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ABSTRACT

This government publication provides a summary of occupational changes occurring between 1960 and 1970 and presents occupational estimates by industry, which were derived from such sources as the 1960 census and surveys conducted by the Bureau of Labor Statistics, other government agencies, the professional associations. From 1960 to 1970, the number of white-collar workers increased from about 29 million to 38 million. In comparison, all other types of workers increased at a much slower rate, from about 37 million to 41 million, and declined from about 56 percent to 52 percent of total employment. Technological changes have profoundly influenced employment trends. The fastest growth rates were for professional and technical jobs, which increased nearly 50 percent, and clerical jobs, which increased 40 percent. Between 1960 and 1970, total employment increased from 65.8 million to 78.6 million, which is nearly a 20 percent increase. (Author/AG)

OCCUPATIONAL EMPLOYMENT STATISTICS, 1960–70

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1972

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U.S. DEPARTMENT OF LABOR
J. D. Hodgson, Secretary

Bureau of Labor Statistics
Geoffrey H. Moore, Commissioner

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Preface

This report brings together information on employment by occupation from many sources to provide a handy reference volume to users of such data. It presents national occupational estimates by industry for the 1960-70 period derived from a variety of sources, including surveys conducted by the Bureau of Labor Statistics, Bureau of the Census, National Science Foundation, Office of Education, Interstate Commerce Commission, Federal Communications Commission, and data provided by many professional associations.

The most comprehensive source of data on occupational employment by industry is the 1960 census. Since more current statistics do not cover the occupational spectrum as comprehensively as the census, a method was developed to derive 1970 estimates of employment by occupation for all industries by using the 1960 census data and current data from other sources. This "occupational-industry matrix system" is described in chapter 1.

The 1970 estimates will be revised when a new matrix using data obtained from the 1970 Census of Population is prepared. These data will be available in late 1972 or early 1973. In addition, data will be available in 1972 for many occupations not covered by the Census from the BLS new Occupational Employment Statistics Survey Program, as described in chapter 2.

This bulletin was prepared by George T. Silvestri and Douglas F. Schmude in the Division of Manpower and Occupational Outlook of the Office of Manpower Structure and Trends. Three previous publications presented information on occupational employment statistics from 1947 to 1967. They are *Occupational Employment Statistics, Sources and Data* (BLS Report 305, 1966); *Occupational Employment Statistics, 1960-66* (BLS Bulletin 1579, 1968); and *Occupational Employment Statistics 1960-67* (BLS Bulletin 1643, 1970).

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Chapter 1. Summary of Occupational Changes Between 1960 and 1970

From 1960 to 1970, the number of white-collar workers increased from about 29 million to 38 million. In comparison, all other workers—blue collar, service, and farmers and farmworkers—increased at a much slower rate, from about 37 million to 41 million, and declined in relative terms from about 56 percent to 52 percent of total employment.

The occupational patterns of many industries have been altered by a variety of factors. New products and services have been created to meet new demands, and occupations have changed in response to these demands. New specialties have arisen in the scientific and engineering professions, especially in fields such as bionics, cryogenics, microelectronics, and ultrasonics. New occupations were created such as lunar geologists, trajectory analysts, cryogenic technicians, and environmental scientists and technicians.

Technological changes also have had a profound effect on occupations. For example, electronic data processing has eliminated many routine clerical jobs in addressing, billing, payroll, and inventory control, but has created many new and higher grade jobs in programming and computer equipment operation. Similarly, many new skills are required for the operation and repair of numerically controlled machine tools. By 1970, more than 20,000 of these were in use, mainly in the aircraft and parts, motor vehicle, machinery, and fabricated metal products industries. Other new technology introduced during the 1960's included metal cutting machines which used electrical discharge, chemical, ultrasonic, laser, and electron beam processes.

Occupational growth, 1960-70

Between 1960 and 1970 total employment increased from 65.8 million to 78.6 million, or at a rate of nearly 20 percent. But, all occupations did not share equally in this expansion. Changes in employment which occurred during this period in the major occupational groups are discussed below.

Professional, technical, and kindred occupations

Over 3.6 million more professional and technical workers were employed in 1970 than in 1960, an increase of nearly 50 percent. This percent was the fastest rate of growth of any broad occupational group, and was more than twice as fast as the rate of growth in total employment. Much of the growth for professional, technical and kindred workers was centered in the services industries and largely reflects the rapid expansion in the medical and educational services industries. The number of elementary, secondary, and college teachers increased by nearly 700,000 in the 10-year span, accounting for 20 percent of the growth of all professional and related workers. In addition, over 450,000 medical and other health workers were added to the work force with professional nurses accounting for over 40 percent of the increase.

Engineering employment approached 1.1 million by 1970, an increase of 33 percent during the 10-year period. Durable goods manufacturing, by far the largest employer of engineers, experienced over 40 percent of this employment increase. The number of natural scientists increased by 55 percent, as employment gains were recorded in every major industry division. Mathematicians experienced the sharpest employment increase among the various scientific occupations; their numbers more than doubled during the 10-year period. Growth in computer technology and in research and development activities spurred demand for these highly trained workers.

Technicians (except medical and dental) employment topped 1.0 million by 1970, growing 38 percent during the 10-year period. About two-thirds of the increase was in durable goods manufacturing and the service industries. Draftsmen remained the largest occupation among the technician group, over 300,000 workers in 1970, up 76,000 from 1960. Electrical and electronic technicians recorded the largest numerical and percent gains during the 1960-70 period, increasing by nearly 75 percent or by 88,000 workers.

Managers, officials, and proprietors

The employment of managers, officials, and proprietors increased by 17 percent to 8.3 million during the decade, growing somewhat more slowly than the 20-percent increase in total employment. The service industries recorded the largest numerical and percent gain for these workers during the 1960-70 period, accounting for one-third of the managerial increase. Wholesale and retail trade accounted for nearly 25 percent of the increase for this group during the same period and remained their principal employer with 3.5 million in 1970. Employment gains for managers were recorded in all other major industry divisions except agriculture, forestry and fisheries; and mining.

Salesworkers

In 1970, nearly 5.0 million salesworkers were employed in the national work force, an increase of 15 percent during the 1960-70 period. This rate of increase was below that for total employment and represented the lowest rate of growth for any white-collar group. Trade accounted for over 70 percent of all the salesworkers. The major part of these were in the retail sector. The trade industries recorded a 430,000 increase in sales employment during the 1960's and accounted for 68 percent of the increase for all salesworkers. The finance, insurance, and real estate division accounted for the next largest increase, 17 percent. Employment gains for salesworkers were recorded in all major industry divisions during the 1960-70 period.

Clerical and kindred workers

Nearly 4.0 million clerical jobs were added during the 1960-70 period, representing the largest numerical expansion and the second highest rate of growth, 40 percent by a broad occupational group. With the exception of agriculture, all major industry divisions recorded gains in clerical employment. By far, the largest and most rapid employment gains were in the service industry division where clerical employment jumped by over 1.4 million, increasing 80 percent over the 1960 level. The service industry division accounted for over 35 percent of the overall gain in clerical workers. By the end of the decade, the wholesale and retail trade sectors added over 800,000 new clerical workers while the finance, insurance, and real estate sectors added nearly 600,000, an increase of about 45 percent for each industry group. Government continued to be the leading employer of clerical workers, increasing their numbers by 463,000 up 33 percent in the past 10 years. Other industry groups which had sizable increases in clerical employment were durable goods manufacturing which added 230,000 an increase of 19 percent, and construction, which added 106,000, an increase of 150 percent.

The employment of stenographers, typists, and secretaries rose by 1.1 million between 1960 and 1970, an increase of nearly 50 percent. More than 50 percent of the rise was concentrated in the service industries.

Bank tellers and cashiers recorded the sharpest employment growth rate among the clerical workers; both categories increased by 77 percent over the 10-year period. The expansion of banking services and the development of banking outlets in the suburbs have spurred the employment growth of bank tellers. Rising incomes and the trend towards larger self-service stores contributed to the employment of cashiers.

Craftsmen, foremen, and kindred workers

Craftsmen and kindred jobs increased by over 1.6 million in the 10-year period, up 19 percent over 1960. The rate of growth for these workers kept pace with the nearly 20-percent increase in total employment for the whole work force. Durable goods widened its lead as the largest employer of these skilled workers, adding over 330,000 a 15-percent increase. Durable goods employment increases were centered largely in production occupations, such as machinist, or among the workers required to maintain and service the increasingly complex production machinery. Significant increases in skilled workers also were experienced in the trade industries. Requirements for motor vehicle mechanics rose in new car dealerships and the number of skilled installation, maintenance, and service workers grew sharply in wholesale machinery and equipment distributors.

By the end of the decade, the employment of construction craftsmen had increased by 213,000. This amounted to an 8-percent increase, a rate of less than half that recorded for all skilled workers during the same period. The employment for carpenters, painters and paperhangers, and plasterers decreased by 41,000, while the number of electricians increased by 81,000; excavating machine operators by 65,000; plumbers and pipefitters by 47,000; and structural metalworkers by 20,000.

These diverse occupational trends for construction craftsmen reflect the declining activity in homebuilding caused by the collapse of the home mortgage market in

1966 and the subsequent rise in interest rates. They also reflect the new technology entering the industry because of rising wage costs. Many building materials manufacturers are manufacturing more and more modular and prefabricated products, which diminish the total onsite construction time and reduce the demand for skilled labor.

Skilled mechanics and repairmen had the largest and sharpest gains in the craftsmen group; they recorded an employment increase of 778,000 jobs, up nearly 40 percent during the decade. The increasing demand for air-conditioning in residential and commercial installations triggered sharp gains in the number of air-conditioning and heating repairmen. Employment in this occupation skyrocketed to 118,000 in 1970, up nearly 90 percent from 1960; over half the 10-year increase was in the construction industry.

The number of office machine mechanic jobs rose by nearly 60 percent, up 29,000 in the 10-year period. Most of the gain was experienced in the wholesale and retail trade sector as the demand continued strong for business machines, including electronic computers, typewriters, computing machines, bookkeeping and accounting machines, and addressing, duplicating, and dictating machines. Airplane mechanics recorded above average increases in employment in response to the growing maintenance requirements of the Nation's larger and more complex commercial and general aviation aircraft fleet.

Operatives and kindred workers

Operatives and kindred workers were numerically the largest of the broad occupational groups in 1970; they numbered 13.9 million workers or over one-sixth of the total work force. During the 1960-70 period, the number of these semiskilled workers rose by nearly 2 million, an increase of 16 percent, a somewhat slower rate than that for the work force as a whole.

Manufacturing continued as the principal employer of operatives in 1970; over 8.5 million workers were divided between durable and nondurable goods manufacturing. Between 1960 and 1970, the number of operatives in manufacturing increased by more than 1.3 million workers, 67 percent of the total employment growth experienced by this occupational group. Over two-thirds of the 10-year increase of operatives in manufacturing was in durable goods. Operatives in nondurable goods manufacturing recorded a significant gain of over 450,000 workers during the same 10-year period.

