulically operated hatch covers, and automatic tension mooring winches that assist in docking and undocking. Eventually a "lookout" device is foreseen that not only will warn of a collision but also will automatically adjust the course to avoid a crash. Improved efficiency on our newest ship already has cut 11 to 14 men from conventional manning requirements of about 55; still further reductions are likely.

Widespread unemployment will not necessarily accompany reductions in manpower needs. For one thing, the dozen or so seagoing unions are likely to resist substantial

cuts in the size of crews. Further, many men began their careers when our fleet was built during World War II. This older work force, in conjunction with liberalized pension provisions and normally high departure rates for shore jobs, is expected to result in a large outflow of men from the industry during the years ahead.

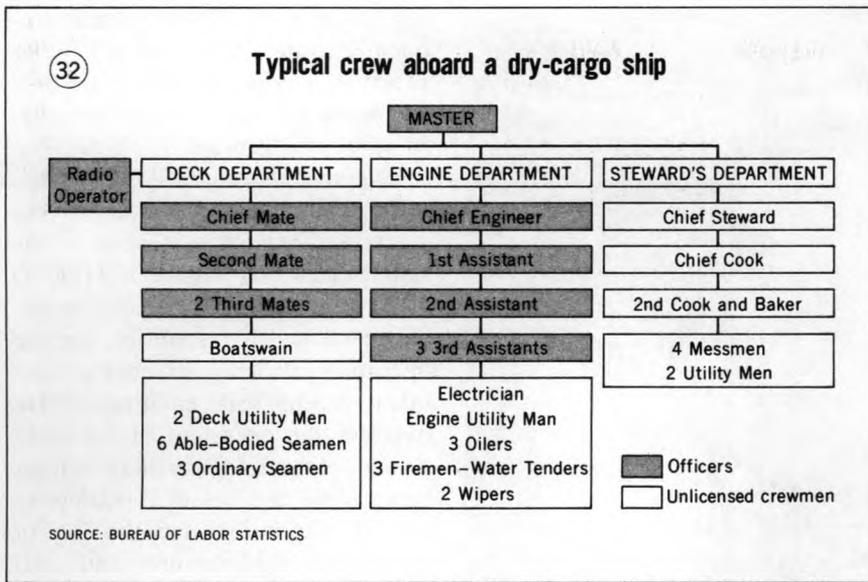
### Earnings and Working Conditions

Earnings aboard American flag deep-sea ships are the highest of any Nation in the world. In few other industries can an ambitious man who has a high school education or less do so well financially. A seaman who has advanced a rung or two in rating can receive base and overtime earnings of nearly \$800 a month, in addition to free food and lodging. Most officers earn over \$1,100 a month.

Wages vary not only according to the job but also by the size and type of vessel. They are highest on large vessels. An outstanding characteristic of the maritime industry is that base wages represent only part of the take-home pay. On the average, additional payments for assuming extra work or responsibility add about 50 percent to base wages.

Liberal employer-financed fringe benefits are provided. Officers and seamen may retire on full pension after 20 years of service, regardless of age. Paid vacations range from 60 to 110 days a year. All men and their dependents are covered by comprehensive medical and welfare benefits. (See statements on Licensed Merchant Marine Officers and Unlicensed Merchant Seamen for more information on earnings.)

The workweek for persons employed aboard ships is considerably different from the workweek of per-



wages and living conditions, and liberal fringe benefits more than compensate for the disadvantages.

## LICENSED MERCHANT MARINE OFFICERS

### Nature of the Work

The Coast Guard licenses ship's professional and supervisory personnel consisting of deck, engine, and radio officers. In command of every ocean-going vessel is the *captain* (D.O.T. 197.168) or *master* who is the shipowner's sole representative. He has complete authority and responsibility for the operation of the ship, including discipline and order, and the safety of the crew, passengers, cargo, and vessel.

While in port, the captain may function as the agent for the ship owners by conferring with custom officials. In some cases, he may act as paymaster for the ship. Although not technically a member of a specific department, he generally is associated with the deck department, from whose ranks he was promoted.

**Deck Department.** Acting under supervision of the captain, deck officers or "mates" as they are traditionally called, direct the navigation and piloting of the ship and the maintenance of the deck and hull. American vessels are equipped with modern navigational devices, such as radar, sonar, and radio directional finders. Deck officers must be familiar with these and other instruments to operate ships safely and efficiently.

While on duty, the deck officer maintains the authorized speed and course; plots the vessel's position at

sions employed on the shore. At sea, most officers and seamen are required to stand watch. Watchstanders work 7 days a week. Generally, they stand two 4-hour watches (shifts) during every 24-hour period and have 8 hours off between each watch. Some officers and seamen are day workers. They work 8 hours a day, Monday through Friday. Both watchstanders and day workers are paid overtime for work over 40 hours a week. When the ship is in port, the basic workweek is 40 hours.

Working and living conditions aboard ship have improved over the years. Mechanization has reduced physical demands and newer vessels contain private rooms, airconditioning, television, and expanded recreational facilities. However, life aboard ship is confining. Although a man may visit many parts of the world, his shore time may be limited by the increasingly rapid "turn-around" time of modern vessels.

While at sea, crew members must be able to derive satisfaction from simple pleasures, such as reading or

a chair-side hobby. Since voyages last several weeks or months, men are away from home and families for substantial periods of time. Some men tire of the lengthy separations and choose shoreside employment. Others become frustrated by periods of unemployment. Although union rules recognize seniority in hiring, a man who has long years of sea experience does not have the same degree of job security often associated with seniority in shore jobs. Available jobs are usually first offered to workers in the highest seniority "level," but employment within these levels is typically on a first-come, first-served basis. When jobs are scarce, the list of candidates may be long.

The duties aboard ship are hazardous relative to other industries. At sea, there is always a possibility of injuries from falls or the danger of fire, collision, or sinking. In the past, sudden illness at sea could be extremely hazardous, but emergency air service available today reduces the danger. Despite these drawbacks, for many men, the spirit and adventure of the sea, good



**Chief mate directs speed and course of cargo ship.**

frequent intervals; posts lookouts when required; records his watch in the ship's "log" of the voyage; and immediately notifies the captain of any unusual occurrences.

Besides acting as watch officer, each deck officer performs other duties. The *chief mate* (D.O.T. 197.133), or first mate or chief officer, as he is also known, is the captain's key assistant in assigning duties to the deck crew and maintaining order and discipline. He also plans and carries out the loading, unloading, and stowing of cargo, and assists the captain in taking the ship in and out of port. On some

ships he also may be in charge of first aid treatment.

By tradition, the *second mate* (D.O.T. 197.133) is the navigating officer. He sees that the ship is provided with the necessary navigation charts and that navigating equipment is maintained properly.

The *third mate* (D.O.T. 197.133), the most junior-rated deck officer, is responsible for the care and the maintenance of the navigating bridge and the chartroom. He acts as the signal officer and is in charge of all signaling equipment and assists in the supervision of cargo loading and unload-

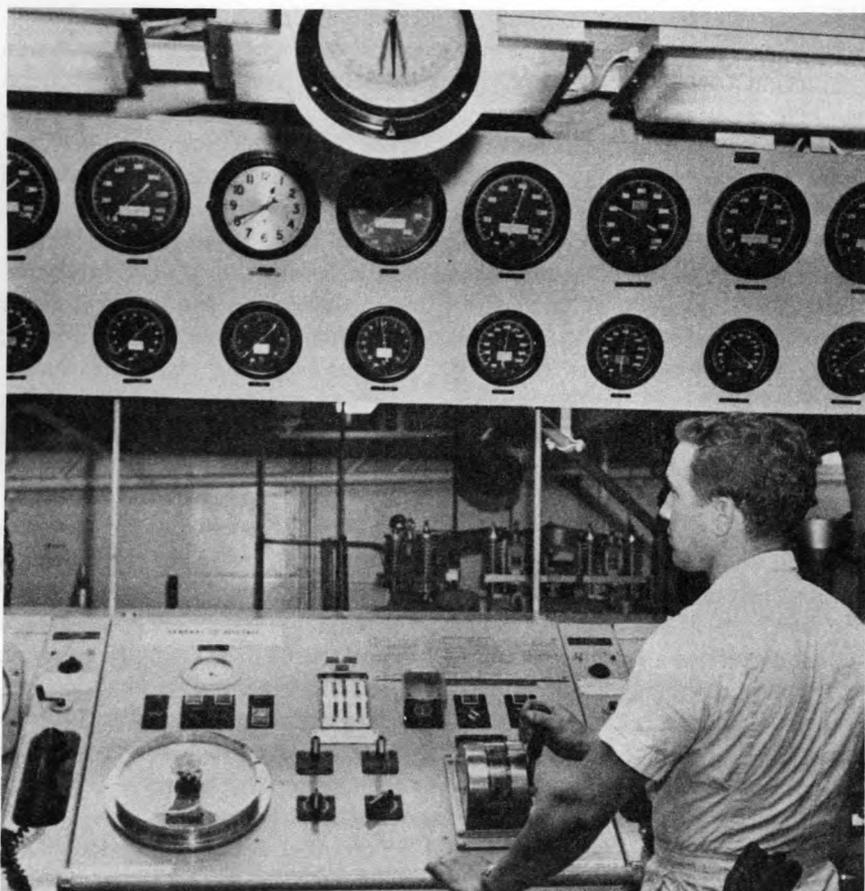
ing operations. Third mates frequently inspect life boats and other lifesaving equipment to be sure they are ready for use in fire, shipwreck, or other emergencies.

*Engine Department.* Marine engineers operate and maintain all engines and machinery aboard the ship. The *chief engineer* (D.O.T. 197.130) supervises the engine department, and is responsible for the operating efficiency of engines and other mechanical equipment. He oversees the operation of the main power plant and auxiliary equipment while the vessel is underway and is responsible for the log of equipment performance and fuel consumption.

The *first assistant engineer* (D.O.T. 197.130) supervises engine room personnel and directs operations such as starting, stopping, and controlling the speed of the main engines. He oversees and inspects the lubrication of engines, pumps, electric motors, generators, and other machinery, and with the aid of the chief engineer, directs all types of repairs.

As with the deck department, the engineroom is operated on a 24-hour basis. Second and third assistant engineers are assigned watch periods during which they are responsible for the operation of the ship's propulsion plant and auxiliary machinery and the supervision of engine department personnel. Marine engineers on watch must notify the chief engineer of any unusual occurrence and keep a record of equipment performance.

Each member of the engineering staff performs specific duties. The *second assistant engineer* (D.O.T. 197.130) has charge of the boiler and associated equipment such as the water-feed system and pumps. He is responsible for the maintenance of proper steam pressure and



Marine engineer controls running speed of main engine.

oil and water temperatures. He supervises the cleaning of the boilers and is usually responsible for their operation and the operation of the steam generator.

The *third assistant engineer* (D.O.T. 197.130) supervises the operation and maintenance of the lubrication system and engine room auxiliaries. At least one third assistant engineer is employed as a day man (nonwatchstander) and is responsible for the electrical and refrigeration systems aboard ship.

*Other officers.* A ship maintains contact with shore and other vessels through its *radio officer* (D.O.T. 193.282), who also maintains radio equipment. A passenger ship car-

ries three to six radio officers; the average cargo vessel employs one. The officer sends and receives messages by voice or Morse code. He periodically receives and records time signals, weather reports, position reports, and other navigation and technical data. The radio officer may also maintain depth recording equipment and electronic navigation equipment.

Some cargo and tanker vessels and all passenger vessels carry *pursers* (D.O.T. 197.168). The purser or staff officer performs the extensive paperwork required to enter and clear a ship in each port, prepare payrolls, and assist passengers as required. In recent years, the

Staff Officers Association has established a program to train pursers to act also as pharmacist mates. This instruction is designed to improve the medical care aboard freighters and tankers and facilitate Public Health clearance when a ship arrives in port. All passenger ships must carry licensed doctors and nurses.

### Places of Employment

Nearly 11,000 officers were employed aboard U.S. Flag oceangoing vessels during mid-1970. Deck officers and engineering officers accounted for more than four-fifths of total employment, and radio officers made up most of the remainder.

About 70 percent of the officers were aboard dry cargo vessels and 27 percent were aboard tankers. The remaining 3 percent manned passenger vessels.

### Training, Other Qualifications, and Advancement

Persons applying for the first time for an officer's license in the deck and engineering departments of oceangoing vessels must meet certain legal requirements. Captains, chief and second mates, and chief and first assistant engineers must be at least 21 years of age. The minimum age for third mates, third assistant engineers, and radio operators is 19. In addition, applicants must present documentary proof of U.S. citizenship and obtain a U.S. Public Health Service certificate attesting to their vision, color perception, and general physical condition.

In addition to legal and medical requirements, candidates for deck officer rating must pass Coast Guard examinations that require ex-

tensive knowledge of seamanship, navigation, cargo handling, and the operations of the deck department. Marine engineering officer candidates must demonstrate in-depth knowledge of propulsion systems, electricity, plumbing and steam fitting, metal shaping and assembly, and ship structure. To advance to higher ratings, officers must pass progressively more difficult examinations.

For a Coast Guard license as a radio officer, applicants must have a first or second-class radiotelegraph operator's license issued by the Federal Communications Commission. For a license to serve as the sole radio operator aboard a cargo vessel, the Coast Guard also requires 6 months of radio experience at sea.

Unlike most professions, no education requirements have been established for officers. A seaman who has served for 3 years in the deck or engine department may apply for either a third mate's license or for a third assistant engineer's license. However, because of the complex machinery, navigational, and electronic equipment on modern ships, formal training usually is needed to pass the Coast Guard's examination for these licenses.

The fastest and surest way to become a well-trained officer is through an established training program. Such programs are available at the U.S. Merchant Marine Academy at Kings Point, N.Y. and at five State merchant marine academies: California Maritime Academy, Vallejo, Calif.; Maine Maritime Academy, Castine, Maine; Massachusetts Maritime Academy, Hyannis, Mass.; Texas Maritime Academy, Galveston, Tex.; and New York Maritime College, Fort Schuyler, New York, N.Y. Approximately

600 students graduate each year from the six schools; about one-half are trained as deck officers and one-half as marine engineers. Entrance requirements for each of the academies are very high. Admission to the Federal academy is through nomination by a member of Congress, whereas entrance to the other academies is made through written application directly to the school.

Each of the academies offers 3- or 4-year courses in nautical science or marine engineering, as well as practical experience at sea. Subjects include navigation, mathematics, electronics, seamanship, propulsion systems, electrical engineering, languages, history, and shipping management. Each student receives a subsistence allowance and a bachelor of science degree upon graduation. After Coast Guard examinations are passed, licenses are issued for either third mate or third assistant engineer. In addition, graduates may receive commissions as ensigns in the U.S. Naval Reserve.

Because of their thorough grounding in theory and its practical application, academy graduates are in the best position to move up to master and chief engineer ratings. Their well-rounded education also helps qualify them for shoreside jobs such as marine superintendent, operating manager, or shipping executive.

A number of trade unions in the maritime industry provide officer training. These unions include the International Organization of Masters, Mates and Pilots; the Seafarers' International Union; the Brotherhood of Marine Officers; and the National Marine Engineers' Beneficial Association. Most union programs are designed to upgrade experienced seamen to officer ratings, although some programs accept inexperienced young men. For

example, the National Marine Engineers' Beneficial Association (MEBA) operates the Calhoun MEBA Engineering School in Baltimore, Md., which offers high school graduates a 3-year apprenticeship training program in preparation for a third assistant engineer's license. The program consists of both classroom instruction and sea experience and provides free room, board, medical care, and text books in addition to a monthly grant. Trainees must agree to serve at least 3 years in the U.S. Merchant Marine after the 3-year training period.

Advancement for deck and engine officers is along well-defined lines and depends primarily upon specified sea experience, passing a Coast Guard examination, and leadership ability. Deck officers start as third mates. After 1 year's service they are eligible to take a second mate examination. A second mate may apply for a chief mate's license after 1 year of service, and a chief mate may apply for a captain's license after 1 year of service. An officer in the engine department starts as third assistant engineer. After 1 year of service, he may apply for a second assistant's license. After further experience, he may apply for first assistant's license and finally a chief engineer's license.

Whether an officer's best prospects lie in the deck or the engineering department is a question generating considerable debate among the unions representing these workers. It seems clear, however, that the present sharp craft line drawn between deck and engineering jobs will become blurred. The emphasis will be on job function; the newest automated equipment will cut across departmental lines, union jurisdictions, and present work specialties. Some jobs will be

entirely new, and both officers and seamen will require a new inventory of skills to hold them. For example, experience gained by standing watch in an engineroom of a conventional vessel may be secondary compared with basic courses in electronics.

In anticipation of this trend, the U.S. Merchant Marine Academy now selects 10 percent of the approximately 300 men who enter the academy each year to be trained as "omnicompetent" officers. They are taught both navigational and technical skills so they can work in either department.

### Employment Outlook

Employment of ship officers is expected to decline moderately during the 1970's. However, some jobs will arise each year from the need to replace experienced officers who retire, die, or take shoreside employment.

The primary factors responsible for the expected employment decline are the continued decrease in the size of the fleet and the smaller crews on new vessels which result from mechanization. Future employment requirements in the final analysis will depend upon government policy with respect to the level of U.S. flag participation in waterborne foreign commerce. (See introductory statement on Merchant Marine Occupations for additional information on employment outlook.)

### Earnings and Working Conditions

Earnings of officers depend upon rank and the size and type of ship. Wages are highest on large ships. The accompanying tabulation shows

monthly base wages for officers aboard an average freighter. Additional payments for overtime, supplemental pay and "penalty pay" generally average about 50 percent of base pay. A monthly sum in lieu of overtime is paid to captains, chief mates, chief engineers and first and third assistant engineers who do not stand watch. The officer's rank and the type of ship determine the monthly sum, which ranged from \$218 to \$700 in 1970.

	<i>Base pay<sup>1</sup></i>
Captain .....	\$2,305
First mate .....	1,271
Second mate .....	901
Third mate .....	809
Radio officer .....	996
Purser .....	<sup>2</sup> 743
Chief engineer .....	2,126
First assistant engineer.....	1,271
Second assistant engineer....	901
Third assistant engineer.....	809

<sup>1</sup> East Coast wages in August 1970 aboard a 12,000-17,000 power ton single screw ship.

<sup>2</sup> Purser/pharmacist mate, \$806.

Officers and their dependents enjoy substantial benefits from non-contributory pension and welfare plans. For example, deck officers are eligible for a monthly pension of \$325 after 20 years of service, and up to one-half their monthly rate after 25 years of service. Men forced to retire prematurely due to a permanent disability receive partial pensions. Comprehensive medical care and hospitalization are provided for officers and their families through union programs.

Aboard ship, each officer has a private room with hot and cold running water, and his room is cleaned daily by a steward. Officers eat in a dining salon separate from the messhall in which seamen eat.

A number of labor organizations represent merchant marine officers. The two largest are the International Organization of Masters,

Mates and Pilots representing deck officers and the National Marine Engineers' Beneficial Association representing engineering officers. Unions for Officers may require initiation fees as high as \$1,000.

The Brotherhood of Marine Officers represents deck and engine officers on about 30 vessels. The Staff Officers Association represents pursers on all Atlantic and Gulf Coast passenger vessels and certain freighters. Radio officers are represented by the American Radio Association and the Radio Officers Union. In addition, a number of independent unions represent officers on tankers.

(See introductory statement on Merchant Marine Occupations for more information on earnings and working conditions.)

### Sources of Additional Information

General information about jobs in the merchant marine may be obtained from:

Office of Maritime Manpower, Maritime Administration, U.S. Department of Commerce, Washington, D.C. 20235.

Information about job openings, qualifications for employment, wage scales and other particulars can be obtained from local maritime unions. If no seafaring union is listed in a local telephone directory, information may be obtained from the following:

International Organization of Masters, Mates and Pilots, 39 Broadway, New York, N.Y. 10006.

National Marine Engineers' Beneficial Association, 17 Battery Place, New York, N.Y. 10004.

## UNLICENSED MERCHANT SEAMEN

### Nature of the Work

Unlicensed seamen make up most of a ship's crew and do most of the manual labor. Employment is along craft lines with varying skill levels and includes the following departments: Deck, engine, and steward's department.

**DECK DEPARTMENT.** *Ordinary Seamen* (D.O.T. 911.887), the entry rating in the deck department, scrub decks, coil and splice ropes, chip rust, paint, clean personnel quarters of the deck department, and do other general maintenance work. Ordinary seamen also may relieve the helmsman and lookout. All freighters and tankers customarily employ three ordinary seamen; each man is assigned a watch at sea.

*Able Seamen* (D.O.T. 911.884) constitute about one-fifth of the sea-

men. Dry cargo and tanker vessels usually have six able seamen, two of whom are assigned to each watch. These skilled workers must have a thorough knowledge of all parts of the ship and be able to handle all gear and deck equipment. They act as helmsmen or quartermasters to steer the ship. Usually, they each take 2-hour turns at the wheel, and as lookouts report sightings to the watch officer. Able seamen on passenger ships perform many of the same functions as those on freighters and tankers.

Able seamen are also responsible for rigging, overhauling, and stowing cargo-handling and other gear. They must be able to tie common knots and handle mooring lines when the ship is docking or departing. In addition to their more skilled tasks, they perform general deck maintenance work similar to that performed by ordinary seamen.

Because of the ever-present danger of fire at sea, able seamen must be familiar with approved methods of fire prevention and control. They participate in periodic boat drills and are trained in all operations connected with launching lifeboats and life rafts, and handling of the boats and commanding boat crews.

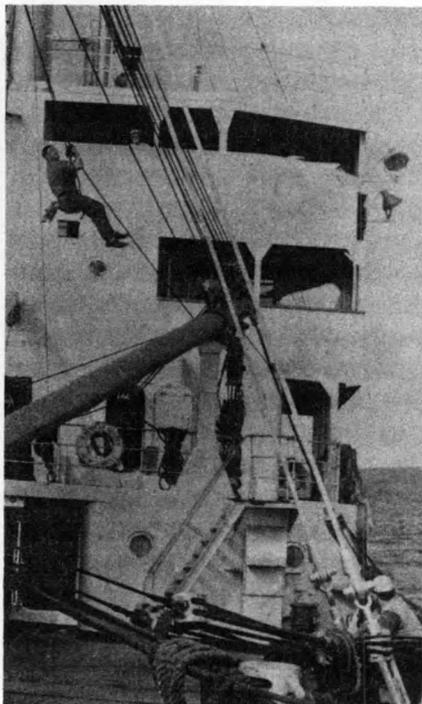
*The boatswain* (D.O.T. 911.131), or bosun, is a day worker (non-watchstander) and the highest ranking able seaman. As foreman in charge of the deck crew he relays the deck officers' orders and sees that such orders are carried out. The boatswain assists the chief mate in assigning work for crew members not on watch duty and directs general maintenance operations such as cleaning decks and polishing metalwork. When the ship docks or anchors, he supervises the deck crew in handling the lines used for mooring.

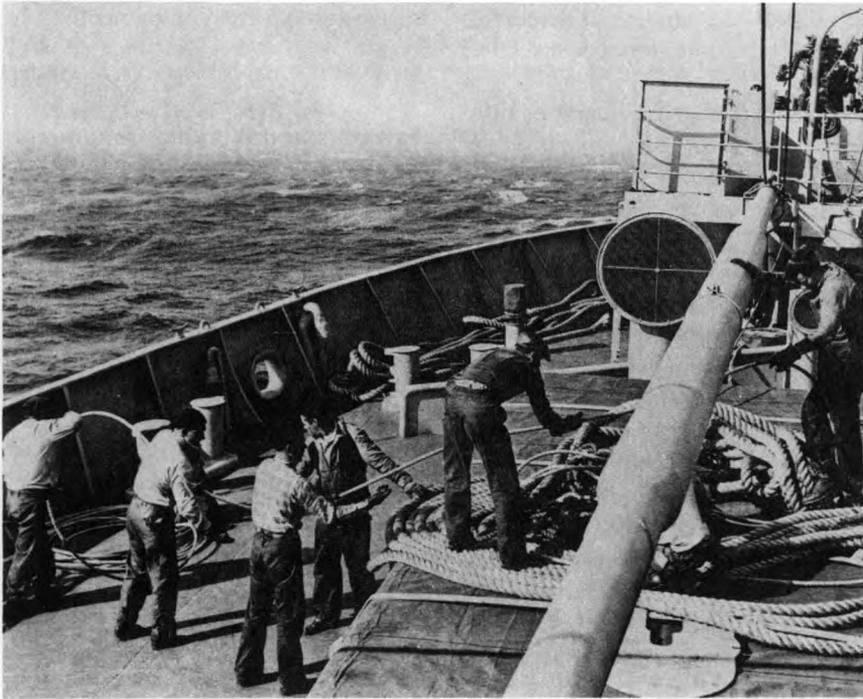
Most cargo vessels carry one to

three *deck utilitymen* (D.O.T. 911.884), day workers who maintain the deck department under the direct supervision of the boatswain. Deck utilitymen must qualify as able seamen so that in emergencies they may stand watch. They determine the condition of bilges (compartments in the bottom of the hull), overhaul blocks, and do general maintenance work.

Some vessels carry a *ship's carpenter* (D.O.T. 860.281) who secures cargo hatches and ports, and braces (shores) cargo. He may operate winches that hoist and drop the anchor and seal the hawsepipes (steel pipes through which anchor chains pass) when anchor and chains are not in use. Because of mechanization, newer ships are sailing with fewer carpenters and deck utilitymen.

**ENGINE DEPARTMENT.** The engineering staff consists of a variety of occupational specialties requiring varying degrees of skill from the entry rating of wiper to specialized skilled jobs such as reefer engineer. *Wipers* (D.O.T. 699.887) are day workers who keep the engine room and machinery clean. Most cargo vessels carry two or three wipers. *Oilers* (D.O.T. 911.884) lubricate moving parts or wearing surfaces of mechanical equipment. They make regular rounds of ship machinery to check oil pressures and flow. They inspect the machinery for overheating, fuel supply, and apply proper grades of grease or oil to all machinery. Oilers may help overhaul and repair main and auxiliary engines. *Firemen/watertenders* (D.O.T. 951.885) check and regulate the amount of water in the boilers; inspect gauges; regulate fuel oil gauges to keep steam pressure constant; and change and clean burner nozzles. They also check the operation of evaporators and con-





densers and test water for salt control; clean oil burning equipment; remove, clean, and replace burners; and clean strainers used to filter dirt from oil.

The *ship's electrician* (D.O.T. 825.281) takes orders from the chief engineer. He repairs and maintains electrical equipment, such as generators and motors. He tests wiring for short circuits and removes and replaces fuses and defective lights. Many vessels carry a *second electrician* to help maintain and repair electrical equipment and machinery.

All automated vessels carry *deck-engine mechanics* of whom one usually is classified as a day worker and three as watchstanders. Mechanics replace the oilers and firemen-watertenders on conventional vessels. Certain types of ships require men who have special skills, such as *refrigeration engineers* (D.O.T. 950.782) who operate refrigerator compartments for perish-

able cargoes such as meat and vegetables.

**STEWARD'S DEPARTMENT.** The *chief steward* (D.O.T. 350.138) supervises the operation and maintenance of the living quarters of officers, crew, and passengers. He directs and supervises all the department's personnel, orders and purchases food supplies, inspects and stores supplies, and supervises the preparation and serving of meals and the care and upkeep of living quarters. The *chief cook* (D.O.T. 315.131) and assistant cooks prepare meals. The chief cook helps the steward plan meals and draw pantry supplies from the storeroom. He also supervises the other galley (ship's kitchen) workers and is responsible for keeping the galley clean and orderly. The chief cook may be assisted by a *cook baker* (D.O.T. 315.381). *Utilitymen* (D.O.T. 318.887) and *messmen* (D.O.T. 350.878) complete the crew in the steward's de-

partment. These beginning jobs require little skill. Generally, utilitymen carry food supplies from the storeroom and iceboxes; prepare vegetables; wash cooking utensils and scour galley equipment. Messmen set tables, serve meals, clean tables, wash dishes, and care for living quarters.

### Places of Employment

Seamen employed aboard U.S. oceangoing vessels numbered about 31,000 in mid-1970. Skilled deck and engine seamen made up about one-half of the work force and skilled personnel in the steward's department, one-sixth. The steward's department employs the greatest concentration of unskilled workers, about one-fifth of total seamen.

About 65 percent of the seamen were aboard dry cargo ships, and about 28 percent were aboard tankers. The remaining 7 percent manned passenger ships.

### Training, Other Qualifications, and Advancement

Although not required, previous sea experience in the Coast Guard or Navy provides a good background for entering the merchant marine. Applicants must possess health certificates. In addition, every person going to sea for the first time must obtain seaman's papers from the U.S. Coast Guard. Seaman's papers, however, do not guarantee a job. They merely qualify a person to be considered for a job when the supply of regular workers has been exhausted. To get a job, a man must be present at the hiring hall when the opening becomes available. In good shipping times an opening may come within

a few days or weeks; in less prosperous times an opening may never appear.

An inexperienced man usually gets a job by applying for work at a central hiring hall in one of the chief ports of the country. These hiring halls are operated by unions for commercial vessels and by the Navy's Military Sealift Command (MSC) for government operated ships. In most ports along the Atlantic and Gulf Coasts and Great Lakes, the National Maritime Union or Seafarers' International Union operate hiring halls. The Sailors Union of the Pacific operates hiring halls in many ports of the West Coast. MSTs employment offices are located at Brooklyn, N.Y.; New Orleans, La.; and Oakland, Calif.

The jobseeker is given a shipping card when he registers at the hiring hall. The shipping companies send job orders to the hiring hall and the applicant unemployed the longest is entitled to the first preference on a job for which he is qualified. The applicant must be present at the hall when the job is announced and he may lose his place if he is not present, or has turned down three job offers.

A seaman advances in the deck and engine departments by serving a designated period in a rating and by successfully completing a Coast Guard examination which tests the seaman's ability to use and maintain the equipment in his department. For example, after serving a minimum of 1 year, the ordinary seaman may apply to the Coast Guard for limited endorsement as an able seaman. For full endorsement, the applicant must be 19 years of age and pass an examination to test his knowledge of seamanship and ability to carry out all the duties required of an able seaman. Seamen

who have the ability to supervise may advance to boatswain after years of service.

Advancement to higher positions in the steward's department is by recommendation of the chief steward to the captain. A messman or utilityman can advance to third cook, to cook/baker, to chief cook, and finally to chief steward.

Most training programs in the industry are designed to help experienced men upgrade their ratings. However, the Seafarers' International Union of North America operates the Harry Lundeberg School for seamanship at Piney Point, Md. that accepts and trains in general seamanship skills a limited number of young men who have no previous sea experience. Upgrading courses for seamen are offered by the Seafarers' Union; the National Maritime Union of America, and a number of other organizations.

### Employment Outlook

Workers seeking employment as seamen will face keen competition during the 1970's as the total number of ships declines and crews are reduced. The total number of seamen is expected to decline moderately. Demand for men in entry ratings will be especially limited. However, some jobs will arise each year from the need to replace experienced seamen who retire, die, or quit the sea for other reasons.

Many of the merchant vessels now operating in the U.S. fleet are of World War II vintage and are approaching obsolescence. New ships and refitted ships are equipped with mechanized features which limit manpower requirements, particularly in the unskilled ranks. (See introductory statement on Merchant Marine Occupations for additional

information on employment outlook.)

### Earnings and Working Conditions

Crew members of American merchant ships enjoy excellent pay and fringe benefits. Most jobs provide 60 days' paid vacation each year, some even longer. Earnings depend on job assignments and type of vessel. Basic monthly pay for a cross section of ratings on a typical freighter is illustrated in the accompanying tabulation:

	<i>Base pay</i> <sup>1</sup>
Able seaman .....	\$499
Ordinary seaman .....	389
Deck utilityman .....	557
Carpenter .....	603
Electrician .....	771
Oiler .....	499
Fireman/watertender .....	499
Wiper .....	463
Chief steward .....	655
Cook/baker .....	567
Messman/utilityman .....	306

<sup>1</sup> East Coast wages in August 1970 aboard a 12,000-17,000 power ton single screw ship.

Monthly earnings are supplemented by premium pay for overtime and other factors. On the average, premium earnings are equal to about 50 percent of base wages. For example, an oiler with a monthly base pay of \$499 may regularly earn about \$750 each month.

A person working in the engine room must be able to withstand high temperatures. A deckworker must adapt to both the bitter cold and hot sun.

Accommodations for seamen aboard U.S. merchant vessels are generally good, but not luxurious. Meals are served in a mess hall, which often doubles as a recreation room where the crew can read, write letters, play cards, and socialize. Crewmen generally share quar-

ters aboard older ships and have little privacy, but most new ships have single rooms.

Seamen are represented by a number of labor organizations; the two largest are the National Maritime Union of America and the Seafarers' International Union of North America.

(See introductory statement on Merchant Marine Occupations for more information on earnings and working conditions.)

### Sources of Additional Information

General information about jobs in the merchant marine may be obtained from:

Office of Maritime Manpower, Maritime Administration, U.S. Department of Commerce, Washington, D.C. 20235.

Information about job openings, qualifications for employment, wage scales and other particulars can be

obtained from local maritime unions. If no seafaring union is listed in a local telephone directory, information may be obtained from:

National Maritime Union of America, 36 Seventh Avenue, New York, N.Y. 10011.

Seafarers' International Union of North America, 675 Fourth Avenue, Brooklyn, N.Y. 11232.

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# RADIO AND TELEVISION BROADCASTING OCCUPATIONS

The glamor and excitement associated with radio and television make careers in broadcasting attractive to many young people. The electronic technology involved in transmitting programs and the business aspects of operating a broadcasting station or network also are attractions. In 1970, 112,000 full-time and 26,000 part-time staff were employed in broadcasting; altogether, approximately 60 percent were employed in radio. Staff employees work for a broadcasting station or network on a regularly scheduled and continuous basis. In addition to staff employees, several thousand freelance performers, such as actors, musicians, dancers, comedians and top-level announcers work on specific assignments from stations, networks, and other program producers. (Several thousand other employees work for independent program producers in activities closely related to broadcasting, such as the preparation of filmed and taped programs and commercials for broadcasting.)

Women make up almost a fourth of broadcasting staff employment. They frequently work as production assistants, producers, newswriters, continuity writers, casting directors, and costume or set designers. They also work in the many office occupations often filled by women. A job as secretary is frequently a good entry job for women interested in the programing and administrative areas of broadcasting.

Broadcasting stations offer a variety of interesting jobs in all parts of the country. Opportunities for entry jobs are best at stations in small communities. Generally, the most

specialized and best paying jobs are in large cities, especially those with national network stations. Nevertheless, the talented individual will have many opportunities to advance to good paying jobs in stations located in smaller communities.

## Nature and Location of the Industry

In 1970 about 6,400 commercial radio stations were in operation in the United States. Of these, approximately 4,300 were AM stations; and approximately 2,100 were FM stations. During this same period, about 690 commercial television stations were in operation.

Most commercial radio broadcasting stations are small, independent businesses. In 1969, the average commercial radio station had about 11 full-time employees and 3 part-time workers. Television stations were generally larger, and on the average, they employed about 60 full-time and 7 part-time employees.

Commercial radio stations are served by seven nationwide networks and a large number of regional networks. Stations can affiliate with networks by agreeing to broadcast their programs on a regular basis. National radio networks have affiliated stations in almost every large metropolitan area, although only a minority of all radio stations are affiliated with national networks. Regional radio networks have fewer affiliated stations, and their activities usually consist of arranging for the sale of advertising time, and interconnecting member stations for special events such as

baseball and football games. Regional networks have few full-time employees because their programing is conducted by staff employees of the affiliated stations. The seven national radio networks, together, employed approximately 1,150 workers in 1969.

Most television stations depend on one of the three national television networks for programs that would be too expensive for individual stations to originate—for example, sports events such as world series baseball games, or newscasts of national and international significance. These networks, in turn, can offer national coverage to sponsors. Since some small cities have only one or two television stations, these stations often carry the programs of two or three networks to offer their viewers a wider variety of programs. A typical network television show may be carried by up to 200 stations across the country. In 1969 the three national television networks employed about 13,000 workers, or 3 of every 10 staff employees in television. Practically all large broadcasting stations are located in metropolitan areas. About one out of four broadcasting jobs are in New York and California because New York City and Los Angeles are the two major centers for origination of network programs. In addition, one out of three broadcasting jobs are in Texas, Pennsylvania, Illinois, Ohio, Florida, Michigan, North Carolina, Tennessee, Georgia, and Indiana. The balance of broadcasting jobs are distributed throughout the other States.

In addition to commercial broadcasting stations, there were over 400 noncommercial radio stations (mainly FM), and approximately 190 noncommercial television stations, both VHF and UHF, in 1970. These stations are operated by non-profit organizations, principally educational agencies such as State

commissions; local boards of education; colleges and universities; and special community educational television organizations. According to a private survey for fiscal '69, these stations employed approximately 5,500 full-time and 2,600 part-time workers accounting for about one out of 20 in broadcasting.

### Broadcasting Occupations

Employees of broadcasting stations generally specialize in one of the following four major areas: preparing and producing programs; operating and maintaining electronic equipment (for transmitting sounds and pictures to home receivers); selling broadcast time and developing publicity and promotional material; and handling general business matters (including accounting, payroll, public relations, personnel administration, and the clerical work).

Nearly half of all staff employees in broadcasting hold professional and technical jobs such as staff announcer, newsmen, continuity writer, or broadcast technician. About one-fourth hold managerial jobs such as producer, manager, or director. Clerical workers accounted for about one of every seven workers, and sales workers for only slightly more than one of every 20 jobs in broadcasting. Of the remaining workers in broadcasting, skilled mechanics, such as radio and television repairmen, and skilled maintenance personnel, such as carpenters and electricians, were the largest groups of workers employed.

Job duties vary greatly between small and large stations. In small radio stations, a large proportion of broadcast time consists of recorded music and weather and news announcements. In small stations, the station manager, who frequently is

also the owner, may act as business and sales manager, or perhaps as program director, announcer, and copywriter. Announcers in small stations may do their own writing, often operate the studio control board, and may even act as salesmen. The engineering staff may consist of only one full-time broadcast technician assisted by workers from the other departments. Small low-powered stations, which do not use a directional antenna, may employ a chief engineer part-time and share his services with similar stations in the community. In large radio and television stations, jobs are more specialized and usually are confined to one of the four departments. The kinds of jobs found in each of these departments are described below.

*Programing Department.* Staff employees produce the daily and weekly shows, assign personnel to cover special events, and provide

general program services such as sound effects and lighting. In addition to these staff employees, freelance actors, comedians, singers, dancers, some well-known announcers, and other entertainers are hired for specific broadcasts or a series of broadcasts or for special assignments. These performers work on a contract basis for the station, network, advertising agency, sponsor, or an independent company and specialize in producing programs.

The size of a station's programing department depends on the extent to which its broadcasts are live, recorded, or received from a network. In small stations, the program functions are handled by a few people who make commercial announcements, read news and sports summaries, select and play recordings, and introduce network programs. A large television station, on the other hand, may have a program staff consisting of a large number of peo-



Program director in control room directs shooting of show.

ple in a wide variety of specialized jobs.

Responsibility for the overall program schedule of a large station rests with a *program director*. He arranges for a combination of programs that he believes will be most effective in meeting the needs of advertisers who buy the station's services and will at the same time be most attractive and interesting to members of the community served by the station.

Daily schedules of programs are prepared by a *traffic manager*, who also keeps a record of broadcasting time available for advertising. A *continuity director* is responsible for the writing and editing of all scripts. He may be assisted by a *continuity writer*, who prepares *Announcers' Books* ("copy"). These books contain the script and commercials for each program along with their sequence and length.

Individual programs or series of programs are planned and supervised by a *director*. In large stations, he may work under the supervision of a *producer*, who assumes responsibility for selection of scripts, financial control, and other overall problems of production. Many times these functions are combined in the job of *producer-director*. The director's major functions include selecting appropriate artists and studio personnel, scheduling and conducting rehearsals, coordinating the efforts of all the people involved in the show to produce effective entertainment, and directing the on-the-air show. He may be assisted by an *associate director*, who takes over such tasks as working out detailed schedules and plans, arranging for distribution of scripts and changes in scripts to the cast, and assisting in directing the on-the-air show. Some stations employ *program assistants* to aid in

carrying out the orders of the director and his assistants. The assistants help assemble and coordinate the various parts of the show. They arrange for obtaining props, makeup service, art work, and film slides. They assist in timing the on-the-air show, preparing cue cards from the scripts, and using them to cue the performers. *Education and public affairs directors* act as a link between the station and schools, churches, and civic and charitable institutions. They supervise and edit most noncommercial programs.

*Announcers* are the largest and best known group of program workers. In radio and television stations of all sizes, the announcer introduces programs, guests, and musical selections, and delivers most of the live commercial messages. (Further information on broadcast announcers is given later in this chapter.)