Bus, truck, and tractor drivers experienced a modest overall gain of 85,000 or 5 percent during the 10-year period, which was substantially lower than for the whole work force. The transportation and public utility sector continued as the largest employer of bus, truck, and tractor drivers; such employment increased 11 percent since 1960, as trucks continued to increase their role as the Nation's freight mover. Employment of deliverymen and routemen increased at a rate of about 10 percent; nearly all of the growth was centered in trade.

Nearly 90,000 mine operative jobs were lost during the decade, down 31 percent, as the trend towards larger more highly mechanized mining operations led to a substantial reduction in the requirements for mine workers, despite an increased demand for mining products.

Textile occupations experienced different occupational growth patterns. Sewers and stitcher employment increased by 175,000, up 28 percent during the 1960-70 period. Apparel manufacturing accounted for nearly all the increase. Rising per capita income, styling, the changing age composition of the population, and the expanded demand for military apparel all contributed to a rise in demand for nearly all types of apparel.

Service workers

The number of service workers increased by 1.7 million, up 21 percent during the 1960-70 period, or only slightly faster than the 20-percent increase in total employment. However, if private household workers are excluded, the remaining service worker employment shows a much sharper increase of 35 percent during the decade, a rate more than 1 3/4 times that of total employment.

Service workers such as janitors, cleaners, and guards are found in nearly every industry, yet, in 1970, 6 out of 7 service workers were in two major industry divisions—trade and services (including private household). Between 1960 and 1970, nearly all growth in service worker employment occurred either in the trade or service industry divisions.

The number of hospital attendants nearly doubled from 450,000 to 830,000, and practical nurses increased by nearly 65 percent from 225,000 to 370,000. All of this growth was the result of the rapid expansion in medical and health services.

During the past decade, an additional 580,000 new jobs opened in the food service occupational group. Counter and fountain workers nearly doubled to 291,000 during the decade, and the number of

waiters and waitresses increased by 231,000, up nearly 30 percent.

Firemen and policemen were among the service workers experiencing significant employment gains. Population growth, together with further urbanization, and the growing public concern over crime were largely responsible for increases in employment in these important occupations.

Laborers (except farm and mine)

The employment of laborers remained nearly constant over the past 10 years, increasing by less than 5 percent. Although the overall employment change for laborers was minor, several important shifts did occur within individual industries. In manufacturing, laborers decreased by 148,000 down 13 percent from 1960, due to increased mechanization of production and material movement operations. However, these decreases were offset by significant employment gains in construction, trade, and government. Construction and trade in that order remained the two largest employers of unskilled laborers. Construction employed 22 percent of all laborers in 1970 compared with 20 percent in 1960, and trade employed 18 percent in 1970 compared with 16 percent in 1960.

Farmers and farmworkers

Employment of farmers and farmworkers between 1960 and 1970 dropped by over 2 million, or by 40 percent, as the long downward trend for this occupational group continued. Much of the decrease occurred on the smaller marginal farms, which were unable to keep pace with the new agricultural technology.

Notes on the industry-occupational employment matrix

Table 1 presents the full occupational detail of the 1960 and 1970 industry-occupational employment matrices at the broad industry level. The industry employment estimates presented in the table are based on the total employment concept used in the decennial census and Current Population Survey. They include private wage and salary workers, self-employed persons, and unpaid family workers. Federal, State, and local government workers employed in activities having counterparts in private industry are included in the private sector. For example, Federal Government employees at naval shipyards are included in the matrix durable goods industry. Only government workers involved in activities unique to government (e.g. judicial service) are classified in the public administration industry.

In developing the occupational estimates for the matrix, various sources of data other than the census report were utilized when they were judged to be more reliable, and many of these sources are specified in later chapters of this bulletin. For example, most of the occupational data collected from the survey of scientific and technical personnel were inserted into the matrix. As a general rule, occupational data collected directly from employers are preferable, because jobs are created by employers and, therefore, are best known to them. Also, one assumption is that social pressures give an upward bias to the job classifications reported by individuals.

The concepts used to obtain counts of people in various occupations often differ from those used in the decennial census and Current Population Survey (CPS). The census and CPS occupational estimates include persons 16 years of age and older who are currently employed within the boundaries of the United States and who are not members of the Armed Forces. Employed persons holding more than one job are counted only once and are classified according to the job at which they worked the greatest number of hours. The adjustment of data obtained from BLS occupational surveys for comparability with the matrix is explained in chapter 2. Other organizations generally do not adhere to the census criteria, because their purpose is to present membership counts or counts of licensed persons in particular occupations, whether or not they are currently employed. Therefore, it is necessary to adjust the data obtained from these sources to exclude retired persons, those working abroad, members of the Armed Forces, and other groups not meeting census and CPS criteria. For example, the data for physicians presented in chapter 4 were adjusted to exclude members of the Armed Forces and those practicing outside the United States. In addition, those physicians who were teaching full time and those who were doing research were subtracted from the count of total physicians, because they are included with teachers and scientists, respectively, in the matrix.

The term occupation as used in this bulletin refers to the job at which a person is working rather than the specialty, craft, or discipline for which he considers himself best trained. Thus, a person trained as a sociologist, but reported to be working as a salesman is classified in sales jobs rather than with professional jobs.

Chapter 2. Occupational Estimates from the Bureau of Labor Statistics Surveys

The Occupational Employment Statistics Program

A survey of employment of specific occupations in the metalworking industries was conducted in 1968 as an experiment to test the methods to be used in a comprehensive survey program on employment by occupation. Previously, only employment of scientific and technical personnel was surveyed by the BLS on a large scale. The survey of metalworking was conducted as a pilot survey for the Federal-State Cooperative Occupational Employment Statistics (OES) program. The primary purpose of the program is to provide more accurate data at more frequent intervals for many additional occupations than are currently available for the purpose of assessing current and future manpower requirements.

A survey of occupational employment in the printing and publishing industry (SIC 27), as of March 1970, was conducted also before the establishment of the OES program. The results of that survey are presented in table 3.

Design of the October 1968 metalworking survey

Six major industry groups were covered by the survey: (1) Ordnance and accessories (defined in the 1967 edition of the *Standard Industrial Classification (SIC) Manual*, prepared by the United States Office of Management and Budget as SIC 19); (2) fabricated metal products (SIC 34); (3) machinery (SIC 35); (4) electrical machinery, equipment, and supplies (SIC 36);[1] (5) transportation equipment (SIC 37); and (6) instruments and related products (SIC 38). The combined employment of the separate industries in this important segment of manufacturing constituted about 12 percent of total nonfarm wage and salary employment in the United States in 1968. Furthermore, of the 11.7 million workers in the durable goods segment, more than 3 out of 5 were in the metalworking industries. Employment covered by the survey was limited to private wage and salary employees.

A single occupational questionnaire was designed for use in all industries in the survey. Most of the 60 occupations and residual occupational categories surveyed have high levels of skill requirements and are common to all industries. Occupational definitions, based chiefly on the *Dictionary of Occupational Titles* and definitions developed in the BLS occupational wage survey program, accompanied each questionnaire. Some definitions were tailored exclusively for this survey to include learners, beginners, apprentices, trainees, handicapped, probationary, and part-time employees. The questionnaire was pretested in selected establishments for relevance to the industry, numerical importance of the specific occupations, and meaningfulness of the accompanying definitions.

Data for the metalworking survey were obtained mostly by mail questionnaire. In selected establishments which employ significantly large numbers of workers, however, data were obtained by personal visits of the Bureau's field staff. Employment in the reporting establishments represented 43 percent of all employees in the metalworking industries.

Table 2 gives the estimated employment and relative sampling error of the occupations surveyed in each major industry group as well as in total. The relative error shows the amount (in percentage terms) of deviation due to sampling variability between an estimate and the figure that would have been obtained had it been possible to take a complete census by using the same schedules and procedures. It does not include the effect of nonsampling errors, such as response error

[1] Radio and television transmitting, signaling, and detection equipment and apparatus industry (industry 3662) was surveyed separately in September of 1967 and 1968 and in March of 1970. The results of the 1967 survey appeared in the June 1968 issue of the *Monthly Labor Review*. The results of the 1968 survey have been adjusted to the October 1968 employment level and are being presented in table 2 as part of the electrical equipment industry. The results of the 1970 survey appear in table 4 together with the results of the earlier surveys.

resulting from misunderstanding the instructions or definitions; it does not include possible bias due to nonresponse by some firms. Estimates of fewer than 1,000 employees and those with a relative error of greater than 20 percent are not shown in table 2.[2] The Bureau will make available on request tabulations of occupational employment and relative sampling errors in greater industry detail (3-digit SIC) than shown in the table.

Design of the March 1970 printing and publication survey

Fifteen separate printing and publishing industries (SIC 27) were covered in this survey. At the time of the survey, the newspaper industry employed about a third of the 1.1 million workers in printing and publishing. Commercial printing, except lithographic, was the next largest industry segment, 210,000 workers, or about 20 percent of the total. The average number of employees in all other printing industries was only 39,000. Survey questionnaires were mailed to about 9 percent of the 32,000 establishments employing four workers or more throughout the 50 States and the District of Columbia. The weighted employment accounted for by usable responses was 62 percent of all workers in printing and publishing.

About 100 occupations were surveyed, and the procedures used to develop the occupational questionnaire and occupational definitions were similar to those used in the metalworking survey. (See p. 5.) Reporting was obtained on all full-time and part-time employees who received pay for any part of the payroll period that included March 12, 1970. Excluded were persons on leave without pay for the entire period, pensioners, and members of the Armed Forces who were carried on the rolls but did not work during the period. Table 3 gives the estimated employment and relative sampling error of the occupations surveyed.

Future survey plans

Results from the metalworking and printing and publishing surveys indicate that the OES program will fulfill the need for more timely and reliable data on occupational employment. A major objective of the program is to obtain data for as many occupations as possible by which to estimate current and future manpower requirements for States and areas, as well as for the United States as a whole. Another objective is to provide data for studying the occupational composition of industries to determine: (a) how occupational composition differs within an industry by size of plant, process, and other factors; (b) the degree of interplant variability; and (c) how occupational composition changes over time. Also, the program is intended to provide data for computing job vacancy rates in the Job Opportunities Labor Turnover Statistics (JOLTS) program.

The OES survey program is designed to evolve into a full-fledged Federal-State cooperative program.[3] Manufacturing industries are to be surveyed in 1971 and nonmanufacturing in 1972. This 2-year cycle will be repeated in subsequent years so that occupational employment changes over time can be analyzed. For manufacturing, the national sample will provide occupational employment estimates for publication at the 3-digit SIC level. However, plans call for occupational estimates to be developed at the 4-digit level for analytical purposes and for establishing a data bank of occupational patterns for use by State manpower analysts to develop estimates for States and subdivisions of States.

The surveys will be conducted by mail, using structured mail questionnaires; i.e., questionnaires with a list of the occupations on which reporting is desired. However, they will be open ended to permit respondents to identify separately important, as well as new and emerging, occupations not identified in the document, and to report employment in these occupations. These then can be added to the questionnaires for each industry in subsequent surveys.[4] Questionnaires which

[2] Estimates of fewer than 1,000 employees shown in the employment matrix (table 1) probably have an even greater degree of unreliability than estimates of comparable size based on surveys. They are shown, however, to convey the general level and position they hold in relation to one another.

[3] As of June 1971, 10 States were already in the program, and additional States were seeking to participate.

[4] The next survey of metalworking will use a questionnaire with more than twice as many as the 60 specific occupations and residual occupational categories covered by the 1968 survey. This will help to reduce the size of all residual occupational categories, especially the category "all other production maintenance, material movement, and powerplant workers." This category, which was 33 percent of all production and related workers for all industries combined, ranged from 25 percent in nonelectrical machinery (SIC 35) to 37 percent in transportation equipment (SIC 37). In addition, the new questionnaire will be improved to make the list of occupations more representative of skill groups other than just the most highly skilled blue-collar groups. This will be accomplished by adding about 20 new semiskilled and unskilled blue-collar occupations.

ask the employer to provide his own list of occupations and the numbers employed in each (unstructured questionnaires) are being tested and may be used to some extent in the future.

Standard lists of occupations, one for manufacturing industries and one or more for nonmanufacturing industries, will be developed for inclusion on each survey questionnaire. These standard lists will be supplemented by other occupations which either employ sizable numbers of workers or require a substantial period of education and training. A significant proportion of these will be unique to particular industries, such as tanners in the leather industry and leaf trimmers in the tobacco industry. Each structured questionnaire will be accompanied by occupational definitions, which will be standardized as much as possible. However, some variation from industry to industry in the wordings of the definitions for the same job will be necessary in order for the surveyed establishment to respond accurately to the questionnaires.

Survey of Scientific and Technical Personnel

In 1962, under the sponsorship of the National Science Foundation, the Bureau of Labor Statistics began to fund annually a series of scientific manpower surveys which had been started in the mid-1950's.

Data collected from the pre-1961 surveys are not comparable with those collected after 1960, because the earlier surveys were based on a sample of companies rather than on a sample of establishments.[5] Before 1961, the employment of an entire company was classified in the industry with which the company was primarily associated. This led to an incorrect classification of employment by industry in companies that had plants which had activity in different industry. For further accuracy, the survey of scientific and technical personnel in industry has been refined to show a greater subdivision of industry detail. For instance, the private payroll employment of scientists, engineers, and technicians was tabulated for 89 industries in 1968 compared with 55 in 1961. This expansion and finer classification has provided more detail on the structure of the occupational patterns in industry.

The universe in the 1969 survey covered about 34 million workers in 530,000 establishments from which a sample of 27,000 establishments was drawn. The results of the 1969 survey are the most reliable occupational data available on scientific personnel in private industry.[6]

This annual collection of data for scientists, engineers, and technicians, was part of a program to provide occupational statistics on the Nation's scientific and technical manpower in private industry. However, beginning in 1971, the collection of occupational data for scientists, engineers, and technicians in private industry will be included in the Occupational Employment Statistics program of the Bureau of Labor Statistics.

Tables 5, 6, and 7 present occupational employment statistics for engineers, scientists, and technicians by industry and year. Table 8 shows the employment of scientists in six occupations by industry for January 1969. The employment of technicians in six occupations for January 1969 is presented by industry in table 9.

The estimates for scientists, engineers, and technicians covered by this survey include only wage and salary employees in most of private industry. These data were combined with estimates of employees out of the scope of the survey in order to derive total employment in these occupations for inclusion in the occupational matrix. Data obtained from the Bureau of the Census are used to estimate the number of self-employed in these occupations. The Civil Service Commission provides estimates on the numbers employed in the Federal Government. (See table 18.) Data obtained from the National Science Foundation are used to estimate the employment of scientists, engineers, and technicians in educational institutions and nonprofit organizations. (See tables 11-15.)

[5] For information on the pre-1961 surveys see *Scientific and Technical Personnel in Industry, 1960* (1961); National Science Foundation, *Scientific and Technical Personnel in American Industry, Report on a 1959 Survey* (1962); *Science and Engineering in American Industry, Final Report on a 1953-54 Survey* (October 1956) and *1956 Survey* (November 1956).

[6] See *Scientific and Technical Personnel in Industry, 1957* (BLS Bulletin 1674), Washington, D.C. and *Scientific and Technical Personnel in Industry, 1961-66*, (BLS Bulletin 1609), Washington, D.C.

Survey of Scientific and Technical Personnel in Government

Employment of scientific, professional, and technical personnel by State Government in January 1964 and 1967 was obtained from sample surveys conducted by the Bureau of Labor Statistics, and is shown in table 10. State data are for the 50 States and exclude State educational institutions. Similar surveys of State Government employment were made for 1959 and 1962;[7] however, these surveys are not comparable in all their detail with the later ones.

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[7] *Employment of Scientific and Technical Personnel in State Government Agencies, 1962* (BLS Bulletin 1412). *Employment of Scientific and Technical Personnel in State Government Agencies, Report of a 1959 Survey,* 1961, NSF 61-17, National Science Foundation. This survey was sponsored by the National Science Foundation and conducted by the Bureau of Labor Statistics.

Chapter 3. Occupational Estimates From Other Government Agencies

Many Government agencies, including the National Science Foundation, the Office of Education, the Interstate Commerce Commission, the Federal Communications Commission, and the U.S. Civil Service Commission collect occupational data in their area of immediate interest. This chapter discusses these sources of occupational information. In many instances these data are published in greater detail than can be used in the occupational matrix.

The National Science Foundation

The National Science Foundation publishes information on the employment of scientific and technical personnel in universities and colleges and nonprofit institutions. (See tables 11-15.) The Foundation reported 350,000 full- and part-time engineers and scientists at work in January 1970 in colleges and universities. Of this total, 254,000 were employed directly by colleges and universities, 84,000 were graduate students receiving stipends for part-time work, and nearly 12,000 were employed in university-administered Federally Funded Research and Development Centers (FFRDCs).

These centers emerged during World War II and have continued as a means to meet the research and development needs of particular Federal agencies. The U.S. Department of Defense, the Atomic Energy Commission, and the National Aeronautics and Space Administration fund these centers. Universities, colleges, nonprofit institutions, and industrial firms administer them. In 1970, 11,200 scientists and engineers were employed by FFRDCs administered by universities and colleges; 5,900 by FFRDCs administered by nonprofit institutions; and 5,500 by FFRDCs administered by industrial firms.

In addition to colleges and universities, independent research and scientific nonprofit institutions employed nearly 24,000 scientists and engineers in 1970. Included in independent research and scientific nonprofit institutions are foundations, science exhibitors, professional and technical societies, academies of science, and independent research institutes. The following are examples of the five types of independent research and nonprofit institutions: Ford Foundation, American Museum of Natural History, American Chemical Society, National Academy of Science and the Battelle Memorial Institute.

For the interested reader, the National Science Foundation has available a recent publication with further occupational characteristics of scientists and engineers employed by nonprofit organizations.[1]

Office of Education

The Office of Education provides annual employment estimates for elementary, secondary, and college teachers. These estimates and their 10-year projections are contained in the annual publication *Projections of Educational Statistics.* The teacher estimates for public schools are provided by the State Department of Education, and those for nonpublic schools are provided individually.

The estimates for librarians include all full-time librarians and a full-time equivalent estimate for those working part time. Special and public librarians are included in the estimates. Special librarians work in libraries maintained by commercial and industrial firms; public libraries included in table 16 are those confined to cities that have populations of 35,000 or more. However, the estimate for librarians used in the matrix

[1] *Resources for Scientific Activities of Independent Nonprofit Institutions,* 1970, National Science Foundation, Washington, D.C. Also see *Scientific Activities of Nonprofit Institutions–1966 Expenditures and January 1967 Manpower* (1969), NSF 69-16, National Science Foundation and Scientific *Activities of Nonprofit Institution–1964 Expenditures and January 1965 Manpower* (1967), NSF 67-17, National Science Foundation, Washington, D.C.

includes all librarians performing work as librarians in a primary job, whether they are employed full time or part time.

Federal Regulatory Agencies

The Federal regulatory agencies such as Interstate Commerce Commission (ICC) Federal Aviation Agency (FAA); and Federal Communications Commission (FCC) provide a rich source of annual occupational employment statistics for the regulated industries. Mandatory reports from the companies in these sectors are filed with the agencies.

Annual information on over 200 occupations and occupational groups is on file with the regulatory agencies. However, some of the broader occupational classifications on file are not consistent with generally accepted occupational classifications from the Bureau of the Census (e.g., construction installation and repair employees and business office and sales employees). Nevertheless, the employment trends indicated in the broad occupational categories provide helpful information in discerning the change in the employment of occupations within the broad categories. Selected occupational data from these reports are presented in table 17.

The occupational estimates derived from the government regulatory agencies include many different occupational concepts. For example, estimates from the FAA are full-time equivalents, but those from the ICC are an annual average based on the number of employees on the payroll at midmonth for 12 months. To maintain conceptual consistency with other data, these estimates were adjusted to include only the primary jobs of all full-time and part-time workers before they were inserted into the matrix. The regulated economic sectors are described in the following sections.

Railroads

The railroad industry is defined as including class I and class II line haul railroads, class I and class II switching and terminal companies, the Pullman Company, the Railway Express Agency, Inc., and electric railways. Railroad companies are classified for statistical purposes as class I or class II, depending on their average operating revenues for a 3-year period. Since January 1, 1965, railroad companies that had average annual operating revenues of $5,000,000 or more were classified as class I. Those railroads not meeting this revenue test were classified as class II. From 1956 through 1964, the test for a class I railroad was an annual operating revenue of $3,000,000 or more.

Class I railroads

Class I railroads accounted for about 90 percent of the railroad transportation industry's employment in both 1968 and 1969. In 1969, 73 class I line haul railroad companies operated 178,099 miles of road, and 27 class I switching and terminal companies operated 3,030 miles of track.

Class I railroads submit annual reports to the ICC, which summarizes them in Statement No. A300, *Wage Statistics of Class I Railroads in the United States*. Before 1966, the employment data for class I railroads were summarized in statement M300. These statements show employment for 128 occupational categories, a few of which consist of a mixture of occupations. Only a selected number of occupational categories are shown in this bulletin.

Railway express agency

During the 3 years ending in 1969, the Railway Express Agency has accounted for about 4 percent of the employment in the railroad transportation industry. Employment data for 28 occupational groups employed by the Railway Express Agency are provided in the annual issues of *Transport Statistics in the United States*, part 1, section F. Data covering the period before 1966 may be found in *Transport Statistics in the United States*, part 3.

Pullman company

In 1968, the Pullman Company reported employment of 2,945, or less than one-half of 1 percent of the employment in the railroad industry. This was the last year in which the Pullman Company reported data to the ICC. Pullman service is now being provided by the individual railroad companies. Occupational data for the period of 1966 to 1968 may be found in the annual issues of *Transport Statistics in the United States*, part 1, section E. Data relating to the period before 1966 appear in part 2 of *Transport Statistics in the United States*.