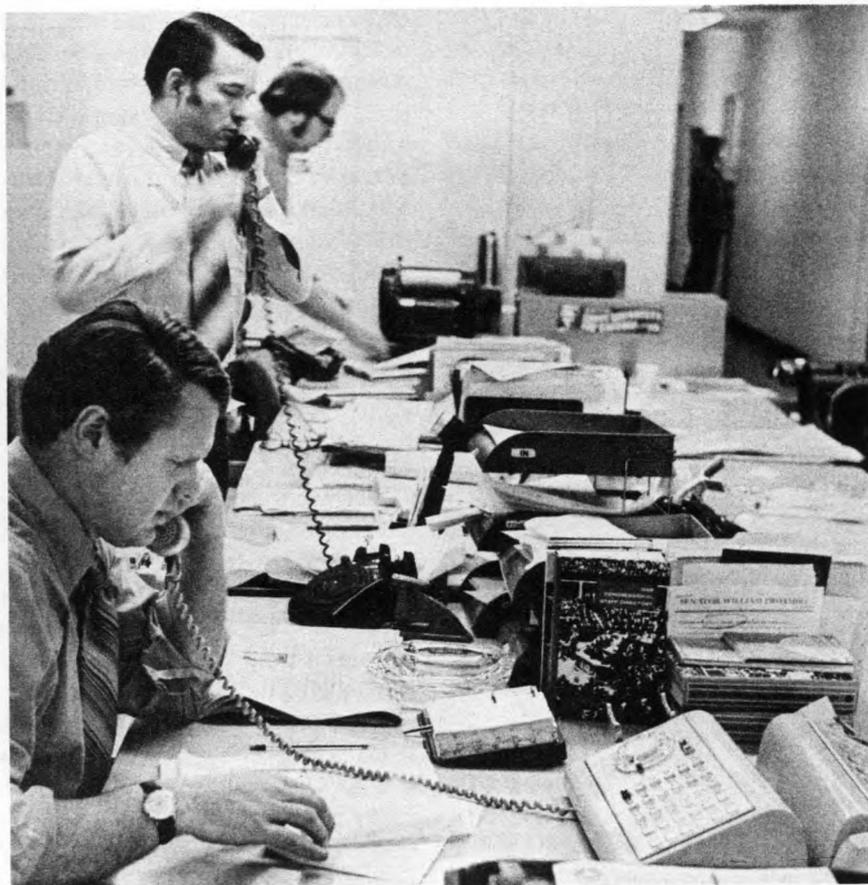
Music is an important part of radio programming. Both small and large stations use recordings and transcriptions to provide musical programs and background music for other shows. Large stations, which have extensive music libraries, sometimes employ a *music librarian*, who maintains the music files and answers requests for any particular selection or type of music. In addition to recorded music, a few of the largest stations have specialized personnel who plan and arrange for musical services. The *musical director* selects, arranges, and directs suitable music for programs on general instructions from the program director. He selects musicians for live broadcasts and directs them during rehearsals and broadcasts. Musicians are generally hired for particular assignments on a freelance basis, although a few stations employ staff musicians full-time.

News gathering and reporting is

an increasingly important aspect of radio and television programming. In addition to daily coverage of the news, sports, weather, and, in rural areas, farm reports, the news department also presents special programs covering such events as conventions and disasters. The *news director* plans and supervises the overall news and special events coverage of a station. A *newscaster* broadcasts daily news programs and reports special news events on the scene. A *news writer* selects and writes news copy to be read on the air by the newscasters. In small stations the jobs of newscaster and news writer frequently are combined.

Stations that originate live television shows must have staff members capable of handling staging jobs. The *studio supervisor* plans and supervises the setting up of scenery and props. The *floor or stage manager* plans and directs the actors' positions and movements on the set in accordance with the director's instructions. The jobs of studio supervisor and floor manager often are combined. *Floormen* set up props, hold cue cards, and do the unskilled chores around the studio. (This job is frequently held by a beginner in the production department.) *Makeup artists* prepare personnel for broadcasts by applying proper makeup. *Scenic designers* plan and design settings and backgrounds for programs. They select furniture, draperies, pictures, and other properties to help convey the desired visual impressions. *Sound effects technicians* operate special equipment to simulate sounds, such as gunfire or falling water.

About half of all television programming is on film, about 15 percent is live, and the remainder is recorded on magnetic video tape. Video tape recording is done by



News writers revise information for clearance and editing.

broadcast technicians on electronic equipment that permits instantaneous playback of a television performance. It can be used either to record a live show being broadcast or to prerecord a program for future broadcast. For filmed programs, the role of the station's programming staff is limited to editing the film and timing and scheduling the show. Many stations employ specialized staff members to take care of filmed program material. The *film editor* edits and prepares all film for on-the-air presentation. This includes screening all films received as well as cutting and splicing feature films to insert commercials. He also edits all locally produced film. The *film librarian*

catalogs and maintains the station's files of motion picture film.

**Engineering Department.** The main tasks of the engineering staff are positioning microphones, adjusting levels of sound, keeping transmitters operating properly, moving and adjusting television cameras to produce clear, well-composed pictures, and lighting television scenes and performers. The staff also installs, maintains, and repairs the many types of electrical and electronic equipment required for these operations.

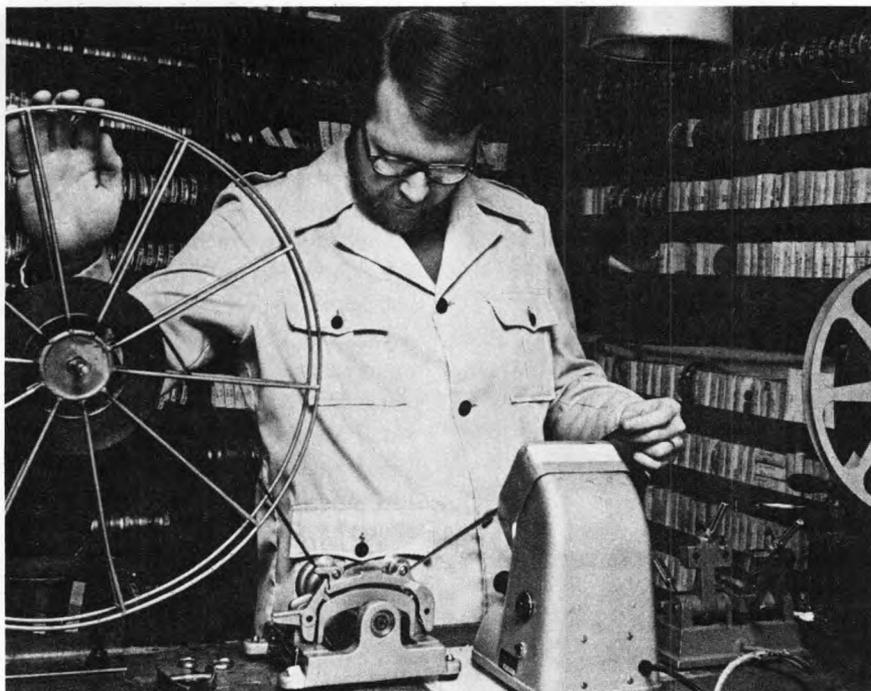
Broadcast technicians in the engineering department perform a variety of jobs in the radio or television station. For example, they control the operation of the transmitter to

keep the output level and frequency of the outgoing broadcast within legal requirements. They also set up, operate, and maintain equipment in the studio and in locations from which remote broadcasts are to be made. (Further information on broadcast technicians is given later in this chapter.)

Most stations employ a *chief engineer*, who has responsibility for all engineering matters, including supervision of other technicians. In small stations, he also may work a regular shift at the control board. Large stations have engineers who specialize in fields such as sound recording, maintenance, and lighting. Networks employ a few *development engineers* to design and develop new electronic apparatus to meet special problems.

**Sales Department.** *Time salesmen*, the largest group of workers in this department, sell time on the air to sponsors, advertising agencies, and other buyers. They must have a thorough knowledge of the station's operations and the characteristics of the area it serves that are of most interest to advertisers. The latter include population, number of radio and television sets in use, income levels, and consumption patterns. Time salesmen in large stations often maintain close relationships with particular sponsors and advertising agencies by selling time and acting as general consultants and advisers in matters pertaining to advertising through the station. In very small stations, the time salesman also may handle other functions. Many stations sell a substantial part of their time, particularly to national advertisers, through independent sales agencies known as station representatives, which act as intermediaries for time buyers and stations or groups of stations.

Large stations generally have



several workers who do only sales work. The sales manager supervises his staff of time salesmen. He also may handle a few of the largest accounts personally. Some large stations employ statistical clerks and research personnel to assist the sales staff by analyzing and reporting market data relating to the community served.

**Business Management.** In a very small station, the owner and his secretary may handle all the record-keeping, accounting, purchasing, hiring, and other more routine office work. Where the size of the station warrants the employment of full-time specialists, the business staff may include accountants, publicity specialists, personnel workers, and other professional workers. They are assisted by office workers such as stenographers, typists, bookkeepers, clerks, and messengers. Building maintenance men are employed to keep the facilities in good condition.

### Training, Other Qualifications, and Advancement

A high school diploma is the minimum educational requirement for entry jobs in broadcasting, although for many jobs some college training is increasingly preferred. A liberal arts education is a good qualification for the beginner because broadcasting needs broadly educated people with knowledge and interests in many areas. Work in television programming for networks and large independent stations generally requires a college degree and some experience in the broadcasting field.

Training in specialized areas such as writing, public speaking, dramatics, designing, makeup, or electronics may be required of beginners in these specialties, even though work experience usually is not necessary. Some young people without specialized training or experience get their start in broadcasting in such jobs as clerk, typist, floorman, or assistant to an experienced worker. As these new workers gain knowledge and

experience, they have the chance to advance to more responsible jobs. Young people are sometimes hired on the basis of their potentialities rather than for any specific training or experience, but the more skills, education, and varied background these beginners have, the better will be their chances for advancement. A few young people get started in broadcasting with temporary jobs in the summer when regular workers go on vacations, and broadcast schedules of daylight hours stations are increased.

Technical training in electronics is required for entry jobs in engineering departments. In addition, anyone who operates or adjusts a broadcast transmitter must have a Federal Communications Commission (FCC) Radiotelephone First Class Operator License. To obtain this license, an applicant must pass a series of technical examinations given by the FCC. Small radio stations with only a few employees sometimes prefer to have as many personnel as possible legally qualified to operate their transmitters. Because of this, nontechnicians, especially announcers, will have a better chance of getting a job in radio if they have a first class license. A course in electronics at a recognized technical institute is probably the best way to prepare for the FCC test.

Specific training or experience usually is not required for entry jobs as announcers in small stations, but an applicant must have a good voice, a broad cultural background, and other characteristics that make him a dramatic or attractive personality. Qualifications for administrative and sales jobs in broadcasting are similar to those required by other employers; a business course of study in high school or college is good preparation for such jobs.

Most beginners start out in small stations. Although these stations cannot pay high salaries, they offer new workers opportunities to learn many different phases of broadcasting work because they generally use their personnel in "combination" jobs. For example, in addition to his regular duties, an announcer may perform some of the duties of a broadcast technician.

People in the engineering department tend to remain in this area of work, where thorough training in electronics is essential. Program employees usually remain in programing work, although sometimes transfers from and to the sales and business services departments are made. Transfers are easier between sales and administrative departments because of their close working relationship; in fact, in the small stations, they are often merged into one department. Although transfers of experienced workers between departments are limited to the extent noted, these distinctions are less important in the beginning jobs and also in the top-level jobs. At the higher levels, a station executive may be drawn from top-level personnel of any department. Many top-level administrative jobs are filled by people with sales experience.

### Employment Outlook

Employment in the broadcasting industry is expected to grow at a moderate pace for the balance of the 1970's. More job opportunities will result from replacement, as thousands of job openings become available as workers transfer to other fields of work, retire, or die. Retirements and deaths alone will provide an estimated 3,800 job openings annually.

New radio stations will be established over the period, primarily in small communities, and will offer opportunities for some additional workers. Also, cable television (CATV) has emerged as a powerful new force in communications and some additional job opportunities for professional, technical, and maintenance personnel will be created as CATV systems increasingly originate and transmit programs. By using coaxial cables instead of airwaves, CATV can bring to subscribers a large selection of over-the-air signals plus many additional programs originated for cable television.

The number of educational broadcasting stations is expected to increase as private and governmental groups continue to expand this medium as an educational tool. The growth of educational television stations, particularly, should increase the number of job opportunities, especially in programing, engineering, and station management.

In existing radio stations, employment probably will remain about the same. Continued introduction of equipment that permits the control of transmitters from the studio will eliminate the need for a technical crew at the transmitter site. Automatic programing equipment permits radio stations to provide virtually unattended programing service. As the smaller television stations acquire the capability to originate local color telecasts, there may be a small expansion in the number of technical workers to handle and operate the more complex equipment.

Competition will be very keen for entry jobs in broadcasting in the years ahead, especially in the large cities, because of the attraction this field has for young people, and the

relatively few beginning jobs that will be available.

### Earnings and Working Conditions

In 1970, earnings of nonsupervisory broadcasting workers averaged \$147.45 a week or \$3.86 an hour for an average 38.2-hour week. There is a wide range of salaries among various occupations in the industry and among locations. Employees in large cities generally earn much more than those in the same kinds of jobs in small towns. Wages also tend to be higher in large stations than in small ones and higher in television than in radio.

Working conditions in broadcasting stations are usually pleasant. The work is done in clean, attractive surroundings. It is performed indoors, except where remote pickups are involved. Jobs in programing are particularly attractive to young people interested in the performing arts, both because of the glamour attached to this field of work, and the opportunities it affords for high earnings and artistic expression.

Most full-time broadcasting employees have a scheduled 40-hour workweek. However, employees in many small stations have a longer workweek. Sales and business services employees generally work in the daytime hours common to most office jobs. However, program and engineering employees must work shifts which may include evenings, nights, weekends, and holidays. To meet a broadcast deadline, program and technical employees in the networks may have to work continuously for many hours under great pressure.

Many unions operate in the broadcasting field. They are most active in the network centers and

large stations in metropolitan areas. The National Association of Broadcast Employees and Technicians and the International Brotherhood of Electrical Workers both organize all kinds of broadcasting workers, although most of their members are technicians. The International Alliance of Theatrical Stage Employees and Moving Picture Machine Operators organizes various crafts, such as stagehands, sound and lighting technicians, wardrobe attendants, makeup men, and cameramen. Many announcers and entertainers are members of the American Federation of Television and Radio Artists. The Directors Guild of America, Inc. (Inc.) organizes program directors, associate directors, and stage managers. The Screen Actors Guild Inc., represents the majority of talent personnel who appear on films made for television.

## RADIO AND TELEVISION ANNOUNCERS

(D.O.T. 159.148)

### Nature of the Work

Radio and television staff announcers present news and live commercial messages, introduce programs, describe sporting events, act as masters of ceremonies, conduct interviews, and identify stations. In small stations, they may perform additional duties such as operating the control board, selling time, and writing commercial and news copy. In large stations, their duties are confined to the programming department.

Many announcers act as disc jockeys, introducing selections of

recorded music and commenting on the music and other matters of interest to the audience. Disc jockeys "ad-lib" much of the commentary, working without a detailed script.



About 17,000 staff announcers were employed on a regularly scheduled, full-time basis in radio and television broadcasting stations in 1970. More than 80 percent of them were employed in radio. The average radio station employed 2 announcers; larger stations employed 4 or more. Most television stations employed 2 staff announcers, although larger stations sometimes employed 3 or more. In addition to staff announcers, several thousand freelance announcers sell their services for individual assignments to networks and stations, or to advertising agencies and other independent producers, for both programs (news, sports, disc jockey, etc.) and commercials. Some announcers become well-known and highly paid personalities.

### Training, Other Qualifications, and Advancement

To succeed as an announcer, one must have a pleasant and well-controlled voice, a good sense of timing, and excellent pronunciation. In addition, a thorough knowledge of correct English usage and a knowledge of dramatics, sports, music,

and current events improve chances for success. In television, rather high standards of personal appearance also must be met. When on the air, an announcer must be able to react quickly and imaginatively in unusual situations. He also must be a convincing salesman when presenting commercials. In addition to all the above qualifications, the most successful announcers have a combination of personality and showmanship that makes them attractive to audiences. Therefore, anyone considering a career as an announcer should judge his chances of success realistically. Most announcers are men, but there are a few opportunities for women.

High school courses in English, public speaking, dramatics, and foreign languages, plus sports and music hobbies, are valuable background for prospective announcers. A number of vocational schools offer training in announcing, and some universities offer courses of study in the broadcasting field. A college liberal arts education also provides an excellent background for an announcer.

Most announcers get their first broadcasting jobs in small stations. Because announcers in small stations sometimes operate transmitters, prospective announcers often obtain an FCC Radiotelephone First Class Operator License which enables them legally to operate a transmitter and, therefore, makes them much more useful to these stations. Announcers more frequently operate control boards, for which only a Third Class license is required. (For information on how to obtain such licenses, see p. 756.)

Announcers usually work in several different stations in the course of their careers. After acquiring experience at a station in a small community, an ambitious and talented

announcer may move to a better paying job in a larger community. He also may advance by getting a regular program as a disc jockey, sportscaster, or other specialist. In the national networks, competition for announcing jobs is intense, and an announcer usually must be a college graduate and have several years of successful announcing experience before he will be given an audition.

### Employment Outlook

The employment of announcers is expected to increase moderately in the 1970's, as new radio and television stations are licensed. The gains in employment resulting from these openings during this period, however, will be reduced slightly by the increased use of automatic programming. Some job openings in this relatively small occupation will also result from transfers to other fields of work and from retirements and deaths.

It will be easier to get an entry job in radio than in television because of the greater number of radio stations, especially small stations which hire beginners. However, the great attraction this field has for young people and its relatively small size will result in keen competition for entry jobs.

### Earnings and Working Conditions

Earnings of staff announcers vary and depend upon whether the announcer works in radio or television, in a large or small station, or in a large or small community. As a general rule, wages increase with the size of the community and the station. Earnings of an announcer in

television tend to be somewhat higher than those in radio.

The earnings of many better paid announcers include fees in addition to the salaries received from stations. Such fees are larger and more common in television than in radio. In small radio stations, announcers generally are paid a fixed weekly or monthly salary. Announcers who work in regular shows, such as disc jockeys or announcers who become identified with popular network radio or television programs, earn considerably more than other staff announcers.

Most announcers in large stations work a 40-hour week and receive overtime for work beyond 40 hours. In small stations, many announcers work 2 to 8 hours of overtime each week. Evening, night, and weekend work occurs frequently since many stations are on the air 24 hours a day, 7 days a week. Announcers' working hours consist of both time on the air and time spent in preparing for broadcasts. Working conditions are usually pleasant because of the variety of work and the many

personal contacts which are part of the job. Announcers also receive some satisfaction from becoming well known in the area their station serves.

## BROADCAST TECHNICIANS

(D.O.T. 194.281, .282, and .782; 957.282; and 963.168 through .887)

### Nature of the Work

Broadcast technicians set up, operate, and maintain the electronic equipment used to record or transmit radio and television programs. They work with microphones, sound recorders, lighting and sound effects devices, television cameras, magnetic video tape recorders, and motion picture projection equipment. In the control room, broadcast technicians operate equipment that regulates the quality of sounds and pictures being recorded or





**Broadcast technician controls quality of transmission.**

broadcast. They also operate controls that switch broadcasts from one camera or studio to another, from film to live programming, or from network to local programs. By means of hand signals and, in television, by use of telephone headsets, they give technical directions to personnel in the studio. When working on disc jockey programs, they sometimes operate phonograph record turntables. Other control room duties may include operating movie projectors, making recordings of live shows, and keeping an operation log of all broadcasts.

As a rule, broadcast technicians in small stations perform a wide variety of duties. In large stations and in networks, technicians are more specialized, although specific job assignments may change from day to day. Broadcast technicians who specialize may be given titles such as *transmitter technician* (monitors and logs outgoing signals and is responsible for proper operation of the transmitter), *maintenance technician* (sets up, maintains, and repairs electronic broadcasting equipment), *audio control technician* (operates controls that regulate

sound pickup, transmission, and switching), *video control technician* (operates controls that regulate the quality, brightness, and contrast of television pictures), *lighting technician* (directs lighting of television programs), *field technician* (sets up and operates broadcasting equipment for programs originating outside the studio), *recording technician* (operates and maintains sound recording equipment), and *video tape recording technician* (operates and maintains magnetic video tape recording equipment). Sometimes the term "engineer" is substituted for technician in the above titles.

Installing and maintaining complex electronic equipment is the most technically difficult work of broadcast technicians. Most technicians do at least occasional maintenance, but large stations usually have one or two experienced men who repair and maintain electronic equipment under supervision of the chief engineer. In small radio stations, the chief engineer frequently does all maintenance and repair work himself.

When events taking place outside the studios are to be broadcast, technicians go to the site of the pickup and set up, test, and operate the necessary equipment. They also make emergency repairs. After the broadcast, they dismantle the equipment and return to the station.

In 1970, over 22,000 nonsupervisory broadcast technicians were employed in radio and television stations. Most radio stations employ fewer than four technicians, although a few large radio stations may employ more than 10. Nearly all television stations employ at least five broadcast technicians. Stations located in large metropolitan areas average about 30 technicians. Many broadcast technicians work in communities of more than 250,000

population. The highest paying and most specialized jobs are concentrated in New York, Los Angeles, and Washington, D.C.—the originating centers for most of the network programs.

In addition to the nonsupervisory technicians, several thousand supervisory personnel with job titles such as chief engineer, assistant chief engineer, director of engineering, technical director, and supervisory technician work in engineering departments. These workers supervise personnel who operate, maintain, and repair all electronic equipment in the studio, at the transmitter, and on remote broadcasting sites. They may also do maintenance and repair work, design and build new equipment, purchase equipment for the station, and help lay out plans for building new studios, transmitters, relay equipment, and towers.

### **Training, Other Qualifications, and Advancement**

A young man interested in becoming a broadcast technician should plan to get a Radiotelephone First Class Operator License from the FCC. Federal law requires that anyone who operates or adjusts broadcast transmitters in television and radio stations must hold such a license. Some stations require all their broadcast technicians, including those who do not operate transmitters, to have this license. Applicants for the license must pass a series of written examinations covering the construction and operation of transmission and receiving equipment, the characteristics of electromagnetic waves, and Federal Government and international regulations and practices governing broadcasting. Information about these examinations and guides to

study for them may be obtained from the FCC, Washington, D.C. 20036.

High school courses in algebra and trigonometry, and in physics and other sciences, provide valuable background for young men anticipating careers in this occupation. Building and operating an amateur radio station is also good training. A good way to acquire the knowledge necessary for becoming a broadcast technician is to take an electronics course in a technical school. Many schools give courses especially designed to prepare the student for the FCC first-class license test. Training at the technical school or college level is a distinct advantage for those who hope to advance to supervisory positions or to the more specialized jobs in large stations and in the networks.

Young men with FCC first-class licenses who get entry jobs are instructed and advised by the chief engineer or other experienced technicians concerning the work procedures of the station. In small stations, they may start by operating the transmitter and handling other technical duties after a brief instruction period. As they acquire more experience and skill, they are assigned to more responsible jobs. Men who demonstrate above-average ability may move into the top-level technical positions, such as supervisory technician and chief engineer. A college degree in engineering is becoming increasingly important for advancement to supervisory positions.

### **Employment Outlook**

The number of broadcast technicians is expected to increase only slightly during the 1970's. Retirements, deaths, and transfers to

other jobs will result in some additional job openings.

Some job opportunities for technicians will be provided by the new radio and television stations expected to go on the air during this period. In addition, color television broadcasting may slightly increase the need for technicians. Color television pickup and transmitting equipment is much more complicated than black and white equipment and requires more maintenance and technical know-how. However, other technical advances, such as automatic switching and programing, automatic operation logging, and remote control of transmitters will limit the increase in job opportunities in the new stations and replacement needs in existing stations.

### **Earnings and Working Conditions**

Earnings of broadcast technicians vary greatly depending on such factors as the size and location of the community a station serves, the size of the station, whether he works in a radio or television station, and the experience of the individual. As a rule, technicians' wages are highest in large cities and in large stations. Technicians employed by television stations usually are paid more than those working for radio stations because television equipment is generally more complex.

Most technicians in large stations work a 40-hour week with overtime pay for work beyond 40 hours. Many broadcast technicians in the larger cities work a 37-hour week. In small stations, many technicians work 2 to 8 hours of overtime each week. Evening, night, and weekend work is frequently necessary since many stations are on the air as many as 24 hours a day, 7 days a

week. Network technicians may occasionally have to work continuously for many hours and under great pressure in order to meet broadcast deadlines.

Broadcast technicians generally work indoors in pleasant surroundings. The work is interesting, and the duties are varied. When remote pickups are made, however, techni-

cians may work out of doors at some distance from the studios, under less favorable conditions.

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# RAILROAD OCCUPATIONS

Philadelphia, Cleveland, and St. Louis.

The railroads, with their network of more than 200,000 miles of rail line reaching into all parts of the country, are one of the Nation's largest employers. Over 500,000 railroad workers were employed in 1970, operating trains, maintaining and repairing facilities and equipment, and performing hundreds of other activities. These involve jobs requiring different kinds of skills and levels of education. In most railroad occupations, a worker starts at the bottom and works his way up by learning his job, proving his ability, and acquiring seniority.

## Nature and Location of the Industry

The railroad industry is made up of "line-haul" railroad companies which transport freight and passengers between cities and towns, and switching and terminal companies which operate facilities at stations, at freight yards, and at other terminal points.

The Class I line-haul railroads, which include all the large, well-known companies, handle about 95 percent of the railroad industry's business and employ about 92 percent of all railroad workers. Equipped with nearly 27,000 locomotive units, about 12,800 passenger cars, and about 1.4 million freight cars, they transported more than 1.4 billion tons of freight and nearly 300 million passengers in 1970. Employment and Earnings data used in this chapter are for jobs on Class I line-haul railroad industry.

Of the various transportation services provided by the railroads, shipment of freight, in terms of

commodities—like coal, ore, grain, lumber, and manufactured products—account for most railroad revenue and employment. Passenger service, though important, has declined substantially during the past 25 years. As a result, most job openings in the near future are likely to be related to railroad freight, rather than passenger, service.

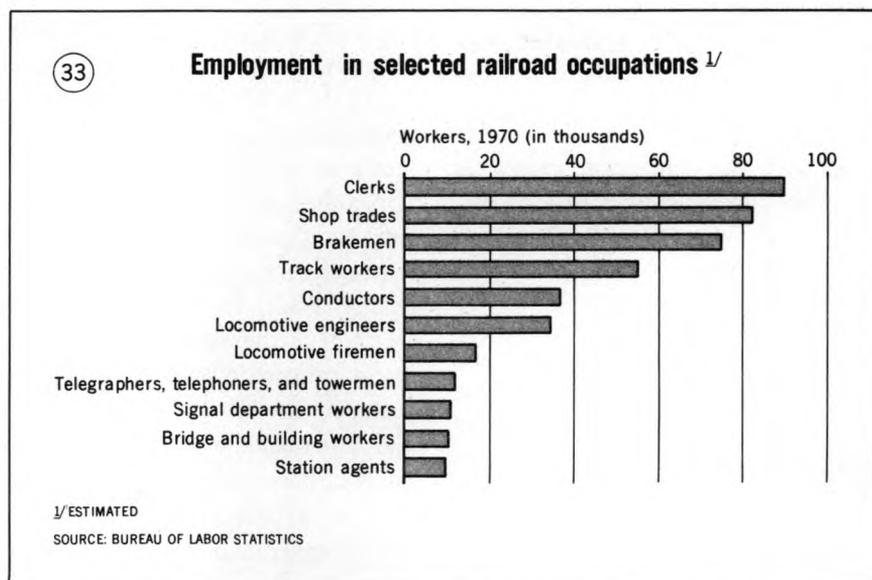
Railroad workers are employed in every State except Hawaii and in both large and small communities, but the greatest number work at terminal points where the railroads maintain their central offices, freight yards, and maintenance and repair shops. The metropolitan area of Chicago, where the great eastern and western railroad systems meet, is the hub of the Nation's railroad network and has more railroad workers than any other area. Other places where particularly large numbers of railroad workers are employed are areas around New York City, Los Angeles, Pittsburgh,

## Railroad Occupations

The work force of the railroad industry can be divided into five main groups—employees who (1) operate trains, (2) handle communications, station, and office work, (3) build and maintain locomotives, cars, and other rolling stock, (4) build and maintain tracks, structures, and other railroad property, and (5) handle luggage, prepare and serve food, and provide other personal services to passengers. In 1970, 94 percent of the workers in railroad jobs were men. Most women employed by the railroads work in offices.

Chart 34 shows the number of employees in some of the principal railroad occupations. Other occupations range from unskilled laundry and cleaning jobs to professional positions such as accountant, engineer, and statistician. (Information about some of these jobs is given elsewhere in the *Handbook*.)

The workers directly engaged in running the trains, known as "oper-



ating employees," represent more than one-fourth of all railroad workers. Class I line-haul railroads employed approximately 165,000 operating employees in 1970. Included are locomotive engineers, firemen, conductors, brakemen, and, on some passenger trains, baggagemen. These men work together as train crews, operating trains either out on the "run" or at the terminals and railroad yards. Here, in the yards, freight is loaded and unloaded, freight cars received and switched, and trains are broken up and put together. Others who work in the yards include switchtenders, who assist conductors (or foremen) and brakemen (or switchmen) by throwing the track switches. Hostlers fuel locomotives, check their operating condition, and deliver them to the engine crews.

Another one-fourth of all railroad workers consists of "communications, station, and office" employees who regulate train movements and handle the railroads' business affairs. In 1970, Class I line-haul railroads employed about 14,000 persons in these jobs.

Communications are handled by dispatchers who coordinate the movement of trains and issue train orders. Then telegraphers, telephoners, and towermen either pass on these train orders—and other instructions—to the train crews or else execute them by setting signals and track switches. Agents are in charge of the railroad stations' business affairs. Railroad clerks work either in these stations or in company offices, doing secretarial and other kinds of office work, assisting station agents, dealing with customers, selling tickets, tending baggage rooms, keeping records, and performing related tasks. Also included in this "office, communication, and station" group of railroad workers

are claims investigators, accountants, lawyers, motor vehicle operators, patrolmen, and watchmen.

More than one-fifth of all railroad workers are employed in railroad yards, carshops, and engine houses, houses maintaining and repairing locomotives, cars, and other railroad rolling stock. Class I line-haul roads employed about 124,000 workers in this group in 1970. Car-men perform a variety of repair and maintenance tasks necessary to keep railroad freight and passenger cars in good operating condition. Electrical workers, machinists, boiler-makers, blacksmiths, and sheet metal workers, also are employed in carshops.

A considerably smaller group of railroad workers—about one-sixth of the total—maintains and constructs tracks, bridges, stations, signals, and other railroad property. The Class I line-haul railroads employed about 87,000 in work of this kind in 1970. Trackmen and other maintenance-of-way workers maintain, construct, and repair tracks and roadbeds. Bridge and building mechanics construct and maintain bridges, tunnels, and many other kinds of structures along the company's right-of-way. Signal workers install the railroad's vast network of train and crossing signals and maintain it in working order.

Another small group of railroad workers provides personal services to passengers at stations and aboard trains. With 5,600 employees in 1970, it is the smallest of the five major railroad occupational groups. Included in this group are porters and attendants who perform many kinds of personal service for passengers, as well as cooks and waiters who prepare and serve food. (Additional information about cooks

and waiters is given elsewhere in the *Handbook*.)

### **Training, Other Qualifications, and Advancement**

For most jobs, particularly those on the trains, in the yards, and around the stations, training is given on the job. The new employee usually learns by working and by receiving instructions from experienced men. For some office and maintenance jobs, training may be obtained in high schools and vocational schools. In addition, universities and technical schools offer courses in engineering, transportation, traffic management, and other subjects valuable to professional and technical workers.

New employees in some occupations—principally those connected with train or engine service—start as "extra board" men. That is, their names are placed on an "extra list" for individual occupations. From these lists, the workers are called to fill vacancies that arise from vacations, days off, or illnesses of men on regular jobs. They may be called for extra work because of an increase in railroad traffic, as well. When regular job assignments become available, extra board workers who have gained experience and seniority are assigned to regular positions. The time spent on extra board work varies with type of job and number of available openings. In some cases, workers may not receive regular assignments for a number of years, if regular openings do not develop as a result of decreased traffic, increased mechanization, and the like.

Apprenticeship programs are limited chiefly to trainees in the railroad shop crafts. Many of these programs are planned and operated

jointly by the companies and the railroad workers' unions. Of the men who were taking this kind of training in 1970, the majority were "regular" apprentices (usually high school graduates with no previous work experience, who were working and receiving instruction in their chosen trades for a 4-year period). Others were "helper" apprentices, with some previous experience as railroad workers, who were receiving the same kind of training, usually for a 3-year period.

Applicants who have a high school education or its equivalent are preferred by railroad companies for most kinds of nonprofessional positions. Good physical condition is required for most jobs, and almost all large railroads require applicants to pass physical examinations before they are hired; in some jobs, physical examinations are required periodically. Excellent hearing and eyesight are essential for train and engine service jobs, and color blindness is an absolute bar to employment in work involving the interpretation of railroad signals.

Promotions of qualified workers to jobs covered by union-management agreements are made on the basis of seniority. Most job vacancies are listed on a bulletin board, and all workers interested may "bid" for them. The job goes to the qualified applicant whose length of service places him highest on the seniority list. Often, before workers can qualify for promotion, they must pass written and performance tests. For occupations in train and engine service, there are well-established avenues of promotion. Engineers usually are chosen from the ranks of the firemen, and conductors from the list of brakemen.

A railroad worker's seniority usually entitles him to promotion only for job openings which occur within

a limited area or "seniority district" of the railroad system for which he works. In some cases, seniority rights may apply only to one shop, locality, or office. Among train and engine personnel, seniority rights may be limited either to road service or yard service. In such cases, workers may bid only for positions in the particular type of service in which they have been employed.

In addition to determining his right to advance, the worker's seniority also determines how much choice he has about working conditions. A beginning telegrapher, for instance, may have to work several years on a night shift in an out-of-the-way location until he accumulates enough seniority to get an assignment without these disadvantages.

(Later sections of this chapter contain more complete information about the training and other qualifications for selected occupations in the railroad industry.)

### Employment Outlook

The longrun decline in railroad employment is expected to continue, but at a decreasing rate in the immediate years ahead. Technological innovation and changing patterns of transportation and production have resulted in a substantial decline in railroad employment in recent years. Developments such as the use of larger, more powerful diesel locomotives and extensive use of machines for roadway upkeep have had a considerable impact on railroad employment. The railroad work force has declined also as railroad passenger travel has dropped steeply and freight traffic has shown relatively little growth because of gains in competitive modes of transportation—notably automom-

biles, tracks, buses, airplanes, and pipelines.

Most of the factors which have led to reduced employment in the past are expected to continue to influence railroad employment during the decade ahead. In addition, mergers of connecting or parallel railroads could reduce railroad employment further by eliminating facilities such as those at terminals, and by combining accounting and other functions. Some mergers have occurred in recent years and, on the basis of present developments, others are likely.

Despite prospects of declining employment, job opportunities will be available annually for thousands of new railroad workers, as the railroads have one of the largest work forces in American industry. Since a high proportion are older workers, many jobs will become vacant because of retirements, deaths, promotions, and transfers to other fields of work. Since these jobs are filled within the ranks through seniority, they will leave some openings at entrance levels as incumbents are promoted.

Future job opportunities for applicants probably will be most numerous in construction and maintenance work along rights-of-way, in operating jobs for brakemen, and in office work. However, because of the seasonality of railroad construction and maintenance work, and a seniority system under which new workers are laid off first and recalled last, many new workers can expect to have less than full-time employment during the first few years on the job.

The number and type of job openings for applicants hired by an individual railroad will be influenced by the rapidity of the railroad's adoption of new equipment and new methods of operation, and

its geographical location in relation to changing marketing conditions. An increased need may be felt for professional and technical personnel to handle new mechanical and electrical equipment, to find better means of utilizing equipment and personnel, to apply data processing to a wide range of accounting and statistical activities, and to explore new ways of meeting competition through industrial development and marketing.

Railroad freight traffic is expected to rise through the 1970's because of the high rate of growth anticipated in the economy. The shipment of highway trailers and large containers on railroad flat cars, and the use of larger, special-purpose freight cars should increase freight traffic significantly by improving rail carriers' ability to compete.

New interest also has been shown in the use of rapid rail transit for intercity and intra-urban passenger movement. Studies of the best methods for moving passengers within and between urban areas are progressing, and may result in a significant resurgence of rail passenger transportation.

Recently the Department of Transportation established Amtrak (National Railroad Passenger Corporation), a program to save and revive passenger service. Through Amtrak the government will give the industry the money and authority to reorganize the entire railroad system. It will take years to determine the effectiveness of this program, but it should result in retaining a national railroad passenger network.

### Earnings and Working Conditions

Average earnings of railroad

workers are higher than those of workers in most manufacturing industries. Employees of Class I line-haul railroads, exclusive of executive and administrative personnel, averaged \$3.89 an hour or \$171.94 a week in 1970, whereas production workers in all manufacturing industries averaged \$3.60 an hour or \$133.73 a week.

The earnings of individual railroad workers vary greatly because of the great variety of occupations and skill requirements. Geographic differences in wage levels are considerably less than in most other industries, since wage scales specified in many railroad labor-management contracts are identical throughout the country. (Earnings in some of the principal occupations are discussed in later sections of this chapter.)

Most railroad workers are trade union members, and many of the conditions under which they work are regulated by collective bargaining agreements, dealing with wage rates, hours, vacation pay, seniority, and other matters. (The principal unions representing each occupational group are listed in the sections of this chapter which deal with individual occupations.)

The work schedules of railroad employees and the conditions under which they are paid for overtime work depend upon the type of operation in which they are employed. The great majority of railroad employees work at terminals—in yards, stations, and railroad offices, where, in 1970, the "basic" work-week of most workers was a 5-day week of 40 hours. Premium pay, amounting to time and one-half the regular wage rate, usually was paid for any time worked over 8 hours a day.

In freight and passenger road service, the basic workday for train

and engine crews is established differently. Generally, when a member of the train or engine crew has covered a specified number of miles, or has worked a certain number of hours—whichever occurs first—he receives a day's pay at his regular wage rate. He receives extra pay for any additional miles covered or hours worked on that day.

The basic hours of employees who serve the needs of passengers aboard trains—dining car cooks and waiters, Pullman porters, and train attendants—are set on a monthly basis. Some of these workers receive time and one-half pay for hours worked over 184 a month, and those employed on regular assignments are guaranteed at least 174 hours of work a month.

Because freight shippers and the traveling public must be served 24 hours a day, train and engine crews, hostlers, telegraphers and telephoners, and station agents must often work nights, weekends, and on holidays. Irregular work schedules are particularly common for extra board workers without regular assignments who may be called any time of the day or night. Other railroad workers, like bridge and building mechanics and certain track and road maintenance workers, are required to work away from home for days at a time.

Practically all railroad employees receive 1 week's paid vacation after 1 year on the payroll, 2 weeks after 3 years, 3 weeks after 10 years, and 4 weeks after 20 years. On most roads, employees receive pay for 8 holidays a year.

Under the federally administered Railroad Retirement Act of 1935, all employees having more than 10 years of service in the railroad industry receive pensions upon retirement. They receive full pensions when they reach age 65 and re-

## LOCOMOTIVE ENGINEERS

(D.O.T. 910.383)

### Nature of the Work

The engineer is responsible for running the locomotive safely and efficiently. He operates the throttle, air brakes, and other controls, and he supervises the work of the fireman (helper) who may work in the cab with him. Engineers work either in railroad yards or else on the road; in the latter case, in passenger or freight service.

The engineer in yard service operates the locomotive or switch-engine, used to move freight and passenger cars when trains are being put together before a run or broken up after one, or when cars are being switched for loading or unloading. The engineer in passenger or freight service operates the locomotive which moves trains over the road according to either train orders for each run or else any instructions received enroute.

Before and after each run, the engineer checks on the condition of the locomotive. He then either has minor adjustments made on the spot or else reports to the engine foreman mechanical defects needing attention. While operating his locomotive, he must observe track signals and comply with speed restrictions at all hours and in all weather conditions. To do this he must be thoroughly familiar with the characteristics of the road over which he is operating. He must also be constantly alert, especially for obstructions on the track or other emergencies.

In 1970, about 35,000 engineers were employed by Class I line-haul railroads, and a few thousand more by short-line railways and switching and terminal companies.

### Training, Other Qualifications, and Advancement

Vacancies in engineer positions generally have been filled by firemen (helpers) who have qualified for promotion. Selection is on a seniority basis. To qualify, the applicant must pass comprehensive examinations on the train's mechanical and electrical equipment, and on fuel economy, safety, timetables, train orders, and other operating rules and regulations. He also must be able to operate any kind of locomotive in service on his road.

Engineers are required to take physical examinations at regular intervals. They must have good eyesight and hearing. If they fail at any time to meet all the physical standards, they may be restricted to working as engineers only in certain types of service, or they may be transferred to other kinds of work where physical standards are less exacting.



**Diesel engineer checks track conditions by radio.**

Young people planning careers as locomotive engineers should have mechanical ability and good eye-hand coordination. They should be able to concentrate on detail in

duced pensions at age 62. Those who have worked for the railroads at least 30 years may retire on a reduced pension at age 60. Employees with 10 years service or more who become disabled and are unable to work, as well as dependent wives and husbands of railroad workers who have died, also receive pensions. In early 1970, the average pension paid to railroad workers who retired because of age and disability was about \$192 a month.

Another Federal law, the Railroad Unemployment Insurance Act, provides benefits for railroad workers who become unemployed. Unemployment benefits are paid for a period up to 26 weeks, but workers having 10 years service or more can receive benefits for a longer period.

Under the Railroad Unemployment Insurance Act, railroad workers also receive compensation for workdays lost because of sickness or injury.

Other insurance programs are operated under agreements with trade unions and provide group life insurance to employees and comprehensive hospital and medical insurance to these employees and their dependents.

### Sources of Additional Information

Additional information about occupations in the railroad industry can be obtained from railroad offices in your locality. General information about the railroad industry can be obtained from:

Association of American Railroads,  
American Railroads Building, 1920  
L St. NW., Washington, D.C.  
20036.

order to operate the complicated control system of a locomotive. The aspiring engineer must be capable of working in a confined area since the cab of the locomotive is small. Engineers should be willing to comply with irregular working hours.

The seniority system often requires the railroad employee to wait many years before he can move into the job he prefers. He must typically work some years as brakeman and fireman, in turn, first. Therefore, the person who wants to be engineer should be willing to work at other jobs until seniority entitles him to his chosen position.