Oil pipelines

Pipeline companies subject to the jurisdiction of the ICC are those carriers engaged in the interstate

transportation of oil or other commodities, except water and gas. In 1969, 99 pipeline companies, two more than in the previous year, which accounted for about 87 percent of the industry employment filed reports containing occupational data with ICC. These data appear in *Transport Statistics in the United States*, part 6.

Scheduled airlines

Air Transport Facts and Figures, published annually by the Air Transport Association of America contains occupational employment information on the airline industry filed with the Civil Aeronautics Board. In 1969, these data covered over 90 percent of the airline industry employment. The Federal Aviation Agency annually publishes the *FAA Statistical Handbook of Aviation*, in which employment and other scheduled airline information appears in great detail.

Telephones

Occupational employment information in the telephone industry can be acquired from annual reports of the Federal Communications Commission (FCC) and the U.S. Independent Telephone Association. The U.S. Department of Labor publishes an annual wage survey in the communication industry entitled *Industry Wage Survey: Communications*. The data contained in the wage survey bulletin are compiled from annual reports filed with the FCC by Bell-System Telephone Carriers having annual revenues that exceed $1 million. Before 1965, the annual revenue test was $250,000.

Annual occupational employment data for the independent telephone segment of the telephone industry is available in the *Independent Telephone Statistics* published by the U.S. Independent Telephone Association. The combination of the two reports covers all employment in the telephone industry, except for officials and managerial assistants employed by the Bell-System.

Telegraph

Occupational employment data for the telegraph industry are published annually in the BLS *Industry Wage Survey: Communications*. The telegraph industry data contained in this survey are compiled from annual reports filed with the FCC by all companies in the telegraph industry having annual revenues that exceed $50,000. The latest data cover the 24,780 employees of the Western Union Telegraph Co. in 1969. The employment was below that reported a year earlier (26,131). Since BLS's initial annual study in 1947, employment, exclusive of officials and managerial assistants, has declined from 53,107 to 24,780, in the Western Union Telegraph Co.

The six international telegraph carriers reported a total employment of 5,522 in October 1969. The data include carriers engaged in nonvocal international telegraph communications by radio or by ocean cable. Although many of the occupational groups are in general use by radio, telegraph, or ocean cable carriers, a few are exclusive to one carrier group. For example, radio operators were employed for only radio telegraph carriers, and cable operators were employed only for ocean cable carriers.

Approximately 2,300 employees working outside the conterminous United States and the District of Columbia are excluded. These data included employment for the whole industry.

U.S. Civil Service Commission

The Federal Government is by far the Nation's largest employer; it employs more than 3,000,000 white-collar and over 800,000 blue-collar workers. The U.S. Civil Service Commission (CSC) compiles these data[2] in two separate publications—one includes white-collar and the other blue-collar employment.

The CSC's occupational classification system generally is not comparable with that of the Census because of the finer occupational detail and more functional framework found in the CSC system. However, occupations in the CSC system are classifiable into the census system for use in the matrix through the *Census of Population Classified Index of Occupations and Industries*. In the industry-occupation matrix, the industry concept of Federal Public Administration is used instead of the total Government concept. Therefore, many employees who appear in CSC estimates of the Federal Government work force are distributed to other industries. (See page 4.)

In the latest bulletin on white-collar workers, *Occupations of Federal White-Collar Workers* published by the CSC (October 31, 1968), occupational data are presented for over 450 occupational series for each of 23

[2] Excluding the Central Intelligence Agency and the National Security Agency.

agencies (including one catchall category).[3] Over 80 percent of all full-time white-collar personnel were concentrated in six employer agencies–Department of Defense; Post Office; Veterans Administration; Department of Health, Education, and Welfare; Department of Agriculture; and Department of Treasury. The Department of Defense was the largest employer, it had a total of 645,970 full-time white-collar personnel.

Table 18 shows white-collar occupational employment information for over 150 occupations containing employment of 1,000 persons or more at least once during the periods ending October 31, 1964, October 31, 1966, October 31, 1967, and October 31, 1968. Employment in selected Post Office occupations is presented in table 20.

[3] Earlier data are contained in similarly titled publications dated Oct. 31, 1966; Oct. 31, 1961; Oct. 31, 1960; Oct. 31, 1959; Oct. 31, 1958; Feb. 28, 1957; and Aug. 31, 1954. Unpublished data are available for 1964 and 1962. Data for 1951 and 1947 are in BLS Bulletin 1117, which was published in cooperation with the U.S. Civil Service Commission.

The latest blue-collar publication, *Occupations of Federal Blue-Collar Workers* (October 31, 1968), contains data for nearly 1,500 separate occupations combined into 36 specific job families and a "miscellaneous occupations" job family.[4] In 1968, job family size ranged from 75,451 in mobile industrial equipment operation and maintenance to four in plastic material manufacturing. Many of the blue-collar occupations which make up the Federal blue-collar work force are shown in table 19. Blue-collar employment was reported for 58 Federal agencies; however, about 90 percent of all full-time blue-collar employees were concentrated in four agencies–the Department of Defense reported 472,653 (75.2 percent); the Post Office, 33,719 (5.4 percent); the Veterans Administration, 33,834 (5.4 percent), and General Services Administration, 19,062 (3.0 percent).

[4] Earlier data are contained in similarly titled publications dated Oct. 31, 1960; Oct. 31, 1958; and Feb. 28, 1957; unpublished data re available for 1961, 1962, and 1965.

Chapter 4. Occupational Estimates From Professional Associations

This chapter discusses occupational information from professional associations and societies that maintain and publish information annually or biennially on occupational employment from licensure statistics, from their own membership records, and from other sources. The data for the occupations shown in this chapter and presented in table 21 were made consistent with the employment concepts used in the occupational matrix. (See the discussion of this on page 4.)

Dentists

Employment information for dentists is published by the American Dental Association (ADA) in *Distribution of Dentists in the U.S. by State Region, District, and County*. Before 1969, the report was published annually; since then, it has become a biennial report. These estimates include all practicing dentists whether or not they are members of ADA. Data on nonmembers are collected through the State boards.

Nurses

Employment information concerning nurses may be found in *Facts About Nursing*, an annual report published by the American Nurses Association. Nursing estimates were developed by the American Nurses Association in cooperation with State boards of nursing, which used licensure records to collect data.

Optometrists

The American Optometry Association publishes reports periodically that contain current manpower estimates as well as future manpower needs. This information is based on licensure and registration data from each of the 50 States and the District of Columbia. The estimates for 1965 through 1970 include only those optometrists who are actively practicing their profession. The Public Health Service publishes statistics for this category in the *Health Manpower, United States 1965-1967* and *Health Resources Statistics*. The estimates for 1969 and 1970 are from the American Optometry Association.

Osteopaths

Employment estimates for osteopaths are available from the American Osteopathic Association's annual report, *A Statistical Study of the Osteopathic Profession*. These estimates exclude the retired and those for whom status was not reported.

Pharmacists

Employment data before 1967 are from the NABP Bulletin published by the National Association of Boards of Pharmacy. Since 1967, employment data for pharmacists have been from *Licensure Statistics and Census of Pharmacy* published by the NABP. The data from both sources represent a count of registered pharmacists in practice obtained from NABP census and licensing data.

Physicians

About one-third of the physicians in private practice are general practitioners and two-thirds are specialists. Included in the employment estimates for physicians are specialists in all 33 fields recognized by the medical profession. Among the largest specialties are internal medicine, surgery, obstetrics and gynecology, psychiatry, pediatrics, radiology, anesthesiology, ophthalmology, and pathology. Since 1967, employment estimates for physicians have been attained from *Distribution of Physicians, Hospital, and Hospital Beds in the United States, Regional, State County, Metropolitan Area*. This annual survey was published by the Department of Survey Research, American Medical Association. In order to conform to the civilian labor force concept of the Current Population Survey, which is the basis for the matrix system, the estimates exclude the

military, retired, and physicians who have temporary foreign addresses.

Podiatrists

The employment estimates for podiatrists were developed by the American Podiatry Association from State licensing data. The revised 1965 edition of *Podiatry as a Career* by Wilfred Belleau gives 1962 employment data. *Numbers and the Podiatry Professions* by Lloyd E. Blauch, provides data for 1963; *Journal of the American Podiatry Association*, March 1965, "1964 Survey of the Podiatry Profession: The Podiatrists: Distribution, Education Organizational Relationships," by Lloyd E. Blauch, gives 1964 data. Estimates for 1965 through 1970 were furnished by the American Podiatry Association. In 1970, each State's licensing board was contacted for a list of podiatrists. A survey then was conducted by the Department of Health, Education, and Welfare from this list to determine how many were practicing.

Veterinarians

Dimensions of Veterinary Medicine and the various editions of *AVMA Directory*, a biennial publication, give employment data for licensed veterinarians. Both of these reports are published by the American Veterinary Medicine Association (AVMA), and exclude the military and those who are retired. Data for 1968 and 1969 are estimates made by AVMA.

Architects

The 1968 and 1969 estimates are from the National Council of Architectural Registration, Washington, D.C. Data for previous years are from the Architectural Institute of America. Data include only single registrants from their base state of original licensing. Both sources may include some retired registered architects.

Foresters

The employment data from foresters in 1961 are from a survey of alumni by colleges granting degrees in forestry and a count of the nondegree members of the Society of American Foresters. The data was published in an article, "How Many Foresters", by F. H. Eyre in the *Journal of Forestry, 1962*. The 1962 and 1966 data are estimates made by the Society. They are based on the 1961 figure and have been adjusted to include entrants (degree recipients) and exclude retired personnel. The data for 1968 and 1969 are estimates by the Bureau of Labor Statistics.