A newly promoted engineer starts out as an extra board man without any regular assignment. It may be several years before he receives such an assignment. During this period, he works on temporary assignments whenever an engineer is needed. An experienced engineer may advance to a supervisory position, such as foreman of engines for his road.

### Employment Outlook

Employment of locomotive engineers is expected to decline slowly during the 1970's. However, openings will arise from the need to fill positions left vacant by engineers who retire, die, or otherwise leave the occupation.

The number of engineers employed by the railroads has been declining for some years because of the decrease in railroad passenger business and because of multiple-unit operation of diesel locomotives. Introduction of technological innovations has also lowered employment levels. (These include the use of remote- and automatically-controlled devices for freight car classification and for signal control, as

well as other changes in equipment and operating methods.)

The decline in the number of engineers may be somewhat slower in the 1970's if rapid transit rail systems are developed on a large scale.

### Earnings and Working Conditions

The earnings of engineers depend on the class of locomotive operated and the kind of service in which the engineer is employed. In 1970, engineers in yard service for Class I line-haul railroads (including extra board men) earned, on the average, about \$1,070 a month; in road freight service, \$960 a month; in passenger service, \$1,226 a month.

In 1968, the standard workweek at straight-time rates for yard engineers varied from 5 days on some railroads and railroad divisions to 7 days on others. All yard engineers worked basic 8-hour days with time and one-half paid for work over 8 hours. Under certain circumstances, they may be paid on an hourly basis or on a miles-hour basis.

On many roads, the amount a road engineer may earn in a single month is governed by mileage limitations agreed upon by the unions and the railroad companies. Whenever an engineer on one of these roads reaches this maximum number of miles, his assignment for the rest of the month is taken over by another engineer—usually an extra board man.

The engineer in road service, even on regular assignments, often is scheduled to work nights, weekends, and holidays at straight-time rates. Like other workers in road service, he must often "lay over" at the end of a run before he makes the return trip back to his home terminal.

The assignments of engineers on the extra board may be very irregular; these men may be called to work at any time of the day or night. Also, the amount of traffic varies from one season to another on many roads. Extra board engineers are likely to have less work and lower earnings than those men having regular assignments.

On all major railroads, wages and the conditions under which engineers work are agreed upon by employers and unions. The great majority of engineers are represented by the Brotherhood of Locomotive Engineers (Ind.). Some are represented by the United Transportation Union.

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## LOCOMOTIVE FIREMEN (HELPERS)

(D.O.T. 910.383)

### Nature of the Work

The locomotive fireman (helper) works with the engineer either in the railroad yards or in road service. At the beginning of his run, the fireman (helper) checks to make sure that the locomotive is supplied with the fuel, sand, and water needed, that the engine is in proper working order, and that the flagging equipment, classification markers, and tools needed by the engine crew are on hand and ready to use. During the run, he makes mechanical and electrical adjustments as needed. On passenger trains, he also is responsible for operating the equipment which supplies heat to the cars.

From his position at the left side

of the cab, the fireman (helper) assists the engineer by acting as lookout for obstructions on tracks and at road crossings, and by checking wayside signals which indicate the speed at which the train is to proceed. In addition, he inspects the train as it rounds curves because this view of the train enables him to spot smoke, sparks, fire, and other signs of defective equipment.

Class I line-haul railroads employed about 17,000 firemen in 1970.

### **Training, Other Qualifications, and Advancement**

For the relatively few firemen (helper) positions being filled at present, most railroads prefer that applicants be 21 to 35 years of age. A high school education or its equivalent is desired. Good health is important, and firemen must be able to pass periodic physical examinations. Standards for eyesight and hearing are particularly high.

A beginning fireman first makes a series of trial trips in the railroad yard or on the road, working under the direction of an experienced engineer or fireman who instructs him about future duties and railroad rules and regulations. This training period lasts a few days on some roads and as long as 3 weeks on others. After the newly hired fireman has satisfactorily demonstrated his ability on the trial trips, and passed examinations on railroad rules and regulations, his name is placed on the firemen's extra board. He then becomes subject to call for temporary work assignments. He may remain on extra board work up to several years before he obtains his first regular assignment. On some roads, beginning assignments are in yard service, and the fireman

advances first to road freight service and then to road passenger service. On other railroads, firemen usually remain either in yard service or in road service throughout their railroad careers.

Young people who want to be locomotive firemen should be able to follow instructions and they should be capable of being thorough and paying attention to detail. Major requirements of the job include good eye-hand coordination, manual dexterity, mechanical aptitude, above-average eyesight and color vision, quick reflexes, and general good health.

Firemen who have sufficient experience and seniority—usually at least 3 or 4 years—can become eligible for promotion to engineer by passing qualifying examinations covering the mechanical and electrical equipment on trains, air brake systems, fuel economy, timetables, train orders, and other operating rules and regulations. As engineers are needed, qualified firemen who have the longest seniority are placed on the engineers' extra board. Promotion to engineer, however, depends on availability of openings, as well as time spent on the extra board waiting for a regular assignment.

### **Employment Outlook**

Job openings for work as locomotive firemen (helpers) have been extremely limited since May 1964, the effective date of a compulsory arbitration award designed to eliminate, eventually, all but a relatively few firemen (helper) positions in road freight and yard locomotive service. Fireman (helper) positions on locomotives in passenger service (which has been declining) were not affected by this award, nor were

any positions of firemen (helpers) for any class of locomotive service operating where State law requires the employment of firemen on locomotives.

The national arbitration award expired in April 1966, and since no general agreement had been reached between the parties in the dispute by early 1971, the outlook for job opportunities in this occupation cannot be anticipated with any degree of certainty, although it appears that employment opportunities for new applicants will continue to be minimal.

### **Earnings and Working Conditions**

The earnings of firemen depend on the class of locomotive on which they work and the type of service for which the locomotive is operated. Firemen in yard service for Class I line-haul railroads (including extra board men) averaged \$793 a month in 1970. Freight service firemen averaged \$960 monthly on freight trains. Road passenger firemen averaged \$1,030 monthly.

In 1970, firemen in yard service worked a basic 8-hour day and 40-hour week, and 1½ times the basic hourly rate was paid for work beyond these hours. On many roads, the amount that firemen in road service could earn in a single month was governed by mileage limitations agreed upon by the unions and the railroad companies. Whenever a fireman on one of these roads reached this limit, his assignment for the rest of the month was taken over by another fireman—usually a man on the extra board.

Firemen often must work at night and on weekends and holidays because train schedules require 24-hour-a-day service. Road service often requires that they be away

from their home stations for varying periods of time. Irregular working hours are particularly common among men on the extra board and in road freight service. Extra board men tend to have less work and therefore lower incomes than firemen with regular assignments. On many roads, the amount of work varies from one season of the year to another.

Workers in this occupation on all major roads are covered by union contracts. The great majority of firemen are represented by the United Transportation Union. Some are members of the Brotherhood of Locomotive Engineers (Ind.).

## CONDUCTORS

(D.O.T. 198.168)

### Nature of the Work

Conductors are responsible for seeing that railroad trains are moved according to train orders or other instructions. They are responsible for the safety of their passengers and cargoes, and they supervise the work of the train and engine crews.

Before a freight or passenger train leaves the terminal, the conductor receives the train orders from the dispatcher and confers with other crew members to make sure they understand the orders. During the run, he sees that the train cars are inspected periodically and, if problems are reported, arranges either for repair of mechanical breakdowns while the train is on its run, or for defective cars to be removed on the nearest siding. At stops, he signals to the engineer the

proper time for departure. As the superior officer on the train, the conductor takes charge in any emergency that may occur during the run and all members of the train crew are subject to his instructions.

On freight trains, the conductor keeps a record of contents and destination of each car and sees that freight cars are picked up and set out along the route. On passenger trains, the conductor collects tickets and cash fares.

Yard conductors, often called "yard foremen," direct the work of the switching crews who put trains together and break them up. In mechanized yards, yard conductors operate consoles that electrically control the alinement of track switches. Class I line-haul railroads employed about 37,800 conductors in 1970.

### Training, Other Qualifications, and Advancement

Openings for conductors are filled on a seniority basis by promotion of qualified brakemen. To qualify for promotion, a man usually must have several years' experience as a brakeman and pass examinations covering signals, air brakes, timetables, operating rules, and related subjects. On some roads, those who have qualified for promotion are first given temporary assignments as conductors while still working as brakemen; on other roads, they are put on the extra board as conductors and given temporary assignments as men are needed. In either case, as regular conductor assignments become available, these are assigned to men having the greatest seniority.

On most roads, conductors in yard service and in road service have separate seniority lists, and



they usually remain in one of these two types of service throughout their careers. A few roads, however, start conductors on yard assignments and then move them to freight service and finally to passenger service.

Young men planning a career as a railroad conductor must have a background of honesty and be able to accept responsibility. Physical stamina is needed because of the long hours spent standing and walking. The aspiring conductor should have the patience and ability to work in other positions while acquiring the necessary seniority for a conductor's position. Promotion to conductor is limited by the availability of such positions.

The conductor is the member of the train crew who has the most direct contact with the public, and it is important that he be able to act effectively as the railroad's representative. Conductors who show special ability of this kind may advance to managerial positions such as trainmaster, if available.

### Employment Outlook

There will be a moderate number of opportunities for brakemen to be promoted to jobs as conductors during the 1970's. Since conductors compose one of the oldest age groups in the Nation's work force, job openings will develop to replace those who retire, die, or leave railroading for some other reason.

The number of conductors has been declining for a number of years because of the decline of passenger traffic, the trend toward longer freight trains, and the mechanization of yard operations. Although more yard work will be speeded up by the use of the new devices (such as electric and electronic car classification systems and communications equipment) little change is expected in the number of conductors needed during the 1970's as expected growth in railroad freight traffic compensates for increased mechanization.

### Earnings and Working Conditions

The type of service in which they are employed and the number of cars in their trains determine the basic earnings of conductors. In 1970, yard conductors employed by Class I line-haul railroads earned an average of \$904 a month. In road freight service, conductors averaged \$1,132 monthly. The average for passenger conductors was \$1,095 and for assistant passenger conductors and ticket collectors \$985 a month.

In 1970, conductors in yard service worked a basic 8-hour day and 5-day week. For work beyond these hours, they were paid 1½ times their basic wage rates. Since the pay received by passenger and freight conductors is based on a

combination of miles traveled and hours worked, these conductors may receive more than their basic day's pay for a trip.

Like all other road crew members, conductors in freight or passenger service often are scheduled to work nights, weekends, and on holidays. Conductors on extra board work often have irregular hours. They also may work less time than conductors with regular assignments and, therefore, earn less.

Conductors on every major railroad are covered by union contracts negotiated by the United Transportation Union.

## BRAKEMEN

(D.O.T. 910.364 and .884)

### Nature of the Work

Brakemen work with conductors as members of the train crews on freight and passenger trains; they work also in railroad yards. One brakeman (or "flagman") generally is stationed in the rear of each freight and passenger train. His duties include seeing that proper flags, warning lights, and other signals are displayed at the rear of the train to protect it while it is in motion and at stops. Most freight and passenger trains carry at least one other brakeman stationed in the front end of the train; his duties include setting out signals to protect the front of the train at unexpected stops. Class I line-haul railroads employed about 74,000 brakemen in 1970.

Before their train leaves the station, these brakemen in road service check the air brake equipment on the cars for proper functioning and

see that tools and other equipment are in their proper places. During a run, they make frequent visual inspections of their train from their positions at both the head and rear end of the train, looking for smoke, sparks or other indications of sticking brakes, overheated car bearings, or other equipment malfunctions. At stops during the run, they make "walking inspections" of cars in the train; when necessary, they couple and uncouple cars and air hoses and help the conductor in setting out and switching cars at industrial sidings. They are responsible for regulating air-conditioning, lighting, and heating equipment in passenger cars. In passenger service, brakemen (also known as "trainmen") sometimes assist the conductor by collecting tickets and generally looking after the needs of the passengers. Yard brakemen (frequently called "switchmen" or "helpers") assist in putting together and breaking up trains by throwing switches, coupling and uncoupling freight and passenger cars, and applying or releasing handbrakes on cars to control their movement.

### Training, Other Qualifications, and Advancement

A brakeman starting out as a new worker first makes several trial trips with an experienced brakeman or conductor, during which he familiarizes himself with the road and receives instructions about his duties. After he has demonstrated his ability on trial trips, the new brakeman is put on "extra board" work and given temporary assignments as men are needed. Brakemen generally must work at least a year on the extra board before they learn the job thoroughly, and several more years before a vacancy occurs and

they acquire enough seniority to move on to regular assignments.

Employers prefer as applicants high school graduates or the equivalent, 18 years of age (21 on some roads) to 35. Applicants must be able to pass physical examinations with particularly strict requirements as to eyesight and hearing.

Young persons who wish to become brakemen should also have mechanical ability and be able to concentrate on detail and follow a certain amount of routine. Physical stamina is required of brakemen who do much standing, climbing and walking and are exposed to all kinds of weather conditions.

Yard brakemen may advance to yard conductors; usually they stay in yard service throughout their railroad careers. On some roads, brakemen in road service may move from freight service to passenger work, usually considered more desirable because it is less strenuous than freight service and sometimes involves shorter working hours.

With sufficient seniority, brakemen in road service may advance to conductors. Less frequently, they take positions as baggagemen. Conductor positions are almost always filled by promoting brakemen who have passed written and oral examinations on signals, timetables, brake systems, and operating rules. Promotions take place according to seniority rules, 10 years or more may be required for a brakeman to get his first assignment as a conductor. Advancement is of course limited by number of jobs available as conductors, and the number of jobs as conductor has been declining for a number of years.

### Employment Outlook

Several thousand opportunities

for new workers to obtain jobs as brakemen will develop through the 1970's, almost entirely as a result of retirements and deaths and because some brakemen will be promoted to jobs as conductors or transfer to other work.



Brakeman signals freight train through the yards.

The number of brakemen employed has declined for a number of years. During the early 1970's, work in railroad yards is expected to become increasingly mechanized, using automatic car retarders, automatic switching, and other devices. These developments are expected to result in a further decline in the employment of brakemen during this period.

### Earnings and Working Conditions

The number of cars in the train

and the type of service in which he is employed determine the earnings of a freight brakeman. The average monthly earnings of yard brakemen employed by Class I line-haul railroads were \$746 in 1970. Brakemen on freight trains averaged \$931 a month. The monthly average for passenger train brakemen was \$844 in 1970.

In 1970, brakemen in yard service had a 5-day, 40-hour basic workweek; for work beyond this, they were paid 1½ times their regular hourly rates. In addition, brakemen in road, passenger, or freight service earned extra pay under certain conditions; for example, when they traveled more than 100 miles on a freight run or 150 miles on a passenger run.

Like other members of train and engine crews, brakemen often are scheduled to work nights, weekends, and holidays. Brakemen on the extra board and employed by the railroad for only a short time have less steady work and lower earnings than they would have on regular assignments; they also may work more irregular hours. Yard and freight brakemen face greater accident risks than most other railroad workers.

Brakemen are represented by the United Transportation Union.

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## TELEGRAPHERS, TELEPHONERS, AND TOWERMEN

(D.O.T. 236.588 and 910.782)

### Nature of the Work

Telegraphers, telephoners, and towermen control movement of

trains according to instructions issued by train dispatchers. Telegraphers and telephoners receive train orders from the dispatchers and pass them on to the train crews. Towermen operate controls which throw track switches; they also set signals to route traffic according to either train schedules or special orders. To some extent, the three jobs are interchangeable. For example, many towermen also act as telegraphers and telephoners in transmitting orders, or spend part of their time operating signals. Telegraphers, telephoners, and towermen work in towers located in yards, terminals, and other important junction points. Often, at the larger facilities and signal towers, a chief telegrapher, a chief telephoner, or wire chief, or a chief towerman (train director) is in charge of the work.

### **Training, Other Qualifications, and Advancement**

Most receive their training on the job, working under the supervision of experienced telegraphers, station agents, or towermen to learn their future responsibilities, including operating rules, train orders, and station operations. On most roads, trainees must pass examinations on train operating rules, as well as practical tests on other duties relating to their future assignments before they can qualify.

Most roads place newly qualified workers on the extra board, where they serve on temporary assignments as men are needed. After acquiring sufficient seniority, they bid for regular assignments as telegraphers, towermen, clerk-telegraphers, and station agent telegraphers.

Most railroads prefer applicants

to be high school graduates between 21 and 30 years of age. Applicants must pass physical examinations which have strict eyesight and hearing requirements. They may not be colorblind. Manual dexterity and good eye-hand coordination are necessary for operation of the many switches and keys.

Applicants for these positions should be able to accept responsibility. They should be mentally alert and capable of working efficiently in emergency or pressure situations. The ability to organize one's thoughts and actions is important. Also, the capacity to work in confined areas may be required.

A man with the necessary qualifications may advance to station agent or train dispatcher.

### **Employment Outlook**

There will be some opportunities for new workers to become student operators each year through the 1970's. The openings that occur will result primarily from the need to replace experienced workers who retire or die.

Employment of Class I line-haul railroads telegraphers, telephoners, and towermen has declined for many years and in 1970 was about 12,000. The mechanization of yard operations, the use of dispatcher-to-train radio hookups and other new communications devices, and the extension of centralized traffic control and other automatic signaling systems are reducing the number of workers needed to help control the movement of trains.

### **Earnings and Working Conditions**

The average straight-time hourly earnings of clerk-telegraphers and

clerk-telephoners on Class I line-haul railroads in 1970 were \$3.53; telegraphers, telephoners, and towermen averaged \$3.58. Chief telegraphers and telephoners and train directors averaged, respectively, \$4.00 and \$5.07 an hour.

Telegraphers worked a basic 40-hour week of five 8-hour days in 1970, with time and one-half paid for overtime. Under Federal law, telegraphers, whose duties involve the movement of trains, are prohibited from working more than 9 hours in any one day, except in emergencies.

Telegraphers, telephoners, and towermen are members of the Brotherhood of Railway, Airline and Steamship Clerks.

## **STATION AGENTS**

(D.O.T. 211.468 and 910.138)

### **Nature of the Work**

Station agents are the railroads' official representatives in dealing with the public at railroad stations. Most agents work at small stations where they perform a variety of tasks. These include selling tickets, checking baggage, calculating freight and express charges, and loading and unloading freight and express packages. They may serve also as telegraphers and telephoners, receiving and delivering train orders and other messages. At stations where supervisory agents are employed, some of this work may be done by clerks, telegraphers, and others working under the agent's supervision. In major freight and passenger stations the duties of the sta-

tion agent are primarily administrative and supervisory.

About 9,600 station agents were employed by Class I line-haul railroads in 1970. Many of them acted as telegraphers and telephoners in addition to their other duties. The short-line railways employed several hundred other agents, chiefly at small stations.

### Training, Other Qualifications, and Advancement

Agents in small stations or assistant agents in larger ones have usually been advanced from telegraphers jobs. In addition to the necessary seniority, an agent should have a knowledge of train schedules and routes, rates, bookkeeping methods, and details of other railroad business transacted at wayside stations.

Station agents may advance from small to larger stations or from assistant agents to agents. They may be promoted to supervisory positions such as station-master or inspector.

### Employment Outlook

A limited number of opportunities will arise each year through the 1970's, principally because of the need to replace experienced agents who retire or die. For several years the number of station agents employed by Class I line-haul railroads has been declining, principally because some local passenger and freight services have been consolidated or discontinued. Further cuts or consolidation may affect passenger and freight services over the next decade, resulting in employment of fewer station agents. However, if rapid transit rail systems are developed on a large scale, this trend may be slowed.

### Earnings and Working Conditions

The earnings of station agents vary. In 1970, agents who also served as telegraphers and telephoners on Class I line-haul roads averaged \$3.60 an hour; other agents at small stations who did not act as telegraphers averaged \$3.94 an hour. Agents at major stations earned a straight-time average of \$4.77 an hour.

Agents are paid either by the hour or by the month; those in non-supervisory positions have a basic 40-hour workweek and time and one-half is paid for overtime work.

Station agents, except for some supervisory agents, are members of the Brotherhood of Railway and Steamship Clerks.

## CLERKS

(D.O.T. 219.388 and .488; 222.368 through .687; 229.368; 231.682; 249.368; 910.368; 910.688; 913.168; and 919.138)

### Nature of the Work

Railroad clerks handle the huge volume of paper work necessary to account for each piece of the company's rolling stock, and to transact business with freight shippers and the traveling public. They work in railroad stations, freight houses, yards, terminals, and company offices, making up the largest single group of railroad employees. Class I line-haul railroads employed about 90,000 of these workers in 1970 and short-line railways, thousands more.

The majority of railroad clerks—54,000 on Class I line-haul railroads in 1970—handle business

transactions. These include collecting bills, adjusting claims, and tracing shipments. Today, however, clerks do much of this work with computers and other electronic business machines. In small offices and stations, one man may perform duties related to several of these jobs; but in large offices, a specific job.

A second group, totaling 16,000 in 1970, consists of secretaries, stenographers, typists, and operators of calculating, bookkeeping, and other kinds of office machines. They perform duties like those of workers in the same kinds of jobs in other industries. (Information about the nature of the duties of employees in these clerical jobs may be found elsewhere in the *Handbook*.)

About 8,800 other railroad clerks were in higher grade "senior" jobs involving more responsible or technical work. Some prepare statistics on employment, traffic, and other matters relating to railroad operations. Others, called "cashiers," deal with customers on matters such as uncollected freight bills. Still others account for their companies' use of terminals and other facilities owned jointly by several roads.

A fourth group are the supervisory and chief clerks, who numbered about 11,200 supervising the work of other railroad clerks and assuming responsibility for clerical activities of entire departments.

### Training, Other Qualifications, and Advancement

Beginning railroad clerk positions often are filled by hiring newcomers or by promoting existing workers. A high school education is usually required, and clerical aptitude tests sometimes given. Railroads prefer workers who have had training or

some experience in working with figures. In some clerical positions—yard clerk for instance—beginning workers may be assigned to extra board work, until regular assignments become available.

In many offices, a railroad clerk may advance to assistant chief clerk or to a higher administrative position; in others, to work requiring special knowledge of such subjects as accounting or statistics. Eventually he may become an auditor or statistician or be promoted to traffic agent, buyer, storekeeper, or ticket or station agent.

### Employment Outlook

Several thousand job opportunities for new railroad clerks will be available each year through the 1970's to replace workers who retire, die, or transfer to other fields of work.

Employment in this occupational group has been declining for a number of years. A continued decrease is expected during the 1970's, as electronic business machines do more work formerly done by railroad clerks.

### Earnings and Working Conditions

Employees of Class I line-haul railroads who had clerical jobs involving work such as billing operations, filing, and inventory control, received average straight-time pay of \$3.60 an hour in 1970. Secretaries, stenographers, typists, and office machine operators averaged \$3.71 an hour; senior clerks and specialists averaged \$4.20 an hour; and supervisory and chief clerks, \$4.45 an hour. Railroad clerks in nonsupervisory positions work a basic 8-hour day and 40-hour week,

with time-and-one-half paid for overtime.

The Brotherhood of Railway, Airlines, and Steamship Clerks, Freight Handlers, Express and Station Employees represents the railroad clerks on all major roads.

## SHOP TRADES

### Nature of the Work

The skilled workers employed by the railroads to build, maintain, and repair rolling stock and other equipment may be classified in six main "shop crafts": *Carmen* (D.O.T. 622.381), *machinists*, *electrical workers*, *sheet-metal workers*, *boilermakers*, and *blacksmiths*. They work on rolling stock and other equipment in railway shops, engine-houses, yards and terminals.

In 1970, about 82,500 journey-men mechanics in these six crafts were employed by Class I line-haul railroads. Working with them were 6,300 gang foremen and leaders, 7,100 helpers, and 3,500 apprentices. Several thousand more workers in the same occupations were employed by short-line railroads.

*Carmen*, who numbered about 45,000 on Class I line-haul railroads in 1970, are by far the largest group. They do many different kinds of work, building, maintaining, and repairing both freight and passenger cars. They also work on both locomotives and small vehicles—motor-driven cars that transport workers along the tracks. Some carmen are skilled in carpentry and can use power equipment as well as handtools. A few others are skilled

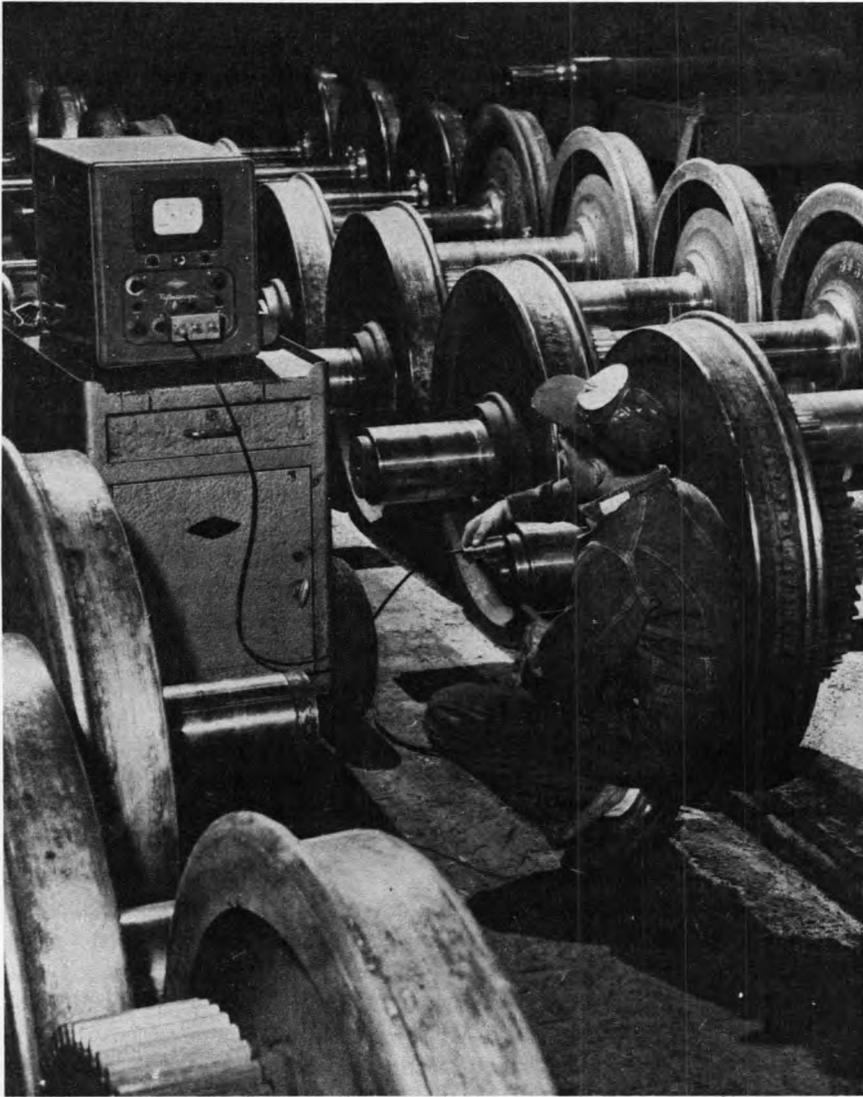
only in specialties such as upholstering, car painting, and patternmaking. Many carmen work in railroad yards and stations as car inspectors examining cars for defects that might lead to accidents or delays.

*Machinists* are the second largest group of skilled shop workers. About 17,000 were employed in 1970, maintaining and overhauling locomotives and machinery used by the railroads. *Electrical workers*, who numbered about 11,500 in 1970, install and maintain wiring and electrical equipment in locomotives, passenger cars, and cabooses, as well as in railroad buildings. Another group of electrical workers employed mainly away from the shop, lay power and communications lines for equipment used by the railroads. *Sheet-metal workers*, numbering about 5,200 in 1970, install and maintain light sheet-metal parts and do pipefitting on locomotives and other equipment. *Boilermakers*, of whom there were about 1,550 in 1970, maintain and repair stationary boilers, tanks, and other parts made of sheet iron or heavy sheet steel. Other craftsmen employed in the shops include blacksmiths, molders, stationary firemen, oilers, and stationary engineers (steam). (More information about the nature of the work of most of the above shop trades may be found elsewhere in the *Handbook*.)

### Training, Other Qualifications, and Advancement

Apprenticeship training is a common way of entering the shop trades; others are upgraded from the ranks of helpers and laborers, or enter the industry as shop craftsmen.

Apprentices are trained in all branches of their respective trades;



**Shop worker checks for flaws in locomotive axles.**

standards, in many cases, are included in agreements between trade unions and railroad companies. Beginners with no previous experience in their chosen trades train as regular apprentices to be certified as qualified journeymen. Men with at least 2 years of previous work experience train as helper apprentices for a 3-year period.

To become an apprentice, the applicant must be between 16 and 21 years of age; helpers, entering the

3-year apprentice training, usually are no older than 35. On some roads, applicants for apprentice training must pass mathematical and mechanical aptitude tests.

Workers in the shop trades may advance to supervisory positions as foremen in shops, enginehouses and powerplants.

### **Employment Outlook**

Nationwide there will be only a

few hundred opportunities for new workers to obtain jobs as helpers or as apprentices in the shop crafts each year during the next decade.

Openings in the skilled shop crafts will result primarily from the need to replace experienced craftsmen who retire, die, or transfer to other fields of work, rather than from employment growth.

The number of journeymen mechanics employed in these crafts has declined for a number of years, and some further decline appears likely through the 1970's, although more rolling stock may be needed to handle the anticipated increase in freight traffic. Railroads now handle a given amount of work in shops with a smaller work force than formerly because of: the use of assembly-line techniques in repair work; greater specialization of labor; and use of better designed and constructed rolling stock. Also, fewer equipment maintenance employees are needed because some railroads send diesel locomotives, requiring major overhaul, to the manufacturer for rebuilding or replacement by more highly powered new or rebuilt units.

Employment trends for individual shop crafts are not affected equally by changes in equipment and operating methods.

Some increase in employment of electrical workers may occur through the 1970's because of installation of more complex electrical and electronic equipment in locomotives, railroad cars, and communication systems. During this same period, declines in employment of carmen, machinists, and boilermakers are expected.

### **Earnings and Working Conditions**

Straight-time average hourly

earnings of journeymen employed by Class I line-haul railroads in the shop trades in 1970 were: Carmen, \$4.14; machinists, \$4.22; electrical workers, \$4.22; sheet-metal workers, \$4.22; boilermakers, \$4.22; and blacksmiths, \$4.17. Straight-time earnings of helpers in all shop crafts averaged \$3.48 an hour. Regular apprentices, who spend part of their time in classroom instruction and the rest on the job, averaged \$3.16 an hour; and helper-apprentices, who also worked on the same basis, averaged \$3.58 an hour. Gang foremen and gang leaders averaged \$4.79 an hour. Most shop workers have a basic 40-hour workweek of five 8-hour days and are paid time and one-half for overtime.

Major repairs on locomotives and cars are generally made indoors in the enginehouse or the car repair shop. Minor adjustments, inspection, and emergency repairs may be performed out-of-doors.

Most shop workers are members of unions. Among the unions in this field are: Brotherhood Railway Carmen of America; International Association of Machinists and Aerospace Workers; International Brotherhood of Electrical Workers; Sheet Metal Workers' International Association; International Brotherhood of Boilermakers, Iron Shipbuilders, Blacksmiths, Forgers and Helpers; and the International Brotherhood of Firemen and Oilers. In collective bargaining, these unions usually negotiate their labor contracts through the Railroad Employees' Department of the AFL-CIO.

## SIGNAL DEPARTMENT WORKERS

(D.O.T. 822.281 and .884)

### Nature of the Work

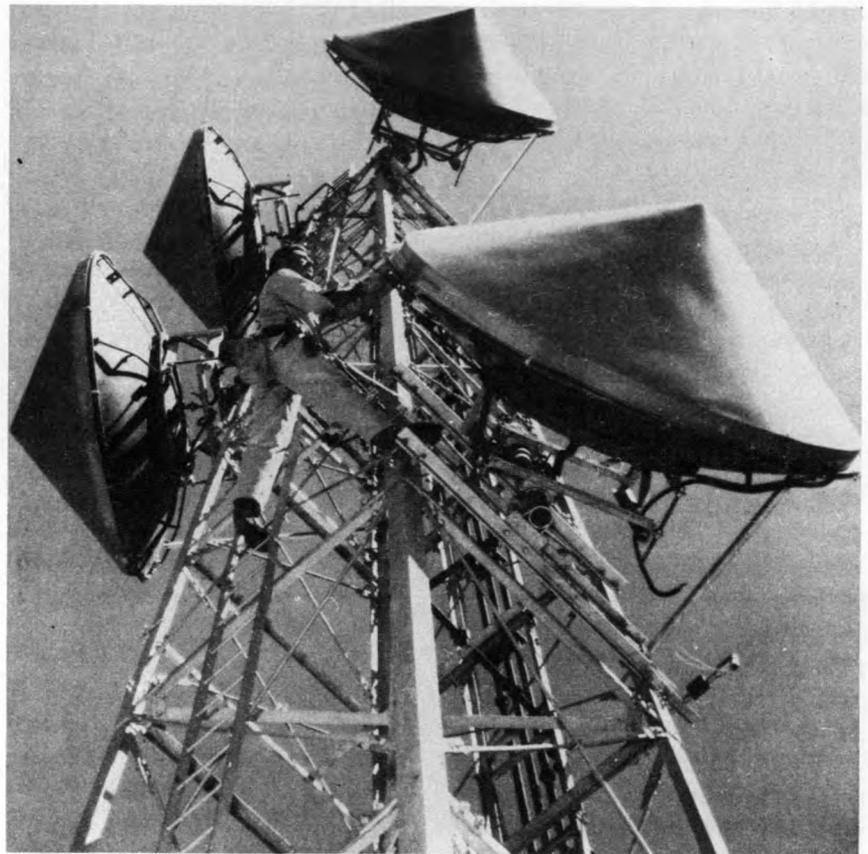
Workers in railroad signal departments work with the signaling systems which control movement of trains and assure safety of railroad travel. Tasks involve constructing, installing, maintaining, and repairing these systems.

One group of skilled workers, known as signal maintainers, keep wires, lights, switches, and other controlling devices in good operating condition. The work requires a thorough practical knowledge of

electricity and considerable mechanical skill, and, for work on the newer signaling systems, a knowledge of electronics.

A second skilled group, known as signalmen, generally has the same skills and knowledge but constructs and installs new signals and signal systems. Signalmen work as members of crews (which also include semiskilled workers) that travel from one part of the road to another, wherever construction work is underway. In constructing a signal system, crews often build forms for concrete, mix and pour cement, weld metal, and do many other types of work in addition to electrical work.

In 1970, Class I line-haul railroads employed about 12,000 men



Microwave installations are part of the up-to-date communications systems.

in this kind of work; included were about 8,000 signalmen and signal maintainers, about 1,150 semi-skilled assistants, and 7,000 helpers. Several hundred workers in these groups also were employed by the short-line railways and by switching and terminal companies.

### **Training, Other Qualifications, and Advancement**

Railroads prefer that applicants be between 18 and 35 years of age and have a high school education or its equivalent. Knowledge of electricity and mechanical skill are assets.

New employees start as helpers under the direction of experienced men, or with previous experience as assistants. Helpers, after about 1 year of training, usually advance to assistant. Openings for signalmen and signal maintainers are filled by promoting qualified assistants, according to seniority rules. At least 4 years are usually required.

Both signalmen and signal maintainers may be promoted to more responsible positions such as inspectors or testmen, gang foremen, leading signalmen, or leading signal maintainers. A few may advance eventually to assistant supervisors or signal engineers.

### **Employment Outlook**

There will be some opportunities for new workers to obtain entry jobs as helpers or assistants during the 1970's, mostly from the need to replace existing workers who retire, die, or transfer to other fields of work. Job openings will be limited, because men laid off in recent years will be recalled before new men are hired.

Employment of signal depart-

ment workers has declined for a number of years. These occupations are expected to continue to decline slowly in the 1970's, as improved signaling and communications systems require less maintenance and repair.

### **Earnings and Working Conditions**

The average straight-time hourly earnings of signalmen and signal maintainers employed by Class I line-haul railroads in 1970 were \$3.92. Assistant signalmen and signal maintainers averaged \$3.34 and helpers, \$3.25 an hour. Signal workers have a basic 8-hour day and 5-day week, and are paid time and one-half for work beyond 8 hours a day.

Since the amount of work required for maintaining railroad signal systems is not affected greatly by variations in traffic or by the seasons, signalmen and other crew members may have less-than-full-time work during especially bad weather. For both groups, the work is done mostly outdoors and maintainers must make repairs regardless of time of day or weather conditions. Both maintainers and signalmen must often climb poles and work near high-tension wires and unguarded tracks.

In working on construction and installation, signalmen and other crew members frequently work away from their homes; many railroads provide camp cars for living quarters while the men pay for their own food. Signal maintainers generally are able to live at home, maintaining signals over only a limited stretch of track.

Most signal workers are members of the Brotherhood of Railroad Signalmen.

## **TRACK WORKERS**

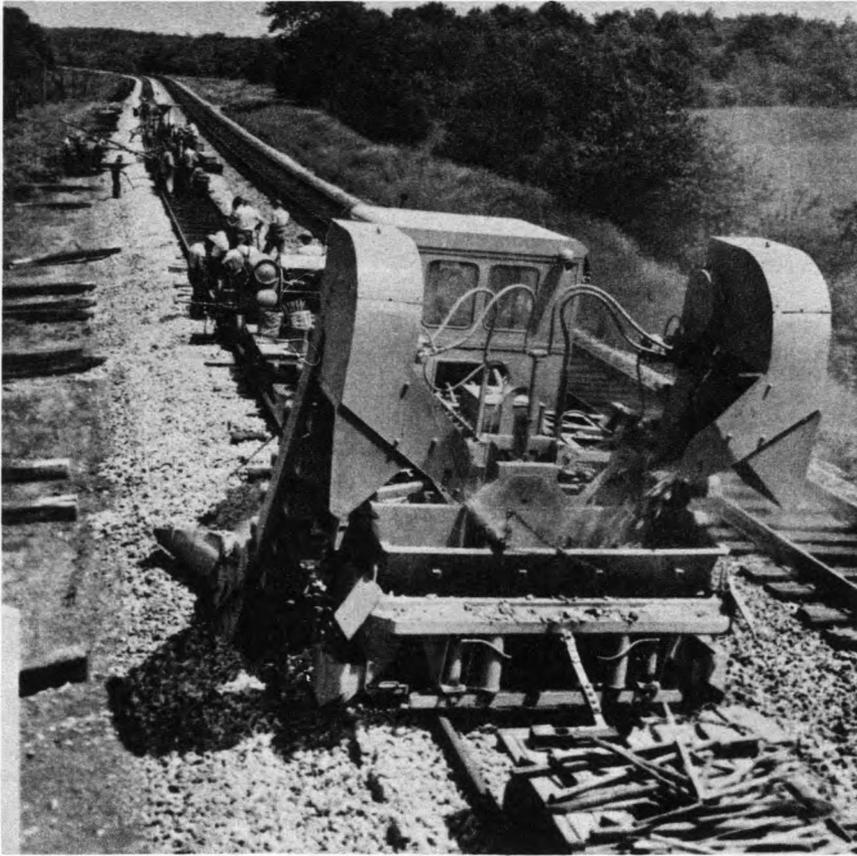
(D.O.T. 182.168; 859.883; 869.887; 910.782; and 919.887)

### **Nature of the Work**

Trackmen and portable equipment operators construct, maintain, and repair railroad tracks and roadways. Many work in section crews which patrol and maintain a limited section of the railroad's right-of-way. Other trackworkers are employed with highly mechanized crews to cover longer stretches of the right-of-way. Still others are employed in "extra" crews, performing seasonal maintenance and repair work, such as replacing rails.

After some track workers make regular inspections of the right-of-way, (looking for cracked rails, weak ties, washed out ballast, and other track and roadway defects), trackmen and portable equipment operators make necessary repairs. Roadway maintenance machines—such as multiple tie tampers, power wrenches, and ballast cleaners—have been displacing gradually the use of such handtools as picks, shovels, and spike hammers. More and more railroads are using roadway machines, which require skilled operators in place of trackmen using hand or pneumatically-powered tools.

In 1970, an average of 56,000 track workers were employed by Class I line-haul railroads. They included 35,600 trackmen working in crews, 9,800 portable equipment operators and helpers, and 10,500 gang foremen. Additional thousands were employed by the short-line railroads. The size of this work force varies considerably during the year because many construction and repair jobs are done in summer.



Modern machines make track maintenance a production-line operation.

### Training, Other Qualifications, and Advancement

Most track workers are trained on the job. To acquire the necessary skills requires up to 2 years. Machine operating jobs are assigned to qualified trackmen on the basis of seniority.

Most roads prefer workers between the ages of 21 and 45, who must be able to read and write and to do heavy work. Applicants often are required to take physical examinations. A high school education is desirable to advance to portable equipment operator and gang foreman.

Trackmen and portable equipment operators who have the necessary seniority and qualifications may

advance to gang or assistant foreman, then to a supervisory maintenance-of-way position such as track supervisor.

### Employment Outlook

Several thousand new workers will be hired each year in track maintenance occupations during the 1970's, mostly for the seasonal rush during the summer months. Comparatively few openings will offer steady year-round employment.

For some years, the use of mechanized equipment and new kinds of materials in roadway construction has been reducing substantially the number of men employed. At the same time, however, use of mecha-

nized equipment has created a limited number of maintenance-of-way jobs as operators of roadway machines. These trends are expected to continue.

### Earnings and Working Conditions

Track workers are among the lowest paid groups in the railroad industry. Men employed in section and other kinds of crews on Class I line-haul railroads had straight-time average earnings of \$3.59 an hour in 1970. Portable equipment operators and helpers averaged \$3.53 and crew foremen averaged \$3.67 an hour in 1970. A basic 5-day, 40-hour week was in force for most classes of track workers. Time worked over 8 hours a day was paid for at time and one-half rates.