TABLES

Table 1. Number of employed persons by occupation and industry, 16 years of age older, 1960 and 1970

OCCUPATION	TOTAL ALL INDUSTRIES		AGRICULTURE FORESTRY AND FISHERIES TOTAL		TOTAL MINING		CONSTRUCTION		TOTAL MANUFACTURING		DURABLE GOODS MANUFACTURING	
	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP
INDUSTRY TOTAL	65,778.0	78,627.0	5,391.0	3,566.0	720.0	637.0	4,056.0	4,568.0	17,144.0	19,735.0	9,701.0	11,473.0
PROFESSIONAL TECHNICAL WRS.	7,469.0	11,140.0	57.9	69.2	60.1	56.3	226.9	267.0	1,363.1	1,816.3	942.7	1,296.6
ENGINEERS,TECHNICAL	810.0	1,081.3	1.2	1.5	19.5	18.2	86.6	96.9	482.6	615.7	413.6	526.5
ENGINEERS,AERONAUTICAL	45.8	63.9	.0	.0	.0	.0	.0	.0	40.1	53.2	40.1	50.1
ENGINEERS,CHEMICAL	39.6	50.2	.0	.2	1.9	1.5	.3	.2	32.5	41.2	8.5	10.4
ENGINEERS,CIVIL	146.0	170.9	.6	1.1	1.3	1.4	78.1	86.3	13.3	15.9	9.7	12.1
ENGINEERS,ELECTRICAL	174.7	233.8	.0	.0	1.2	1.0	2.5	2.5	113.1	142.0	109.9	138.3
ENGINEERS,INDUSTRIAL	83.2	115.7	.0	.0	1.2	1.7	.9	.7	67.7	89.1	57.1	73.7
ENGINEERS,MECHANICAL	153.5	206.7	.0	.1	1.4	1.9	3.8	3.6	117.3	154.1	103.5	135.9
ENGINEERS,METALLURG,ETC	20.1	25.5	.0	.0	.3	.6	.0	.0	17.7	20.8	18.9	19.6
ENGINEERS,MINING	14.0	14.6	.0	.0	10.7	8.5	.1	.1	1.5	2.0	.4	.7
ENGINEERS,SALES	50.1	68.6	.0	.0	1.0	1.0	1.2	.9	35.7	43.8	32.0	39.0
OTHER ENGINEERS,TECHNICAL	83.0	121.6	.5	.2	.5	.7	1.7	2.6	43.9	56.6	35.7	46.7
NATURAL SCIENTISTS	235.6	364.8	10.1	11.3	12.3	4.4	1.8	2.4	106.5	142.2	38.4	54.1
CHEMISTS	91.0	118.3	.9	.2	1.3	.9	.5	.4	63.5	80.9	16.1	19.0
AGRICULTURAL SCIENTISTS	30.0	39.2	7.5	8.4	.0	.1	.1	.1	3.1	3.9	.8	.5
BIOLOGICAL SCIENTISTS	29.5	49.9	1.5	2.5	.0	.0	.1	.1	7.6	9.0	.8	.7
GEOLOGISTS,GEOPHYSICISTS	18.0	25.4	.0	.1	10.7	12.8	.6	1.0	1.6	1.3	.6	.8
MATHEMATICIANS	20.7	48.6	.0	.1	.1	.4	.3	.5	9.5	23.5	8.3	20.1
PHYSICISTS	24.0	35.9	.0	.0	.2	.1	.0	.0	11.1	12.5	9.7	9.7
OTHER NATURAL SCIENTISTS	22.4	47.5	.1	.1	.0	.2	.1	.3	8.1	11.1	2.6	3.2
TECHNICIANS,EXC MEDICAL,DENT	730.9	1,011.7	6.0	9.4	15.7	10.0	92.2	108.9	331.2	434.9	260.8	361.6
DRAFTSMEN	223.0	309.5	.2	.2	3.6	3.7	26.5	34.0	128.4	150.2	117.3	140.8
SURVEYORS	44.0	51.2	.4	.5	1.7	1.5	13.5	15.2	.7	1.9	.4	1.7
AIR TRAFFIC CONTROLLERS	12.0	20.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
RADIO OPERATORS	17.0	22.3	.0	.0	.2	.2	.3	.4	.6	.8	.5	.7
ELECTRICAL AND ELECTRONIC	117.6	205.5	.1	.2	.5	.7	2.9	11.6	65.4	102.3	64.7	98.8
OTHER ENG,AND PHY,SIC	238.0	264.2	.8	2.2	6.8	2.1	46.5	36.5	118.6	132.5	75.6	91.8
TECHNICIANS,OTHER	69.3	139.0	4.4	6.3	.9	1.6	2.2	3.3	17.6	47.1	2.7	25.7
MEDICAL,OTHER HEALTH WORKERS	1,321.4	1,776.4	15.0	18.4	.3	.2	.2	.1	16.5	12.9	9.9	6.5
DENTISTS	86.7	96.7	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
DIETITIANS,NUTRITIONISTS	27.2	35.0	.0	.0	.0	.0	.0	.0	.5	.7	.2	.4
NURSES,PROFESSIONAL	495.6	688.7	.0	.0	.1	.1	.1	.0	8.7	6.3	5.6	4.1
OPTOMETRISTS	17.0	17.4	.0	.0	.0	.0	.0	.0	.1	.0	.1	.0
OSTEOPATHS	13.1	13.5	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
PHARMACISTS	113.8	128.8	.0	.0	.0	.0	.0	.0	1.8	2.7	.1	.2
PHYSICIANS AND SURGEONS	220.9	266.0	.0	.0	.1	.1	.1	.0	1.4	1.1	.8	.7
PSYCHOLOGISTS	17.0	33.2	.0	.0	.0	.0	.0	.0	.4	.5	.3	.3
TECHNICIANS,MEDICAL,DENTAL	140.8	263.0	.2	.1	.0	.0	.0	.0	3.5	1.2	2.8	.7
VETERINARIANS	18.6	24.0	14.7	18.3	.0	.0	.0	.0	.1	.2	.0	.0
OTHER MEDICAL,HEALTH WRKS	170.8	215.0	.0	.0	.0	.0	.0	.0	.1	.1	.0	.0
TEACHERS	1,945.1	3,072.0	.1	.0	.1	.1	.5	.3	3.3	3.8	2.3	2.6
TEACHERS,ELEMENTARY	977.9	1,260.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TEACHERS,SECONDARY	602.7	1,015.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TEACHERS,COLLEGE	206.2	552.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TEACHERS,OTHER	158.5	245.0	.1	.0	.1	.1	.5	.3	3.3	3.8	2.3	2.6
SOCIAL SCIENTISTS	45.7	63.2	.1	.1	.3	.4	.5	.5	11.1	13.1	6.7	8.1
ECONOMISTS	17.1	25.0	.1	.1	.1	.1	.1	.1	4.9	5.9	2.9	3.6
STATISTICIANS + ACTUARIES	22.8	29.2	.0	.0	.2	.2	.4	.4	5.7	6.5	3.6	4.3
OTHER SOCIAL SCIENTISTS	5.8	9.0	.0	.0	.0	.1	.0	.0	.5	.7	.2	.3
OTHER PROF, + TECH, WORKERS	2,380.3	3,770.7	25.4	28.5	11.9	13.0	44.9	65.9	411.8	593.7	210.9	337.3
ACCOUNTANTS AND AUDITORS	429.3	491.0	1.0	.8	7.3	6.9	11.0	10.7	112.1	106.4	69.3	66.6
AIRPLANE PILOTS,NAVIGATORS	28.5	57.0	1.6	2.6	.4	.7	.4	.7	2.6	4.8	1.9	3.5
ARCHITECTS	30.0	33.0	.1	.1	.0	.0	1.4	1.9	1.0	1.4	.8	1.1
WRKRS IN ARTS,ENTERTAINMNT	470.0	750.0	4.5	4.1	.0	.0	.6	1.0	44.1	58.7	24.1	30.2
CLERGYMEN	200.0	208.0	.0	.0	.0	.0	.0	.0	.1	.1	.0	.0
DESIGNERS,EXC DESIGN DRAFT	64.0	93.0	.6	.8	.1	.2	3.7	5.1	37.1	50.6	23.0	31.7
EDITORS AND REPORTERS	100.0	112.0	.1	.0	.0	.2	.1	.1	73.7	78.5	4.0	4.6
LAWYERS AND JUDGES	225.0	286.9	.1	.1	1.4	.9	1.1	1.2	6.2	8.6	3.7	4.0
LIBRARIANS	80.0	125.0	.1	.1	.0	.1	.1	.0	1.4	2.1	.8	1.4
PERSONNEL AND LAB REL WRKS	100.0	160.0	.1	.1	.9	1.3	1.1	1.9	34.8	47.9	23.1	31.2
PHOTOGRAPHERS	51.0	65.0	.0	.0	.1	.1	.2	.1	15.0	20.5	4.1	5.1
SOCIAL AND WELFARE WORKERS	105.0	170.0	.0	.0	.0	.0	.0	.0	.3	.3	.3	.2
PROF + TECH WORKERS N.E.C.	495.5	1,219.8	17.3	19.9	1.6	2.8	25.3	43.0	83.4	215.8	55.7	157.6

Table 1. Number of employed persons by occupation and industry, 16 years of age and older, 1960 and 1970—Continued