Since most section men inspect and maintain only a few miles of track, they usually live at home. However, the section crew is giving way rapidly to the mechanized "floating" crew, who with their portable equipment usually travel from place to place, generally living in camp cars or trailers provided by the railroads and paying for their own food.

Most maintenance-of-way workers are members of the Brotherhood of Maintenance of Way Employees.

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## BRIDGE AND BUILDING WORKERS

### Nature of the Work

These workers construct, maintain, and repair the tunnels, bridges, stations, railway shops, and other structures owned by the railroads.

In 1970, Class I line-haul railroads employed about 8,300 skilled craftsmen, 2,440 helpers, and 2,140 foremen in this kind of work. Among the skilled craftsmen were 4,680 carpenters working as all-round mechanics in a variety of construction trades in addition to carpentry; about 2,700 masons, bricklayers, plasterers, and plumbers; and about 500 painters and 365 ironworkers. The short-line railways employed several hundred more workers in the same occupations. (Information about the nature of the work done by these craftsmen can be found elsewhere in the *Handbook*.)

### Training, Other Qualifications, and Advancement

New employees usually receive their training as helpers. As openings occur in skilled mechanics' jobs, they are filled by helpers who have qualified for promotion and have the necessary seniority.

Skilled workers who have the necessary experience may advance to positions as foremen, inspectors, or bridge and building supervisors.

### Employment Outlook

A small number of job openings in the bridge and building work force will arise each year during the 1970's. Retirements, deaths, and transfers of existing workers to other fields of work will provide some job opportunities for new workers. Most jobs available will be as beginners or helpers, where turnover rates are relatively high.



Employment by Class I line-haul railroads of skilled craftsmen, helpers, and foremen on bridge and building work has decreased for a number of years. This trend is expected to continue because of the increased use of power tools and other laborsaving equipment, and of new materials which require less maintenance and repair. Another cause has been lack of new building in the industry.

### Earnings and Working Conditions

The average straight-time hourly earnings of carpenters employed by Class I line-haul railroads in bridge and building work in 1970 were \$3.51. Masons, bricklayers, plaster-

ers, and plumbers averaged \$3.78; ironworkers, \$3.80; painters, \$3.55; helpers, \$3.19; and foremen, \$3.75 an hour in 1970. Bridge and building workers work a 5-day, 40-hour week and are paid time-and-one-half for work beyond 8 hours a day; they may receive double time for work over 16 continuous hours.

If bridge and building men are away from home during their workweek, they usually live in camp cars supplied by the railroads, but pay for their own food.

The Brotherhood of Maintenance of Way Employes represents the bridge and building workers on most roads.

# TELEPHONE INDUSTRY OCCUPATIONS

As our population and economy grow and technology advances, the need for communication increases. More than 460 million local and long-distance telephone calls are made daily in the United States, and overseas. In early 1970, approximately 935,000 employees were required to provide this service.

The telephone industry offers men and women steady, year-round work in many different jobs. Some jobs, such as telephone operator and file clerk, can be learned in a few weeks; other jobs, such as installer and repairman, require many months.

More than half of all telephone workers are women employed mostly as clerks or telephone operators. Men usually are employed to install, repair, and maintain telephone equipment.

## Nature and Location of the Industry

Providing telephone service for the many millions of residential, commercial, and industrial customers is the main work of the Nation's telephone companies. More than 120 million telephones were in use in the United States in 1970.

Telephone jobs are found in almost every community in the United States. Most telephone workers, however, are employed in large cities where concentrations of industrial and business establishments are located. Nearly three-fifths of them work in the 10 States which have the largest number of telephones: California, New York, Pennsylvania, Illinois, Ohio, Texas, Michigan, New Jersey, Florida, and

Massachusetts. The nerve center of the local telephone system is the central office, containing the switching equipment through which a telephone may be connected with any other telephone. Every telephone call made, whether by dialing direct or signaling the operator, travels from the caller through wires or micro-wave radio and cables to the cable vault in the central office. Thousands of pairs of wires fan out from the cable vault to a distributing frame where each set of wires is attached to switching equipment. Electromechanical, switching equipment and to a lesser-but-growing extent electronic switching equipment make connections automatically. In a few remaining switchboards and in unusual situations an operator makes the connection manually.

Long-distance calls are dialed by the customer or an operator and connected with the telephone called through switching equipment. During 1970, over 90 percent of all telephone users could dial long-distance calls directly. Information needed to bill the customer may be recorded automatically or, on operator handled calls, is entered on a ticket by the operator.

Some customers make and receive more calls than can be handled on a single telephone line. For these calls, a system somewhat similar to a miniature central office may be installed on the subscriber's premises. This system is the private branch exchange (PBX), usually found in places such as apartment and office buildings, hotels, department stores, and other business firms.

A new type of service is called CENTREX, in which incoming calls can be dialed direct to any extension without an operator's assistance, and outgoing and intercom calls can be dialed direct by the extension users. The equipment for this service can be located either on telephone company premises or on the customer's premises.

Other communications services provided by telephone companies include conference equipment installed at a PBX to permit conversations among several telephone users simultaneously; mobile radiotelephones in automobiles, boats, airplanes, and trains; and telephones equipped to answer calls automatically and to give and take messages by recordings.

Telephone companies also build and maintain the vast network of cables and radio-relay systems for communication services, including those joining the thousands of broadcasting stations all over the Nation. These services are leased to networks and their affiliated stations. Telephone companies also operate teletype and private-wire services which they lease to business and government offices.

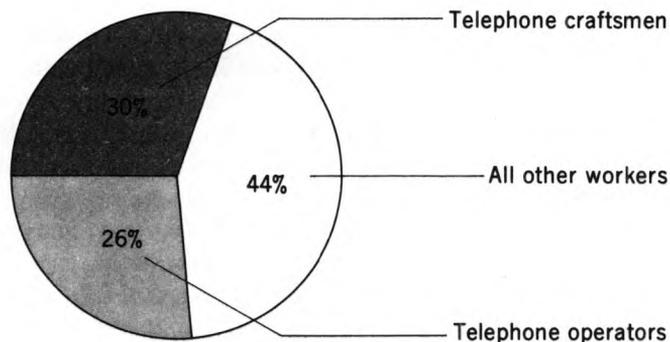
About 5 out of 6 of the Nation's domestic telephones are owned by the Bell System. The independents serve the remainder. There are approximately 1,900 independent telephone companies in the United States. General Telephone and Electronics Corporation in New York City, United Utilities, Inc. in Kansas City, and Continental Telephone Corporation in St. Louis account for about 3 out of every 5 telephones serviced by independent telephone companies.

## Telephone Occupations

Although the telephone industry requires workers in many different

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**Telephone craftsmen and operators make up more than one-half of all workers employed in the telephone industry**



SOURCE: BUREAU OF LABOR STATISTICS

occupations, telephone craftsmen and operators make up more than one-half of all workers (see chart 34).

Telephone craftsmen install, repair, and maintain telephones, cables, switching equipment, and message accounting systems. These workers can be grouped by the type of work they perform: (1) construction people place, splice, and maintain telephone wires and cables; (2) installers and repairmen place, maintain, and repair telephones and private branch exchanges (PBX) in homes and offices and other places of business; and (3) central office craftsmen test, maintain, and repair equipment in central offices.

Operators make telephone connections; assist customers in specialized services, such as reverse-charge calls; and give telephone information. Telephone craftsmen are discussed in detail later in this chapter. A detailed discussion of telephone operators and operators of private branch exchanges (PBX operators) is presented in a separate

statement elsewhere in the *Handbook*.

Central office equipment purchased by a telephone company, usually is installed by employees of the equipment manufacturers. A few central office equipment installers work for telephone companies or private firms specializing in installation work. Although most of these skilled workers are not employed in telephone operating companies, they are discussed in this chapter because their work is so closely connected with the Nation's telephone system.

Many other occupations in the telephone industry, such as clerical and administrative, are found in other industries as well. They are described in detail elsewhere in the *Handbook* in the sections covering individual occupations.

More than one-fifth (21 percent) of all telephone industry employees are clerical workers. These include stenographers, typists, bookkeepers, office machine and computer operators, keypunch operators, cashiers, receptionists, file clerks, accounting and auditing clerks, and payroll

clerks. These clerical workers, most of whom are women, keep records of services, make up and send bills to customers, and prepare statistical and other reports. A growing amount of this record-keeping and statistical work is being done by electronic data-processing equipment.

About 14 percent of telephone company employees are business and sales representatives, who handle orders for new telephone services, and administrative and professional workers; these include accountants, attorneys, personnel specialists, purchasing agents, public relations employees, training specialists, and statisticians.

Approximately 4 percent of the industry's employees are scientific and technical personnel such as engineers and draftsmen. Most of these workers plan and design new buildings, the expansion of existing ones, and solve engineering problems. Engineers are employed in sales development work. Many top supervisors and administrators are men having engineering backgrounds. Basic research in communications systems and the development of new and improved equipment are not done by employees of telephone operating companies, but mainly by specialists in affiliated laboratories.

About 3 percent of the industry's workers maintain buildings, offices, and warehouses; operate and service motor vehicles; and do other maintenance and service jobs in offices and plants. Skilled maintenance craftsmen include stationary engineers, carpenters, painters, electricians, and plumbers. Other workers employed by the telephone industry are janitors, porters, watchmen, elevator operators, and guards.

### Employment Outlook

Tens of thousands of new workers will be required by telephone operating companies each year throughout the 1970's, mainly to replace the large number of women telephone operators and clerical workers who leave the industry. Many new workers, however, will be needed for craft jobs to replace skilled workers who die, retire, or shift to other work. Job turnover also will create openings for administrative, sales, professional, technical, and scientific personnel.

Despite an anticipated strong growth in service, total employment is expected to grow only moderately because technological improvements such as electronic switching equipment permit more calls to be made without assistance. However, operators will continue to handle complex calls. Technological changes are expected to restrict the total number of clerks and skilled craftsmen. Occupational groups in which employment is expected to grow as business increases are sales, administrative, professional, technical, and scientific personnel.

Part of the expansion in telephone service will result from expected increases in number of households and business establishments. The remaining households in the United States without telephones will be another factor in the demand for telephone service, especially as incomes rise.

Other factors also are expected to increase demand for telephones. For example, in private homes different styles and color and telephone extensions are increasing. The recently-developed push-button instrument enables the user to call in half the time required by a dial phone. It may provide many new

services, including the transmission of data, remote control of appliances, or remote access to electronic computers. Also growing is the use of specialized equipment on telephone instruments, such as volume controls that compensate for impaired hearing and housespeakers that permit "hand free" conversation.

For industrial and commercial users, high speed transmission of large quantities of computer-processed and other data via telephone, teletypewriter, telephotograph, or facsimile are becoming important. Because of high speed of data transmission, for example, the same newspaper can be published simultaneously in two widely separated cities. To meet the increasing demand for overseas communications, transoceanic service will continue to expand as more undersea cables are laid and communication satellites come into wider commercial use.

### Earnings and Working Conditions

Since wage rates in the telephone industry are geared to those for comparable work in the locality, earnings of telephone workers depend not only on the type of job and the worker's previous training and experience, but also on location and character of the community. Because of differences in rates among regions and communities, considerable variation exists in the rates paid for any given telephone occupation. In general, telephone wage rates are highest in the Pacific and Middle Atlantic States and lowest in the Southeast.

For the Nation as a whole, average basic hourly wage rates in December 1969 for all telephone employees, except officials and managerial assistants, were \$3.62. Rates

for these workers ranged from an average of \$2.16 an hour for telephone operator trainees and \$2.55 for experienced telephone operators, to \$6.39 for professional and semiprofessional workers. Clerical workers in non-supervisory positions averaged \$2.79 an hour. Construction, installation, and maintenance employees averaged \$4.01 an hour.

A telephone employee usually starts at the minimum wage for his particular job. Advancement from the starting rate to the maximum rate generally takes from 4 to 6 years and involves from 10 to 14 pay grades.

More than two-thirds of the workers in the industry, mainly telephone operators and craftsmen, are members of labor unions. The Communications Workers of America represents the largest number of workers in the industry, but many other employees are members of the 13 independent unions which form the Alliance of Independent Telephone Unions. Others are members of the International Brotherhood of Electrical Workers.

Wage rates, wage increases, and the amount of time required to advance from one step to the next are governed for most telephone workers by union-management contracts. The contracts also call for extra pay for work beyond the normal tour of 6 to 8 hours a day or 5 days a week, and for all Sunday and holiday work. Most contracts provide a pay differential for night work.

Travel time between jobs is counted as worktime for craftsmen under some contracts. Overtime work sometimes is required in the telephone industry, especially during emergencies, such as floods, hurricanes, or bad storms. During an "emergency call-out," which is a

short-notice request to report to work during non-scheduled hours, workers are guaranteed a minimum period of pay at the basic hourly rate.

In addition to these provisions which affect the pay envelope directly, other benefits are provided. Annual vacations with pay are granted to workers according to their length of service. Usually, contracts provide for a 1-week vacation beginning with 6 months of service; 2 weeks for 2 to 10 years; 3 weeks for 11 to 19 years; 4 weeks for 20 to 24 years; and 5 weeks for 25 years and over. Depending on locality holidays range from 8 to 12 days a year. Most telephone workers are covered by paid sick plans and group insurance which usually provide sickness, accident, and death benefits, and retirement and disability pensions.

The telephone industry has achieved one of the best safety records in American industry. The number of disabling injuries has been consistently well below the average.

### Where To Go for More Information

Additional information about jobs in the telephone industry may be obtained from the local telephone company or from local unions with telephone workers among their membership. If no local union is listed in the telephone directory, information may be obtained from the following:

Alliance of Independent Telephone Unions, Room 302, 1422 Chestnut St., Philadelphia, Pa. 19102.

Communication Workers of America, 1925 K St., NW., Washington, D.C. 20006.

International Brotherhood of Electrical Workers, 1200 15th St., NW., Washington, D.C. 20005.

United States Independent Telephone Association, 438 Pennsylvania Building, Washington, D.C. 20004.

## TELEPHONE CRAFTMEN

Nearly three-tenths of the employees in the telephone industry are craftsmen engaged in construction, installation, and maintenance activities necessary to operate the vast amount of mechanical, electrical, and electronic equipment vital to the far-reaching network of our modern communications systems. About 1 out of 7 of these workers are foremen, many of whom have advanced to supervisory positions from a craft job.

## CENTRAL OFFICE CRAFTMEN

### Nature of the Work

Central office craftsmen test, maintain, and repair mechanical, electrical, and electronic switching equipment and other central office equipment. They maintain this equipment in operating condition and locate potential trouble before service is affected. Telephone companies employed about 92,000 central office craftsmen in 1970, including approximately 21,000 test boardmen and 66,000 central office repairmen, helpers, and framemen. Frameman (D.O.T. 822.884) is usually the beginning job from which a worker may advance to a more skilled central office craft job. Much of the frameman's job involves run-

ning, connecting, and disconnecting wires according to plans prepared by line assigners, another small group of workers.

*Central office repairmen* (D.O.T. 822.281), often called *switchmen*, maintain and repair switching equipment and automatic message accounting systems in central offices. They check switches and relays, using special tools and gauges. They also locate and repair trouble on customers' lines in central office equipment as reported by testboardmen.

*Testboardmen* (D.O.T. 822.281) check customers' lines to determine the cause of breakdowns or interference in telephone service. They work at special switchboards comprising electrical testing instruments and test for, locate, and analyze trouble spots reported on customers' lines. If repairs are needed and the breakdown is outside the central office, they direct the repair activities of line and cable crews or installer repairmen or of central office repairmen (if the trouble is inside).

### Training, Other Qualifications, and Advancement

Telephone companies usually train inexperienced men for skilled jobs in central offices. Applicants must have at least a high school or vocational school education. A knowledge of the basic principles of electricity and electronics generally is desired. Telephone training and experience in the armed services or technical training beyond high school may be helpful in obtaining jobs as telephone craftsmen; men with such training may be brought in above the entry level. Preemployment aptitude tests usually are given to prospective employees.

Young persons considering ca-



**Central office repairman checks automatic switching equipment.**

reers as central office craftsmen should have manual dexterity, good eyesight—no color blindness, and an aptitude for mechanics and reading diagrams and blueprints. He should be able to work with others for many times teamwork is essential to solve a complex problem. Employees frequently work shifts or overtime to maintain constant telephone service. Central office craftsmen should be adaptable to changes brought about by rapid advances in communications technology.

Most telephone companies give classroom instruction and on-the-job training to new central office craft employees. Usually they are assigned to the starting job of frameman and work with experienced framemen under the direction

of a supervisor or foreman. As they gain experience they may advance to central office repairmen or testboardmen to receive additional training. Instruction includes courses in the maintenance of the particular type of central office equipment used by the company.

Throughout their careers, the telephone company trains office craftsmen. As new types of equipment and tools and new maintenance methods are introduced, they may be sent to school for short periods. Usually at least 6 years are necessary for workers to reach the top pay rate for central office repairmen or testboardmen.

Many workers move into central office craft jobs from other types of telephone work. For example, some

men start as installers or linemen and many, with additional training, transfer to jobs as central office craftsmen. They may then be promoted to engineering assistant or administrative staff worker.

### **Employment Outlook**

During the 1970's many opportunities will result for central office craftsmen from the need to replace workers who retire, die, or transfer to other jobs. Retirements and deaths alone may result in several thousand job openings each year.

The total number of central office craftsmen is expected to increase rapidly during the 1970's, mainly as a result of the increasing demand for telephone service and data communication systems. However, recent technological developments, such as electronic switching and various automatic testing devices, will tend to restrict employment growth.

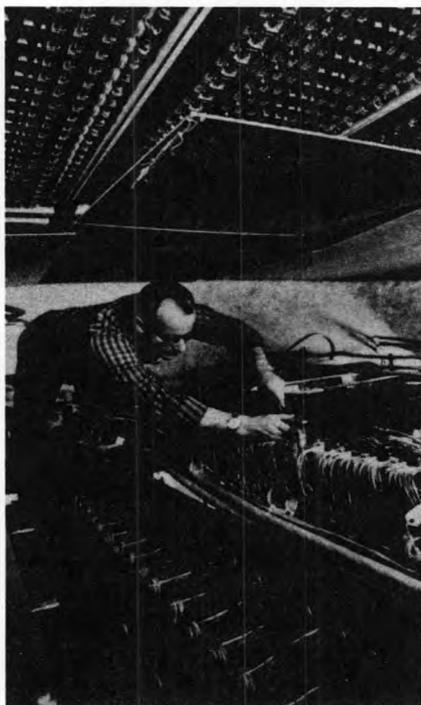
### **Earnings and Working Conditions**

Central office craftsmen are among the highest paid skilled workers in the telephone industry. In December 1969, average basic hourly rates of pay in large telephone companies in the United States were \$4.04 for testboardmen and \$3.77 for central office repairmen; average basic hourly rates ranged from \$3.80 to \$4.38 for testboardmen and from \$3.46 to \$3.81 for central office repairmen, depending on locality and length of service.

Earnings increase considerably with length of service in central office jobs. According to a 1970 union-management contract in one of the higher pay scale cities, craft employees start at \$105.50 for a 40-

hour week. Framemen can work up to a maximum of \$166 after 4 years and 11 months. If a vacancy occurs and the worker is qualified, a frameman can move into the job of central office repairman or testboardman with a higher pay schedule. Central office repairmen and testboardmen can earn a maximum of \$193 a week after 6 years of periodic increases.

Since the telephone industry gives continuous service to its customers, central offices operate 24 hours a day, 7 days a week. Some central office craftsmen, therefore, have work schedules for which they receive extra pay. Central office craftsmen are covered by the same provisions governing overtime pay, vacations, holidays, and other benefits that apply to telephone workers generally. (See discussion earlier in this chapter.) Employees in central offices work in clean and well-lighted surroundings.



Central office equipment installer wires switching equipment.

men discussed in this chapter, most installers work for manufacturers of central office equipment rather than for telephone companies. A few including about 1,600 in the New England area, work directly for telephone companies; some are employed by private contractors who specialize in large-scale installations.

Central office equipment installers generally are assigned to areas which include several States to install a switchboard in a central office in a small community, where they may work with only one or two other installers. On a large job, such as a long-distance toll center in a big city, he may work with hundreds of other installers.

### Training, Other Qualifications, and Advancement

Young persons who wish to be-

come installers must have a high school or vocational school education. Individuals with some college education, especially engineering majors often are hired. Preemployment tests generally determine the applicant's mechanical aptitudes. A physical examination is required.

Young persons considering careers as central office craftsmen should have manual dexterity, good eyesight—no color blindness, and an aptitude for mechanics and reading diagrams and blueprints. He should be able to work with others for many times teamwork is essential to solve a complex problem. Employees frequently work shifts or overtime to maintain constant telephone service. Central office craftsmen should be adaptable to changes brought about by rapid advances in communications technology.

New employees receive on-the-job training and classroom instruction. They attend classes the first few weeks to learn basic installation methods before starting on-the-job training. After several years of experience, they may qualify as skilled installers. Training on the job, however, continues even after they become skilled workers. Additional courses are given from time to time to improve their skills and to teach new techniques in installing telephone equipment. Installers may advance to engineering assistant jobs, especially those workers who have had some technical training beyond the high school level.

### Employment Outlook

Employment of central office equipment installers is expected to increase at a moderate rate during the 1970's to install equipment in thousands of new central offices and to replace obsolete equipment. A

## CENTRAL OFFICE EQUIPMENT INSTALLERS

### Nature of the Work

Central office equipment installers set up complex switching and dialing equipment in central offices of telephone companies. They assemble, wire, adjust, and test this equipment to have it conform to the manufacturer's standards for efficiency and dependability. They may install a new central office, add equipment in an expanding local office, or replace outmoded equipment.

About 22,000 installers were employed in 1970. Unlike other crafts-

few hundred job openings a year are expected to replace office equipment installers who transfer to other work, retire, or die.

Increasingly complex central office and toll equipment, including advanced PBX systems and data and computer networks, will require more highly skilled manpower in electronics. Installers, perhaps more than other telephone craftsmen are subject to possible employment fluctuations in the short run because of changes in business conditions. When the business outlook is depressed, there is less likelihood new central offices will be built and existing offices enlarged or modernized. When business is prospering, installations, additions, and modifications of central offices may occur at an above-average pace.

### Earnings and Working Conditions

According to a major union contract in 1970, rates for inexperienced installers, depending on the locality, start at \$2.50 to \$2.69 an hour. The contract provides for periodic increases, and employees may reach rates of \$4 to \$4.82 an hour after 6 years of experience. Time and a half is paid for work over 8 hours a day or 40 hours a week, and double time is paid for Sundays and holidays.

Travel and expense allowances also are given. Depending on locality installers receive 8 to 12 paid holidays a year. Length of service determines paid vacations.

The Communications Workers of America represents most central office equipment installers, including those servicing the Bell System. The International Brotherhood of Electrical Workers represents some installers employed directly by New England telephone companies, by

manufacturers supplying the non-Bell or independent segment of the telephone industry, and others, employed by large installation contractors.

## LINEMEN AND CABLE SPLICERS

### Nature of the Work

The vast network of wires and cables that connect telephone central offices to the millions of telephones and switchboards in customers' homes and buildings is constructed and kept in good operating order by linemen and cable splicers and their helpers. Telephone companies employed over 44,000 of these workers in early 1970, 15,000 linemen, 25,000 cable splicers, and 4,000 helpers, laborers, and other workers.

In constructing new telephone lines, *linemen* (D.O.T. 822.381) place wires and cables leading from the central office to customers' premises. They use power-driven equipment to dig holes and set in telephone poles which support cables. Linemen climb the poles to attach the cables, usually leaving the ends free for cable splicers to connect later. In cities where telephone lines are below the streets, linemen place cables in underground conduits. Construction linemen usually work in crews of two to five men. A foreman directs the work of several of these crews.

Linemen repair and maintain existing lines. When wires or cables break or a pole is knocked down, linemen make emergency repairs. The line crew foreman keeps in



close contact with the testboard foreman who directs him to trouble locations on the lines. Some linemen periodically inspect sections of lines in rural areas and make minor repairs and line changes.

After linemen place cables on poles or in underground conduits, *cable splicers* (D.O.T. 829.381) generally complete the line connections. Splicers work on aerial platforms, in manholes, or in basements of large commercial buildings. They connect individual wires within the cable by matching colors of wires so as to keep each circuit continuous. Cable splicers also rearrange pairs of wires within a cable when lines have to be changed. At each splice, they either wrap insulation around the wires and seal the joint with a lead sleeve or cover the splice with some other type of closure. Sometimes, they fill the cable sheathing with compressed air to keep out

moisture. Cable splicers also maintain and repair cables. The preventive maintenance work that they do is extremely important because a single defect in a cable may result in a serious interruption in service. Many trouble spots are located through air pressure or electric tests.

### **Training, Other Qualifications, and Advancement**

Telephone companies hire inexperienced men to train for jobs as linemen or cable splicers. Applicants for these jobs must have a high school or vocational school education and must pass a physical examination. Knowledge of the basic principles of electricity, and especially electronics, is helpful. Preemployment tests often are given to help determine the applicant's aptitudes. Some line and cable work is strenuous, requiring workers to climb poles and lift lines and equipment. Applicants for these positions must be physically qualified for such work. Manual dexterity and the ability to distinguish color also are important qualifications. Men who have received telephone training and experience in the armed services frequently are given preference for job openings and may be brought in above the entry level. For these jobs, telephone companies have training programs which include classroom instruction as well as on-the-job training. Classrooms are equipped with actual telephone apparatus, such as poles, cable supporting clamps, and other fixtures to simulate working conditions as closely as possible. Trainees learn to climb poles and are taught safe working practices to avoid contact with power wires and falls.

After a short period of classroom

training, some trainees are assigned to a line crew to work on the job with experienced men under the supervision of a line foreman. About 6 years are required for linemen to reach the top pay for the job. Other trainees acquire the skills of the trade by working with experienced cable splicers to whom they are assigned.

Line construction craftsmen continue to receive training throughout their careers to qualify for more difficult assignments and to keep up with technological changes in the industry. Those having the necessary qualifications find many additional advancement opportunities in the telephone industry. For example, a lineman may be transferred to telephone installer and later to telephone repairman or other higher rated jobs.

### **Employment Outlook**

Employment of linemen and cable splicers is expected to increase only at a slow rate, despite anticipation of a continuing high level of activity in line and cable installation, maintenance, and repair. However, hundreds of job openings for these craftsmen as a group are expected to become available during the 1970's because of the need to replace workers who transfer to other jobs, retire, or die.

Employment trends will differ among individual occupations. Only moderate growth is expected in the number of cable splicers because of technological developments that increase worker efficiency, such as devices that permit splicing of wires without the need to remove insulation; color code for identifying types wires in cables; and use of air pressured cables whose failure can be pinpointed by detecting devices.

These developments, furthermore, are expected to reduce drastically the need for cable splicers' helpers, continuing the rapid decline in employment in this occupation in recent years. Little or no change is expected in the number of linemen because of the increasing use of mechanical improvements, such as trucks with derricks and pole-lifting equipment, earth-boring tools, lightweight ladders, and "skybuckets," which have eliminated much of the physical work of the line crews, and is causing a substantial reduction in the regular size of a line crew.

### **Earnings and Working Conditions**

Cable splicers have higher earnings than linemen. In December 1969 in the United States as a whole, cable splicer's basic rates averaged \$3.77 an hour, and linemen's rates averaged \$3.07. Average hourly rates ranged from \$3.43 to \$4.02 for cable splicers and from \$2.51 to \$3.33 for linemen, with variations in earnings depending on locality.

Pay rates within the jobs also depend to a considerable extent upon length of service. For example, according to a 1970 union-management agreement, new workers in line construction jobs in one of the higher pay scale cities begin at \$105.50 for a 40-hour week. Linemen can reach the maximum of \$190 after 6 years service. The maximum basic weekly rate for cable splicers is \$193 based upon a combined total of at least 6 years of work in a plant craft job, as a helper and as a splicer, or in related craft jobs. Linemen and cable splicers are covered by the same contract provisions governing overtime pay, vacations, holidays, length of service, and other benefits that apply to tele-

phone workers generally. (See discussion earlier in this chapter.)

Linemen and cable splicers work outdoors. They must do a considerable amount of climbing. They also work in manholes, often in stooped and cramped positions. Safety standards, developed over the years by telephone companies with the cooperation of labor unions, have greatly reduced the hazards of these occupations. When severe weather conditions damage telephone lines, linemen and cable splicers may be called upon to work long and irregular hours to repair damaged cable facilities and to restore service. Because of the nature of their work, some linemen and cable splicers, by the time they reach their midfifties, transfer to other jobs such as installers and repairmen or central office craftsmen.

tem in an office or change a two-party line to a single-party line in a residence. Installers also may fill a customer's request to add an extension in another room or to replace an old telephone with a newer model.

Telephone and PBX installers and repairmen are the largest group of telephone craftsmen; about 102,000 were employed in 1970. Most of these men mainly install telephones or private branch exchanges, and about 23,000 repair and maintain this equipment. The

jobs of installing and repairing telephones and PBX systems are discussed below as separate jobs, but many telephone companies combine two or more of these jobs.

*Telephone installers* (D.O.T. 822.381) install and remove telephones in homes and places of business. They connect newly installed telephones to outside service wires which are on nearby buildings or poles. Installers often must climb poles to make these connections. Telephone installers are sometimes called *station installers*.

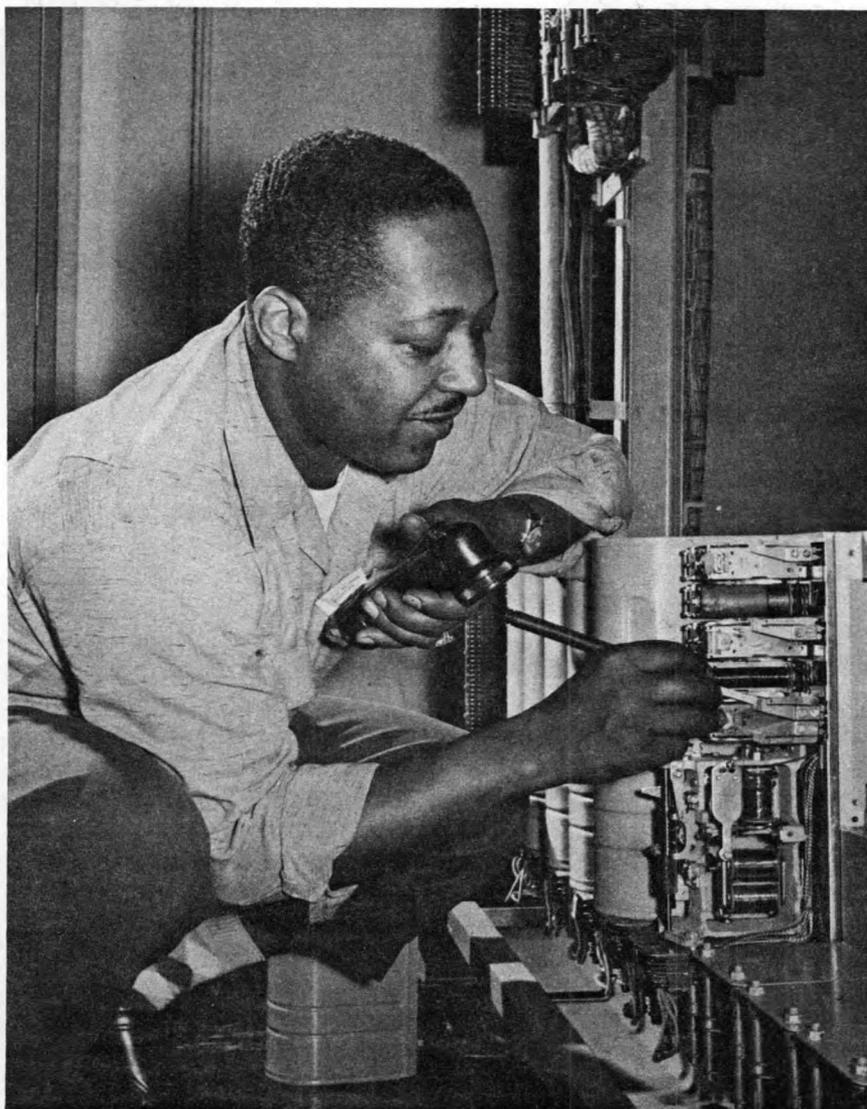
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## TELEPHONE AND PBX INSTALLERS AND REPAIRMEN

### Nature of the Work

Telephone and private branch exchange (PBX) installers and repairmen (sometimes called servicemen) install and service telephone and PBX systems on the customers' property and make necessary repairs on the equipment when trouble develops. These workers travel to customers' homes and offices in trucks equipped with telephone tools and supplies. When telephone customers move or request new types of service, installers relocate telephones or make changes on customers' existing equipment. For example, they may install a PBX sys-





**PBX installer tests PBX equipment.**

*PBX installers* (D.O.T. 822.381) perform the same duties as telephone installers, but they specialize in more complex switchboard installations. They connect wires from terminals to switchboards and make tests to check their installations. Some PBX installers also set up equipment for radio and television broadcasts, mobile radiotelephones, and teletypewriters.

*Telephone repairmen* (D.O.T. 822.281), with the assistance of

testboardmen in the central office, locate trouble on customers' equipment and make repairs to restore service. Sometimes the jobs of telephone repairmen and telephone installers are combined and the workers are called *telephone installer-repairmen*.

*PBX repairmen* (D.O.T. 822.281), with the assistance of testboardmen, locate trouble on customers' PBX systems and make the necessary repairs. They also

maintain associated equipment such as batteries, relays, and power plants. Some PBX repairmen maintain and repair equipment for radio and television broadcasts, mobile radiotelephones, and teletypewriters. Sometimes the jobs of PBX installers and PBX repairmen are combined into the job of *PBX installer-repairmen*.

### **Training, Other Qualifications, and Advancement**

Telephone companies train experienced men for telephone and PBX installation and repair jobs. Since much of the work requires personal contact with customers, applicants who have a pleasing appearance and the ability to deal effectively with people are preferred. Applicants for these skilled jobs must have a high school or vocational school education. Preemployment tests usually are given to help determine an applicant's aptitude for mechanics and reading diagrams and blueprints. Installers and repairmen should have manual dexterity, good eyesight (corrected), and telephone and PBX installers and repairmen should be able to adapt to the changes brought about by new communications technology.

New workers are given on-the-job training and instruction in classrooms equipped with telephone poles, lines and cables, and terminal boxes, as well as models of typical residential construction to simulate actual working conditions. Trainees practice installing telephones and making connections to service wires just as they would in the field. After a few weeks of such training, new workers continue to learn by watching and helping experienced men on the job.

Telephone and PBX installers

and repairmen continue to receive training throughout their careers to qualify for more responsible work and to keep up with technological changes. A new worker may start as lineman, move to telephone installer or repairman, and later advance to either PBX installer or repairman.

### Employment Outlook

Employment of telephone and PBX installers and repairmen is expected to increase very rapidly through the 1970's due to a growing demand for more telephones, and PBX and CENTREX systems. Many opportunities will also result from the need to replace workers who transfer to other telephone jobs, leave the industry, retire, or die. Some job openings may be filled by workers transferring from other telephone craft jobs, such as linemen and cable splicers, but many will be open to new entrants to the labor force.

Expansion is anticipated in the volume of service handled by telephone and PBX installers and repairmen because of the expanding number of telephones to be serviced and repaired and the increased use of specialized types of phone equipment, as well as, the development of improved but more complex equipment. Technological changes which have increased the efficiency of individual installers or repairmen will limit the employment increase. Examples of such changes include improved designs for telephone instruments, wires, and cables, and the development of removable components which can be returned to factory or service shop for repair.

### Earnings and Working Conditions

In December 1969 the average basic hourly rate for PBX repairmen was \$3.96 and the rate for telephone and PBX installers was \$3.62.

The effect of length of service on wage rates is illustrated by a 1970 union-management agreement in one of the higher pay scale cities. Under this agreement, telephone installers and repairmen have a starting rate of \$105.50 for a 40-hour week, with periodic pay increases until a maximum of \$190 a week is reached after about 6 years. Installers and repairmen are covered by the same provisions governing overtime pay, vacations, holidays, and other benefits that apply to telephone workers generally. (See discussion earlier in this chapter.)

Telephone and PBX installers and repairmen work indoors and outdoors in all kinds of weather. Outdoor work includes climbing poles to place and repair telephone wires leading from poles to customers' premises. Installers and repairmen may work extra hours when breakdowns occur in lines or equipment.

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# OCCUPATIONS IN THE TRUCKING INDUSTRY

In 1970, the trucking industry employed approximately 1 million workers—more than the rail, air, and pipeline transportation industries combined. The industry furnishes many jobs for young persons who do not plan to attend college. Nearly 90 percent of its employees handle freight, drive or maintain trucks, and do clerical or other work that requires no more than a high school education.

## Nature and Location of the Industry

The trucking industry is made up of firms that furnish local and long-distance hauling and storage on a for-hire basis. Trucking terminals located in various cities for the distribution and pickup of freight and the maintenance of trucking equipment also are part of the industry.

Local trucking companies serve a single city and its suburbs. All others are long-distance carriers and usually travel through many States. Some firms specialize in the type of goods carried, for example, they may carry oil, grain, livestock, automobiles, or furniture that usually require special truck rigging and loading and unloading equipment. Trucking companies operate as either contract or common carriers. Contract carriers haul commodities of one or a few shippers exclusively; common carriers serve the general public.

The industry's employment is concentrated in a relatively small number of large companies. Fewer than 10 percent of the trucking companies in interstate commerce have annual revenues of \$1 million

or more, but account for almost half of the employment. However, a large proportion of the companies are small, particularly those which serve a single city. Many are owner-operated, and the owner does the driving.

Trucking industry employees work in cities and towns of all sizes and are distributed much the same as the Nation's population. About half of them work in seven States: California, New York, Illinois, Pennsylvania, Ohio, Texas, and New Jersey. Chicago, Los Angeles, and New York are the hubs of the Nation's trucking networks.

## Occupations in the Industry

About three-fourths of all trucking industry employees have blue-collar jobs. Included in this occupational group are about 580,000 truckdrivers, who represent over

half the industry's total employment. About 10 percent are material handlers. Other important blue-collar occupations are mechanics, washers and lubricators, and foremen. Most white-collar employees are clerical workers, such as secretaries and rate clerks, and administrative personnel, such as terminal managers and accountants.

Men hold 9 out of every 10 jobs in the industry. Nearly all women employees are clerical workers.

The duties and training requirements of some of the important occupations are described briefly in the following sections. Detailed discussions of many of these occupations are given elsewhere in the *Handbook* under individual occupations.

*Truckdriving Occupations.* More than half of the industry's employees are truckdrivers. *Over-the-road drivers* (D.O.T. 904.883) operate large tractor-trailers or single unit trucks long distances, and spend nearly all of their working hours behind the wheel. They transport goods of great value which must be delivered safely and on time. Some drivers load and unload



their trucks, but usually other employees do this work.

*Local drivers* (D.O.T. 906.883) operate trucks over short distances, usually within a city and its suburbs. They deliver goods from trucking terminals to wholesalers, retailers, and other businesses in the area. They also pick up goods for delivery to terminals where loads are made up for long trips.

*Clerical occupations.* About 1 out of every 7 of the industry's employees is a clerical worker. Many have general clerical jobs, such as secretary or clerk-typist, which are common to all industries. Others have specialized jobs. For example, *dispatchers* (D.O.T. 919.168) coordinate the movement of trucks and freight into and out of terminals; make up loads for specific destinations; assign drivers and develop delivery schedules; handle customers' requests for pickup of freight; and provide information on deliveries. *Rate clerks* (D.O.T. 219.388) calculate shipping charges according to tariff regulations. *Claims clerks* (D.O.T. 241.368) handle claims for freight lost or damaged during transit. *Manifest clerks* (D.O.T. 222.488) prepare forms that list details of freight shipments. *Parts-order clerks* (D.O.T. 223.389) supply mechanics with replacement parts for trucks; they also take care of most of the clerical duties necessary for maintaining a truck repair shop.

*Administrative and Related Occupations.* More than 1 out of 10 employees is an administrator. Top executives manage companies and make policy decisions. Middle managers supervise the operation of individual departments, terminals, or warehouses. A small number of accountants and lawyers are in staff positions. The industry also employs

sales representatives to solicit freight business.

*Material Handling Occupations.* About 1 out of 10 employees moves materials into and out of trucks and warehouses. Much of this work is done by *material handlers* (D.O.T. 909.887) who work in gangs of three or four under the supervision of a dock foreman or gang leader. Material handlers load and unload freight with the aid of handtrucks, conveyors, and other devices. Heavy items are moved by *power truck operators* (D.O.T. 922.883) and *crane operators* (D.O.T. 921.280). Gang leaders determine the order in which items will be loaded so that the cargo is balanced and items to be unloaded first are near the back of the truck. *Truck-drivers' helpers* (D.O.T. 905.887) travel with drivers to unload and pick up freight. Occasionally, helpers may do relief driving.

*Truck Maintenance Occupations.* About 1 out of every 20 employees maintains the industry's operating equipment. *Truck mechanics* (D.O.T. 620.281) keep trucks and trailers in good running condition. Much time is spent in preventive maintenance to assure safe operation, to check wear and damage to parts, and to reduce breakdowns. When breakdowns do occur, they determine the cause and make the necessary repairs. *Truck mechanic helpers* (D.O.T. 620.884) and apprentices assist experienced mechanics in inspection and repair work. *Lubrication men and washers* (D.O.T. 915.887 and 919.887) clean, lubricate, and refuel trucks, change tires, and do other routine maintenance.

### Training, Other Qualifications, and Advancement

New workers in blue-collar occu-

pations usually are hired at the unskilled level, as material handlers, truck drivers' helpers, or lubrication men and washers. No formal training is required for these jobs, but many employers prefer high school graduates. Applicants must be in good physical condition. New employees work under the guidance of experienced workers and foremen while learning their jobs, which usually takes no more than a few weeks. As vacancies occur, they advance to higher rated blue-collar jobs, such as power truck operators and truckdrivers. Qualifications for promotion are the ability to do the job and length of service with the firm. Material handlers who demonstrate supervisory ability can become gang leaders or dock foremen.

Qualifications for truckdriving jobs vary and depend on individual employers, the type of truck, and other factors. Every driver must have a chauffeur's license, a commercial driving permit obtained from State Motor Vehicle Departments. The U.S. Department of Transportation establishes minimum qualifications for over-the-road drivers. The driver must be at least 21 years old, able-bodied, have good hearing, and vision of at least 20/40 with or without glasses. He also must be able to read and speak English and have at least 1 year of driving experience and a good driving record. Many firms will not hire over-the-road drivers under 25; they also may specify limitations on height and weight.

Young persons interested in professional driving should take the driver-training courses offered by many high schools. A course in automotive mechanics is also helpful because it provides a knowledge of the mechanical operations of a truck. Private truckdriving training schools offer another opportunity to

prepare for a driving job. However, completion of such a course does not assure immediate employment as a driver. Graduates frequently must start as material handlers or drivers' helpers and advance to driving jobs. Prospective students should enroll only in truckdriving courses offered by schools which have been certified by the State.

Most truck mechanics learn their skills informally on-the-job as helpers to experienced mechanics. Others complete formal apprenticeship programs which generally last 4 years and include on-the-job training and related classroom instruction. Unskilled workers, such as lubrication men and washers, frequently are promoted to helpers and apprentices. However, many firms will hire inexperienced young people for helper or apprentice jobs, especially those who have completed courses in automotive mechanics.

Completion of commercial courses in high school or business school is usually adequate for entry into general clerical occupations, such as secretary or typist. Additional on-the-job training is needed for specialized clerical occupations, such as rate or claims clerk.

Generally, no specialized education is necessary for dispatcher jobs. Openings are filled by truck drivers, rate clerks, or other workers who know their company's operations and are familiar with State and Federal driving regulations. A candidate may improve his qualifications by taking college or technical school courses in transportation.

Administrative and sales positions frequently are filled by college graduates who have majored in business administration, marketing, accounting, industrial relations, or transportation. Some companies have management training programs for col-

lege graduates in which trainees work for brief periods in various departments to get a broad picture of trucking operations before they are assigned to a particular department. High school graduates may be promoted to administrative and sales positions.

### Employment Outlook

Employment in the trucking industry is expected to grow rapidly through the 1970's. New jobs resulting from employment growth, as well as jobs that must be filled as experienced workers retire, die, or transfer to other fields are expected to account for tens of thousands of openings each year.

Demand for trucking is expected to rise very rapidly in response to general economic growth. Also significant are additional segments of the national interstate and defense highway systems to be completed over the next decade. These roads have more lanes, fewer curves and other improvements which have resulted in reduction of State limitations of truck weight, size, and speed. In addition, many new factories and other businesses are located in suburban or rural areas where rail facilities are extremely limited or nonexistent.

Employment will not increase as fast as demand for trucking because technological developments and a continued trend to larger, more efficient firms will increase output per worker. As a result of these developments, rates of growth will vary among occupations. Employment of material handlers, for example, is expected to increase slowly because of more efficient freight handling methods—such as conveyors and draglines to move freight in and out of terminals and

warehouses, and cargo cages to combine less-than-truckload shipments. In contrast, employment of truckdrivers is expected to increase rapidly, although improved highways and vehicles will result in bigger loads at higher speeds and fewer drivers will be required for each ton of freight.

Compared with small organizations, large companies have higher proportions of accountants, personnel workers, clerks, sales workers, truck mechanics, and foremen. Employment in most of these occupations is expected to increase very rapidly as a result of the trend to larger trucking companies. On the other hand, terminal managers make up a greater proportion of employment in small firms, since they perform many of the tasks that are assigned to other workers in large organizations. Thus, the demand for terminal managers will grow slowly as employment becomes more concentrated in large firms.

### Earnings and Working Conditions

In 1970, nonsupervisory workers in the trucking industry averaged \$169.32 a week or \$4.08 an hour compared with \$121.73 a week or \$3.29 an hour for nonsupervisory workers in all private nonagricultural industries. Earnings are relatively high in the trucking industry because drivers represent a large proportion of employment; many over-the-road drivers earn more than \$200 a week.

Most employees are paid an hourly rate or a weekly or monthly salary. However, truckdrivers on the longer runs generally are paid on a mileage basis for driving time. For all other work time, they are paid an hourly rate. Most em-

ployees receive premium pay for overtime, Sundays, and holidays.

Paid vacations are almost universal in the trucking industry. Typically, employees receive a 1 week vacation after 1 year of service, 2 weeks after 3 years, 3 weeks after 10 years, and 4 weeks after 15 years. Nearly all workers receive paid holidays. Insurance and pension plans, financed at least partially by employers, cover most workers, and include life, sickness, hospitalization, and surgical insurance.

Working conditions vary greatly among occupations in the industry. Truckdriving is both physically and mentally demanding, but conditions have improved as a result of better highways, more comfortable seat-

ing, power steering, and air-conditioned cabs. Over-the-road drivers frequently work at night and spend time away from home. Local drivers usually work only during the day. Material handlers and truckdriver's helpers have strenuous jobs. In recent years, conveyor systems, motorized hand trucks, power tail gates, and other freight handling equipment have reduced some of the heavier lifting and made the work safer. Although their duties are not physically strenuous, truck mechanics and other maintenance personnel may have to work in awkward or cramped positions while servicing vehicles. Most maintenance shops are well lighted, heated, and ventilated. Mechanics occasionally make

repairs outdoors where breakdowns occur. Many large organizations operate around the clock and require some material handling and maintenance personnel to work evenings and nights.

A large number of trucking industry employees are members of the International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America (Ind.)

### Sources of Additional Information

Information on career opportunities may be obtained from:

American Trucking Association,  
1616 P St., NW., Washington,  
D.C. 20036.

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# WHOLESALE AND RETAIL TRADE

Wholesaling and retailing are the final stages in the process of transferring goods from producers to consumers. Wholesalers assemble goods in large lots and distribute them to retail stores, industrial firms, and institutions such as schools and hospitals. Retailers sell goods directly to housewives and other consumers in a variety of ways—in stores, by mail, or through door-to-door selling. A list of the items sold by wholesale and retail businesses would include almost every item produced by American industry—automobiles, clothing, food, furniture, and countless others.

In 1970, nearly 15 million persons (not counting an estimated 2 million self-employed and unpaid family workers) worked in wholesale and retail trade. Retail trade accounted for the largest number of workers—11.1 million—or about three-fourths of the employment in the broad industry group. The majority of these workers are employed in department stores, in food stores, and in restaurants and other eating places. About 3.8 million persons worked in wholesale trade.

Wholesale and retail businesses are a major source of job opportunities for women. In 1970, for example, nearly one-half of the workers employed in retail trade were women. They represented about one-fifth of all workers employed in wholesale trade. Many of the women employed in retail stores work part time.

Workers with a wide range of education, training, skill, and ability are employed in wholesale and retail trade. In 1970, white-collar workers accounted for more than 3

out of 5 persons employed in the major industry group, as shown in the accompanying table. Sales workers, the largest single group, make up nearly one-fourth of total industry employment. Managers and proprietors, the second largest group of workers, account for about one-fifth of the industry's work force. Many managers and proprietors own and operate small wholesale houses or retail businesses such as food stores and gasoline service stations. Clerical workers account for roughly one-sixth of the work force; many are employed by retail stores as cashiers, especially in supermarkets and other food stores. Other important clerical occupations in retail trade include secretaries, stenographers and typists, office machine operators, and bookkeepers and accounting clerks. Large numbers of shipping and receiving clerks are employed in both wholesale and retail trade.

Blue-collar workers (craftsmen, operatives, and laborers) accounted for nearly one-fourth of all employment in the industry group in 1970. Many are employed as mechanics and repairmen, gasoline service station attendants, drivers and deliverymen, meat cutters, and materials handlers. Most mechanics work for motor vehicle dealers and gasoline service stations. A large number of meat cutters are employed in wholesale grocery establishments and in supermarkets and other food stores.

Service workers, employed mostly in retail trade, accounted for roughly 1 out of 7 workers in the industry group. Food service workers, such as waitresses and cooks, made up by far the largest concentration of service workers.

Other large groups of service workers were janitors, charwomen and cleaners, and guards and watchmen.

	<i>Estimated employment, 1970 (percent distribution)</i>
<i>Major occupational group</i>	
All occupational groups.....	100
Professional, technical, and kindred workers....	2
Managers, officials, and proprietors .....	21
Clerical and kindred workers .....	17
Sales workers .....	23
Craftsmen, foremen, and kindred workers....	7
Operatives and kindred workers .....	11
Service workers .....	14
Laborers .....	5

NOTE: Due to rounding sum of individual items may not equal total.

Employment in wholesale and retail trade is expected to increase moderately through the 1970's. The major factors contributing to the expected growth of employment are increasing population and consumer expenditures, continuation of the population movement from rural to urban areas and from city to suburbs, and the trend toward keeping stores open longer hours. Growth in employment requirements is expected to be slowed somewhat by the increasing applications of labor-saving technology. For example, technological change may effect employment because of improvements in materials-handling methods, packaging innovations, the growing use of computers for inventory control and billing operations, the increasing use of mechanized equipment in supermarkets, and the continued growth in the number of stores using self-service operations.

Within retail trade, employment in department stores, drug stores, restaurants, auto dealerships, and service stations is expected to rise fastest. Among wholesale establishments, the rates of employment growth are likely to be highest in businesses that distribute auto parts,

and in firms selling industrial machinery, equipment, and supplies.

The statement that follows covers the major occupations in restaurants, where, for example, large numbers of waiters and waitresses, and cooks and chefs are employed.

More detailed information about

occupations that cut across many industries appears elsewhere in the *Handbook*. These include salesmen, office workers, shipping and receiving clerks, maintenance trades, and many others. (See index in the back of the book.)

# RESTAURANT INDUSTRY

In 1970, about 2.5 million people were employed in establishments whose main business was serving food and beverages. Many other food-service workers were employed in establishments that serve meals in connection with some other activity—for example, drug and department stores, hotels, hospitals, school and college lunchrooms, and factory cafeterias. Commercial airlines, railroads, and ship-lines also employ food-service workers.

## Nature and Location of the Industry

Establishments catering to the custom of "eating out" range from small diners to luxurious and expensive restaurants. The kind of food offered and the way it is served depend upon the size, location, and financing of the restaurant, as well as the type of customer it seeks to attract. For example, cafeterias located in office buildings, factories, or suburban shopping centers emphasize rapid service and inexpensive meals. In contrast, some restaurants cater to customers who have the time to eat in a leisurely manner and, thus, they serve elaborate meals which may include unusual dishes or "specialties of the house."

Most restaurants are small and have fewer than 10 paid employees; many of these are operated by their owners who have no paid help or have only 1 or 2 part-time workers. An increasing proportion of all restaurants are run by firms owning more than one restaurant.

Although restaurant employment is concentrated in the States with

the largest populations, and particularly in large cities, even very small communities have luncheonettes and roadside diners.

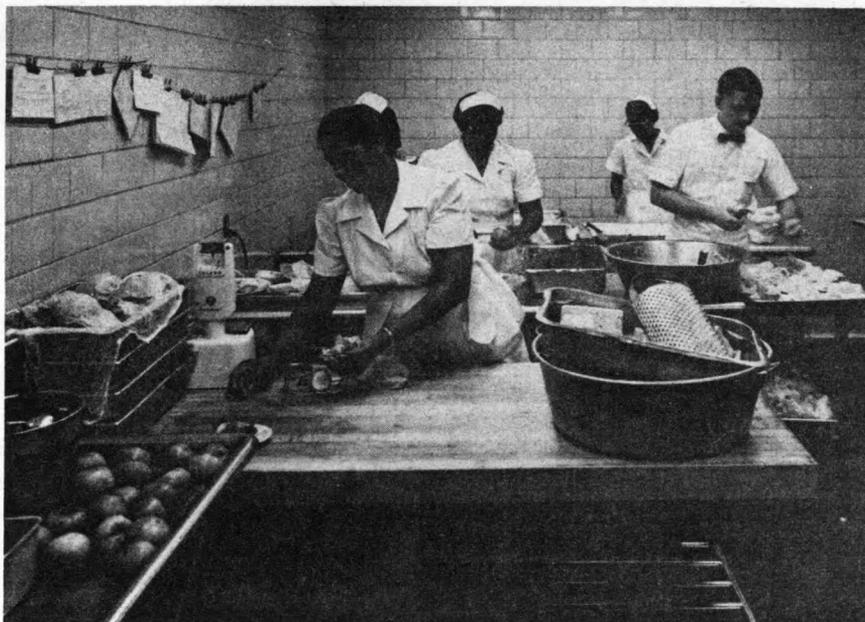
## Restaurant Workers

About three-fourths of all restaurant employees prepare and serve food or do other kinds of related service work. The two largest occupations in this group are waiters and waitresses, and cooks and chefs. Also included are counter attendants who serve food to customers in cafeterias; bartenders who mix and serve drinks to customers; busboys and busgirls who clear tables, carry soiled dishes back to the kitchen, and sometimes set tables; kitchen workers who wash dishes and prepare vegetables; pantrymen and pantrywomen who prepare salads and certain other dishes; and janitors and porters who dispose of trash and garbage, sweep and mop

floors, and do other cleaning jobs. Some of these workers operate mechanical equipment such as power-driven dishwashers, floor polishers, vegetable slicers and peelers, and garbage disposal equipment. These specialized service jobs, however, are likely to be found only in the largest restaurants. In many small eating places, waiters and waitresses clear and set up tables, sometimes prepare certain kinds of dishes, and help in the kitchen when they are not busy with customers. (Detailed information on cooks and chefs, waiters and waitresses, and bartenders is given elsewhere in the *Handbook*. See index for page numbers.)

Another large group of restaurant workers—about one-sixth of the total—are managers and proprietors. Many are owners and operators of small restaurants and, in addition to acting as managers, may do cooking and other work. Some are salaried employees managing restaurants for others.

All other restaurant workers combined account for less than one-tenth of total industry employment. They are employed principally in large restaurants. Most are



clerical employees—cashiers who receive payments and make change for customers; food checkers who total the cost of the meals selected by cafeteria customers; and bookkeepers, stenographers, typists, and other office workers. Dietitians plan menus, supervise the preparation of meals, and enforce sanitary regulations. Some large restaurants also employ mechanics and other maintenance workers, accountants, advertising or public relations directors, personnel workers, and musicians or other entertainers.

### **Training, Other Qualifications, and Advancement**

Experience and skill requirements for workers employed in restaurants vary widely and depend on the particular occupation and type and size of the restaurant. For example, employees in inexpensive diners and luncheonettes generally require less training than those employed in expensive restaurants.

Entry requirements for some restaurant jobs are minimal. Young people who have less than a high school education and no previous experience often can qualify for employment as kitchen workers, dishwashers, or busboys. Previous experience, and in some cases special training, may be required for cooks and chefs, waiters and waitresses, and other occupations.

Newly hired restaurant workers receive on-the-job training. A kitchen worker, for example, may learn how to operate a dishwasher or other mechanical kitchen equipment. Waiters and waitresses may be taught how to set tables, take orders from customers, and how to serve food in a courteous and efficient manner. In a great many small restaurants, new employees

receive their training under the close supervision of an experienced employee or the proprietor. In larger restaurants and some chain restaurant operations, training programs are likely to be more formal, and beginners may be required to attend training sessions for a few days or longer.

Many vocational schools—both public and private—provide training that is helpful to persons interested in restaurant work. Vocational education programs provide courses in food preparation and cooking, catering, restaurant management, and related subjects. Similar training programs for a variety of restaurant occupations, ranging from a few months to 2-years or more in length, are available through restaurant associations and trade unions, technical schools, junior and community colleges, and 4-year colleges. Many young people, for example, prepare for supervisory jobs by completing 2 year programs in food service management offered by junior and community colleges located throughout the country.

Classroom and on-the-job training programs for unemployed and underemployed workers seeking employment in restaurants are in operation in a large number of cities under the Manpower Development and Training Act (MDTA). Training under the MDTA is provided for cooks and cook apprentices, waiters and waitresses, food service supervisors, and cook helpers. These programs last approximately 12 to 15 weeks.

Handicapped workers are being trained in a number of programs for employment in restaurants. Recent projects have resulted in the employment of many mentally retarded persons in occupations such as dishwasher and kitchen helper.

Employers look for applicants

who have good health and physical stamina because restaurant workers are required to work long hours—often under considerable pressure. Neatness, a pleasant manner, and an even disposition also are important, particularly for waiters and waitresses and other employees who deal with the public.

Restaurants, particularly large chain operations, offer promotion opportunities to workers having initiative and ability. A young person who begins as a busboy or dishwasher can be promoted to a better paying job such as waiter or cook's helper. Through additional training, he can advance to cook or chef, baker, or bartender. A restaurant hostess may work her way up to assistant manager. Experience as a maitre d' hotel may lead to a position as director of food and beverage services in a large chain organization. Assistant managers, particularly those with college training, may be promoted to manager and eventually managing director.

### **Employment Outlook**

Employment in the restaurant industry is expected to rise rapidly through the 1970's as the volume of restaurant business increases. In addition to job openings created by employment growth, an even greater number will result from turnover. Most openings will be for waitresses and kitchen helpers—both because of high turnover and because these workers make up a very large proportion of all restaurant employees. Employment opportunities also are expected to be favorable for skilled cooks and salaried restaurant managers. The number of openings in clerical jobs, such as cashier and bookkeeper, will be relatively small. A few openings will

occur in specialized positions, such as food manager and dietitian.

A growing population, increasing leisure time, and higher income levels will raise the demand for restaurant services. More people will "eat out" as large numbers of housewives take outside employment and more people travel. However, employment will not increase as rapidly as the demand for restaurant services because worker productivity is rising. Restaurants—particularly those serving hundreds of meals daily—have increased the efficiency of their operations in recent years, as managers have centralized the purchase of food supplies, introduced self-service and used precut meats and modern equipment. Further improvements of this kind are expected during the 1970's.

### Earnings and Working Conditions

The location, size, and type of restaurant affect earnings of restaurant workers. Other significant factors include the tipping practice for some occupations and the degree of unionization.

In 1970, average earnings of nonsupervisory employees in the restaurant industry (excluding tips) were \$57.72 a week or \$1.85 an hour for a 31.2-hour workweek, compared with \$82.47 a week or \$2.44 an hour for a 33.8-hour workweek for workers in all retail trade establishments.

Limited data from union-management contracts in effect in 1970, covering eating and drinking places in several large cities, indicate straight-time hourly pay rates for various types of restaurant workers ranged as follows:

Waiters and waitresses .....	\$0.82–\$2.15
Busboys and busgirls.....	1.01– 2.26
Dishwashers .....	1.32– 2.60
Pantry workers .....	1.46– 3.33
Assistant cooks .....	1.47– 3.86
Porters .....	1.48– 2.60
Kitchen helpers .....	1.53– 3.20
Cashiers .....	1.57– 2.47
Checkers .....	1.57– 2.73
Cooks .....	2.02– 4.12
Bartenders .....	2.09– 3.87
Chefs .....	2.22– 4.65

Salaries of managerial employees have a wide range, mainly because of differences in duties and responsibilities. Many college graduates who have specialized training in restaurant management received starting salaries ranging from \$7,000 to \$10,000 annually in 1970. Managerial trainees without this background often started at lower salaries. Many experienced restaurant managers receive salaries between \$10,000 and \$25,000 a year, depending on size, location, and type of restaurant. Salaries below this range may be paid to managers of small restaurants.

In addition to wages, restaurant employees usually receive at least one free meal a day and often are provided with uniforms. Waiters, waitresses, and bartenders also receive tips. Paid vacations and holidays are common, and various types of health and insurance programs also are available. Most full-time restaurant workers have work schedules of 40 to 48 hours a week. Many work on split shifts, which means they are on duty for several hours during one meal, take some time off, and then return to work during the next period of heavy activity. Scheduled hours may include work in the late evenings and on holidays and weekends.

Many restaurants are air-conditioned, have convenient work areas,

and are furnished with the latest equipment and laborsaving devices. In other restaurants—particularly small ones—working conditions may be less desirable. In all restaurants, workers spend long periods on their feet, may be required to lift heavy trays and other objects, or work near hot ovens or steam tables. Work hazards include the possibility of burns; injury from knives, broken glass or china, or mechanical equipment; and slips and falls on wet floors.

The principal union in the restaurant industry is the Hotel & Restaurant Employees and Bartenders International Union (AFL-CIO). The proportion of workers covered by union contracts varies greatly from city to city.

### Sources of Additional Information

Additional information about careers in the restaurant industry may be obtained from:

Educational Director, National Restaurant Association, 1530 North Lake Shore Dr., Chicago, Ill. 60610.

A list of public and private schools and colleges offering courses which train restaurant employees may be obtained from:

Council on Hotel, Restaurant and Institutional Education, 1522 K Street, NW., Washington, D.C. 20005.

Information on courses relating to restaurant work may be obtained from the local Director of Vocational Education, the Superintendent of Schools in the local community, or the State Director of Vocational Education in the Department of Education in the State capital.



# FINANCE, INSURANCE, AND REAL ESTATE

Nearly every individual or organization uses the diverse and complex services provided by the finance, insurance, and real estate industry. Financial institutions—banks, savings and loan associations, consumer credit organizations, and others—make banking and credit facilities available to individuals and businesses. The types of services they offer range from providing simple financial services such as personal checking and savings accounts to acting as the broker and salesman in the buying and selling of stocks and bonds needed by giant corporations for investment capital. Insurance firms provide protection against losses due to fire, accident, sickness, death, and many other contingencies. Real estate organizations act as intermediaries in the sale of houses, buildings, and other property, and often manage large office and apartment buildings.

In 1970, nearly 3.7 million workers were employed in the finance, insurance, and real estate industry. Finance, employing 1.6 million persons, made up the largest sector. The next largest concentration of employment was in insurance where over 1.3 million workers were employed. The remaining workers—about one-sixth of the total—were employed in real estate.

Finance, insurance, and real estate firms are a major source of job opportunities for women, who made up over half of the industry's work

force in 1970. Their proportion ranged from about 35 percent in real estate to over 60 percent in banking.

As shown in the accompanying tabulation, 93 percent of the workers in the industry held white-collar jobs in 1970. Clerical workers alone made up 48 percent of the industry's work force. Many clerical workers were employed in specialized banking and insurance occupations such as bankteller, checksorter, and insurance claim adjuster. Other large clerical occupations include stenographer, typist, secretary, and office machine operator—occupations also found in most other industries. Sales workers constituted 17 percent of the work force. Most of them were insurance and real estate agents and brokers. A relatively small number of the sales workers sold stocks and bonds.

Managers and officials—bank officials, office managers, and others—made up 23 percent of the industry's work force in 1970. Professional and technical workers, such as accountants, programmers, and business research analysts, accounted for 5 percent of the work force. Most of them were employed by financial institutions.

Employment in the finance, insurance, and real estate industry is expected to increase moderately through the 1970's as a result of population growth, increasing business activity, and rising personal in-

Major occupational group	Estimated employment, 1970 (percent distribution)
All occupational groups..	100
Professional, technical, and kindred workers .....	5
Managers, officials, and proprietors .....	23
Clerical and kindred workers..	48
Sales workers .....	17
Craftsmen, foremen, and kindred workers .....	3
Operatives and kindred workers .....	( <sup>1</sup> )
Service workers .....	4
Laborers .....	1

<sup>1</sup> Less than 0.5 percent.

NOTE: Due to rounding sum of individual items may not equal total.

comes. However, increasing use of computers for routine clerical and recordkeeping functions may limit employment growth to some extent. Employment is expected to increase more rapidly in the financial sector than in insurance and real estate.

In addition to job openings from employment growth, many thousands of openings will result as women leave work to assume family responsibilities. Replacements also will be needed to fill vacancies created by deaths and retirements and by transfers of workers out of the industry.

The statements that follow cover major occupations in the banking and insurance fields. More detailed information about occupations that exist in many industries appears elsewhere in the *Handbook*. (See index in the back of the book.)

## OCCUPATIONS IN BANKING

Banks have been described as “department stores of finance” because of the variety of services they offer. Their services range from individual checking accounts to letters of credit to finance world trade. They safeguard money and valuables; administer trusts and personal estates; and lend money to business, educational, religious and other organizations. Banks also lend money for the purchase of homes, automobiles, and household items, and to cover unexpected financial needs. Banks continually strive to serve their customers’ needs. In recent years, for example, they have offered revolving check credit plans, charge cards, travel services, accounting and billing services, and money management counseling. Facilities to handle charge accounts in retail stores, and convenient “drive-up” windows also are available.

### Banks and Their Workers

Banks employed more than a

million workers in 1970; about two-thirds were women. Most of these bank employees work in commercial banks, where a wide variety of services are offered. Other bank employees work in mutual savings banks, which offer a more limited range of services—mainly savings deposit accounts, mortgage loans, safe-deposit rentals, trust management, money orders, travelers checks, and passbook loans. Still others work in the 12 Federal Reserve Banks (or “bankers’ banks”) and their 24 branches; and in foreign exchange firms, clearing house associations, check cashing agencies, and other organizations doing work closely related to banking.

In addition, many people are employed by savings and loan associations, personal credit institutions, and related institutions.

In 1970, commercial banks processed more than 20 billion checks and handled an enormous amount of paperwork. Clerks who do this work account for nearly two-thirds of all employees. Many of these

workers are tellers or clerks who process the thousands of deposit slips, checks, and other documents which banks handle daily. Banks also employ many secretaries, stenographers, typists, telephone operators, and receptionists.

Bank officers are the second largest group in the industry. Approximately 1 out of 5 employees is an officer—a president, vice president, treasurer, comptroller, or other official. Much smaller occupations include accountants, lawyers, personnel directors, marketing and public relations workers, statisticians, economists, and other professional workers, as well as guards, elevator operators, cleaners, and other service workers.

This chapter describes three large occupations unique to banking—clerks, tellers, and officers.

### Places of Employment

In 1970, there were more than 35,000 commercial banks and branch banks and more than 1,400 mutual savings banks and branches. Bank employment is concentrated, to a considerable extent in a relatively small number of very large banks and their branches. Thus, in 1969, the 500 largest commercial banks in the country, each having total deposits of \$100 million or more, employed more than one-half of all commercial bank employees, whereas over 8,000 small commercial banks (having total deposits of \$10 million or less) employed only about 10 percent of all commercial bank workers.

Bank employees work mainly in heavily populated areas. Approximately half of all bank employees are located in New York, California, Illinois, Pennsylvania, and Texas. New York City, the financial capital of the Nation, has far more bank employees than any other city.



### Training

Professional and managerial bank personnel usually have completed college; most clerks have completed high school; guards and building service personnel may have less than a high school education.

Most new employees undergo some form of in-service training regarding bank policies and procedures. Banks also provide other numerous opportunities for workers to broaden their knowledge and skills. Additional information about the educational requirements which apply to bank clerks, tellers, and bank officers, and the training given them, is provided in the statements that follow.

Many banks encourage employees to take courses at local colleges and universities. In addition, banking associations sponsor a number of educational programs, sometimes in cooperation with colleges and universities. Many banks pay all or part of the costs for those who successfully complete courses.

Bank employees can also prepare for better jobs by enrolling in courses offered by the American Institute of Banking in many cities throughout the country. The Institute, which has 375 chapters and 162 study groups, also offers correspondence study for bank employees. The Institute offers a broad range of courses and assists local banks in conducting cooperative training programs for various bank positions.

Bank employees should enjoy working with numbers. They also must be able to accept the responsibility of handling large amounts of money. They should present a good image to customers; often they are encouraged to participate in community activities.

### Employment Outlook

Employment in banks is expected to rise moderately through the 1970's. New jobs resulting from employment growth, as well as jobs that must be filled as employees retire, die, or stop working for other reasons are expected to account for tens of thousands of jobs each year. Still other openings will occur as employees leave their positions to enter other types of employment.

Most openings will be for clerks. In addition, an increasing number of trainee jobs, which may lead to officer positions, will probably become available for college graduates. Many openings for professional and specialized personnel such as accountants and auditors, economists, statisticians, and electronic computer personnel also will occur.

Population growth and increased production, sales, and income are expected to produce more financial transactions which banks will handle for individuals, businesses, and governments. Branch banks will continue to grow as banks bring services closer to residents of suburban business centers. More jobs will be created as banks continue to expand their services. These services include the handling of accounts in retail stores; bank charge cards; savings plans for travel and education; estate planning and administration; "on premise" banking facilities where large numbers of people work in one building; and the management of employee pension funds. Approximately 1,500 banks had electronic data processing in 1970 and provided conventional record-keeping services to other banks and institutions. They also provided services such as account reconciliation and payroll preparation.

The number of additional work-

ers needed to handle the increase in banking activities may be offset somewhat by the continued conversion of many major banking activities to electronic data processing. Even so, employment growth is expected to continue but at a slower pace. Electronic data processing is likely to change bank employment patterns by reducing the number of workers in some occupations while creating other jobs which are new to banks. The effect of these developments will vary from one occupation to another, as indicated in the statements on specific banking occupations which follow.

Bank employees can anticipate steadier employment than workers in many other fields because their employment is less likely to be affected by layoffs during periods when business activity is low. Even when a bank is sold or merged there is little likelihood that workers will lose their jobs. When bank officials find it necessary to curtail employment, they usually do so by not replacing employees who retire or leave their jobs for other reasons.

### Earnings and Working Conditions

Earnings of bank clerks, tellers, and officers are discussed in the statements which follow. In addition to their salaries, bank workers receive fringe benefits which are generally somewhat more liberal than those provided by other types of businesses. For example, most banks offer their workers some type of profit sharing or bonus plan; sick leave; 5 to 12 paid holidays a year; and vacations with pay, generally 2 weeks for those who have completed 1 year of service, 3 weeks after 10 to 15 years of service, and 4 weeks after 20 to 25 years of service. In addition, group plans

that provide life insurance, hospitalization and surgical benefits, and retirement income are commonplace fringe benefits for many bank employees. Sometimes free or preferred banking services, such as checking accounts or safe deposit boxes, also are provided.

The workweek in banks is generally 40 hours or less; in a few localities, a workweek of 35 hours is common. Tellers and some other types of employees may work at least one evening a week when banks remain open for business. Certain check processors and operators of electronic computing equipment may work on evening shifts.

Generally, bank work is done in modern, clean, well-lighted, and air-conditioned offices.

### Sources of Additional Information

Local banks and State bankers' associations can furnish specific information about job opportunities in local banking institutions. General information about banking occupations, training opportunities, and the banking industry itself is available from:

American Bankers Association, Personnel Administration and Management Development Committee, 1120 Connecticut Avenue, NW., Washington, D.C. 20036.

National Association of Bank Women, Inc., National Office, 111 E. Wacker Dr., Chicago, Ill. 60601.

National Bankers Association, 4310 Georgia Ave., NW., Washington, D.C. 20011.

Information on career opportunities in consumer finance can be obtained from:

The National Consumer Finance Association, 1000 16th St., NW., Washington, D.C. 20036.

Information about career opportunities as a bank examiner can be obtained from:

Federal Deposit Insurance Corporation, Director of Personnel, 550 17th St., NW., Washington, D.C. 20429.

## BANK CLERKS

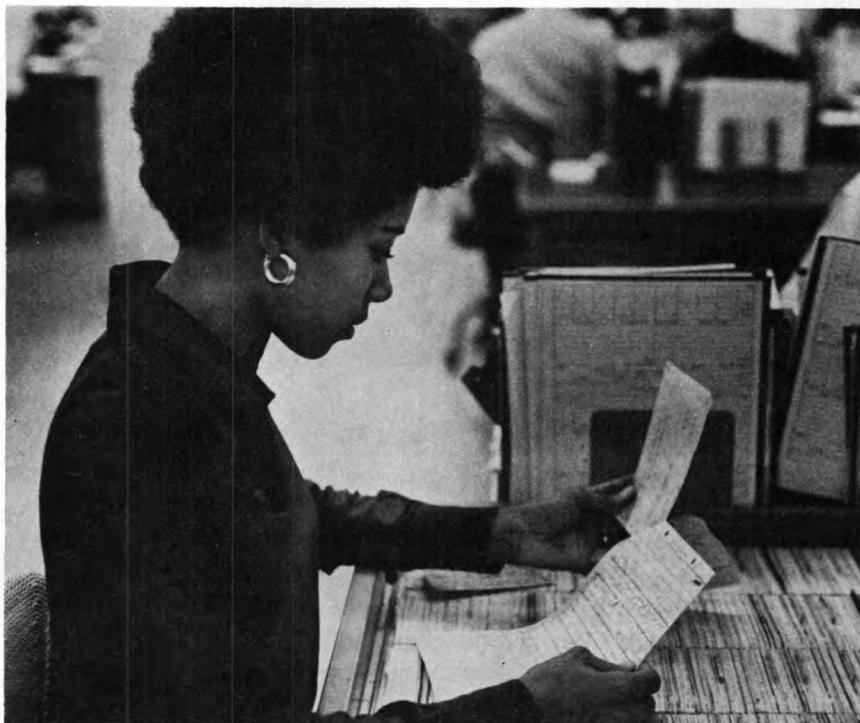
### Nature of the Work

Bank clerks handle much of the paperwork associated with checking and savings accounts, loans to individuals and business firms, and other bank business. Because of the nature of banking, some of their work differs from the work done by clerks in other kinds of businesses. (Secretaries, office machine operators, receptionists, and other clerical workers whose jobs are much the

same in banks as in other businesses are discussed in the chapter on Clerical and Related Occupations.)

The specific duties that must be performed in a particular bank depend on the size of the bank and the nature and scope of the services offered. In a small bank, for example, one clerk may perform a variety of tasks such as sorting checks, totaling debit and credit slips, and preparing monthly statements for mailing to depositors. However, in a large bank, each clerk usually is assigned one kind of work and frequently has a special job title.

Bank clerks known as *sorters* (D.O.T. 219.388) separate bank documents—checks, deposit slips, and other bank items—into different groups and tabulate each “batch” so they may be charged to the proper account; often they use canceling and adding machines in their work. Many banks also employ *proof machine operators* (D.O.T. 217.388) who use equip-





ment that, in one operation, sorts items and adds and records the amount of money involved.

The bookkeeping workers who keep records of depositors' accounts and of bank transactions such as loans to business firms or the purchase and sale of securities are the largest single group of bank clerks. *Bookkeeping machine operators* (D.O.T. 215.388) use either conventional bookkeeping machines or electronic posting machines especially designed for bank work; in most other respects, their work is similar to that of bookkeeping machine operators in other types of establishments. In banks, these workers are sometimes known as *account clerks*, *posting machine operators*, or *recording clerks*. *Bookkeepers* (D.O.T. 210.388) are also

employed in banks, usually to keep special types of financial records. The job titles of many bank bookkeepers are related to the kinds of records on which they work—among them, *Christmas club bookkeeper*, *discount bookkeeper*, *interest-accrual bookkeeper*, *trust bookkeeper*, and *commodity loan clerk*. Thousands of *bookkeeping and accounting clerks* (D.O.T. 219.488) are also employed in bookkeeping departments to do routine typing, calculating, and posting related to bank transactions. Included in this group are *reconciliation clerks*, who process statements from other banks to expedite the auditing of accounts; and *trust investment clerks* who post the daily investment transactions of bank customers.

Other clerical employees whose

duties and job titles are unique to banking include *country collection clerks* (D.O.T. 219.388) who sort the thousands of pieces of mail which come in daily to a city bank and determine which items must be held at the main office and which should be routed to branch banks or out-of-city banks for collection. Also employed are *transit clerks* (D.O.T. 217.388) who sort bank items such as checks and drafts on other banks, list and total the amounts involved, and prepare the documents so that they can be mailed for collection; *exchange clerks* (D.O.T. 219.388) who service foreign deposit accounts and determine charges for cashing or handling checks drawn against such accounts; *interest clerks* (D.O.T. 219.388) who maintain records relating to interest-bearing items which are due to or from the bank; and *mortgage clerks* (D.O.T. 209.388) who type legal papers affecting title to real estate upon which money has been loaned, and maintain records relating to taxes and insurance on such properties.

New clerical occupations which have been created by electronic data-processing and which are unique to banks, include those of the *electronic reader-sorter operator* who operates electronic check sorting equipment; the *check inscriber or encoder* who operates machines that print information on checks and other documents in magnetic ink to prepare them for machine reading; and the *control clerk* who keeps track of the large volume of documents flowing in and out of the computer division. Other occupations include *card-tape converter operator*, *coding clerk*, *console operator*, *data typist*, *data converting machine operator*, *data examination clerk*, *high speed printer operator*, *tape librarian*, *teletype operator*,

and *verifier operator*. These workers are employed in an increasing number of banks that use this kind of equipment.

Banks employed more than 500,000 clerical employees of all kinds in 1970; about 9 out of every 10 were women.

### Training, Other Qualifications, and Advancement

High school graduation is adequate preparation for most beginning clerical jobs in banks. For the majority of jobs, courses in bookkeeping, typing, business arithmetic, and office machine operation are desirable. Applicants may be given short employment and clerical aptitude tests to determine their ability to work rapidly and accurately, and to communicate effectively with others. Bank clerks work independently and should enjoy attending to details. The nature of the work and the equipment used require bank clerks to follow an established routine.

Beginners may be hired as file clerks, keypunch operators, transit clerks, clerk-typists, or for related work. Some are trained by the bank to operate various office machines. A few start as inside messengers.

A clerk in a routine job may be promoted to a minor supervisory position, to teller or credit analyst, and eventually to senior supervisor. Opportunities for advancement to bank officer positions also exist for outstanding clerks who have had college training or have taken specialized courses in banking.

Additional education obtained while employed—particularly the courses offered by the American Institute of Banking—may be helpful in preparing workers for advancement. (See introduction to this

chapter for further information on the Institute's educational program.)

### Employment Outlook

Employment of bank clerks is expected to increase slowly through the 1970's. New jobs created by growth, as well as replacements for those who retire, die, or stop working for other reasons, are expected to result in thousands of openings each year. Turnover is high in banks, as in other industries which employ many women in clerical positions. Jobs for clerks will arise as established banks expand their services and new banks are opened. In those banks which install modern electronic equipment, however, fewer opportunities can be expected for check sorters and bookkeeping machine operators. Most employees affected by the changeover will probably be retrained and reassigned, either to new jobs created by the change in equipment and processing methods, or to other duties related to the many new functions and services which banks are introducing. Overall, the growth in the volume of work created by new bank facilities and services is expected to be so great that the total number of clerical workers will continue to rise for some years to come, although much less rapidly than in the recent past. The sharpest increases in employment are expected in occupations related to electronic data processing.

### Earnings

According to a Bureau of Labor Statistics survey, clerical workers employed in financial institutions, including banks, usually earned be-

tween \$70 and \$130 a week in 1969. Men's weekly salaries generally ranged between \$80 and \$130; women earned between \$70 and \$120 a week.

Among men, Class A accounting clerks and Class A tabulating machine operators—generally experienced employees—received the highest average salaries: \$123 and \$131, respectively. The highest paid occupation for women was Class A tabulating machine operator, \$120.

The lowest average weekly salary among men was earned by office boys, \$77. Among women, Class C file clerks—generally beginners—earned the least, \$70 a week.

Bank clerks are covered under the Fair Labor Standards Act, a Federal law which provides for a minimum wage. In 1970, the minimum was \$1.60 an hour; thus, any clerk who worked a 40-hour week would earn at least \$64.

See introductory section of this chapter for information on Places of Employment and Sources of Additional Information; and for additional information on Training, Employment Outlook, and Earnings and Working Conditions.

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## TELLERS

(D.O.T. 212.368)

### Nature of the Work

Every bank, no matter how small, has at least one teller who receives and pays out money and records these transactions. In a very small bank, one teller—often known as an *all-around teller*—may handle transactions of all kinds, but in larger banks different kinds of



transactions usually are assigned to different tellers. A *Christmas Club teller* accepts and records deposits made to Christmas Club savings accounts, for example, and a *note teller* handles certain transactions for clients who have made loans. Other tellers who have special job titles include *commercial* (or *paying and receiving*), *savings*, *foreign exchange*, *payroll*, *discount*, and *securities tellers*. *Commercial* tellers are the most common. They cash customers' checks, and handle deposits and withdrawals from checking and savings accounts. Before cashing a check, the teller must verify the identity of the person to whom payment is made and be certain that the payee's account has sufficient funds to cover the payment. When accepting a deposit, the teller checks the accuracy of the deposit slip and enters the total in a passbook or on a deposit receipt. Tellers may use machines to make change and to total deposits. Tellers handling savings accounts may use a "window" posting machine to print a receipt, record the transaction in the customer's passbook, and

simultaneously post the transaction to the bank's ledger.

After banking hours, tellers count cash on hand, list the currency-received tickets on a settlement sheet, and balance the day's accounts. They also do other tasks such as sorting checks and deposit slips. Paying and receiving tellers may supervise one or more clerks.

Approximately 150,000 tellers of all kinds were employed in 1970. A considerable number worked part time; about 9 out of 10 were women.

### Training, Other Qualifications, and Advancement

In hiring tellers, banks prefer high school graduates experienced in clerical work. Maturity, neatness, tact, and courtesy are important qualifications because customers deal with tellers far more frequently than with other bank employees. Since tellers handle large sums of money and are bonded, they must meet the standards established by bonding companies.

New tellers usually observe experienced workers for a few days before doing the work themselves under close supervision. Training may last from a few days to 3 weeks or longer. A beginner usually starts as a commercial teller; in large banks which have a separate savings teller's "cage," he may start as a savings teller.

After gaining experience, a competent teller in a large bank may advance to head teller and eventually to bank officer if he has had some college or specialized training offered by the banking industry. (See introduction to this chapter for information about the educational program of the American Institute of Banking.)