OCCUPATION	NONDURABLE GOODS MANUFACTURING		TRANSPORTATION COMMUNICATIONS PUBLIC UTILITIES		WHOLESALE AND RETAIL TRADE		FINANCE INSURANCE AND REAL ESTATE		SERVICES		GOVERNMENT PUBLIC ADMINISTRATION	
	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP +	60 EMP	70 EMP	60 EMP	70 EMP
INDUSTRY TOTAL	7,443.0	8,262.0	4,500.0	5,005.0	13,210.0	16,030.0	2,632.0	3,642.0	14,500.0	20,736.0	3,209.0	4,425.0
PROFESSIONAL TECHNICAL WKRS.	420.5	516.6	240.2	347.6	256.7	362.2	76.6	116.0	4,738.2	7,424.8	446.1	700.7
ENGINEERS,TECHNICAL	66.0	86.1	51.6	66.5	15.2	26.1	2.5	5.8	61.6	173.5	56.7	77.1
ENGINEERS,AERONAUTICAL	.0	.1	.4	.8	.0	.0	.0	.0	1.7	3.6	3.5	9.3
ENGINEERS,CHEMICAL	24.0	30.8	.8	.8	.5	.7	.0	.0	3.3	5.9	.5	.7
ENGINEERS,CIVIL	3.6	3.0	10.3	11.6	.0	1.4	.7	1.3	21.6	36.3	21.3	24.6
ENGINEERS,ELECTRICAL	9.2	9.7	26.6	36.0	1.1	1.3	.1	.1	16.2	33.7	10.7	17.3
ENGINEERS,INDUSTRIAL	10.5	15.4	2.3	3.1	.8	1.6	1.5	3.1	6.2	12.2	2.7	3.4
ENGINEERS,MECHANICAL	13.6	18.2	6.2	7.4	2.1	3.0	.1	.3	15.0	28.1	7.7	7.2
ENGINEERS,METALLURG,ETC	.8	1.2	.4	.6	.1	.1	.0	.0	1.2	2.6	.4	.5
ENGINEERS,MINING	1.1	1.2	.2	.6	.2	.7	.1	.2	.6	1.7	.6	.8
ENGINEERS,SALES	3.7	4.8	1.3	1.6	7.7	12.8	.0	.0	3.2	8.4	.0	.0
OTHER ENGINEERS,TECHNICAL	8.2	9.9	3.1	4.2	2.0	4.1	.1	.2	19.6	39.6	11.3	13.4
NATURAL SCIENTISTS	68.2	86.8	2.2	3.5	2.4	6.6	.7	1.2	62.3	127.1	37.2	53.2
CHEMISTS	47.5	61.8	1.1	1.3	1.4	5.0	.0	.0	16.2	24.1	4.2	5.5
AGRICULTURAL SCIENTISTS	4.3	3.4	.3	.2	.0	.6	.0	.1	4.7	10.1	13.1	15.5
BIOLOGICAL SCIENTISTS	7.2	8.3	.0	.1	.1	.4	.0	.0	14.6	28.3	9.3	6.5
GEOLOGISTS,GEOPHYSICISTS	1.0	.5	.3	.6	.0	.2	.0	.0	2.1	6.6	2.4	2.8
MATHEMATICIANS	1.2	3.3	.2	1.0	.0	2.2	.6	.9	4.7	14.4	4.5	5.6
PHYSICISTS	1.5	2.8	.0	.0	.1	.2	.0	.0	8.4	18.3	4.1	4.7
OTHER NATURAL SCIENTISTS	5.5	7.6	.1	.2	.1	.6	.1	.1	10.3	23.2	3.6	6.5
TECHNICIANS,EXC MEDICAL,DENT	70.4	73.4	52.6	75.0	20.7	34.4	1.6	1.7	136.0	224.1	74.3	121.3
DRAFTSMEN	21.1	9.6	6.3	11.5	5.6	9.4	.1	.7	50.9	97.3	6.6	6.6
SURVEYORS	.3	.2	3.4	3.7	.3	.0	.5	.0	16.0	23.9	7.4	4.5
AIR TRAFFIC CONTROLLERS	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	12.0	20.0
RADIO OPERATORS	.1	.1	7.6	6.3	.2	.1	.1	.0	.4	.6	7.6	10.7
ELECTRICAL AND ELECTRONIC	.7	3.5	21.0	29.4	3.6	17.0	.5	.1	10.3	22.7	12.5	21.3
OTHER ENG.AND PHY.SIC	43.2	38.7	7.5	15.5	6.5	4.3	.5	.6	33.1	28.8	17.5	41.7
TECHNICIANS,OTHER	14.9	21.4	3.4	5.8	4.6	7.5	.3	.3	25.2	50.7	10.7	16.3
MEDICAL,OTHER HEALTH WORKERS	6.6	6.4	1.4	1.2	111.3	116.4	1.4	1.2	1,101.1	1,609.6	14.3	16.3
DENTISTS	.0	.0	.0	.0	.1	.1	.0	.0	86.2	96.1	.5	.5
DIETITIANS,NUTRITIONISTS	.2	.3	.1	.1	1.0	1.6	.1	.2	25.0	26.7	.4	.7
NURSES,PROFESSIONAL	3.2	2.2	.6	.5	.9	.6	.6	.5	480.8	677.5	3.7	3.0
OPTOMETRISTS	.0	.0	.0	.0	3.2	2.5	.0	.0	13.8	15.0	.0	.0
OSTEOPATHS	.0	.0	.0	.0	.0	.0	.0	.0	12.1	13.5	.0	.0
PHARMACISTS	1.7	2.5	.0	.1	104.7	100.2	.0	.0	6.4	15.7	.8	1.1
PHYSICIANS AND SURGEONS	.6	.4	.4	.3	.5	.3	.4	.4	215.6	261.7	2.4	2.3
PSYCHOLOGISTS	.1	.2	.0	.0	.1	.1	.0	.0	14.4	26.1	2.0	3.2
TECHNICIANS,MEDICAL,DENTAL	.6	.5	.2	.1	.5	1.6	.1	.1	134.6	258.7	1.6	1.6
VETERINARIANS	.1	.2	.0	.0	.0	.0	.0	.0	1.4	2.2	2.3	3.3
OTHER MEDICAL,HEALTH WRKS	.0	.1	.0	.0	.2	.2	.0	.0	166.6	214.2	.7	.5
TEACHERS	1.0	1.3	1.6	2.0	5.2	7.6	.5	.7	1,622.7	3,042.7	10.6	14.8
TEACHERS,ELEMENTARY	.8	.0	.0	.0	.0	.0	.0	.0	677.3	1,256.6	.6	.4
TEACHERS,SECONDARY	.6	.0	.0	.0	.0	.0	.0	.0	402.0	1,013.6	.7	1.1
TEACHERS,COLLEGE	.0	.0	.8	.0	.8	.0	.0	.0	204.2	552.0	.0	.3
TEACHERS,OTHER	1.0	1.3	1.6	2.0	5.2	7.4	.5	.7	137.2	217.3	6.7	13.2
SOCIAL SCIENTISTS	4.4	5.0	3.6	4.2	2.6	4.0	5.5	8.0	6.4	16.3	12.6	16.7
ECONOMISTS	2.0	2.3	1.3	1.5	1.6	2.1	1.5	2.6	3.8	6.7	3.8	6.0
STATISTICIANS & ACTUARIES	2.0	2.2	2.5	2.6	1.4	1.8	3.6	5.4	2.5	5.6	5.2	6.6
OTHER SOCIAL SCIENTISTS	.3	.5	.1	.1	.0	.0	.1	.1	2.1	4.0	3.0	4.1
OTHER PROF. & TECH. WORKERS	281.0	256.4	126.3	165.4	99.1	144.3	64.4	87.4	1,354.7	2,231.1	241.7	401.4
ACCOUNTANTS AND AUDITORS	42.8	36.7	31.6	30.5	47.5	48.6	36.2	41.8	124.4	182.6	58.0	62.7
AIRPLANE PILOTS,NAVIGATORS	.6	1.2	16.5	36.6	.4	1.0	.1	.1	1.2	3.0	2.3	4.4
ARCHITECTS	.2	.3	.2	.3	.5	.2	.4	.5	25.4	28.6	1.2	1.7
WRKRS IN ARTS,ENTERTAINMNT	20.0	28.4	7.3	10.8	17.7	26.6	.5	.8	384.8	630.6	5.4	8.2
CLERGYMEN	.1	.1	.8	.8	.8	.0	.0	.0	199.7	207.7	.1	.2
DESIGNERS,EXC DESIGN DRAFT	14.2	16.6	1.2	1.5	5.6	8.6	.1	.2	16.9	25.3	.6	.7
EDITORS AND REPORTERS	66.7	73.6	4.4	4.6	1.8	2.6	.6	.8	15.6	21.1	3.4	3.6
LAWYERS AND JUDGES	2.5	2.7	2.7	2.4	1.6	1.6	8.4	6.8	167.7	221.3	39.8	42.7
LIBRARIANS	.6	.7	.3	.4	.2	.2	.2	.3	76.1	116.7	1.7	2.1
PERSONNEL AND LAB REL WRKS	11.7	16.7	7.3	10.2	8.1	13.8	4.5	7.4	15.0	30.3	26.1	47.0
PHOTOGRAPHERS	10.8	15.5	1.1	1.5	1.5	2.0	.3	.3	26.8	36.5	3.2	4.1
SOCIAL AND WELFARE WORKERS	.1	.1	.1	.1	.1	.8	.2	.3	43.0	66.6	61.3	102.4
PROF & TECH WORKERS N.E.C.	27.7	58.2	50.4	63.2	14.0	55.7	13.1	35.1	246.6	653.1	40.7	121.3

Table 1. Number of employed persons by occupation and industry, 16 years of age and older, 1960 and 1970—Continued