### Employment Outlook

The number of bank tellers is expected to increase very rapidly through the 1970's, as banks expand their services. An increasing proportion of tellers, however, will work part-time during peak hours to accommodate those customers who transact business during the noon hour and in the evenings. Thousands of openings will occur each year as a result of the increase in employment, and the need to replace tellers who retire, die, or stop working for other reasons. Turnover is high among the many thousands of women who work as tellers.

Although increased use of mechanical and electronic equipment may eliminate some routine work and speed other work tellers now perform, total employment is unlikely to be adversely affected.

### Earnings

According to a Bureau of Labor Statistics survey, the earnings of nonsupervisory workers, including tellers, averaged about \$100 a week in 1970. The range between the lowest and highest salaries depends on factors such as experience, the specific position, and location and size of the bank.

Bank tellers are covered under the Fair Labor Standards Act, a Federal law which provides for minimum wages. In 1970, the minimum was \$1.60 an hour; thus, tellers who worked a 40-hour week would earn at least \$64.

See Introduction for Places of Employment and Sources of Additional Information, and for general information on banking occupations.

## BANK OFFICERS

(D.O.T. 186.118, .138, .168, and .288;  
161.118; 189.118 and .168)

### Nature of the Work

Practically every bank has a president who directs operations; one or more vice presidents who either act as general managers or have charge of bank departments such as trust, or credit; and a comptroller or cashier who (unlike cashiers in stores and other businesses) is an executive officer generally responsible for all bank property. Large banks also may have treasurers and other senior officers, as well as assistant officers, to supervise the various sections within different departments. Banking institutions employed almost 175,000 officers in 1970; women represented about one-tenth of the total.

A bank officer makes decisions within a framework of policy set by

the board of directors and existing laws and regulations. He must have a broad knowledge of business activities, which he can relate to the operations of his particular department. For example, each time a loan officer considers an application, he analyzes the collateral and uses his broad knowledge of business activities. He also evaluates carefully the credit analysis on the individual or business firm applying for a loan. Similarly, the trust officer must understand each account he administers. He must invest wisely to manage trust funds which were established for such purposes as supporting families, sending young people to college, or paying pensions to retired workers. Besides supervising financial services, bank officers advise individuals and businessmen and participate in many different kinds of community projects.

Because of the variety of services offered by banks, a wide choice of

officer careers is available for those who wish to specialize in different areas of banking. For example, the *loan officer* must be familiar with economics, production, distribution, merchandising, and commercial law. He also must have the ability to analyze financial statements and know the operations and customs of businesses to which the bank extends credit. Careers in lending include: installment loan officer, commercial loan officer, credit department loan officer, real estate mortgage loan officer, and agricultural loan officer. In trust services, the *trust officer* manages assets belonging to individuals, families, corporations, and institutions. Trust management requires specialization in fields such as financial planning and investment. Specialized careers in trust management include estate administration, trust administration, and investment research. The *operations officer* plans, coordinates, and controls the work flow, updates systems, and strives for bank efficiency. He also trains and supervises a large number of people. Careers in the bank operations area include: Customer services, electronic data processing, and internal services.

Other career specialties include *correspondent bank officer*, who is responsible for relations with other banks; *branch bank manager*, who is responsible for all functions of a branch office; and *international officer*, who is financial advisor to customers in the United States and abroad. A working knowledge of a foreign language and knowledge of a foreign country's geography, politics, history, and economic growth can help those interested in international banking. Other career fields for bank officers are auditing, economics, personnel administration,



public relations, and operations research.

### **Training, Other Qualifications, and Advancement**

Bank officer positions may be filled by management trainees or by promoting experienced clerical employees. Outstanding bank clerks may be selected for promotion even though their academic background is limited, but college graduation is the usual requirement for management trainees. A business administration major in finance or a liberal arts curriculum including accounting, economics, commercial law, political science, and statistics serve as excellent preparation for officer trainee positions. Valuable experience may be gained through summer employment programs offered by some banks.

Most large city banks have well-organized officer-training programs usually ranging from 6 months to 1 year. Trainees may start as credit or investment analysts or rotate among bank departments to get the "feel" of banking; bank officers then can better determine the position for which each employee is best suited. Banks too small for formal officer-trainee programs provide other forms of training that enable trainees to understand bank operations.

Advancement to officer positions may come slowly in small banks where the number of these positions

is limited. In large banks having special training programs, promotions may come more quickly. For a senior officer position, however, many years of experience are usually necessary before an employee can acquire the necessary knowledge of the bank's operations and customers and of the community.

Although experience, ability, and leadership receive great emphasis when bank employees are considered for promotion to office positions, advancement also may be accelerated by special study. Courses in every phase of banking are offered by the American Institute of Banking, a long-established, industry-sponsored school (See introduction to this chapter for more information on the Institute's program and other training programs sponsored jointly by universities and local bankers' associations.)

### **Employment Outlook**

The number of bank officers is expected to increase rapidly through the 1970's as banking activities expand. Increased use of electronic computers enables banks to analyze and plan banking operations more extensively and to provide new kinds of services. In addition, because bank officers are somewhat older, on the average, than most employee groups, a large number of additional officers will be needed each year to replace those who re-

tire or leave their jobs for other reasons. Several thousand workers will be needed annually because of employment growth and the need to replace bank officers who retire or die. Many other openings will arise as bank officers transfer to other types of employment.

Although college graduates who meet the standards for executive trainees should find good opportunities for entry positions, many officer positions will be filled by promoting people already experienced in banking operations. Competition for these promotions, particularly in large banks, is likely to be keen.

### **Earnings**

According to a private survey conducted in 1969, large banks, insurance companies, and other financial institutions paid salaries ranging from about \$580 to \$750 a month to new executive trainees who were college graduates.

The salaries of senior bank officers may be several times as great as these starting salaries. For officers, as well as for other bank employees, salaries are likely to be lower in small towns than in big cities.

See Introduction for Places of Employment and Sources of Additional Information, and for general information on banking occupations.

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# INSURANCE OCCUPATIONS

Insurance is a multibillion dollar business which offers many employment opportunities for young people recently graduated from high school or college and for experienced workers.

There are about 1,800 life insurance companies and more than 3,000 property and liability (sometimes called property and casualty) insurance companies. They conduct their business in main offices, commonly called "home" offices, and in thousands of local sales offices in cities and towns throughout the country. Local offices may be branches operated by an insurance company or they may be operated by independent agents and brokers.

## Nature of the Business

Insurance policies are classified into three broad categories: life, health, and property and liability insurance. Some companies sell all lines of insurance; others specialize in one type or more. An increasing number of life insurance companies also sell equities, such as mutual fund shares and variable annuities (contracts yielding periodic payments that fluctuate with the value of securities or other variable factors).

Life insurance companies sell policies which provide not only basic life insurance protection, but also several other kinds of protection. Under some policies, for example, policyholders receive an income when they reach retirement age or if they become disabled and stop working; other life insurance policies may help to pay the costs of educating children when they reach college age, or may give extra finan-

cial protection when the children are young. Life insurance is used increasingly to protect business interests and to guarantee employee benefits.

Property and liability insurance provides financial protection against loss or damage to policyholders' property and protects the policyholder when he is responsible for injuries to others or damage to other people's property. This insurance includes protection against hazards such as fire, theft, and windstorm, as well as workmen's compensation and other liability insurance. Both life and property and liability companies may sell accident and health insurance, which assists policyholders in paying medical expenses, and may furnish other benefits for an injury or illness.

An increasing number of insurance policies are written to cover groups—from a few individuals to many thousands. Group policies usually are issued to employers for the benefit of their employees. They

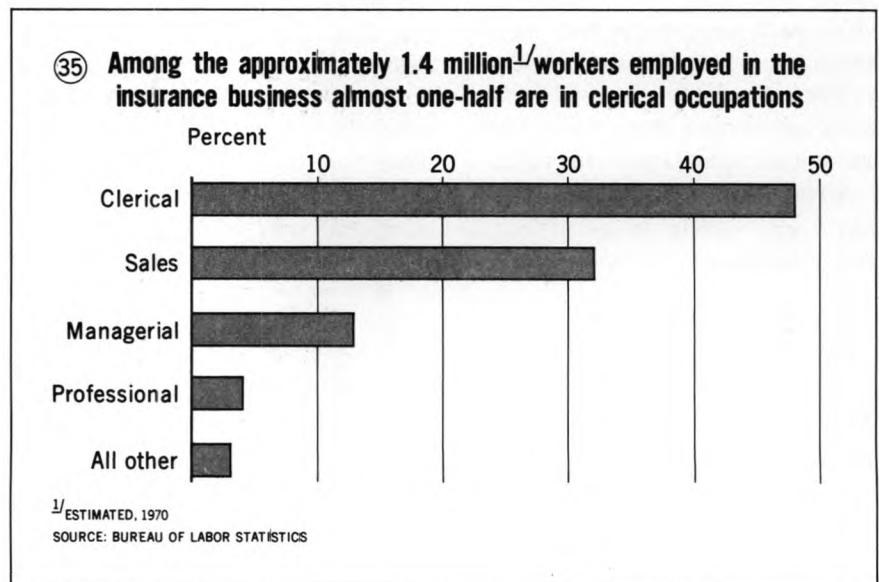
most often provide retirement income and life or health insurance, although some furnish automobile or homeowners coverage. In 1968, group life insurance protected about 43 million workers; the number of policies in force was double the number 10 years earlier.

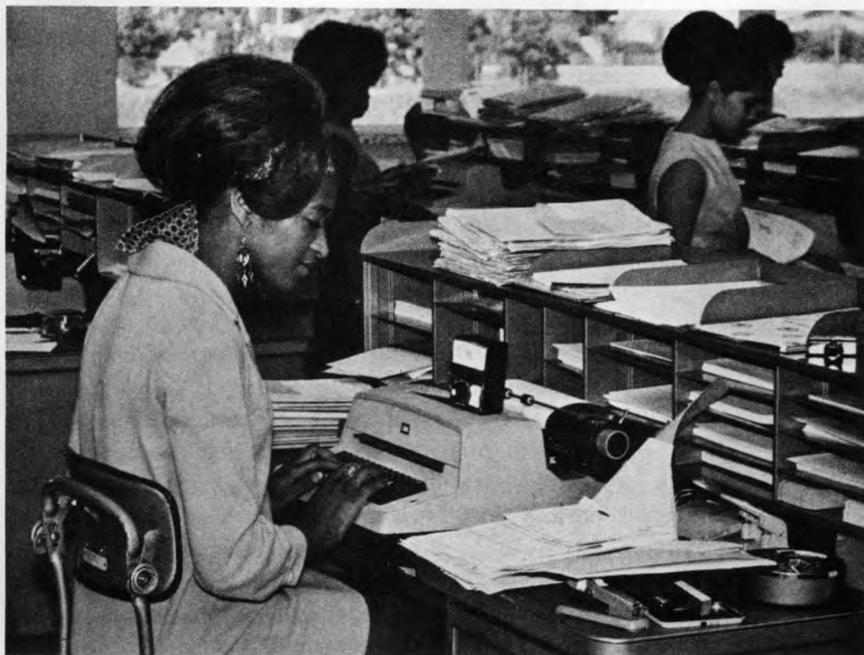
## Insurance Workers

The insurance business provided jobs for about 1.4 million people in 1970. The great majority were clerical and sales workers. (See chart 35.)

Almost half of all insurance company employees are in clerical and related jobs—a much larger proportion than in most other industries. These workers keep records of premium payments, services, and benefits rendered to policyholders. The majority are secretaries, stenographers, and typists; operators of bookkeeping and other kinds of office machines; or general office clerks. They do much the same kind of work in insurance companies as in other types of business enterprises.

Other clerical workers occupy





positions of responsibility which require extensive knowledge of one phase of insurance or more. This group includes *claim adjusters* (D.O.T. 241.168) and *claim examiners* (D.O.T. 249.268) who decide whether claims are covered by the policy, see that payment is received on each claim, and when necessary, investigate the circumstances which initiated the claim. (See the statements on Claim Adjusters and Claim Examiners later in this chapter.)

Salesmen are a key group of workers in insurance companies. About one-third of all insurance workers are sales persons—chiefly agents, brokers, and others who sell policies directly to individuals and business firms. Agents and brokers usually are responsible for finding their own customers or “prospects,” and for seeing that each policy they sell provides the special kind of protection required by the policyholder. (A statement on Insurance Agents and Brokers is included in the chapter on Sales Occupations.)

About 1 out of 8 insurance workers is in a managerial position. Managers in charge of local offices, through which most insurance policies are sold, often spend part of their time in sales work. Others, who work in home offices, are company officials or administrators in charge of actuarial calculations, policy issuance, accounting, investments, loans, and additional office work. The large-scale investment activities of many insurance companies make financial administration a particularly important area of employment.

Professionals, employed mainly at home offices, represent about 1 out of 25 insurance workers. These specialists, working closely with the managerial personnel in insurance companies, study insurance risks and coverage problems, analyze investment possibilities, prepare financial reports, and do other professional work. Included among them is the *actuary* (D.O.T. 020.188), whose job is unique to the insurance field. Actuaries make statistical

studies relating to various kinds of risks and, on the basis of these studies, determine how large the premium rate on each type of policy should be. (See statement on Actuaries.) Another specialist is the *underwriter* (D.O.T. 169.188), who reviews insurance applications to evaluate the degree of risk involved. Underwriters decide whether to accept or reject an application for insurance; they also determine which premium rate should apply for each policy issued. (A statement on underwriters is included in this chapter.)

The work of most other professional employees in insurance companies is fundamentally the same as in other industries. Accountants, for example, analyze insurance company records and financial problems relating to premiums, investments, payments to policyholders, and other aspects of the business. Engineers work on problems connected with policies covering industrial work accidents, damage to industrial plants and machinery, and other technical matters. Lawyers interpret the regulations which apply to insurance company operations, handle the settlement of some kinds of insurance claims, and do other legal work. Investment analysts evaluate real estate mortgages and new issues of bonds and other securities, analyze current investments held by their companies, and make recommendations on when to hold, buy, or sell. As more electronic computers are installed to handle office records, an increasing number of data processing specialists, including programmers and systems analysts, are being employed. Many companies also employ editorial, public relations, sales promotion, and advertising specialists.

About 1 out of 50 workers in the insurance business performs mainte-

nance or custodial work similar to that required by other large business organizations.

Additional information about many of these professional, clerical, and maintenance occupations is contained elsewhere in this *Handbook*.

### Places of Employment

Large numbers of insurance workers are employed in California, Connecticut, Illinois, Massachusetts, New Jersey, New York, and Texas, where the home offices of some of the largest insurance companies are located. Many insurance workers also are employed in agencies, brokerage firms, and other sales offices in cities and towns throughout the country. Almost all sales personnel work out of local offices, whereas the majority of professional and clerical workers are employed in company home offices.

More than half of all insurance workers are employed by life insurance companies and agencies; included in this group are some large companies with thousands of employees. Companies which deal mainly in property and liability insurance, although more numerous than the life insurance companies, generally have fewer employees. Many local agencies and sales offices are also small, regardless of the type of insurance they handle.

### Training, Other Qualifications, and Advancement

Insurance offers job opportunities for people having very different educational backgrounds and talents. Some positions require much managerial and administrative experience and ability; others require college

training in mathematics, accounting, and engineering; but still others involve only routine duties which can be learned on the job.

Graduation from high school or business school is regarded as adequate preparation for most beginning clerical positions. Courses in typing, business arithmetic, and the operation of office machines may be valuable. These special skills often are required for jobs in insurance company offices, and this kind of training provides a background of information which helps employees advance to more responsible positions.

Engineering, accounting, and other professional positions in insurance companies usually require the same kinds of college training as they do in other business firms. College-trained people also are preferred for managerial positions, many of which are filled by promotion from within. In professional and managerial work requiring contact with the public, as well as in sales work and claim adjusting, the employee should have a pleasant disposition and an outgoing personality. Since insurance companies often encourage participation in community organizations, he should enjoy working with others in a social situation. An employee whose work requires frequent contact with policyholders should inspire confidence in his ability to protect the customer's interests.

Insurance companies and associations of companies and agents offer several kinds of training programs to help employees prepare for better jobs. The Insurance Institute of America, for example, has home study courses for property and liability insurance adjusters, claim examiners, underwriters, loss prevention specialists, managerial personnel, and salesmen. The Institute

awards certificates to those who pass their examinations. The American College of Life Underwriters, the National Association of Life Underwriters, and the Life Underwriter Training Council offer life insurance courses that stress the services agents may provide to policyholders. Other courses, especially designed to help clerical employees gain a better understanding of life insurance and life insurance company operations, relate to the organization and operation of both home and field offices. They are given under the auspices of the Life Office Management Association which also provides programs for the development of supervisory and managerial personnel.

### Employment Outlook

Employment in the insurance industry is expected to rise moderately through the 1970's. New jobs to be filled, plus openings that occur as employees retire or stop working for other reasons, are expected to total many thousands each year. Turnover is particularly high in this industry because of the many young women in clerical jobs who work only for a few years and then leave to care for their families. Still other openings will occur as insurance workers leave their jobs for employment in other industries.

The expected increase in employment will result mainly from a rapidly increasing volume of insurance business. A growing population will purchase more life insurance, as well as more insurance which provides retirement income and funds for their children's education. Others who do not presently have insurance may become policyholders; for example, advances in medical science are making life in-

insurance available to persons who were formerly rejected as poor insurance risks. The need for property and liability insurance also will increase as a rising standard of living enables more individuals and families to own one automobile or more, buy homes, and make other major purchases which are usually insured. In the business world more insurance of this kind also will be required as new plants are built, new equipment is installed, and more goods are shipped throughout the country and the world. Furthermore, as the coverage of State workmen's compensation laws is broadened, more employers may need workmen's compensation insurance.

Insurance employment probably will rise at a somewhat slower rate than the volume of business handled by insurance companies. As additional types of coverage become available through group contracts and more multiple-line policies are issued (those which cover a variety of insurance risks formerly covered in separate policies), the workload of sales personnel in local offices will be reduced. As more companies install electronic computers and other equipment to process some of the routine paperwork now done by clerks, changes in insurance company employment will occur. The total number of insurance company clerical jobs probably will continue to rise, especially those jobs that require special training, but the proportion of routine jobs is likely to decline.

Insurance workers have better prospects of regular employment than workers in many other industries. Most businessmen regard property and liability insurance as a necessity, both during economic recession and in boom periods, and private individuals also attempt to

retain as much basic financial protection as possible, even when their incomes decline.

### Earnings and Working Conditions

A 1968-69 survey of nonsupervisory employees in insurance companies, banks, and related businesses showed a wide range of salaries among the individuals in the companies surveyed. Some clerical workers in beginning, routine jobs earned less than \$70.00 a week; some experienced employees in more responsible positions earned up to twice that amount. Employees in beginning jobs as junior file clerks averaged \$71.50 a week and office girls, \$73.00. Switchboard operators averaged between \$87.50 and \$99.00, depending upon skill and experience. General stenographers averaged \$88.00 a week and senior stenographers averaged \$100.50. Typists, one of the largest groups covered in the survey, averaged \$79.00 for beginning jobs and \$90.50 for experienced workers. The average for accounting clerks ranged from \$84.50 to \$123.50, depending on experience and skill.

To some extent, these differences in salary levels may be due to differences in the specific job duties of the employees involved, and in the firms for which they worked. Salary levels in different parts of the country also vary; earnings are generally lowest in southern cities and highest in northeastern and western metropolitan areas. (See chapter on Clerical and Related Occupations for additional information about the earnings of workers in other office occupations found in insurance companies.)

Starting salaries for professional workers are generally comparable with those for similar positions in

other industries and businesses. According to limited information available from a private survey of life insurance companies, 1970 college graduates were paid starting salaries ranging between \$7,475 and \$8,590 a year. Specialists having several years' experience in insurance may receive annual salaries of \$10,000 to \$15,000; many earn \$25,000 a year or more. Unlike salaried professional workers, agents and brokers earn commissions on the policies they sell. (See the statement on Insurance Agents and Brokers.)

Based on limited data, annual salaries for supervisors in life insurance companies ranged from \$8,900 to \$18,870, depending upon the type of company operation. Salaries for supervisors in property and liability companies ranged from \$9,200 to \$19,050 a year.

Except for agents and brokers, who must sometimes extend their working hours to meet with prospective clients, insurance company employees usually work between 35 and 40 hours a week. The number of paid holidays is somewhat greater than in many other industries. Two-week paid vacations generally are granted employees after 1 year of service; in most companies, vacations are extended to 3 weeks after 10 years and, in some, to 4 weeks after 20 years. Practically all insurance company workers share in group plans providing life and health insurance, as well as retirement pensions.

### Sources of Additional Information

General information on employment opportunities in the insurance business may be obtained from the personnel departments of major insurance companies or from insurance agencies in local communities.

Other information on careers in the insurance field is available from:

Institute of Life Insurance, 277 Park Ave., New York, N.Y. 10017.

Insurance Information Institute, 110 William St., New York, N.Y. 10038.

National Association of Insurance Agents, 96 Fulton St., New York, N.Y. 10038.

American Mutual Insurance Alliance, 20 North Wacker Dr., Chicago, Ill. 60606.

For additional information on the salaries of clerical workers in finance industries, including insurance, see:

Area Wage Surveys, Metropolitan Areas, United States and Regional Summaries, 1968-69 (BLS Bulletin 1625-91, 1970). Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

## CLAIM ADJUSTERS

(D.O.T. 241.168, 191.268)

### Nature of the Work

Claim adjusters investigate, negotiate, and settle claims regarding a policy made by those who have suffered a loss. Most adjusters work for companies that sell property and liability insurance, although some are assigned claims arising under accident or health insurance policies. (See the statement on Claim Examiners for a discussion of claim settlement in life insurance.)

Upon receipt of an insurance claim, the adjuster must determine if the loss is in fact covered by the policy; if so, it is his job to decide the amount of the loss. The adjuster investigates all circumstances relat-

ing to the claim, using a variety of sources such as records, reports, physical data, and witnesses. From an analysis of the facts he draws a conclusion about the extent, if any, of the insurance company's obligation. Sometimes his investigative work may be aimed at determining the extent of a third party's liability. In the event that a third party bears some responsibility in a loss, the adjuster's company may collect a portion of the payment made to the policyholder from this third party or his insurance company.

When the adjuster determines that his company is liable, his job is to negotiate with the claimant and settle the case. A claims man must avoid making settlements unduly large in relation to the real value of a loss; at the same time, he must see that valid claims are paid promptly. Some adjusters have the authority to issue a draft on company funds. Others submit a report of their findings to the insurance company which then pays the claim.

Some adjusters work with all lines of insurance. Others specialize in handling claims such as those arising from damage to property by fire; ocean marine losses; automobile damage; workmen's compensation losses; or bodily injury.

There are two major areas of specialization in claim adjusting: Property claims that result from loss or damage; and claims resulting from bodily injury. Bodily injury negotiations involve specialized knowledge of law and medicine. A claims man frequently advances to this type of adjusting after several years' work in another adjusting line or as an all-lines adjuster.

Most of an adjuster's job is carried on outside his office. He may have to work at a construction site where an accident has occurred, or at the location of a fire or burglary. While the adjuster may spend the greater portion of a working day driving from place to place investigating claims, this travel usually is within a single city or regional area.



Adjuster discusses loss with claimant.

An adjuster is responsible for planning his own schedule of activities necessary to the proper disposal of a claim. He also must keep a careful record of his expenses so that his employer can reimburse him.

Adjusters increasingly use portable tape recorders in their work. These have the advantage of shortening the amount of time an adjuster must spend in personally interviewing a witness or claimant.

### Places of Employment

An estimated 114,000 claim adjusters were employed in 1970; most were men. Adjusters are employed by adjustment bureaus (organizations formed by several insurance companies to settle claims), by insurance companies, and by independent adjusting firms. Some are self-employed. "Staff" adjusters are on the payrolls of insurance companies; independent adjusters may be hired by independent adjusting firms or may contract their services privately for a fee.

A small number of public adjusters represent the insured rather than the insurance company. These adjusters usually are retained by banks, financial organizations, and other business firms to handle fire and allied losses to property. They negotiate claims against insurance companies and deal with the adjusters for such companies.

The beginning adjuster can look forward to working in almost any area of the United States, since claims must be settled locally in all parts of the country. Occasionally, the adjuster may be required to travel to the scene of a disaster, such as a hurricane or a riot, to work with local adjusting personnel. Some cases result in travel outside the United States.

### Training, Other Qualifications, and Advancement

A variety of educational backgrounds are adaptable to success in claim adjusting. Although the trend is toward the employment of college graduates and some companies require a degree, men without college training are accepted by many firms. Specialized job experience might qualify an individual for employment as an adjuster. For example, a person experienced in automobile repair work may qualify as an auto adjuster. It is likely, however, that an adjuster who lacks college training will be slower in advancing to senior or supervisory positions.

No specific field of college study is recommended; many successful adjusters have general liberal arts backgrounds. An adjuster whose background is in business subjects or accounting might choose to specialize in loss from business interruption or damage to stocks of merchandise. A man with college training in engineering or law will find his education helpful in adjusting casualty claims. Legal training is desirable, although few employers demand that beginning adjusters have a law degree.

Although insurance company adjusters frequently are exempt from State licensing provisions, nearly three-fourths of the States and Puerto Rico require adjusters to be licensed or to pay occupational fees. State licensing regulations vary widely. However, applicants usually must comply with one or more of the following requirements: Pass a written examination covering the fundamentals of adjusting; furnish character affidavits; be 20 or 21 years of age and fulfill certain State residency qualifications; offer proof that they have completed an ap-

proved course in insurance or loss adjusting; and file a surety bond.

Many insurance companies and adjustment firms offer programs for beginning adjusters that combine on-the-job training with home study courses. The Insurance Institute of America also offers an educational program for adjusters leading to the Institute's Diploma in Insurance Loss and Claim Adjusting. This six-semester study program is open to all adjusters, and the Institute's diploma is awarded upon successful completion of six national examinations. Adjusters can prepare to take these examinations by independent home study, through company or public classes, or by formal college courses in insurance. A professional Certificate in Insurance Adjusting also is available from the College of Insurance in New York City.

Regardless of place of employment, most adjusters begin their training with an orientation course in general insurance principles. A beginning adjuster is assigned to work on small claims under supervision of an experienced adjuster. This training may be given at one of the metropolitan training centers maintained by some large insurance companies or by assignment to a field office. As the trainee adjuster learns more about claim investigation and settlement, both through home study and supervised experience, he gradually assumes responsibility over claims that are more difficult to settle or higher in loss value.

Because an adjuster's work brings him into contact with claimants, witnesses, and policyholders, he must be skillful in adapting to a variety of persons and situations. He should enjoy working with people from different backgrounds and be able to gain their respect and co-

operation. When an adjuster's evaluation of a claim differs from that of the person who has suffered the loss, he must exercise considerable tact and diplomacy in explaining the reasons for his conclusions. An adjuster should be able to converse easily with the persons from whom he seeks information in settling a claim; he must "speak the language" of the police detective, the auto damage appraiser, and the medical specialist, to name a few. Habits of keen observation and careful attention to details are valuable to an adjuster in his work, which demands that he gather all facts pertinent to a claim and weigh them together in making a decision.

Promotions to senior or chief adjuster depend upon an individual's demonstrated performance in handling his claim assignments, the evaluations of his supervisors, and his progress in any of the study courses available through his company, insurance associations or local educational institutions. The adjuster who demonstrates administrative skills may be promoted to supervisory responsibilities in the claims department of a field office. With continued evidence of his ability to organize work flow and make decisions, he may advance to a managerial position in a branch office or in the home office organization. An adjuster who boasts a background in law might be promoted to trial attorney or legal manager in his firm's home office.

### Employment Outlook

Employment of claim adjusters is expected to increase at a rapid rate through the 1970's. In addition to openings as a result of growth in the occupation, many jobs will become available each year from the need to

replace experienced claim adjusters who die, retire, or transfer to other fields.

The expected rapid growth in employment opportunities for adjusters reflects anticipated expansion in total volume of insurance sales and resulting claims, especially by property and liability insurance companies which employ most adjusters. Various factors expected to contribute to an expanded volume of insurance sales include continued population growth, rising personal incomes, and changing patterns of consumer demand for goods and services. A rapid rate of new family formation should result in increased purchases of consumer durables, such as household furnishings and appliances, that require insurance protection. Automobile insurance, accounting for nearly half the total volume of property and liability sales in recent years, should grow rapidly as more families purchase second and third vehicles. In addition, greater population density will increase the risk of accidents, fires, and thefts, with the effect of stimulating demand for these types of insurance coverage.

Since much of an adjuster's time is spent in personal contact with claimants and others who must be interviewed regarding a loss, the greater volume of claims should result in a substantial increase in employment requirements for claim adjusters. Because the nature of an adjuster's work usually demands on-the-scene investigation of facts and events, it is unlikely that consolidation of field operations will significantly reduce the number of claim adjusters assigned locally.

### Earnings and Working Conditions

According to an American Insur-

ance Association/American Mutual Insurance Alliance survey of companies selling property and liability insurance, the average annual salary of an all-lines adjuster was \$9,100 in 1970; salaries generally ranged from \$7,300 to \$11,800 a year. Adjusters who specialized in ocean marine and cargo claims averaged \$10,200 a year, and their salaries ranged from \$8,300 to \$12,600 annually.

Adjusters having supervisory responsibilities earned average annual salaries of \$11,400; their earnings ranged from \$9,200 to \$14,600. Some supervisory adjusters earned as much as \$18,000 annually. Most public adjusters are paid a percentage of the amount of the loss adjustment—generally 10 percent. An adjuster also may be furnished a company car or reimbursed for use of his own vehicle during business hours.

Claim adjusting is not a desk job. It requires that a person be physically fit since a substantial portion of his day may be spent in driving from one place to another, walking about out of doors, and climbing stairs. An adjuster may be required to work evenings or weekends in order to interview witnesses and claimants when they are available. Since most companies provide both immediate and 24-hour claim service to their policyholders, some adjusters always must be on call. A complicated claim can result in an adjuster's working long and unusual hours.

Claim adjusting is a demanding job and at the same time a challenging one that requires imagination and the ability to weigh a group of facts to reach a conclusion. No claim is precisely like any other, so an adjuster's work offers the stimulus of continual variety as well as

the satisfaction of helping someone who has suffered a loss.

### Sources of Additional Information

Information about licensing requirements for claim adjusters may be obtained from the department of insurance in each State. General information about a career as a claim adjuster is available from the home office of many property and liability insurance companies. Information regarding claim adjusters also may be obtained from:

Insurance Information Institute, 110  
William Street, New York, N.Y.  
10038

Information about a career as a public insurance adjuster is available from:

National Association of Public Insurance Adjusters, 1613 Munsey  
Building, Baltimore, Md. 21202

## CLAIM EXAMINERS

(D.O.T. 168.288 and 249.268)

### Nature of the Work

Although policyholders expect their insurance claims to be honored promptly, a number of important questions must be answered first. A claim examiner, who also may be known as a claim representative or claim reviewer, investigates details of an insurance loss to provide these answers. His investigation may include reviewing claim applications to check completeness and accuracy; interviewing policyholders or medical specialists; consulting policy files to verify information on a

claim; and calculating benefit payments.

The claim examiner's duties vary, depending on the type of insurance sold by his employer. When this is life, accident, and disability insurance, claim examiners usually are assigned to particular types of claims, such as group or health and disability. These examiners investigate and approve payment on all claims up to a certain dollar amount. Claims beyond this amount are referred to a senior examiner who has a higher approval limit.

In property and liability insurance companies most of the investigating is done by *claim adjusters*. (See the statement on Claim Adjusters for a discussion of claim settlement in property and liability insurance.) In these companies the claim examiner usually is a home office employee who reviews insurance claims to determine whether adjusters are following proper procedures in claim handling. Some property and liability firms employ claim workers to handle small claims, such as those arising over minor property damage to an automobile. These workers are called "inside adjusters" or "desk adjusters."

In both life insurance and property and liability insurance companies, some claim examiners process only unusual or questionable claims, referred from field or regional offices to the home office. These examiners may be responsible also for reviewing routine claims settled by the regional office staffs. This review involves determining validity of the claim and correctness of the decision already made by the branch office that handled it. The examiner makes this determination by comparing data on the processed claim application, death certificate, or physician's statement with the policy file.

Regardless of the type of insurance sold, all claim examiners must develop a thorough knowledge of their company's settlement procedures and basic policy provisions. They can refer to company claim manuals describing this information in detail, but efficient handling of several claims a day demands that an examiner be familiar enough with the manuals to make constant referral unnecessary. A claim examiner must be well acquainted also with company records and forms since he frequently works with data furnished by other company divisions. Besides verifying a claim and approving its payment, a claim examiner also maintains claim records and prepares claim reports. As a result, a portion of his time may be spent in the preparation and submission of data to his company's data processing section.

To correct errors or omissions on a claim form or to verify questionable facts, a claim examiner may need to correspond with investigating companies, field managers, agents, and policyholders. Occasionally, he travels to a field location where he obtains this information by personal interview. The examiner who has advanced to this level of responsibility may be asked also to serve on committees, conduct surveys of claim practices within his company, and help to devise more efficient systems for processing claims. He may have contact with State insurance departments and other companies regarding claim policies and practices in his firm. At this level, the claim examiner's job demands some knowledge of Federal and State insurance laws and regulations, and he also may appear in court to furnish testimony on contested claims.

## Places of Employment

An estimated 29,000 claim examiners were employed in the insurance industry in 1970; about half were women. Claim examiners are employed by all types of insurance companies, life as well as property and liability.

Claim examiners work in insurance company home offices, in regional offices, and in field offices. The latter frequently are located in small towns and cities where the companies sell and service their insurance products. Large regional offices and home offices are organized along similar lines; they have separate departments for underwriting, claims, and other major functions. Although jobs as claim examiners are available in most areas of the United States, higher level jobs generally are found in regional or home offices.

## Training, Other Qualifications, and Advancement

Although many employers prefer to hire college graduates for claim examiner positions, applicants having good high school records are accepted by many firms if they have additional experience in clerical work or some college training. However, the type of work performed in entry level positions differs. The employee who has a high school education begins in a clerical job, perhaps as a claim processor in a group life or health department. College graduates, or those having 2 years or more of college training, may begin work as junior claim examiners. Although courses in insurance, economics, or other business subjects are helpful, a major in almost any college field is adequate preparation. College-trained em-

ployees can anticipate promotion to senior claim representative or claim examiner positions after a year or more; high school graduates usually need several years' experience before advancing to one of these positions. Advancement to most supervisory claim examiner jobs demands a college education. Although experience can sometimes be substituted for a part of the work leading to a college degree, the employee who lacks formal college training generally advances at a slower rate.

The beginning claim examiner is given on-the-job training under the direction of an experienced claim manager. If the trainee is a college graduate, his on-the-job training may be combined with courses in insurance fundamentals or personnel management designed to prepare him for supervisory claim work. Many property and liability insurance companies follow a promotion-from-within policy in selecting claim examiners from the ranks of former claim adjusters. The latter have received much of their training for examiner positions through on-the-job experience in adjusting claims.

The Life Office Management Association (LOMA) cooperates with the International Claim Association in offering a Claims Education Program for life and health insurance claim examiners. The program is part of the LOMA Institute Insurance Education Program leading to the professional designation of FLMI (Fellow, Life Management Institute) upon successful completion of eight written examinations. Most insurance companies encourage study by making educational materials available to employees enrolled in the LOMA Institute Program. Many firms offer classroom instruction in preparation for the annual examinations.

Certain aptitudes and skills are helpful to the examiner. Since he must communicate, by letter and telephone, with his company's sales force, field managers, and policyholders, a claim examiner should be able to express himself clearly. Because he has written and spoken communication with persons of different educational backgrounds, he must be flexible in adapting his manner of writing or speaking to the circumstances. In addition, since he has frequent contact with the company's medical and legal departments, he needs a knowledge of medical and legal terms and practices. Because the claim examiner may need to check premium payments, policy values, and other numerical items in processing a claim, some skill in performing mathematical calculations is an asset. This is not a good job choice for a person who overlooks details or one who has a poor memory for facts.

Advancement may come by different routes. The individual who shows unusual competence in claim work sometimes can advance within the claim department—either to the position of claim approver or to another supervisory claim job. A claim supervisor may have as many as 50 to 60 employees under his direction, and devotes much of his time to administrative duties and to final approval of unusual claims. Though supervisory claim positions are available in field as well as regional and home offices, many examiners find promotion to a supervisory job requires transfer either to a larger branch office or to the company home office. A claim examiner with a college education should find opportunity for advancement. It may exist either within the claim department or in a related area of company operations, such as under-

writing, data processing, or administration.

### Employment Outlook

Employment requirements for examiners are not expected to increase over the 1970-80 period. Although rapid population growth, new family formations, and rising personal income should stimulate growth in insurance sales, the increased volume of claims is not likely to involve comparable increases in examiner manpower. Electronic data processing methods and equipment will enable proportionately fewer claim examiners to process an increased volume of claims, especially those of a routine nature and many that arise under group life and health insurance coverage. Besides, as smaller branch office operations continue to be consolidated, economies of scale will enable insurance companies to process a rapidly expanding volume of claims with a relatively stable work force.

Although openings resulting from employment growth are expected to be limited, some positions will become available each year of the next decade as claim examiners die, retire, or transfer to other fields. These will be found in metropolitan centers where insurance employment is concentrated. Competition for the relatively few supervisory claim openings is expected to be keen.

### Earnings and Working Conditions

Earnings vary by type of company and location. According to limited information available, annual salaries for claim examiners employed by life insurance compa-

nies ranged between \$7,700 and \$13,050 in 1970. Salaries in the Western United States and in smaller companies were among the lowest. Most claim examiners hired as trainees by life companies earned \$6,400 a year or more; claim supervisors for these companies had minimum annual salaries of about \$10,300. Some supervisors earned \$16,000 a year or more.

An American Insurance Association/American Mutual Insurance Alliance survey of property and liability companies provided earnings data for their claim examiners. In 1970, property and liability claim examiners had average annual earnings of \$7,700, and many earned more than \$9,800 a year. Claim supervisors employed by these companies had annual earnings which ranged from \$9,200 to \$14,600.

Claim examiners usually perform their duties in the pleasant work surroundings of large, well-ventilated office buildings. Most claim examiners work 35 to 40 hours a week, although an examiner may work longer hours at times of peak claim load or when quarterly and annual statements are being prepared. (See the statement on Insurance Occupations for additional information on working conditions and employee benefits.)

### Sources of Additional Information

General information about a career as a claim examiner is available from the home office of many life insurance and property and liability insurance companies and also from:

Institute of Life Insurance, 277 Park Avenue, New York, N.Y. 10017

Insurance Information Institute, 110 William Street, New York, N.Y. 10038

## UNDERWRITERS

(D.O.T. 169.188)

### Nature of the Work

Insurance companies assume millions of dollars in risks each year, by transferring chance of loss from their policyholders to themselves. The policyholder pays for this service through regular premiums. An underwriter's primary function is to select the risks his company will insure. (The term underwriter sometimes is used in referring to an insurance salesman; see the statement on Agents and Brokers elsewhere in the *Handbook* for a discussion of that occupation.)

An underwriter decides the acceptability of various types of risks by analyzing information contained in insurance applications, reports of safety engineers, and actuarial studies (reports describing the probability of insured loss). In making a decision, the underwriter also checks his company's established practice. When working in an area not covered by rule or precedent, however, he must exercise considerable personal judgment. If an underwriter is too conservative in appraising risks, his company may lose business to a competitor. On the other hand, if his underwriting actions are too liberal, his firm may have to pay too many claims in the future.

When deciding that a policy is an acceptable risk, an underwriter may outline the terms of the contract, including the amount of premium. Certain underwriters may perform other duties as well. In a small company, for example, they may have duties such as policy issuance or sales management. Underwriters frequently correspond with policyholders, agents, and management



**Underwriter discusses information on a customer's insurance application.**

personnel about policy cancellation or requests for information. In addition, they sometimes accompany salesmen on appointments with prospective customers.

Another of the underwriter's tasks is to judge the need for issuing a policy at a higher than standard premium because extra risk is involved. In general, the premium rate is figured for an average risk. On a life insurance policy, for example, the rate is based on persons in good health who work in occupations where there are no substantial hazards. A policy can be issued to those whose health is below normal or whose occupation involves some risk if the underwriter charges a higher premium as compensation.

As underwriters gain experience, they are given more difficult cases to evaluate and policies bearing larger face value. In addition, they assume the difficult task of reviewing applications to renew policies on which losses already have occurred. More experienced underwriters also help conduct formal or informal training sessions for junior underwriters and may supervise clerical

staff members who deal with salesmen and policyholders.

Most underwriters specialize in one of the three major categories of insurance: life, property and liability, or health. In turn, life underwriters may specialize in one variation or more of life insurance, such as group or individual life policies. These underwriters must thoroughly evaluate medical statistical studies and the applicants' credit reports in reaching their decisions.

The property and liability underwriter's specialty is differentiated by "line" of risk insured, such as fire, automobile, marine, and workmen's compensation. Fire underwriting demands extensive contact with rating bureaus (organizations supported by insurance companies to develop premium rates). An automobile underwriter, on the other hand, devotes a significant share of his time to analyzing past experience as revealed by company statistics. Some underwriters handle "multi-peril" business insurance exclusively. These specialists, who are called commercial account underwriters, must evaluate a firm's entire operation in appraising the degree of risk involved in approving an insurance application.

A group insurance policy insures all persons in a specified group through a single contract. One duty of the group underwriter is to analyze the overall composition of the group insured to be certain that total risk involved is not excessive. Some group underwriters perform other functions similar to those of an insurance salesman (such as meeting with union or employer representatives to discuss the types of policies available to their group).

### Places of Employment

An estimated 55,000 underwrit-

ers were employed in the insurance industry in 1970. About three-fourths were property and liability underwriters, who worked in field or home offices of insurance companies.

In contrast to the property and liability part of the business, most life insurance underwriting is performed by home office employees. Some life insurance underwriters work in large regional offices organized along much the same lines as the company home office, that have separate departments for group, individual life, and health insurance. Most underwriters are men.

### Training, Other Qualifications, and Advancement

College graduates are sought increasingly for entry-level positions in underwriting. Employers usually look for candidates who have degrees in liberal arts or business administration, although a major in almost any college field provides a good general background. Although high school graduates are not barred, their opportunities for advancement are limited. They generally begin in clerical positions, perhaps as underwriting clerks. High school graduates who perform satisfactorily in such jobs, and demonstrate an aptitude for underwriting tasks, then may be trained on the job as underwriters.

The entry-level job for a college graduate is generally that of underwriting trainee or junior underwriter. A beginning underwriter usually goes through a training period when he participates in a program of study at the office, and carries out assignments under the direction of an experienced risk appraiser. During this training period, the beginner

may learn from claim files the factors associated with certain types of losses and from renewal underwriting decisions the experience of the risks his company has insured in the past.

Many underwriters supplement their on-the-job training by home study courses and instruction at home office schools or at local colleges and universities. Although most companies do not require it, this supplemental training helps in gaining advancement. Underwriters have a choice of several independent study programs available through insurance associations such as the American Institute for Property and Liability Underwriters; the American College for Life Underwriters; the Home Office Life Underwriters Association and the Institute of Home Office Underwriters; and the Life Office Management Association. Many firms pay tuition and the cost of books for those employees who satisfactorily complete courses in underwriting. Some companies also offer salary increases as an incentive.

Underwriting can be a satisfying career for a young man or woman who is patient with details and who enjoys relating and evaluating facts. The young person who dislikes being tied to a desk and prefers working with people rather than evaluating facts should consider other career fields. In addition to powers of analysis and good judgment, an underwriter must be imaginative and aggressive, especially when need arises to obtain additional information from outside sources.

As an underwriter's skills develop, he may be promoted to senior underwriter or supervisory underwriter approving policies with substantial face values and performing certain training and administra-

tive functions. An underwriter who demonstrates competence and who completes available study courses may advance further to a position as chief underwriter or underwriting manager of a department. An underwriting manager may move on to a senior managerial appointment after several years.

### Employment Outlook

Employment opportunities for underwriters are expected to grow moderately during the 1970's. Many will arise in metropolitan centers where insurance workers now are concentrated; others will result from a demand for underwriters to work in field offices, especially in property and liability insurance. In addition to positions created by employment growth, many job openings will result from the need to replace workers who die, retire, or transfer to other fields.

Several factors point to an expanding market for insurance sales through the 1970's and a resulting need for underwriters. Continued population growth and higher personal incomes should stimulate purchases of life insurance. Property and liability insurance sales should expand with increased purchases of automobiles and other consumer durables. Both spending for new home construction and the American public's growing security consciousness should contribute to demand for more extensive insurance protection. Heightened competition among insurance companies and changes in regulations affecting investment profits also are expected to increase the industry's need for competent men and women to work in underwriting.

Although mechanized handling of routine policy applications may re-

duce employment opportunities for underwriting clerks, the effect on total employment of underwriters should be negligible.

### Earnings and Working Conditions

Salaries of life insurance underwriters ranged from \$7,360 to \$12,500 a year in 1970, according to a Life Office Management Association survey of 79 U.S. companies. Earnings differed substantially by area; employees in the South and West averaged lower salaries than those in the Eastern and Central States. Experienced life insurance underwriters employed by companies located in metropolitan New York earned annual salaries between \$10,600 and \$15,620; supervisors of underwriting in life companies earned \$11,620 to \$21,140 a year. For all levels of life insurance underwriter, salaries were highest in large companies.

An American Insurance Association/American Mutual Insurance Alliance survey of companies engaged in selling property and liability insurance revealed that underwriters' annual earnings ranged from \$8,560 to \$10,300 in 1970. Earnings varied by line of underwriting specialty; ocean marine underwriters earned the highest annual salaries. Underwriting supervisors in property and liability insurance companies averaged \$11,730 annually; some earned nearly \$15,000 a year.

Most underwriters have desk jobs that require no unusual physical activity. Underwriting is performed in pleasant, quiet surroundings; in general, insurance company offices are spacious and air conditioned during the summer months. Some underwriters may work irregular hours when traveling to advise field personnel or attending underwriting

seminars, or at times of peak load in policy applications. The average work week for an underwriter is 35 to 40 hours, and most insurance companies have liberal paid vacation policies and offer other employee benefits. Since relatively few underwriting decisions are reviewed at a higher level, the underwriter holds a job of considerable responsibility.

### Sources of Additional Information

General information about a career as an insurance underwriter is available from the home office of many life insurance and property and liability insurance companies. Information about career opportunities as an underwriter also may be obtained from:

Institute of Life Insurance, 277 Park Avenue, New York, N.Y. 10017

Insurance Information Institute, 110 William Street, New York, N.Y. 10038

American Mutual Insurance Alliance, 20 North Wacker Drive, Chicago, Ill. 60606

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# SERVICE AND MISCELLANEOUS

The long-term growth in the American economy has created a growing demand for services of all kinds. A growing share of our national wealth and manpower is being devoted to services as a result of greater emphasis on medical care, education, personal services, and recreation. In many ways, this rapid growth reflects the country's aspirations for a better and fuller life for all of its citizens.

In today's job market, the service industries represent an important source of employment to new as well as experienced workers, and offer job opportunities to persons having various levels of skills, training, and education.

In 1970, about 21.9 million workers were employed in service industries. Approximately one-half were wage and salary workers employed by private firms, 6.3 million were government employees (mainly in educational and medical services), and 2.1 million were self-employed persons. The remainder, accounting for 1.8 million persons, were employed in private households.

Educational services, including public and private elementary and secondary schools and institutions of higher education, make up the largest sector of the service industry and account for nearly one-third of its work force. Hospitals and other establishments that provide health services constitute the next largest sector, and account for one-fifth of the workers. In both of these service industries, government workers (mainly local and State) make up a large share of the work force. Other service industries employing many workers are hotels, laundries, and other personal serv-

ices, private households, business and repair services, and entertainment.

In 1970, women accounted for about three-fifths of total employment in the service industry. Their employment ranged from less than one-tenth of total employment in automobile and other repair businesses to nine-tenths in private households. Women workers also accounted for an especially high proportion of total employment in hospitals, educational services, hotels, and establishments that provide personal services such as beauty shops and laundries.

In 1970, as shown in the accompanying tabulation, white-collar workers (professional, managerial, clerical, and sales workers) accounted for nearly three-fifths of the service industry's employment. The industry employs the highest proportion of professional, technical, and kindred workers of any major industry and they account for over one-third of the industry's employment. By far the largest concentration of professional personnel is represented by teachers employed in educational services. Other major employers are medical and health services—where doctors, dentists, and nurses constitute a large share of the work force, and professional services where large numbers of lawyers, accountants, engineers, and architects are employed. Self-employment is typical for most male professional workers in health services. By comparison, women in this field—typified by registered nurses—mainly are salaried workers. Clerical workers account for 1 out of 6 service industry employees. Most of them are stenographers, typists, secretaries, and office ma-

chine operators. Managers, officials, and proprietors, including hospital administrators, make up a relatively small fraction of the industry's employment.

Service workers represent nearly one-third of the industry's employment. The major service occupations are private household worker, practical nurse, hospital attendant, charwoman, janitor, waiter, waitress, cook, and protective service worker.

Blue-collar workers, mainly skilled craftsmen and semiskilled workers (operatives), constitute only one-eighth of the industry's employment. Many of the craftsmen are employed as mechanics in automobile and other repair service industries or as maintenance workers in hotels, schools, and other establishments. Motion picture projectionists are especially important in the entertainment industry. Operatives are employed mainly in laundries, auto repair shops, and other types of repair businesses. Most of the relatively few laborers in this industry work in auto repair shops, on golf courses, and in bowling alleys.

Major occupational group	Estimated employment, 1970 (percent distribution)
All occupational groups..	100
Professional, technical, and kindred workers .....	35
Managers, officials, and proprietors .....	6
Clerical and kindred workers..	16
Salesworkers .....	1
Craftsmen, foremen, and kindred workers .....	5
Operatives and kindred workers .....	5
Service Workers .....	31
Laborers .....	2

NOTE: Because of rounding, individual items may not add to total.

Employment in the service industry is expected to increase rapidly through the 1970's. Major factors contributing to the sharp growth in the demand for services are expected to stem from population growth, expanding business activity, rising personal incomes, and the general awareness of the benefits that educational, health, and other services can provide. The fastest growing components of the service industry will be educational serv-

ices, medical health services, and among firms that provide computer services and laboratory research facilities.

The necessity for extensive person-to-person contact in the many service functions tends to limit the effect of technological innovations on employment requirements. Although automatic data-processing equipment may moderate growth in some areas—for example, in accounting and bookkeeping—techno-

logical change is not expected to limit the demand for workers in the service industry.

The statements that follow discuss job opportunities in the hotel and laundry and drycleaning industries. More detailed information about occupations that cut across many industries appears elsewhere in the *Handbook*. (See index in the back of the book.)

# HOTEL OCCUPATIONS

Throughout the United States, hotels and motels provide travelers with a "home-away-from-home." More than 870,000 people worked in hotels and motels in 1970. The great majority were employed in hotels and motor hotels located chiefly in urban areas. The remainder worked in motels and tourists courts located on the outskirts of large cities, along major highways, and in resort areas. About one-half of the employees in hotels and related businesses are women.

Some hotel occupations can be entered with little or no specialized training. In many kinds of hotel work, however, the demand for specially trained people is increasing. Hotels are complex organizations and need specialized personnel to direct and coordinate operations which may involve thousands of guests annually and millions of dollars of property and equipment.

This chapter deals with employment opportunities in hotels and motels, and includes separate statements on several hotel occupations.

## The Hotel Business and its Workers

Hotels are of three general types—commercial, residential, and resort. The vast majority are commercial hotels, which cater chiefly to travelers seeking a room for a brief stay. A small number are residential hotels, which generally accommodate people for long periods, ranging from a few months to many years. Others are resort hotels, which provide lodging for vacationers. Motor hotels, motels, and tourist courts also cater to vacationers and other travelers seeking accommoda-

tions for a short time. Commercial and residential hotels generally operate the year round. Although some resort hotels, motor hotels, and motels are open for only part of the year—for example, during the winter season in Florida or the summer months in northern parts of the country—an increasing number are remaining open the full year.

Hotels range in size from those which have fewer than 25 rooms and only a few employees to some which have 1,000 rooms or more and many hundreds of workers. Many of the motor hotels built in recent years have large staffs. Many motels, however, are relatively small, including a sizable number which are run by the owners with few, if any, paid employees.

Most hotels have restaurants, ranging from simple coffee shops to vast dining rooms, with wine cellars and elaborate kitchens. Large hotels and motor hotels also may have banquet rooms, exhibit halls, and spacious ballrooms. Many hotels and motels, especially in resort areas, have recreational facilities such as swimming pools, boating facilities, golf courses, and tennis courts. Hotels also may provide information about interesting places to visit, sell tickets to theaters and sporting events, and even call in babysitters. Their facilities often include newsstands, gift shops, barber and beauty shops, laundry and valet services, and railroad and airline ticket reservation offices. Although motels and tourist courts usually offer fewer services than hotels, the number with restaurants, swimming pools, and other conveniences for guests is steadily increasing.

Because of the many services they offer, hotels need workers in a

wide variety of occupations. One of the largest groups of hotel employees is in the housekeeping department. Many thousands of maids, porters, housemen, linen room attendants, and laundry room workers are employed by hotels and motels to make beds, clean rooms and halls, move furniture, hang draperies, provide guests with fresh linens and towels, operate laundry equipment, and mark and inspect laundered items. Women usually are employed for the lighter housekeeping tasks, whereas men have jobs requiring more strenuous physical effort such as washing walls and arranging furniture. Large hotels and motor hotels usually employ executive housekeepers to supervise these workers, and some hotels also may have a special manager in charge of laundry operations.

In most hotels, a uniformed staff performs guest services in the lobby. This staff includes the bellmen who carry baggage for guests and escort them to their rooms. Doormen are also a part of the uniformed staff, as are elevator operators.

The front office staff work as room clerks, key clerks, mail clerks, and information clerks. Their chief duties are to greet guests, assign rooms, and furnish information. More than half of the hotel clerical workers are front office employees. The remainder, mainly women, are employed in a variety of office occupations such as bookkeeper, cashier, telephone operator, and secretary. These occupations are discussed elsewhere in the *Handbook*.

Hotel managers and their assistants have the highly important task of supervising operations and making them profitable. A general manager is in charge of all hotel operations. Some general managers have assistants in charge of various phases of hotel management. Some assistants may be responsible for

specific operations; for example, food-service managers operate the dining rooms and other eating facilities, and sales managers are responsible for attracting more business to hotels and motels.

In addition, hotels also employ workers who are found in other industries. Among these are accountants, personnel workers, entertainers, recreation workers, waiters, chefs, and bartenders. Maintenance workers, such as carpenters, electricians, stationary engineers, plumbers, and painters, also work for hotels. Still other types of workers employed in hotels include detectives, barbers, beauty salon operators, valets, seamstresses, and gardeners. Most of these occupations are discussed elsewhere in the *Handbook*.

### Employment Outlook

A rapid increase in employment is likely in this industry through the 1970's. In addition, thousands of workers will be required each year to replace those who retire or die. Other openings will result from the need to replace workers who transfer to positions in other industries.

Most of the anticipated employment growth in the industry will stem from the need to staff the new hotels, motor hotels, and motels being built in urban areas, as well as the additional facilities being built in resort areas. Limited expansion will take place in older hotels that try to meet the challenge of increasing competition for business by modernizing their facilities and expanding their services. Hotels that are unable to modernize their facilities are likely to experience low occupancy rates and may be forced to reduce overhead costs by eliminating services and workers. Thousands of temporary jobs will con-

tinue to be available each year in resort hotels, motels, and other establishments which are open only part of the year or have more business in some seasons than others.

The demand for lodging is expected to increase through the 1970's as the country's population grows and travel for business and pleasure increases. Jet air travel, which permits businessmen and others who travel frequently to make a trip to a distant city, complete their business, and return home the same day, may somewhat limit this increase. Employment is likely to rise most rapidly in motels and motor hotels catering to motorists. This trend has been evident for some time and will continue, as the Federal highway building program further stimulates both automobile travel and the building of motels and motor hotels. In motels, most of the additional employees will be housekeeping and food-service workers.

Most of the job openings in hotels will continue to be for workers who need little specialized training such as maids, porters, housemen, and some dining room employees. These jobs account for a large proportion of all hotel workers and have high turnover rates. When general employment conditions are good, people in these jobs find it relatively easy to shift to other kinds of work. Also, many of the workers are women, who often leave their jobs to care for their families. In a few of these occupations, technological changes may limit the number of openings. For example, the increased use of automatic dishwashers, vegetable cutters and peelers, and other mechanical kitchen equipment is likely to reduce the need for kitchen helpers.

A number of people also will be needed every year in front office

jobs to replace workers who are promoted to managerial posts, as well as to fill new jobs in the increasing number of hotels and motels. People in these occupations are less subject than many other workers in the industry to changes in general economic conditions. In addition, there will be openings for other clerical workers, although the increasing use of office machines may affect adversely clerical employment in some hotels. Opportunities are expected to be favorable for young people who acquire the training and experience necessary to qualify for jobs as cooks and food managers. (Food service workers and office workers are discussed elsewhere in the *Handbook*.)

### Earnings and Working Conditions

The location, size, and type of hotel affect earnings of hotel workers. Other significant factors include the tipping practice for the occupation and the degree of unionization. About one-half of all hotel workers are now covered by the Fair Labor Standards Act, a Federal statute which sets minimum wages. In 1970, hotel workers covered by the law received at least \$1.60 an hour, non-tipped employees receiving \$1.60 an hour in wages; and tipped employees earning at least 80 cents an hour in tips, receiving 80 cents an hour in wages. In addition, more than half the States have their own wage and hour laws that cover hotel workers.

Salaries of hotel employees in managerial positions have an especially wide range, mainly because of great differences in duties and responsibilities. Hotel manager trainees who are graduates of specialized college programs start at yearly salaries ranging from \$8,000 to

\$12,000 and are usually given periodic increases for the first year or two. Experienced managers may earn several times as much as beginners; a few, in top jobs, earn \$50,000 a year or more. In addition to salary, hotels customarily furnish managers and their families with lodging in the hotel, meals, parking facilities, laundry, and other services.

Wage rates of nonsupervisory hotel workers vary greatly from occupation to occupation and in different parts of the country. For example, nonsupervisory hotel workers in the Western part of the United States usually have higher hourly earnings than those working in the South. In addition to regular earnings, bellmen, maids, and housekeepers may receive tips from hotel or motel guests. According to a recent Bureau of Labor Statistics survey that included larger hotels and motels, earnings of bellmen averaged \$1.18 an hour. Practically all bellmen surveyed were classified as tipped employees, receiving more than \$20 a month in tips.

Since hotels are open round the clock, workers may be employed on any one of three shifts. Usually, more people are employed during the day than at night, and additional compensation may be paid for work during late hours. Managers and housekeepers who live in the hotel usually have regular work schedules, although managers may be called on at any time.

Waiters and waitresses, cooks, pantry workers, dishwashers, and other kitchen workers commonly receive meals; in a few hotels, maids, elevator operators, and room clerks also receive meals. Most nonsupervisory employees are covered by paid vacation provisions, the duration of the vacation usually being determined by length of serv-

ice. Paid holidays—ranging from 1 to 8 days a year—are provided for about half of the nonsupervisory hotel employees.

The Hotel & Restaurant Employees and Bartenders International Union is the major union in the hotel business. Uniformed personnel, such as bellmen and elevator operators, may be members of the Building Service Employees' International Union.

### Sources of Additional Information

Information on careers in hotel work may be obtained from:

American Hotel and Motel Association, 888 7th Avenue, New York, N.Y. 10019.

Additional information on hotel training opportunities and a directory of schools and colleges offering courses and scholarships in the hotel field may be obtained by writing to:

Council on Hotel, Restaurant, and Institutional Education, 1522 K Street NW., Washington, D.C. 20005.

Information on housekeeping in hotels, including a list of schools offering courses in housekeeping, may be obtained from:

National Executive Housekeepers Association, Inc., Business and Professional Building, Gallipolis, Ohio 45631.

## BELLMEN AND BELL CAPTAINS

(D.O.T. 324.138 and .878)

### Nature of the Work

*Bellmen*, also called *bellboys* or *bellhops*, carry the baggage of incoming hotel guests while escorting them to their rooms. The bellman checks to see that everything is in order in the room. He may suggest the use of various hotel services, including the dining room and valet service. Bellmen also handle room service, perform errands, and deliver packages. In 1970, more than 30,000 such workers were employed in the Nation's lodging



places. In large hotels, special baggage porters usually carry baggage for guests who are checking out. In smaller hotels, bellmen carry baggage for outgoing as well as incoming guests, and also may relieve the elevator operator or switchboard operator.

Bell captains are employed in large and medium-size hotels to supervise the bellmen. They assign work, keep time records, and instruct new bellmen in their duties. They also may give guests transportation information and send a baggage porter or a bellman to pick up the tickets. In addition, they handle complaints from guests regarding the work of their department, and take care of requests for unusual services. At times, bell captains also may perform the duties of bellmen.

Superintendents of service—found in only a few hotels with large service departments—supervise elevator operators, doormen, and washroom attendants, as well as bellmen and bell captains.

### **Training, Other Qualifications, and Advancement**

No specific educational requirements exist for bellman jobs. Graduation from high school, however, enhances a bellman's opportunities for promotion to front office clerical jobs. (See statement on Front Office Clerks in this chapter.)

In many hotels, bellman jobs are filled by promoting elevator operators. In the service department of the hotel, the line of promotion is from bellman to bell captain to superintendent of service. Some of the factors which may affect a bellman's chances for advancement are a favorable work record showing few complaints by guests, good work habits, initiative, and leadership

qualities. Since there is only one bell captain position in each hotel, a number of years may pass before an opening occurs. Opportunities for advancement to superintendent of service are even more limited.

Since bellmen are in frequent contact with the public, it is important that they be neat, tactful, and courteous. A knowledge of the attractions and geography of the local community is an asset. They also must be able to stand for long periods and to carry heavy baggage.

### **Employment Outlook**

Nearly a thousand openings for bellmen are expected each year through the 1970's, due to growth, deaths, and retirements. Many additional openings also will be created as bellmen transfer to other occupations. Since many hotels promote from within by advancing men elevator operators to bellman jobs, chances for outsiders to enter year-round jobs as bellmen will be best in hotels which employ women as elevator operators, and in the increasing number of hotels which have automatic elevators. Many opportunities for temporary jobs also will arise in resort hotels which are open only part of the year and hire college students and other young men. Beginners also will be needed in small hotels to replace experienced bellmen who shift to jobs in luxury hotels where earnings from tips may be higher. Competition among employed bellmen for the relatively few bell captain jobs that will become available in the future is expected to remain keen.

The number of bellmen employed is expected to increase slowly through the 1970's. Some additional jobs will be created as new hotels and motor hotels are

built, and additions are made to existing hotels. The fast growing motel business also will provide some additional jobs; however, because of the type of construction and the emphasis on informality, relatively few motels employ bellmen.

See introductory section to this chapter for information on Earnings and Working Conditions, Sources of Additional Information, and for additional information on Employment Outlook.

## **FRONT OFFICE CLERKS**

(D.O.T. 242.368)

### **Nature of the Work**

Hotels and motels employ front office clerks to rent the rooms and perform related operations. These include greeting the guests, issuing keys, and handling mail. More than 60,000 such workers were employed in the Nation's lodging places in 1970. By working "up front," they deal directly with the public and help build an establishment's reputation for courteous and efficient service. In small hotels and in many motels, a front office clerk (who may be the owner) may also do some bookkeeping and act as cashier or telephone operator. On the other hand, large hotels usually employ several front office clerks, who may be assigned to different kinds of jobs.

*Room or desk clerks* rent the available rooms. Customarily, they are the first of the front office clerical staff to greet guests. In assigning rooms, they must be aware of advance registrations, consider any preferences guests may express, and



at the same time try to obtain maximum revenues for the hotel. These clerks give information about rates and the types of services available, and see that guests fill out registration forms properly. After registration is completed, room clerks signal bellmen to carry guests' luggage. *Reservation clerks* acknowledge room reservations, type out registration forms, and notify the room clerk when guests are due to arrive. To keep room assignment records current, *rack clerks* insert or remove forms indicating the time

when rooms become occupied or vacant, or when they are closed for repairs. They also keep housekeepers, telephone operators, and other personnel informed about changes in room occupancy. Other special clerks, such as *key, mail, and information clerks*, are employed in some large hotels. In the largest hotels, *floor supervisors or floor clerks* are assigned to each floor to handle the distribution of mail and packages and perform other incidental duties.

In all but the largest hotels and

motels, front office clerks may be responsible for a combination of these various duties. They may have other duties as well, particularly when they work on late evening shifts. For example, the night room clerk may perform bookkeeping functions or assist cashiers with their clerical work.

### Training, Other Qualifications, and Advancement

High school graduates who have some clerical aptitude and the personal characteristics necessary for dealing with the public may be hired for beginning jobs as mail, information, or key clerks. Neatness, a courteous and friendly manner, and ease in dealing with people are important personal traits for front office clerks. Typing and bookkeeping courses given in high school may be helpful, particularly for nightshift work where additional clerical duties often are performed, or for jobs in smaller hotels and motels, where the front office clerks often have a variety of duties. Although education beyond high school generally is not required for front office work, hotel employers are attaching greater importance to college training in selecting personnel who may be advanced later to managerial positions. Front office clerks may improve their opportunities for promotion by taking home study courses, such as those sponsored by the Educational Institute of the American Hotel and Motel Association.

Inexperienced workers learn about the front office routine mainly through on-the-job experience. They usually have a brief initial training period during which their duties are described, and they are given information about the hotel,

such as the location of rooms and the types of services offered. After new employees begin working, they receive help from the assistant manager or some experienced front office worker.

Front office workers usually start as key clerks or mail clerks, or in other fairly routine jobs. Occasionally, employees in other types of related work—for example, bellmen or elevator operators—may be transferred to front office jobs. Most hotels have a promotion-from-within policy for front office workers. A typical line of promotion might be from key or rack clerk to room clerk, to assistant front office manager, and later to front officer manager. (See statement on Hotel Managers and Assistants in this chapter.)

### Employment Outlook

Employment in this occupation is expected to increase rapidly through the 1970's. Many openings will result from the need to replace workers who are promoted to higher level jobs or transfer to other occupations. In addition, new front office jobs will be created in the hundreds of hotels, motels, and motor hotels expected to open or expand in the next decade.

A front office clerk has relatively stable employment. Employment in this occupation does not contract as sharply with changes in general economic conditions as does employment in many other hotel occupations. However, the introduction of computerized reservation systems may change the duties of some front office clerks.

See the introductory section to this chapter for information on Earnings and Working Conditions, Sources of Additional Information,

and for additional information on Employment Outlook.

## HOTEL HOUSEKEEPERS AND ASSISTANTS

(D.O.T. 321.138)

### Nature of the Work

Hotel housekeepers are responsible for keeping hotels clean and attractive. They account for furnishings and supplies; and hire, train, and supervise the maids, linen and laundry workers, housemen, seamstresses, and repairmen. In addition, they keep employee records and perform other duties which vary by

size and type of hotel. Those employed in middle-size and small hotels not only supervise the cleaning staffs but also may do some of their work. In large hotels and smaller luxury-type hotels, the duties of executive or head housekeepers are primarily administrative. Besides supervising a staff which may number in the hundreds, they prepare the budget for the housekeeping department; make regular reports to the manager on the condition of rooms, needed repairs, and suggested improvements; purchase or assist in purchasing supplies; and have responsibility for interior decorating work. Some executive housekeepers employed by large hotel chains may have special assignments such as reorganizing housekeeping procedures in an established hotel or setting up the



Housekeepers check linen supplies.

housekeeping department in a new or newly acquired hotel.

In many hotels, executive housekeepers are assisted by floor housekeepers who supervise the work on one or more floors. Large hotels also may employ assistant executive housekeepers. More than 30,000 hotel housekeepers were employed in 1970, most of them women.

### Training, Other Qualifications, and Advancement

Although no specific educational requirements exist for housekeepers, most employers prefer applicants who have at least a high school diploma. Experience is also an asset in obtaining a hotel housekeeping job.

Specialized training in hotel administration, including courses in housekeeping, was available at several colleges in 1970. Some universities offer short summer courses or conduct evening classes in cooperation with the National Executive Housekeepers Association. In addition, the Educational Institute of the American Hotel and Motel Association also offers housekeeping oriented courses for class or individual home study. The most helpful courses are those emphasizing housekeeping procedures, personnel management, budget preparation, interior decorating, and the purchase, use, and care of different types of equipment and fabrics.

### Employment Outlook

Several thousand openings for hotel housekeepers and their assistants are expected annually through the 1970's. Some openings will result from the need to replace workers who retire or leave the oc-

cupation for other reasons. However, many new positions for housekeepers will become available in newly built hotels and the growing number of large motor hotels and luxury motels. In established hotels, most openings for assistant housekeepers will be filled from within by promoting maids. Similarly, vacancies for executive housekeepers often will be filled by promoting assistant housekeepers. However, since only one top job as executive housekeeper exists in each hotel, many years may pass before an opening of this kind occurs in a given hotel. Experienced hotel housekeepers also will find employment opportunities in hospitals, clubs, college dormitories, and a variety of welfare institutions.

See introduction to this chapter for information on Earnings and Working Conditions, Sources of Additional Information, and for additional information on Employment Outlook.

## HOTEL MANAGERS AND ASSISTANTS

(D.O.T. 163.118 and 187.118 and .168)

### Nature of the Work

Hotel and motel managers are responsible for operating their establishments profitably and, at the same time, providing maximum comfort for their guests. Of the more than 190,000 hotel and motel managers employed in 1970, about 90,000 were salaried and more than 100,000 were owner-managers. Managers direct and coordinate the activities of the front office, kitchen, dining rooms, and the various hotel

departments, such as housekeeping, accounting, personnel, purchasing, publicity, and maintenance. They make decisions on room rates, establish credit policy, and have final responsibility for dealing with many other kinds of problems that arise in operating their hotels or motels. Like other managers of business enterprises, they also may spend considerable time conferring with business and social groups and participating in community affairs.



Manager checks convention reservations.

In small hotels, the manager also may perform much of the front office clerical work. In the smallest hotels and in many motels, the owners—sometimes a family team—do all the work necessary to operate the business.

The general manager of a large hotel may have several assistants who manage one department or more and assume general administrative responsibility when the manager is absent. Because preparing

and serving food is important in the operation of most large hotels, a special manager usually is in charge of this department. Managers of large hotels usually employ a special assistant, known as a sales manager, whose job is to promote maximum use of hotel facilities. The sales manager spends much time advertising the facilities his hotel can offer for meetings, banquets, and conventions.

Since large hotel chains often centralize activities such as purchasing supplies and equipment and planning employee training programs, managers in these hotels may have fewer duties than managers of independently owned hotels. Hotel chains may assign managers to help organize work in a newly acquired hotel, or may transfer them to established hotels in different cities or in foreign countries.

### **Training, Other Qualifications, and Advancement**

Since most hotels promote from within, individuals who have proven their ability, usually in front office jobs, may be promoted to assistant manager positions and eventually to general manager.

Although successful hotel experience is generally the first consideration in selecting managers, employers increasingly emphasize a college education. Many believe the best educational preparation is pro-

vided by colleges offering a specialized 4-year curriculum in hotel and restaurant administration. Specialized courses in hotel work, available in a few junior colleges, and study courses given by the Educational Institute of the American Hotel and Motel Association are also helpful.

In colleges offering a specialized 4-year curriculum in hotel management, the courses include hotel administration, hotel accounting, economics, food service management and catering, and hotel maintenance engineering. Students are encouraged to spend their summer vacations working in hotel or restaurant jobs. The experience gained in these jobs and the contacts with employers may enable young people to obtain better hotel positions after graduation. In addition, students are encouraged to study foreign languages and other subjects of cultural value such as history, philosophy, and literature.

College graduates who have majored in hotel administration usually begin their hotel careers as front office clerks; after acquiring the necessary experience, they may advance to top managerial positions. An increasing number of employers require some experience in food operations. Hotel chains may offer better opportunities for advancement than independent hotels, since vacancies may arise in any hotel of the chain, as well as on the central management staff.

Some large hotel organizations have established special programs for management trainees who are college graduates or for less highly trained personnel promoted from within. These programs consist mainly of on-the-job training assignments in which the trainee is rotated among jobs in the various hotel departments. Some large hotels provide financial assistance to outstanding employees for college study.

### **Employment Outlook**

Well-qualified young people will find favorable opportunities through the 1970's to obtain entry positions that offer the possibility of promotion to managerial work. Young applicants who have college degrees in hotel administration will have an advantage in seeking entry positions and later advancement. Many openings for management personnel also will result from the need to fill vacancies resulting from turnover.

The number of hotel managers is expected to increase moderately during the 1970's. New positions will arise as additional hotels are built, and as the number of motor hotels and luxury motels expands.

See the introductory section of this chapter for information on Earnings and Working Conditions, Sources of Additional Information, and for additional information on Employment Outlook.

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# OCCUPATIONS IN LAUNDRY AND DRYCLEANING PLANTS

In 1970, approximately 630,000 persons were engaged in laundering and drycleaning garments, household furnishings, and institutional linens and uniforms. These workers are located in every State, in every city, and probably in every neighborhood. About two-thirds of them are women.

Drycleaning firms accounted for more than 40 percent of the industry's workers, and laundries (including coin-operated laundromats) accounted for another 35 percent. Most of the remainder worked for firms that specialized in renting and cleaning uniforms, towels, diapers, and similar items. A small proportion of the total were employed in valet shops.

Most employment is concentrated in firms that have 20 or more employees. Many firms, however, are owner-operated and have only a few employees. In 1970, about one-seventh of the industry's workers were self-employed.

## Nature of the Work

One way to describe the work done in this industry is to follow an imaginary bundle of clothes through the plant. (See chart 36.) The bundle consists of some men's shirts, a business suit, and bed linens. A *route salesman or driver* (D.O.T. 292.358) picks up the bundle and leaving a receipt, takes the bundle to the plant. After the items have been cleaned, the route salesman delivers them and collects payment; or the owner of the bundle may instead leave them at the plant or drive-up store. In this case, a *counter clerk* (D.O.T. 369.887) makes out a receipt and turns the bundle over to a marker. Either the routeman or the counter clerk sorts the items in the bundle into laundry and dry cleaning.

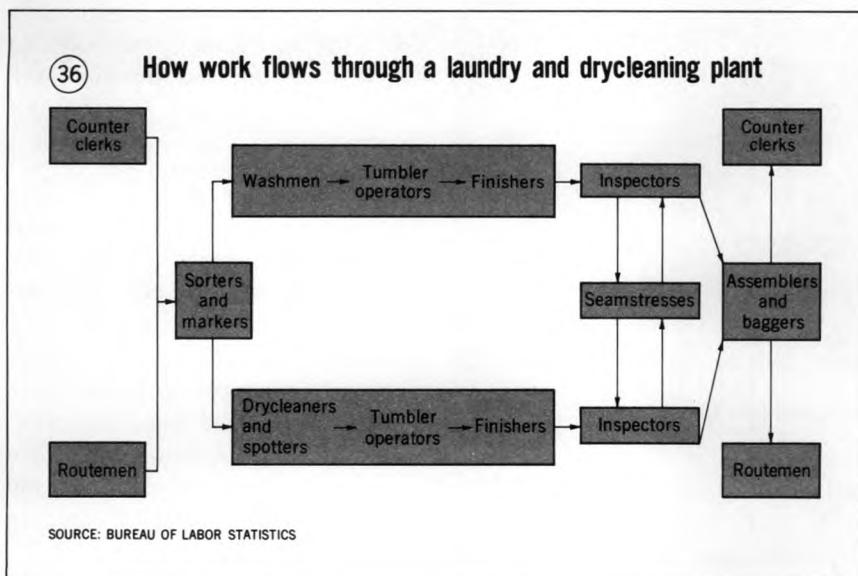
The bundle is turned over to *markers* (D.O.T. 369.887), who put an identifying symbol on each item so it may be matched with the

customer's receipt at some later time. The markers then send the shirts and sheets to the washroom and the suit to the drycleaning room.

A *washman* (D.O.T. 361.885) puts several hundred pounds of sheets in a huge washing machine. Likewise, he loads shirts in another washer. These machines are controlled automatically, but the washman must understand how to operate the controls—water temperature, suds level, time cycles, additives, and the amount of agitation for different fabrics. When the washing cycle is completed, the laundry is transferred to an extractor that removes about half the water. This stage is similar to the "spin" cycle on a home washer. Conveyors move the laundry to conditioners, dryers, or tumblers where dry, heated air removes some of the remaining moisture.

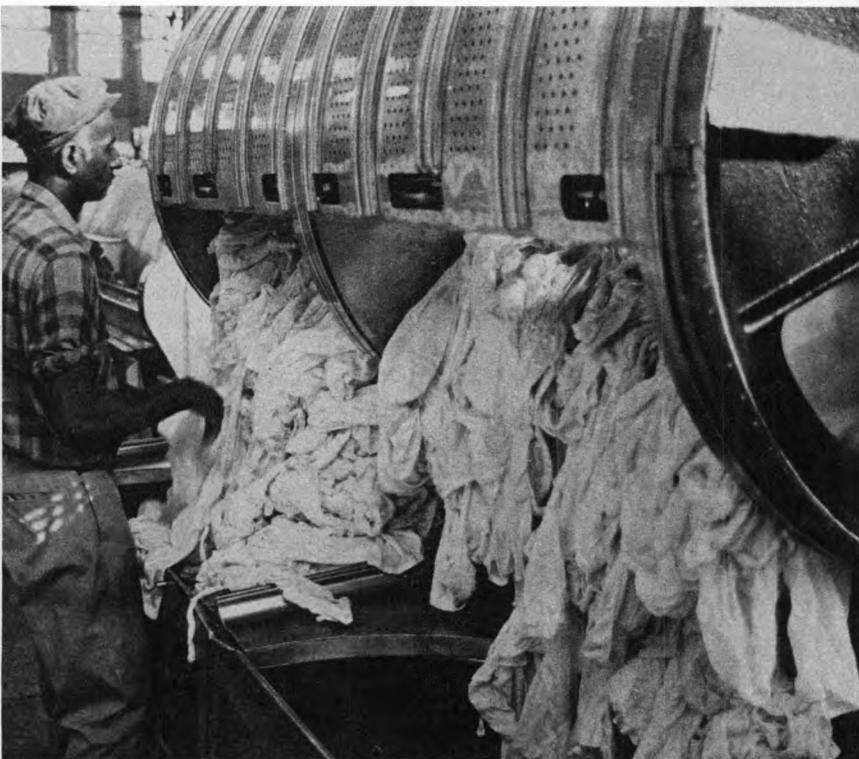
The sheets go from the drying area to *flatwork finishers* (D.O.T. 363.886) who shake out folds and creases, spread the sheets on moving belts, and feed them into large flatwork ironing machines for ironing and partial folding. When the sheets come out of the machine, other finishers complete the folding and stacking.

Shirts go directly from the extractor to *shirt finishers* (D.O.T. 363.782) who usually work in teams of two or three. One finisher puts the sleeves of the shirt on two armlike forms called a "sleever." A second operator then puts the shirt on a "triple-head" press that irons the collar and two cuffs at the same time. She then puts the shirt on a "bosom" press that irons the front and back simultaneously. The first finisher either folds the shirt or places it on a hanger, whichever the customer prefers. A third finisher may do the folding. In some laundries, one shirt finisher performs all these operations.





Counter clerk prepares customer's receipt.



Washman empties washer load into bins.

The jobs of the *drycleaner* (D.O.T. 362.782) and washman are similar, but the cleaning solution for drycleaning is a chemical solvent

instead of water, and the machine holds only 30–100 pounds. The drycleaner sorts the clothes according to color, fiber content, and fab-

ric construction and selects the proper time cycle for each load. He may apply special solutions called "reagents" to spots and stains before placing the garments in the drycleaning machine. After cleaning, he transfers the clothes to an extractor to remove the solvent, and then places them in a tumbler or hot-air cabinet to dry. The *spotter* (D.O.T. 362.381) will use chemical reagents and steam to remove stubborn stains.



Men's suit finisher sprays jacket.

A *men's suit finisher* (D.O.T. 363.782) puts the pants on a special "topper and legger" press. The jacket is placed on a body form that may have a second part that comes down to press and shape the shoulders and collar of the jacket while the steam is forced from the inside. Final finishing touches are done on a steam heated pressing head and "buck," a flat surface covered in fabric.

An *inspector* (D.O.T. 369.687)

checks finished items to see that the quality standards of the plant have been maintained. Any item in need of recleaning or refinishing may be returned to the appropriate department. Occasionally, she may work on them herself. Repair work may be forwarded to a *seamstress* (D.O.T. 782.884) who sews on buttons, mends tears, and resews seams. Finally, *assemblers* (D.O.T. 369.687) collect the linens and shirts by matching the sales invoice with the identification marks. Another assembler does the same with



**Bagger collects and bags customer's clothes.**

personnel develop new customers for the plant's services. Foremen supervise production workers in the plant. Mechanics and repairmen keep equipment and machinery operating properly. Some service workers clean, guard, and otherwise maintain the plant; others plan and serve food to plant workers. Laborers lift and carry heavy loads to machines. (Discussion of many of these occupations can be found elsewhere in the *Handbook*.)

### **Training, Other Qualifications, and Advancement**

Many workers in this industry get their first jobs without previous training. Basic laundry and drycleaning skills may be learned on the job in a short time. Some jobs such as folding towels and feeding pillowcases and sheets into a flat-

work ironer may require only 1 or 2 days to learn. Other jobs, such as counter clerk, marker, inspector, and assembler, may require several weeks to learn. Some finishing jobs—pants presser, shirt finisher—may require less than a week's training. Several months or more are needed to train a drycleaner or a ladies' apparel finisher. Because of the variety of fibers and fabrics, spots and stains, and chemical reagents of which he must have knowledge, a spotter may need 6—12 months to learn his skill.

Some preemployment training in finishing and drycleaning/spotting skills is available in vocational high schools and trade schools. Similar training is available in programs administered by the U.S. Department of Labor under the Manpower Development and Training Act as well as in the Job Opportunities in the



**Spotter treats garment with special chemicals and steam.**

the suit. Either they or *baggers* (D.O.T. 920.887) may remove tags before putting the items in bags or boxes for storage until called for or delivered.

Many other workers are found in laundry and drycleaning plants. A manager or proprietor is responsible for seeing that the work of the plant is performed efficiently. Office workers keep records, handle correspondence, and prepare bills. Sales

Business Sector program carried out by the National Alliance of Businessmen. Some Opportunities Industrialization Centers—self-help programs for unemployed and underemployed ghetto youth—sponsor training for these same jobs. Home study courses are available from the National Institute of Drycleaning.

Most people find jobs in laundry and drycleaning plants through newspaper advertisements or friends who work in these plants. Employers look for workers who are dependable and who have good physical stamina, manual dexterity, and keen eyesight. Workers must be able to adjust to the repetition characteristic of many laundry and drycleaning jobs.

Advancement for most workers in this industry is limited. Many remain permanently in the same job. Few supervisory positions are available. Nevertheless, employers occasionally send promising employees to technical or managerial training programs given by the National Institute of Drycleaning in Silver Spring, Md., or by the American Institute of Laundering in Joliet, Ill. Some men's suit finishers become skilled enough on the job to do ladies' apparel finishing. Markers and assemblers interested in finishing work usually are given an opportunity to move up to this job. Foremen and managers frequently are chosen from experienced employees already in the industry. Some drycleaners/spotters establish their own drycleaning plants.