OCCUPATION	TOTAL ALL INDUSTRIES		AGRICULTURE FORESTRY AND FISHERIES TOTAL		TOTAL MINING		CONSTRUCTION		TOTAL MANUFACTURING		DURABLE GOODS MANUFACTURING	
	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP
MANAGERS,OFFICIALS,PROPRIETORS	7,067.0	8,289.0	31.1	26.5	67.8	67.3	473.4	473.5	1,067.7	1,190.3	595.7	667.2
CONDUCTORS,RAILROAD	43.5	40.0	.0	.0	.0	.0	.1	.1	.0	.7		
CREDITMEN	50.0	68.0	.0	.0	.2	.2	.1	.1	8.9	10.3	.6	.6
OFFICERS,PILOTS,ENGRS,SHIP	35.0	34.0	1.4	1.6	.7	.8	1.3	1.5	1.1	1.3	3.3	4.0
POSTMASTERS AND ASSISTANTS	30.2	35.0	.0	.0	.0	.0	.0	.0	.0	.0	.6	.7
PURCHASING AGENTS	115.0	167.0	.3	.3	1.6	2.1	1.0	1.4	67.3	92.3	45.6	.8
MANAGERS,OFFICE,PROP. N.E.C.	6,706.5	7,945.0	29.4	24.6	65.2	64.1	470.9	470.4	989.8	1,085.8	505.6	659.4
CLERICAL WORKERS	9,742.0	13,715.0	33.2	31.8	64.1	70.6	176.2	228.4	2,134.4	2,535.3	1,209.4	576.4
STENOS,TYPISTS,SECRETARIES	2,383.0	3,504.0	9.1	8.3	21.3	24.2	51.5	67.2	538.7	667.4	318.1	392.5
OFFICE MACHINE OPERATORS	375.2	965.0	.3	.2	1.1	2.1	1.7	2.6	98.3	136.9	59.9	76.2
OTHER CLERICAL WORKERS	7,003.8	9,646.0	23.7	23.3	41.7	44.3	123.0	158.7	1,497.4	1,730.0	840.5	970.6
ACCOUNTING CLERKS	362.7	480.0	1.1	1.0	3.1	3.3	21.3	27.9	83.9	88.0	43.9	50.2
BOOKKEEPERS,HAND	667.3	860.0	8.2	7.7	5.0	5.2	27.7	35.0	97.6	102.8	42.3	43.7
BANK TELLERS	127.0	225.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
CASHIERS	478.8	847.0	.4	.1	.1	.1	.3	.5	10.2	12.5	3.7	4.9
MAIL CARRIERS	205.5	256.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
POSTAL CLERKS	242.7	300.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SHIPPING,RECEIVING CLERKS	325.0	379.0	.6	.2	.7	.9	1.0	.8	204.6	221.3	103.5	116.4
TELEPHONE OPERATORS	355.2	420.0	.1	.1	.7	.7	1.6	1.7	28.0	28.6	13.9	14.3
CLERICAL WORKERS N.E.C.	4,219.6	5,881.0	13.2	14.2	32.1	34.2	71.1	92.8	1,068.1	1,266.8	633.1	741.3
SALES WORKERS	4,224.0	4,854.0	8.3	9.8	3.0	3.2	11.9	14.0	472.0	513.6	179.5	199.5
INSURANCE AGENTS	365.0	405.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
REAL ESTATE AGENTS	195.0	226.0	.0	.0	.1	.1	.5	.4	.1	.1	.0	.0
OTHER SALES WORKERS N.E.C.	3,664.0	4,223.0	8.3	9.8	2.9	3.1	11.4	13.3	474.9	513.5	179.5	199.4
CRAFTSMEN AND FOREMEN	8,594.0	10,150.0	28.0	33.1	173.6	174.1	2,138.4	2,343.1	3,279.8	3,780.2	2,193.9	2,591.7
CONSTRUCTION CRAFTSMEN	2,552.0	2,765.0	7.9	7.9	44.0	43.7	1,806.4	1,950.0	340.5	350.5	250.4	260.8
CARPENTERS	832.0	830.0	4.2	4.1	3.0	2.7	657.2	658.0	78.1	72.0	62.7	59.7
BRICKMASONS AND TILE SETRS	186.0	200.0	.3	.5	.7	.7	163.8	175.0	13.9	13.1	11.9	11.1
CEMENT,CONCRETE FINISHERS	46.0	65.0	.0	.0	.0	.0	45.1	60.0	.5	2.7	.3	1.6
ELECTRICIANS	390.0	440.0	.2	.1	10.9	10.7	137.5	190.0	120.4	132.8	80.1	90.0
EXCAVATNG,GRADNG MACH OPER	265.0	310.0	2.1	2.3	29.8	26.9	185.1	260.0	12.3	13.3	9.2	9.6
PAINTERS AND PAPERHANGERS	416.0	390.0	.9	.9	1.2	.7	299.2	270.0	25.9	20.7	22.3	18.0
PLASTERERS	50.0	35.0	.0	.0	.0	.0	47.5	30.0	.5	.7	.3	.4
PLUMBERS AND PIPEFITTERS	303.0	350.0	.2	.1	1.8	1.8	187.4	225.0	62.6	66.0	30.1	41.3
ROOFERS AND SLATERS	90.0	60.0	.0	.0	.0	.0	66.7	55.0	1.0	1.4	.6	.8
STRUCTURAL METALWORKERS	69.0	85.0	.0	.0	.2	.2	37.6	55.0	25.2	27.8	24.9	27.4
FOREMEN N.E.C.	1,137.0	1,488.0	5.6	7.5	30.6	45.1	91.2	125.5	711.8	886.3	413.9	525.1
METALWKNG CRAFTS EXC MECH	1,090.0	1,215.0	.5	.3	10.1	8.3	48.6	58.8	939.0	1,055.3	874.6	979.5
MACHINISTS AND RELATED OCC	495.3	585.0	.3	.2	3.8	4.1	2.9	3.4	462.9	531.8	413.4	495.9
BLKSMITHS,FORGMN,HAMMERMEN	33.4	26.0	.2	.0	4.8	2.8	1.1	1.2	17.5	16.3	16.5	13.4
BOILERMAKERS	24.1	24.0	.0	.0	.6	.5	4.0	4.7	14.1	14.0	10.8	11.8
HEAT TREATERS,ANNEALERS	20.4	22.0	.0	.0	.0	.0	.2	.1	19.9	21.5	19.9	21.5
MILLWRIGHTS	69.0	80.0	.0	.0	.4	.4	5.1	7.3	61.6	69.7	43.1	48.2
MOLDERS,METAL,EXC CORENERS	54.2	56.0	.0	.0	.0	.0	.1	.0	54.0	55.9	53.9	55.7
PATTERNMAKERS,METAL,WOOD	40.4	43.0	.0	.0	.0	.0	.1	.0	38.0	39.8	36.7	38.1
ROLLERS AND ROLL HANDS	31.5	30.0	.0	.0	.0	.1	.1	.1	31.2	29.7	31.2	29.7
SHEET METAL WORKERS	158.5	156.0	.0	.0	.1	.1	34.8	41.9	81.4	87.3	77.2	83.5
TOOLMAKERS AND DIEMAKERS	183.0	195.0	.0	.0	.2	.2	.2	.1	178.3	191.4	171.5	182.4
PRINTING TRADES CRAFTSMEN	302.0	312.0	.0	.0	.1	.1	.4	.2	284.0	288.0	32.9	13.9
COMPOSITORS,TYPESETTERS	182.5	175.0	.0	.0	.1	.1	.1	.1	170.3	158.5	5.2	5.1
ELECTROTYPERS,STEREOTYPERS	9.0	5.0	.0	.0	.0	.0	.0	.0	8.9	4.9	.1	.1
ENGRAVERS EXC PHOTOENGRAVER	10.9	13.0	.0	.0	.0	.0	.1	.1	9.5	11.4	3.9	4.4
PHOTOENGRVRS,LITHOGRAPHERS	24.2	34.0	.0	.0	.0	.0	.0	.0	23.1	32.6	1.6	1.9
PRESSMEN,PLATE PRINTERS	75.4	85.0	.0	.0	.0	.0	.1	.1	72.3	80.6	2.0	2.4
TRANSPORT AND PUB UTIL CRAFT	373.8	461.1	.1	.1	1.4	1.7	7.4	11.0	9.4	13.2	8.5	14.0
LINEMEN AND SERVICEMEN	285.7	380.9	.1	.1	.1	.1	7.3	10.9	8.7	11.8	8.2	11.1
LOCOMOTIVE ENGINEERS	44.5	43.0	.0	.0	1.2	1.5	.1	.1	2.5	3.2	2.1	2.8
LOCOMOTIVE FIREMEN	41.6	17.6	.0	.0	.1	.1	.0	.0	.2	.2	.2	.2
MECHANICS AND REPAIRMEN	2,014.0	2,792.0	11.3	14.6	30.1	36.7	83.0	107.2	503.3	656.5	328.4	423.8
AIR CONDITNG,HEATNG,REFRIG	62.7	117.5	.0	.1	.1	.3	18.4	38.0	8.7	14.4	5.6	11.2
AIRPLANE MECH AND REPAIRMN	111.6	140.0	.3	.7	.1	.1	.0	.0	38.9	38.2	38.6	37.9
MOTOR VEHICLE MECHANICS	678.9	830.0	1.2	1.2	1.3	1.6	5.8	6.3	44.8	42.4	36.0	34.1
OFFICE MACHINE MECHANICS	51.0	80.0	.0	.0	.0	.0	.0	.0	6.3	9.4	6.0	9.1
RADIO AND TV MECHANICS	103.5	132.0	.1	.1	.1	.2	.7	.8	6.8	8.8	6.7	8.8
RR AND CAR SHOP MECHANICS	30.2	35.0	.0	.0	.1	.1	.0	.0	1.4	1.9	1.3	1.8
OTHER MECHANICS AND REPAIR	967.3	1,457.5	9.1	12.5	26.9	34.6	71.2	62.0	381.2	539.2	225.7	320.9

Table 1. Number of employed persons by occupation and industry, 16 years of age and older, 1960 and 1970—Continued

OCCUPATION	NONDURABLE GOODS MANUFACTURING		TRANSPORTATION COMMUNICATIONS PUBLIC UTILITIES		WHOLESALE AND RETAIL TRADE		FINANCE INSURANCE AND REAL ESTATE		SERVICES		GOVERNMENT PUBLIC ADMINISTRATION	
	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP
MANAGERS,OFFICIALS,PROPRIETORS	511.9	543.2	375.7	405.6	3,232.4	3,519.0	576.6	836.1	933.2	1,345.7	309.1	422.9
CONDUCTORS,RAILROAD	.1	.1	42.2	38.9	.0	.0	.1	.1	.0	.0	.1	.2
CREDITMEN	5.5	6.3	.9	1.0	29.2	38.7	7.8	12.7	2.9	5.0	.0	.0
OFFICERS,PILOTS,ENGRS,SHIP	.5	.5	28.5	26.6	.4	.4	.0	.0	1.2	1.3	.4	.4
POSTMASTERS AND ASSISTANTS	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	39.2	35.0
PURCHASING AGENTS	21.7	26.9	4.3	5.3	20.2	29.4	3.1	5.1	10.5	10.5	.0	10.5
MANAGERS,OFFICE,PROP. N.E.C.	486.2	509.4	299.7	333.9	3,182.6	3,450.4	565.6	820.2	918.6	1,318.9	262.7	376.4
CLERICAL WORKERS	929.0	1,096.0	1,094.7	1,286.1	1,884.2	2,662.9	1,285.1	1,865.6	1,738.6	3,180.3	1,371.6	1,834.1
STENOS,TYPISTS,SECRETARIES	220.6	274.9	129.1	160.5	269.9	360.2	369.4	527.9	725.6	1,303.7	268.6	384.6
OFFICE MACHINE OPERATORS	47.5	61.9	36.7	46.5	99.6	142.6	70.3	128.3	25.1	52.7	35.8	50.3
OTHER CLERICAL WORKERS	656.9	759.3	929.8	1,077.1	1,494.4	2,180.4	837.4	1,209.4	987.9	1,823.9	1,069.2	1,399.1
ACCOUNTING CLERKS	45.0	47.8	46.4	52.8	102.2	129.3	41.8	53.6	39.2	62.1	36.8	52.6
BOOKKEEPERS,HAND	55.3	54.1	18.2	16.8	269.7	326.1	137.7	187.9	105.1	176.5	.0	.0
BANK TELLERS	.0	.0	.0	.0	.0	.0	127.0	225.0	.0	.0	.0	.0
CASHIERS	6.5	7.6	27.6	40.3	348.7	628.6	30.2	53.2	54.8	100.6	6.4	10.4
MAIL CARRIERS	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	205.5	256.0
POSTAL CLERKS	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	242.7	300.0
SHIPPING,RECEIVING CLERKS	101.1	105.0	10.1	12.2	96.6	125.9	1.2	2.0	7.9	12.6	2.5	3.4
TELEPHONE OPERATORS	14.1	14.3	230.2	250.8	22.3	29.9	13.6	17.6	49.1	78.8	9.7	12.0
CLERICAL WORKERS N.E.C.	435.0	525.5	598.5	703.2	654.7	939.6	486.2	670.0	732.1	1,389.8	563.5	766.9
SALES WORKERS	296.5	314.1	39.7	49.6	3,013.0	3,442.7	583.9	689.9	88.9	128.8	3.7	4.5
INSURANCE AGENTS	.0	.0	.2	.1	.2	.2	361.9	403.9	.1	.1	.6	.6
REAL ESTATE AGENTS	.1	.1	.0	.0	.5	.8	193.3	223.6	.1	.1	.3	.3
OTHER SALES WORKERS N.E.C.	296.4	314.1	39.1	49.5	3,010.2	3,441.7	24.2	62.3	88.2	126.2	2.8	3.6
CRAFTSMEN AND FOREMEN	1,786.9	1,206.5	963.7	1,080.9	893.3	1,198.2	46.9	66.9	787.8	1,191.9	270.4	371.6
CONSTRUCTION CRAFTSMEN	81.0	81.7	92.1	86.9	68.6	76.0	16.0	21.0	107.4	150.2	69.1	80.8
CARPENTERS	15.4	12.3	13.6	10.5	27.5	28.3	5.5	7.2	28.7	41.7	13.6	13.4
BRICKMASONS AND TILE SETRS	2.0	2.8	.6	.7	4.8	5.0	.2	.2	1.6	2.6	1.0	1.3
CEMENT,CONCRETE FINISHERS	.2	1.1	.1	.5	.2	.9	.0	.0	.1	.4	.1	.6
ELECTRICIANS	31.3	33.8	38.2	37.2	8.6	10.0	1.2	1.5	20.2	31.1	21.8	26.6
EXCAVATING,GRADING MACH OPER	3.1	3.9	7.8	9.8	2.7	3.3	.4	.6	1.7	3.4	7.0	10.5
PAINTERS AND PAPERHANGERS	3.6	2.7	9.4	7.1	11.8	10.9	7.5	9.8	44.5	53.7	15.6	16.0
PLASTERERS	.2	.3	.0	.0	.1	.1	.5	.9	1.2	2.8	.2	.5
PLUMBERS AND PIPEFITTERS	24.6	24.7	21.1	20.0	11.3	12.1	.7	.7	9.0	13.4	8.9	10.8
ROOFERS AND SLATERS	.4	.6	.2	.1	1.3	2.2	.0	.0	.2	.2	.4	.6
STRUCTURAL METALWORKERS	.3	.3	1.2	1.1	.2	.2	.0	.0	.3	.7	.9	.9
FOREMEN N.E.C.	297.9	361.2	122.5	141.3	98.7	156.3	4.0	6.7	37.0	78.0	27.0	41.2
METALWKNG CRAFTS EXC MECH	64.7	75.7	44.3	37.2	7.9	7.6	.2	.2	16.4	20.6	23.2	26.7
MACHINISTS AND RELATED OCC	29.5	35.8	30.6	25.1	.5	.8	.0	.0	3.1	5.7	11.0	14.0
BLKSMITHS,FORGMN,HAMMERMEN	1.0	.8	2.8	1.9	.4	.3	.0	.0	.4	.1	.4	.4
BOILERMAKERS	3.3	3.8	3.6	7.7	.2	.2	.0	.0	1.2	1.6	.3	.3
HEAT TREATERS,ANNEALERS	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2	.3
MILLWRIGHTS	18.5	21.5	.5	.7	.7	.7	.0	.0	.4	.9	.3	.2
MOLDERS,METAL,EXC COREMERS	.1	.2	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0
PATTERNMAKERS,METAL,WOOD	1.3	1.7	.1	.0	.2	.3	.0	.0	.8	1.6	1.3	1.2
ROLLERS AND ROLL HANDS	.0	.0	.0	.0	.2	.2	.0	.0	.0	.0	.0	.0
SHEET METAL WORKERS	4.1	3.8	5.8	6.2	5.0	4.8	.1	.1	2.9	4.6	6.3	9.0
TOOLMAKERS AND DIEMAKERS	6.8	9.0	.8	.6	.7	.4	.0	.0	1.5	1.0	1.2	1.3
PRINTING TRADES CRAFTSMEN	271.1	276.1	1.1	.9	3.5	4.5	2.4	3.0	6.2	9.6	4.4	5.7
COMPOSITORS,TYPESETTERS	169.1	153.4	.7	.7	2.5	3.4	2.0	2.5	4.6	7.0	2.1	2.7
ELECTROTYPERS,STEREOTYPERS	8.7	4.8	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0
ENGRAVERS EXC PHOTOENGRAVER	5.5	7.0	.5	.1	.8	.7	.0	.0	.2	.2	.4	.5
PHOTOENGRVRS,LITHOGRAPHERS	21.5	30.6	.1	.1	.1	.1	.1	.1	.3	.5	.5	.7
PRESSMEN,PLATE PRINTERS	70.3	78.2	.1	.2	.2	.3	.3	.4	1.0	1.9	1.3	1.7
TRANSPORT AND PUB UTIL CRAFT	.9	1.2	351.6	407.0	.4	.4	.0	.1	.6	1.7	2.9	3.9
LINEMEN AND SERVICEMEN	.5	.7	268.0	352.3	.4	.4	.0	.1	.6	1.7	2.6	4.6
LOCOMOTIVE ENGINEERS	.4	.5	42.3	37.9	.0	.0	.0	.0	.0	.0	.2	.3
LOCOMOTIVE FIREMEN	.0	.0	41.2	16.8	.0	.0	.0	.0	.0	.0	.0	.0
MECHANICS AND REPAIRMEN	176.9	232.7	249.9	316.6	536.4	750.9	16.2	26.1	465.9	701.9	119.8	181.5
AIR CONDITNG,HEATNG,REFRIG	3.1	5.3	1.3	2.7	14.0	32.0	.2	.6	15.1	20.5	2.9	7.0
AIRPLANE MECH AND REPAIRMN	.3	.4	37.7	57.7	1.7	3.0	.0	.0	1.8	3.8	31.2	36.4
MOTOR VEHICLE MECHANICS	6.6	8.3	56.8	72.7	319.6	485.8	.2	.4	234.4	278.6	15.0	21.0
OFFICE MACHINE MECHANICS	.3	.3	.1	.2	33.9	55.0	.3	.4	9.8	14.4	.5	.6
RADIO AND TV MECHANICS	.1	.1	3.6	4.2	32.0	36.7	.0	.0	51.2	67.6	8.8	11.7
RR AND CAR SHOP MECHANICS	.1	.1	37.5	32.7	.0	.0	.0	.0	.1	.3	.1	.2
OTHER MECHANICS AND REPAIR	155.5	218.3	107.3	144.3	134.5	216.4	14.7	24.8	158.0	317.1	60.4	104.6