### Employment Outlook

Employment in this industry is expected to grow moderately

through the 1970's. Additional opportunities will develop as experienced workers retire, die, or transfer to other fields. Retirements and deaths alone will result in many thousands of job openings each year.

The principal reasons for increases in the demand for laundry and drycleaning services will be rising population and incomes. With more people who have more money to spend, demand for personal services will rise. Also, as more women seek careers outside the home, working wives may have the additional income to afford outside services. Offsetting some of the increased demand for laundry and cleaning services resulting from rising population and incomes, will be the easier care of the new fabrics and finishes. Many persons who have not previously laundered at home may consider doing so. However, drycleaning in the home probably will not be practical for many years.

These factors will result in increased employment in all occupations in the laundry and drycleaning industry except route salesmen and spotters. The number of route salesmen probably will decrease as more people take their clothes to the neighborhood plant or drive-up stores for quicker, more economical service. Employment of spotters may decline over the next decade as technological innovations in fibers and finishes make fabrics less stainable.

### Earnings and Working Conditions

Wage levels in the laundry and drycleaning industry are not high.

However, workers have recently come under the protection of the Federal Minimum Wage Law. Since February 1971, no worker in this industry may be paid less than \$1.60 per hour nor work more than 40 hours per week without receiving premium overtime pay, usually 1½ times the base hourly rate. However, many workers receive more than this minimum. In 1970, the hourly average wage for all non-supervisory workers in this industry was \$2.16. Men usually earn more than women, primarily because they predominate in the more highly skilled occupations such as drycleaner, spotter, and washman.

Modern laundry and drycleaning plants are clean and well lighted. Because of the heat, hot air, and steam of the cleaning processes, the plant may be uncomfortably hot during warm months. However, large modern laundries usually have high ceilings—often three stories high—and numerous windows that may be opened for ventilation. Many new, small drycleaning operations are air conditioned in the office and customer areas and air cooled in the machinery areas. In addition, new machinery operates with a minimum of noise.

### Sources of Additional Information

The local office of the State employment service may have additional information on training and employment opportunities in this field.

# GOVERNMENT

Government service, one of the Nation's largest fields of employment, provided jobs for 12.6 million civilian workers in 1970, about 1 out of 6 persons employed in the United States. Nearly four-fifths of these workers were employed by State or local governments (county, city, town, village, or other local government division); and more than one-fifth worked for the Federal Government, in the continental United States. In addition, a relatively small number of U.S. citizens worked for the Federal government overseas. Rapid growth is expected in State and local government employment, continuing the trend in the post-World War II period. Federal employment is expected to grow slowly. Large numbers of job opportunities will arise in Federal, State, and local governments from the need to replace workers who retire, or die, or leave government service. Hundreds of thousands of individuals will be needed each year for jobs in a wide variety of occupations.

Government employees are a significant part of the nonagricultural work force in every State. Their jobs are found not only in capital cities, county seats, and metropolitan areas, but also in small towns and villages, and even in remote and isolated places such as light-house installations and forest ranger stations.

## Government Activities and Occupations

Two-fifths of all government workers in 1970 were engaged in providing educational services (chart 37); the majority are in

schools and colleges supported by State and local governments. In addition to teachers, employees in this field included administrative and clerical workers, maintenance workers, librarians, dietitians, nurses, and counselors. The great majority of workers in educational services were employed in elementary and secondary schools.

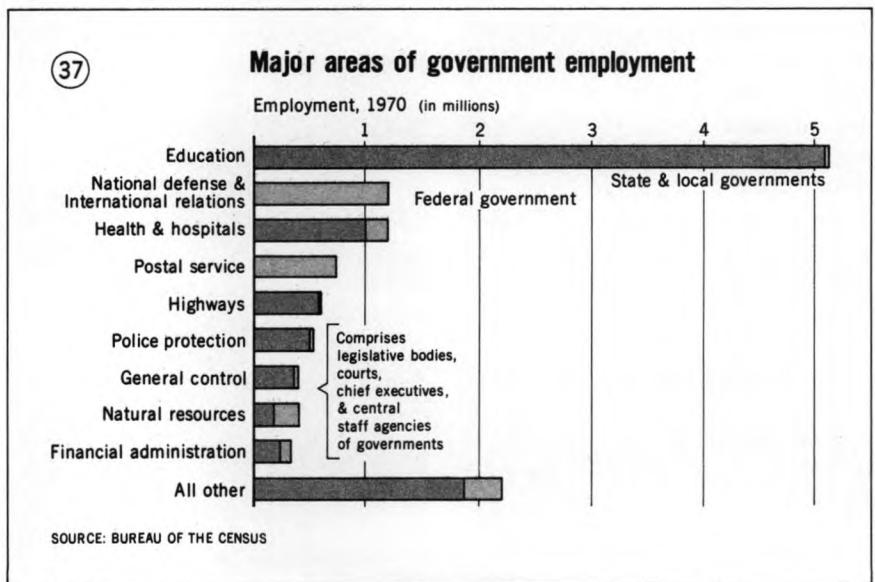
In 1970, 1.2 million government workers were engaged in national defense activities. This number included civilians working in the Department of Defense and a few other defense-related agencies such as the Atomic Energy Commission. Within this group were administrative and clerical employees, doctors, nurses, teachers, engineers, scientists, technicians, and craftsmen and other manual workers. Employees in this group worked in offices, research laboratories, navy yards, arsenals, and missile launching sites, and in hospitals and schools run by the military services.

Another 1.2 million government

workers were employed in health services and hospitals. Large concentrations of employees also were found in the postal service, and highway work. Workers were employed also by government agencies in activities such as housing and community development, police and fire protection, social security and public welfare services, transportation and public utilities, conservation of natural resources, tax enforcement and other financial functions, as well as in general administrative, judicial, and legislative activities.

Most employees in the health and hospital fields, in highway work, and in police and fire protection activities worked for State and local government agencies. On the other hand, jobs in national defense and in the postal service were Federal, as were over half the jobs concerned with natural resources, such as those in the National Park and Forest Service.

Although the many different gov-



ernmental activities require a diversified work force having many different levels of education, training, and skill, the majority of government employees are white-collar workers.

Among the largest white-collar occupational groups are teachers, administrators, postal clerks, and office workers such as stenographers, typists, and clerks.

Some important occupations and occupational groups among service, craft, and other manual workers are aircraft and automotive mechanics and repairmen; policemen; firemen; truckdrivers; skilled maintenance workers (for example, carpenters, painters, plumbers, and electricians); custodial workers; and laborers.

The wide variety of government functions requires employees in

many different occupations. Because of the special character of many government activities, the occupational distribution of employ-

ment is very different from that in private industry, as shown in the distributions of employment in 1970 which follows:

	Percent of —	
	Government employment <sup>1</sup>	Nongovernment employment
Total.....	100	100
White-collar workers .....	66	45
Professional and technical.....	36	10
Managers, officials, and proprietors.....	6	12
Clerical .....	24	16
Sales .....	( <sup>2</sup> )	7
Blue-collar workers .....	16	39
Craftsmen, foremen .....	7	14
Operatives .....	5	20
Nonfarm laborers .....	4	5
Service workers .....	18	11
Farm workers .....	( <sup>2</sup> )	5

<sup>1</sup> Data excluded overseas Federal employment.

<sup>2</sup> Less than 0.5 percent.

NOTE: Because of rounding, sums of individual items may not equal totals.

The following chapters discuss opportunities for civilian employment in the major divisions of government and in the various branches

of the Armed Forces. A separate chapter gives information on post office occupations.

## FEDERAL CIVILIAN GOVERNMENT

The Federal Government, the largest employer in the United States, had about 2.7 million civilian workers in 1970. In addition, it employed about 60,000 U.S. citizens abroad. Federal employees are engaged in occupations representing nearly every kind of job in private employment, as well as some unique to the Federal Government such as postal clerk, border patrolman, immigration inspector, foreign service officer, and Internal Revenue agent. Practically all Federal employees work for the departments and agencies that make up the executive branch of the government. The others are employed in the legislative and judicial branches.

The executive branch includes the Office of the President, the 11 departments with cabinet representation, and a number of independent agencies, commissions, and boards. This branch is responsible for activities such as administering Federal laws, handling international relations, conserving natural resources, treating and rehabilitating disabled veterans, delivering the mail, conducting scientific research, maintaining the flow of supplies to the Armed Forces, and administering other programs to promote the health and welfare of the people of the United States.

The Department of Defense, which includes the Departments of the Army, Navy, and Air Force, is the largest agency; it employed about 1 million civilian workers in the United States in 1970; the Post Office Department employed about 780,000. The Veterans Administration, the Department of Agriculture, and the Department of Health, Education, and Welfare each had more

than 100,000 workers. The remaining employees of the executive branch were distributed among more than 80 departments, agencies, commissions, offices, and boards. There were about 30,000 employees in the legislative branch, which includes the Congress, the Government Printing Office, the General Accounting Office, and the Library of Congress. Almost 7,000 persons were employed by the judicial branch, which includes the Supreme Court and the other U.S. courts.

The Federal Government employs over 2 million white-collar workers, including postal workers. Entrance requirements for white-collar jobs vary widely. Entrants into professional occupations are required to have highly specialized knowledge in a specified field, as evidenced by completion of a prescribed college course of study or, in many cases, the equivalent in experience. Occupations typical of this group are attorney, physicist, and engineer.

Entrants into administrative and managerial occupations usually are not required to have knowledge of a specialized field, but rather, they must indicate by graduation from a 4-year college or by responsible job experience that they have potential for future development. The entrant usually begins at a trainee level and learns the duties of the job after he is hired. Typical jobs in this group are budget analyst, claims examiner, purchasing officer, administrative assistant, and personnel officer.

Technician, clerical, and aid-assistant jobs have entry level positions that usually are filled by persons having a high school education

or the equivalent. For many of these positions, no earlier experience or training is required. The entry level position is usually that of trainee, where the duties of the job are learned and skill is improved. Persons having junior college or technical school training or those having specialized skills may enter these occupations at higher levels. Jobs typical of this group are engineering technician, supply clerk, clerk-typist, and nursing assistant.

Because of its wide range of responsibilities, the Federal Government employs white-collar workers in a great many occupational fields. About 150,000 Federal workers are employed in engineering and related fields. Included in this total are about 85,000 engineers, representing virtually every branch and specialty of the profession. There are also large numbers of technician positions in areas such as engineering, electronics, surveying, and drafting. Almost two-thirds of all engineering positions are in the Department of Defense.

Of the 115,000 workers employed in accounting and budgeting work, 33,000 are professional accountants and Internal Revenue agents. Among administrative and managerial occupations in the accounting and budgeting field are tax technician and budget administrator. There are also large numbers of clerical positions involving specialized accounting work. Accounting workers are employed throughout the Government, particularly in the Department of Defense, the Treasury Department, and the General Accounting Office.

More than 90,000 Federal workers are employed in medical, dental, public health, and hospital work. Professional occupations in this field include medical officer, nurse, dietitian, medical technologist, and physical therapist. Among technician and aid jobs are medical

technician, medical laboratory aid, and nursing assistant. Employees in this field work primarily in the Veterans Administration; others are in the Defense Department and Department of Health, Education, and Welfare.

About 40,000 workers are employed in the biological and agricultural sciences. Large numbers of professional workers are engaged in forestry and soil conservation work. Others administer farm assistance programs. Technicians and aid-assistant occupations include biology technician, forest and range fire control technician, soil conservation technician, and forestry technician. Most of these workers are employed by the Departments of Agriculture and Interior.

In the physical sciences, the Federal Government employs professional workers such as physicians, chemists, meteorologists, cartographers, and geologists. Aids and technicians in this field include physical science technician, meteorological technician, and cartographic technician. Four-fifths of the 44,000 workers in the physical sciences are employed by the Department of Defense, National Aeronautics and Space Administration, the Department of Agriculture, the Department of Health, Education, and Welfare, and the Commerce Department.

Within the mathematics field are professional mathematicians and statisticians, and mathematics technicians and statistical clerks. There are also a number of administrative positions in the related field of computer programming. Mathematics workers are employed primarily by the Defense Department, the National Aeronautics and Space Administration, the Department of Agriculture, the Commerce Department, and the Department of

Health, Education, and Welfare. Positions in the computer field are found in most Federal agencies.

In the field of law are more than 11,000 employees in professional positions, such as attorney, and others in administrative positions such as claims examiner. There are also many clerical positions involving claims examining work. Workers in the legal field are employed throughout the Federal Government.

In the social science field there are professional positions for economists throughout the government; psychologists and social workers, primarily in the Veterans Administration, and foreign affairs and international relations specialists in the Department of State. Among social science administrative workers are social insurance administrators in the Department of Health, Education, and Welfare, and intelligence specialists in the Department of Defense.

The Federal Government employs approximately 60,000 persons in investigating and inspection work. Large numbers of these workers engage in administrative activities such as criminal investigation and food and customs inspection. These jobs are primarily in the Defense, Treasury, Justice, and Agriculture Departments.

Jobs concerned with purchasing, cataloging, storing, and distribution of supplies for the Federal Government provide employment for about 76,000 workers. This field includes many managerial and administrative positions, such as supply management officer, purchasing officer and inventory management specialist, as well as large numbers of specialized clerical positions. Most of these jobs are in the Department of Defense.

Some 450,000 general clerical workers are employed in virtually

every department and agency of the Federal Government. Included within this group are office machine operator, secretary, stenographer, clerk-typist, mail and file clerk, telephone operator, and other related workers. In addition, there are several hundred thousand postal clerks employed by the Federal Government.

Blue-collar jobs—service, craft, and manual labor—provided employment to over 540,000 workers in 1970. The majority of these workers were in establishments such as naval shipyards, arsenals, air bases, or army depots; or they worked on construction, harbor, flood-control, irrigation, or reclamation projects. Approximately three-fourths of these workers were employed by the Department of Defense. Others worked for the Veterans Administration, Post Office, General Services Administration, Department of the Interior, Tennessee Valley Authority, and Department of Agriculture. Within this group are a wide range of occupations, including many of the service, craft, and manual occupations found in industry.

The largest single group of blue-collar workers consists of operators and mobile equipment mechanics. Among these jobs are forklift operator, chauffeur, truckdriver, and automobile mechanic. The next largest group of workers are general laborers, who perform a wide variety of manual jobs.

The Federal Government employs many workers in machinery operation and repair occupations, such as boiler and steam plant operator, machinist, machinery repairman, maintenance electrician, electronics equipment repairman, and aircraft mechanic.

Skilled construction workers also are utilized widely throughout the

Federal Government. Included in these fields are jobs such as carpenter, painter, plumber, steamfitter and pipefitter, and sheetmetal worker. Other large blue-collar occupations include warehouseman, food service worker, and printer.

Many skilled occupations may be entered through apprenticeship programs. To qualify, experience normally is not required, but a test may be given to indicate whether an applicant has an aptitude for the occupation. There are also jobs as helpers for skilled workers such as carpenter's helper and machinist's helper.

(Detailed descriptions of the work duties of most white-collar, service, craft, and manual labor jobs mentioned above are provided in other sections of the *Handbook*.)

Federal employees are stationed in all parts of the United States and its territories and in many foreign countries. Although most Government departments and agencies have their headquarters offices in the Washington, D.C. metropolitan area, only 1 out of 9 (about 316,000) Federal workers were employed in that area in 1970. California had more than 300,000 workers, and New York, Pennsylvania, Texas, and Illinois each had more than 100,000. About 39,000 U.S. citizens were employed in foreign countries; and about 21,000 worked in U.S. territories.

### The Merit System

Approximately 9 out of 10 jobs in the Federal Government in the United States are covered by the Civil Service Act, which the U.S. Civil Service Commission administers. This act was passed by the Congress to ensure that Federal employees are hired on the basis of in-

dividual merit and fitness. It provides for competitive examinations and the selection of new employees from among those who make the highest scores. The Commission, through its network of 65 Civil Service Commission Area Offices, is responsible for examining and rating applicants and supplying Federal departments and agencies with names of persons eligible for the jobs to be filled.

Some Federal jobs are excepted from Civil Service requirements either by law or by action of the Civil Service Commission. However, most of the excepted positions are under separate merit systems of other agencies such as the Foreign Service of the Department of State, the Department of Medicine and Surgery of the Veterans Administration, the Federal Bureau of Investigation, the Atomic Energy Commission, and the Tennessee Valley Authority. These agencies establish their own standards for the selection of new employees.

Civil service competitive examinations may be taken by all persons who are citizens of the United States, or who owe permanent allegiance to the United States (in the case of residents of American Samoa). To be eligible for appointment, an applicant must meet minimum age, training, and experience requirements for the particular position. A physical handicap will not in itself bar a person from a position if it does not interfere with his performance of the required duties. Examinations vary according to the types of positions for which they are held. Some examinations include written tests; others do not. Written examinations test the applicant's ability to do the job applied for or his ability to learn how to do it. In nonwritten examinations, applicants are rated on the basis of the experi-

ence and training described in their applications and any supporting evidence required.

Applicants are notified as to whether they have achieved eligible or ineligible ratings, and the names of eligible applicants are entered on a list in the order of their scores. When a Federal agency requests names of eligible applicants for a job vacancy, the area office sends the agency the names at the top of the appropriate list. The agency can select any one of the top three available eligibles. Names of those not selected are restored to the list for consideration for other job openings.

Appointments to civil service jobs are made without regard to an applicant's race, color, religion, national origin, politics, or sex.

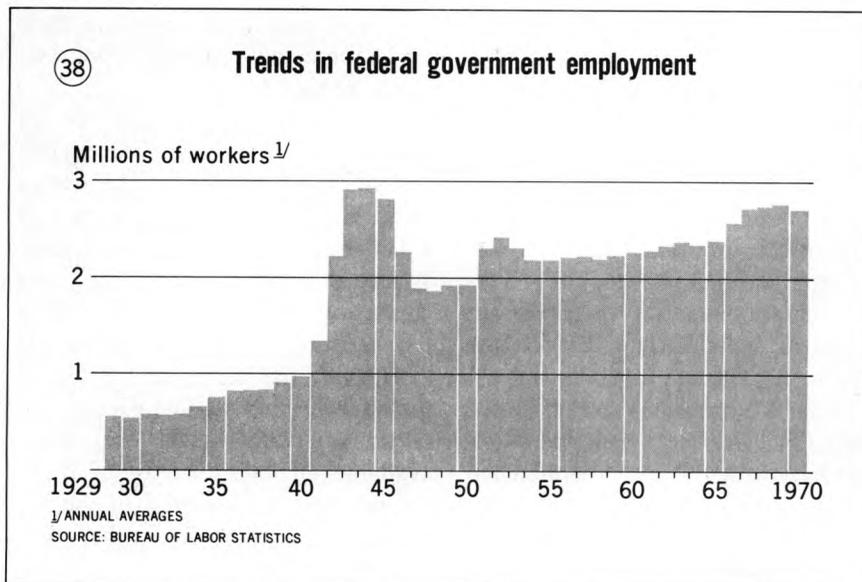
### Employment Trends and Outlook

Federal employment is expected to grow at a relatively slow rate during the 1970's.

A number of factors will tend to limit employment in many clerical and blue-collar occupations. Among these factors are the Federal Government's increasing use of labor-saving electronic data-processing and materials-handling equipment and the introduction of improved data-transmission and communications systems.

The manpower requirements of the Federal Government will, in general, tend to reflect the demand for services of an increasing population and the country's domestic and international programs. These demands are expected to be reflected in rapidly rising requirements for professional, administrative, and technical workers.

Population expansion will lead to an increased employment of



workers such as social security claims examiners, accounting and budget workers, and business and industry specialists. Laws providing new or expanded services to the public should result in increased employment of food and drug inspectors, highway engineers, and education personnel. Employment in legal and kindred occupations also may increase mainly because of the existence of more laws and regulations to interpret, administer, and enforce; and more claims to examine for payment of retirement, disability, and death benefits.

Federal employment gains in science, engineering, and other fields will reflect the demands of vigorous national research and development efforts in a variety of programs such as urban development, military weapons, nuclear energy, medicine and health, transportation, and natural resource development. The employment of engineers and engineering technicians will continue to grow rapidly. Employment of scientists, as well as that of technicians working with them, also will increase, and the number of medical

personnel employed also should continue to rise.

In addition to new opportunities due to growth in employment, many thousands of job opportunities will become available because of the need to replace employees who transfer out of the Federal service,

retire, or die. Thus, many job opportunities will occur in occupations where total employment is relatively stable, as well as in those in which it is rising.

### Earnings, Advancement, and Working Conditions

Federal civilian employees are paid under several pay systems.

Pay rates of employees under the General Schedule are set by Congress and are nationwide.

These pay rates are reviewed annually to insure that they are kept comparable with salaries in private industry. This General Schedule provides a pay scale for employees in professional, administrative, technical, and clerical jobs, and for employees such as guards and messengers. General Schedule jobs are classified and arranged in 18 pay grades according to difficulty of the duties, and the responsibilities, knowledge, experience, or skill re-

**Distribution of all full-time Federal employees under the General Schedule by grade level, June 30, 1970, and salary scale, effective December 28, 1969**

General schedule grade	Employees		Salaries		
	Number	Percent	Entrance	Periodic increases	Maximum
Total.....	1,286,948	100.0			
1.....	2,277	.2	\$4,125	\$134	\$5,358
2.....	24,515	1.9	4,621	154	6,007
3.....	115,931	9.0	5,212	174	6,778
4.....	178,068	13.8	5,853	195	7,608
5.....	158,069	12.3	6,548	218	8,510
6.....	77,856	6.0	7,294	243	9,481
7.....	114,420	8.9	8,098	270	10,528
8.....	25,223	2.0	8,956	299	11,647
9.....	140,155	10.9	9,881	329	12,842
10.....	18,067	1.4	10,869	362	14,127
11.....	147,060	11.4	11,905	397	15,478
12.....	121,908	9.5	14,192	473	18,449
13.....	93,135	7.2	16,760	559	21,449
14.....	43,217	3.4	19,643	655	25,538
15.....	22,293	1.7	22,885	763	29,752
16.....	3,391	.3	26,547	885	33,627
17.....	982	.1	30,714	1,024	34,810
18.....	381	( <sup>1</sup> )	35,505	...	....

<sup>1</sup> Less than 0.05 percent.

SOURCE: U.S. Civil Service Commission.

quired. The distribution of Federal white-collar employees by grades, the entrance and maximum salaries, and the amount of periodic increases for each grade are listed in the accompanying table.

Employees in all grades except GS-18 receive within-grade increases after they have completed the required service periods, if their work is determined to be of an acceptable level of competence. Within-grade increases also may be given in recognition of high-quality service.

High school graduates who have no related work experience usually are appointed to GS-2 positions, but some having special skills begin at grade GS-3. Graduates of 2-year junior colleges and technical schools often can begin at the GS-4 level. Most young people appointed to professional and administrative positions enter at grades GS-5 or GS-7, depending on their academic record. Those who have a master's degree or the equivalent in education or experience usually enter at grade GS-7 or GS-9. In addition, the Federal Government also appoints very well-qualified, experienced people at the GS-11 level and above. These appointments are for positions such as psychologist, statistician, economist, writer and editor, budget analyst, accountant, and physicist.

New appointments usually are made at the minimum rate of the salary range for the appropriate grade. However, appointments in hard-to-fill positions frequently are made at a higher rate. For example, in 1970 engineers, accountants, mathematicians, certain physical scientists, and those in a few other specialized occupations were being recruited at above minimum rates.

Advancement depends upon ability, work performance, and gener-

ally, upon openings in jobs at higher grades.

Craft, service, and manual workers employed by the Federal Government in the United States are paid under the Coordinated Federal Wage System. The pay rates for these workers are fixed on the basis of "prevailing" rates paid for similar work by private employers in the areas where they work. The accompanying tabulation of regular pay rates for selected occupations illustrates hourly wage rates in 1970.

Employees in agencies with separate merit systems are paid under acts other than those already mentioned.

Many of the occupations found in the Federal Government are discussed in greater detail elsewhere in the *Handbook*, and many include data on earnings in the Federal Government.

The standard workweek for Federal Government employees is 40 hours, and the pay schedules are based on this workweek. If an employee is required to work overtime, he is either paid overtime rates for

the additional time worked or given compensatory time off at a later date. Most employees usually work 8 hours a day and 5 days a week, Monday through Friday, but in some cases, the nature of the work may call for a different workweek. Annual earnings for most full-time Federal workers are not affected by seasonal factors.

Federal employees earn 13 days of annual (vacation) leave during each of their first 3 years of service, then 20 days each year until they have completed 15 years; after 15 years, they earn 26 days of leave each year. In addition, they earn 13 days of paid sick leave a year. Nine paid holidays are observed annually. Employees who are members of military reserve organizations also are granted up to 15 days of paid military leave a year for training purposes. A Federal employee who is laid off is entitled to unemployment compensation similar to that provided for employees in private industry.

Other benefits available to most Federal employees include: A contributory retirement system; op-

*Coordinated Federal Wage System hourly pay rates, selected occupations and locations, 1970*

<i>Location</i>	<i>Labor (heavy)</i>	<i>Electrician</i>	<i>Tool, die and guage maker</i>
Atlanta, Ga .....	\$2.67	\$4.31	\$5.02
Boston, Mass .....	3.28	4.18	4.67
Chicago, Ill .....	3.12	4.40	4.96
Denver, Colo .....	3.46	4.50	4.95
Norfolk-Portsworth-Newport News-Hampton, Va..	2.68	3.93	4.50
Houston-Galveston-Texas City, Texas .....	3.07	4.42	5.00
Los Angeles, Calif .....	3.46	4.68	5.20
New Orleans, La .....	2.75	3.98	4.59
New York, N.Y. ....	3.07	4.15	4.61
Pensacola, Fla .....	2.70	4.36	5.07
Philadelphia, Pa .....	3.41	4.43	4.86
Seattle-Everett-Tacoma, Wash .....	3.64	4.61	5.03
San Francisco, Calif .....	3.69	4.95	5.45
St. Louis, Mo .....	3.58	4.78	5.31
Washington, D.C. ....	3.10	4.41	5.03

SOURCE: Coordinated Federal Wage System; rates are for the second step of a 3-step pay range.

tional participation in low-cost group life and health insurance programs supported in part by the Government; and training programs to develop maximum job proficiency and help employees achieve their highest potential. These training programs may be conducted in Government facilities or in outside educational facilities at Government expense.

### Sources of Additional Information

Information on Federal employment opportunities is available from a number of sources. For college students, the college placement office is often a good source of such information. High school students in many localities may obtain information from their high school guidance counselors. Additional information may be obtained from State employment service offices and many post offices.

The Area Offices operated by the U.S. Civil Service Commission are located in population centers throughout the country. These offices announce and conduct examinations and evaluate and refer eligible applicants to employing agencies for their geographic areas. They also provide a complete one-

stop information service so that all interested citizens may learn of local and nationwide employment opportunities in the Federal Government service.

Information about a specific agency also may be obtained by contacting the agency directly.

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## POST OFFICE OCCUPATIONS

The mailman, carrying the familiar leather pouch over his shoulder, and the clerk, standing behind the stamp window in the Post Office, are the two employees of the Federal Government most familiar to the general public. Although we all receive or send mail almost every day, few people realize how many workers are employed by the Post Office and exactly what they do.

In early 1971, more than 730,000 postal service workers—about 19 percent of whom were women—were employed in 43,000 separate installations throughout the Nation. These workers collected and distributed over 85 billion letters, post cards, newspapers, magazines, parcels, and other items of mail. They also provided special

mail services such as registration (giving evidence of mailing and delivery), insurance, and c.o.d. (the collection of the price of an article, and the cost of postage from a customer upon delivery). Other services performed by these workers included selling United States savings stamps and money orders.

Although many postal jobs are located in small communities and in rural areas, postal employment is concentrated in large centers of population. Nearly 73,000 postal service workers, or 10 percent of all post office employees work in the metropolitan area of New York City. Other large centers of postal employment include the Chicago, Los Angeles, Boston, Philadelphia, Washington, D.C., San Francisco, Detroit, and Cleveland metropolitan areas.

The Post Office Department is in the process of being converted to the U.S. Postal Service under the Postal Reorganization Act. (PL-91-375) of August 12, 1970. Rates of pay, hours of work, and other conditions of employment were subject to change at the time this statement was prepared and therefore were excluded. Those desiring timely and accurate information regarding employment in the U.S. Postal Service should contact their local post office.

# STATE AND LOCAL GOVERNMENTS

State and local governments provide a very large and growing source of job opportunities in many different occupational fields. In 1970, about 9.9 million workers were employed in State and local government agencies. Almost three-fourths of these workers were with units of local governments, such as counties, municipalities, towns, and school districts, and more than one-fourth were employed in State government agencies.

Nearly 5.3 million employees, or over half of all State and local government workers, were employed in public schools, colleges, or other educational services in 1970.

In addition to almost 3.0 million classroom and college teachers, school systems, colleges, and universities also employ administrative personnel, librarians, guidance counselors, nurses, dieticians, clerks, and maintenance workers. Three-fourths of employment in the field of education is in elementary and secondary schools, which are administered largely by local governments. State employment in education is concentrated chiefly in institutions of higher learning.

The next two largest fields of State and local government employment in 1970 were in health and hospital work and highway work. The 1 million persons employed in health and hospital work include physicians, nurses, medical laboratory technicians, and hospital attendants. More than 600,000 workers were employed in highway activities such as construction and maintenance of roads, highways, city streets, toll turnpikes, bridges, and tunnels. Among these em-

ployees are civil engineers, surveyors, operators of construction machinery and equipment, truckdrivers, concrete finishers, carpenters, and construction laborers.

In 1970, more than 600,000 workers were employed in general and financial control activities—most of them at the local level. General and financial control functions include the activities of chief executives and their staffs and legislative bodies; the administration of justice; tax enforcement and other financial work; and general administrative work. These functions require the services of individuals such as lawyers, judges, and other court officials, city managers, property assessors, budget analysts, stenographers, and clerks.

Protective services, such as those provided by police and fire departments, is another large field of State and local government employment. Almost 510,000 people were employed in police work in 1970, principally by local governments. Employment in police work includes administrative, clerical, and custodial personnel, as well as uniformed and plainclothes policemen. All of the 266,000 firemen, many of whom are part-time employees, are employed by local governments.

Other State and local government employees are engaged in a wide variety of fields—local utilities (such as water, electricity, transportation, and gas supply systems); natural resources; public welfare; parks and recreation; sanitation; correction; local libraries; sewage disposal; and housing and urban renewal. These activities require workers in many different occupations such as economist, electrical

engineer, electrician, pipefitter, clerk, forester, and busdriver.

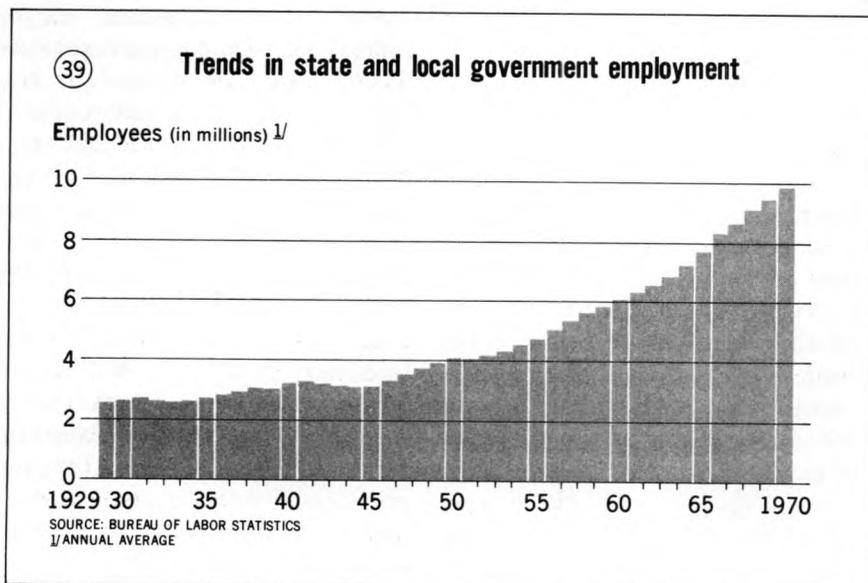
Clerical, administrative, maintenance, and custodial workers constitute a significant proportion of all employees in many areas of government activity. Among the larger groups of workers engaged in these occupations are clerk-typists, stenographers, secretaries, office managers, fiscal and budget administrators, bookkeepers, accountants, carpenters, painters, plumbers, guards, and janitors. (Detailed discussions of most occupations in State and local governments are given elsewhere in the *Handbook*, in the sections covering the individual occupations.)

## Employment Trends and Outlook

The long-range employment trend in State and local governments has been steadily upward. (See chart 39.) Much of this growth has occurred because of the need to provide services for increasing numbers of younger and older persons, and because of population movements from rural to urban areas. City development has required more street and highway facilities; police and fire protection; and public health, sanitation, welfare, and other services. Population growth and increasing personal income have generated demands for more and improved education, housing, and hospital and other services provided by State and local governments.

Much of the increase in State and local government employment in the 1958-70 period was due to increased employment of teachers and other educational personnel. Expansion in health and hospital services, highway programs, and protective (police and fire) services also contributed to the increase.

Rapid growth in State and local



government employment is expected through the 1970's. Employment of elementary and secondary school teachers, however, is expected to increase more slowly than in the past, as the areas of rapid school enrollment growth shift to higher education. This shift will create greater needs for college and university teachers and administrators.

A larger State and local work force also will be needed to provide improved public transportation systems; more urban planning and renewal programs; increased police protection; better measures to guard against air and water pollution; and expanded natural resource development programs and hospital facilities.

New or recently expanded Federal-State programs in education, vocational training, medicine, and other fields will increase greatly the requirements of local and State governments for professional, administrative, and technical personnel

such as engineers, scientists, social workers, counselors, teachers, doctors, and librarians.

In addition to job opportunities resulting from the expected overall growth in State and local government employment, large numbers of employees will be needed to replace workers who transfer to other fields of work, retire, or die.

Most positions in State and local governments are filled by permanent residents of the State or locality. Often, however, it is necessary for State and local governments to recruit outside their areas if shortages of particular skills exist in their areas.

### Earnings and Working Conditions

Earnings of State and local government employees vary widely, depending upon occupation and locality. Salaries from State to State tend to reflect differences in the general wage level in various localities. Clerical and blue-collar earnings in

State and local governments generally are comparable to those of workers in similar occupations in private industry. Earnings of administrative and professional employees in many areas tend to be somewhat lower than those for workers in similar occupations in private industry.

The *Handbook* statements for individual occupations often give salary information for State and local government employment. Salary information also can be obtained from the appropriate agency in each State and locality.

A majority of State and local government positions are filled through some type of formal civil service test, and personnel are hired and promoted on the basis of merit. In some areas, broad groups of employees, such as teachers, firemen, and policemen, have separate civil service coverage which applies only to their specific groups.

Most State and local government employees are covered by retirement systems or by the Federal Social Security program. They usually work a 40-hour week; overtime pay or compensatory time benefits often are granted for hours of work in excess of the standard workweek.

### Sources of Additional Information

People interested in working for State or local government agencies should contact the appropriate agencies in the State, county, or city. Local school boards, city clerks, school and college counselors or placement offices, and local offices of State employment services also will have further information.

## ARMED FORCES

When planning their careers, young men must consider their military service obligation. By knowing the choices available for fulfillment of this obligation, they can better fit their service period into their occupational plans. In many instances, the service activities provide valuable vocational training which is helpful in obtaining civilian jobs later on. The Armed Forces also offer many opportunities to qualified young men and young women for lifetime service careers in many occupations.

The Armed Forces are maintained through voluntary enlistment, supplemented by a Selective Service System which drafts young men between 18½ and 26. A young man may enlist in any one of a variety of programs involving different combinations of active service and reserve duty; or he may wait to be drafted for a 2-year period of active duty, followed by 4 years in the reserves; or, if qualified, he may enter one of several officer training programs and discharge his obligation in a commissioned status.

Additional choices for fulfilling a military obligation are available in reserve programs. One of these choices allows a young man to fulfill his military obligation by enlisting in the reserves for 6 years, at least 4 months of which are spent in active duty training. These enlist-

ment choices and the draft, however, are subject to change at any time by congressional action. The alternative choices described here in a general way serve only to illustrate a few possibilities. Detailed up-to-date information can be obtained from local Armed Forces recruiting stations or from publications available at high schools, colleges, and State employment service offices.

In 1970, military personnel were distributed among the various services as follows: Army, 1,231,000; Air Force, 755,000; Navy, 645,000; Marine Corps, 230,000; and Coast Guard, 38,000. A majority of all enlisted jobs in the Armed Forces require special in-service school training; on-the-job training is given for the remainder. It is possible for a young man, during his military service, to receive training in electronics, aircraft maintenance, metal-working, or other skilled work.

In addition to specific on-the-job training, the Armed Forces provide military personnel with a wide choice of voluntary off-duty academic and technical training programs. Military personnel may enroll in (1) the U.S. Armed Forces Institute (USAFI), (2) the Resident Center Program, (3) the Group Study Program, or (4) the Military Extension Correspondence Course Program. USAFI offers ap-

proximately 235 correspondence courses ranging from elementary school through the second year of college. In addition, approximately 6,000 courses are offered by colleges and universities under contract with USAFI. In the Resident Center Program, civilian institutions offer courses leading to high school diplomas and college degrees. These courses may be taken either on the military installation or on a nearby campus. The Group Study Program is offered on military installations where local civilian classes are not available. The Military Extension Correspondence Course Program provides technical courses in military specialties which are designed to advance career capabilities.

The Armed Forces also offer training to many servicemen during their final 6 months of service to prepare them for job opportunities in civilian life. The Transition Program provides counseling, training, education, and placement services to the combat-disabled, those having no civilian work experience, and those, including many combat veterans, who did not acquire civilian-related skills while in the service or had no opportunities to achieve high school graduation equivalency diplomas during their service.

Each of the services publishes handbooks describing entrance requirements, training, advancement, and other aspects of their career fields. These publications are available at all recruiting stations and at most State employment service offices, high schools, colleges, and public libraries.



# TECHNICAL APPENDIX

This appendix is designed for readers who wish to know more about procedures followed in developing employment outlook than is presented in preceding reports.

## Employment Outlook Conclusions

The employment outlook in the occupational reports is based on extensive economic and statistical analyses and information from many sources. Although sources and analyses among occupations and industries differed, the same general pattern was followed. To insure consistency of individual occupations and industries, the economy, based on an assumption of relatively full employment, was analyzed. Projections were made of the population, labor force, gross national product, average weekly hours, employment in major industries, and related economic measures and the individual reports were tied to these projections.

Many studies were based heavily on an analysis of past and prospective population trends, including expected changes in school and college enrollment, employment of women, and urban and suburban population. Population influences employment requirements in fields, such as teaching and health, and is of great importance in many industries—for example, residential construction, baking, telephone communication, and retail trade.

Many factors besides population size and composition affect employment in business and industry. Consumer purchasing patterns change as income levels shift and new products are developed. Technology brings changes in raw materials and equipment needed in production and influences the size, occupation, and skill of the work force. Research and development and government policies, such as defense and space programs, also bring about changes in occupations.

Each industry was analyzed and de-

mands for its products or services were projected. These projections then were translated into estimates of numbers and kinds of workers needed to produce services and products. Taken into account were employment trends of total employment, different occupations, productivity trends, and possible further reductions in the workweek.

Population and labor force trends are from the decennial Censuses of Population and the monthly labor force surveys conducted by the Bureau of the Census for the Bureau of Labor Statistics. Data also were drawn from the Censuses of Manufactures and Business conducted by the Census Bureau.

Information also was utilized from a variety of sources. Among the major sources were licensing agencies, labor unions, professional and trade associations, and special surveys.

Statistics on employment in nonagricultural establishments provided monthly data on employment, hours of work, earnings, and labor turnover, based on reports for the past quarter-century or more\* from a sample of industrial, commercial, and governmental establishments which employed approximately 31 million workers in March 1969.

Also contributing to the analysis of future trends was the Bureau's series of studies of productivity and technological development, information obtained in cooperation with the National Science Foundation about employment of scientists and engineers in research and other activities, and the Occupational Industry Matrix. The matrix consists of a set of tables for 116 industries, each showing a percentage distribution of employment among 160 of the most important occupations. The matrix was valuable in appraising the effects of changing employment levels in different industries, in specific occupations, and in each occupation.

\*See *Employment and Earnings*, U.S. Department of Labor, Bureau of Labor Statistics.

Conclusions based on an analysis of these various sources generally show increased employment, but these expected gains do not indicate the number of job openings. In most occupations, more workers are needed yearly to replace those who retire, die, or leave the occupation than are needed for growth. Consequently, even declining occupations may offer employment opportunities to many young people. To estimate the number of possible openings in an occupation, the Bureau has developed tables, similar to the actuarial tables of life insurance companies, to assess future rates of replacement from deaths and retirement. In occupations in which men are predominant, the rate of replacement for death and retirement is generally between 1.5 and 2.5 percent compared with 3.5 and 4.5 percent for women because so many women leave paid employment for marriage or family responsibilities.

Information so far in this section relates to the demand for workers. To appraise prospective employment opportunities in an occupation, information on the probable future supply of personnel is important. Statistics on high school and college enrollments and graduations, compiled by the U.S. Office of Education, are the chief sources of information on the potential supply of personnel in the professions and other occupations requiring extensive formal education. Data on numbers of apprentices from the U.S. Department of Labor's Bureau of Apprenticeship and Training provides some information on new entrants into skilled trades.

Many of the sources and approaches referred to earlier have been developed in recent years. Economic forecasting is still in the developmental stage and at best is difficult and uncertain. Basic assumptions and underlying projections (enumerated on p. 13) should be kept in mind. Within the framework of assumptions, basic employment trends can be discerned with sufficient accuracy to meet the needs of young people preparing for careers.



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