Table 1. Number of employed persons by occupation and industry, 16 years of age and older, 1960 and 1970—Continued

OCCUPATION	TOTAL ALL INDUSTRIES		AGRICULTURE FORESTRY AND FISHERIES TOTAL		TOTAL MINING		CONSTRUCTION		TOTAL MANUFACTURING		DURABLE GOODS MANUFACTURING	
	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP
OTHER CRAFTSMEN	1,089.2	1,144.9	2.6	2.7	40.4	50.5	73.7	90.3	491.9	488.5	290.5	300.6
OWNERS	102.5	101.0	.0	.0	.0	.0	.2	.1	69.7	61.2	.2	.2
CABINETMAKERS	66.0	70.0	.0	.0	.0	.0	6.3	7.0	36.3	36.0	35.5	36.0
CRANE,DERRICK,HOIST MEN	124.0	145.0	.2	.1	6.1	6.5	16.0	24.1	84.6	92.4	70.4	85.7
GLAZIERS	19.0	21.0	.0	.0	.0	.0	9.0	8.2	3.4	3.9	3.2	3.7
JEWELERS AND WATCHMAKERS	37.0	35.0	.0	.0	.0	.0	.0	.0	10.1	9.1	10.1	9.1
LOOM FIXERS	25.0	24.0	.0	.0	.0	.0	.0	.0	25.0	23.9	.1	.2
OPTICIANS,LENS GRINDERS	20.4	23.0	.0	.0	.0	.0	.0	.0	9.2	8.7	9.1	8.7
INSPECTORS,LOG AND LUMBER	19.5	20.0	.2	.3	.0	.0	.1	.1	16.0	16.9	15.9	15.3
INSPECTORS,OTHER	95.5	95.0	.6	.8	2.6	1.9	13.1	16.6	12.7	11.1	10.6	9.3
UPHOLSTERERS	50.0	63.0	.0	.0	.0	.0	.4	.4	27.8	26.7	25.5	25.7
CRAFTSMEN N.E.C.	520.5	567.9	1.6	1.4	30.6	29.9	31.7	33.0	196.4	196.2	106.0	113.1
OPERATIVES	11,950.0	13,909.0	103.7	101.6	342.7	258.0	320.5	400.3	7,360.2	8,674.0	3,717.2	4,569.9
DRIVERS AND DELIVERYMEN	2,367.0	2,510.0	65.4	64.5	32.9	30.3	145.6	154.2	405.0	449.0	169.2	159.9
DRIVERS,BUS,TRUCK,TRACTOR	1,760.2	1,855.0	62.7	62.3	32.5	29.8	143.2	151.4	388.7	373.2	157.7	146.3
DELIVERYMEN AND ROUTEMEN	587.8	655.0	2.7	2.2	.4	.5	2.4	2.7	184.9	175.8	11.5	13.6
TRANSP AND PUB UTIL OPERATVS	196.4	142.8	.0	.0	.4	.3	2.3	2.9	10.4	11.6	8.0	7.4
BRAKEMEN AND SWITCHMEN RR	103.2	88.8	.0	.0	.2	.2	.0	.0	5.1	5.3	4.7	4.9
POWER STATION OPERATORS	20.9	23.0	.0	.0	.1	.1	.4	.5	4.5	5.5	1.7	2.0
SAILORS AND DECKHANDS	32.3	31.0	.0	.0	.3	.3	1.9	2.4	.0	.9	.6	.5
SEMISKILLED METALWORKING OCC	1,452.0	1,892.0	.4	.7	7.7	11.2	31.2	92.0	1,357.6	1,739.5	1,134.5	1,712.0
FURNACEMN,SMELTRMN,POURERS	52.1	60.0	.0	.0	.2	.4	.0	.0	51.7	59.5	51.6	59.3
HEATERS,METAL	6.9	8.0	.0	.0	.0	.0	.0	.0	6.9	8.0	6.9	7.9
WELDERS AND FLAME-CUTTERS	355.0	535.0	.4	.7	7.6	10.8	31.2	92.0	295.2	379.1	290.1	356.6
ASSEMBLERS,MTLWRK,CLASS A	101.1	132.0	.0	.0	.0	.0	.0	.0	101.1	136.0	101.1	136.0
ASSEMBLERS,MTLWRK,CLASS B	467.9	580.0	.0	.0	.0	.0	.0	.0	467.9	580.0	467.9	580.0
INSPECTORS,MTLWRK,CLASS B	179.0	221.0	.0	.0	.0	.0	.0	.0	179.0	221.0	179.0	221.0
MACHINE TOOL OPER,CLASS B	250.9	310.0	.0	.0	.0	.0	.0	.0	250.9	310.0	250.9	310.0
ELECTROPLATERS	11.7	17.0	.0	.0	.0	.0	.0	.0	11.7	17.0	11.7	17.0
ELECTROPLATERS HELPER	20.2	25.0	.0	.0	.0	.0	.0	.0	20.2	25.0	20.2	25.0
SEMISKILLED TEXTILE OCCUP	786.0	957.5	.0	.0	.0	.0	.0	.0	779.5	956.0	29.0	48.5
KNITTERS,LOOPERS,TOPPERS	44.0	47.5	.0	.0	.0	.0	.0	.0	44.0	47.5	.0	.0
SPINNERS,TEXTILE	50.0	50.0	.0	.0	.0	.0	.0	.0	50.0	49.8	.1	.1
WEAVERS,TEXTILE	61.0	60.0	.0	.0	.0	.0	.0	.0	60.5	59.4	.5	.5
SEWERS AND STITCHERS,MFG	629.0	800.0	.0	.0	.0	.0	.0	.0	629.0	800.0	28.4	47.9
OTHER OPERATIVES N.E.C.	7,193.9	8,407.5	37.9	36.4	301.5	216.0	141.5	199.2	4,760.2	5,921.0	2,176.0	2,849.3
ASBESTOS,INSULATION WRKS	19.6	25.0	.0	.0	.0	.0	11.4	14.7	6.0	8.4	4.2	5.6
ATTEND,AUTO SERVICE,PARKING	380.0	450.0	.0	.0	.0	.0	.3	.3	2.1	1.9	1.4	1.5
BLASTERS AND POWDERMEN	5.1	5.0	.0	.0	5.1	2.7	1.2	1.5	.7	.7	.4	.5
LAUNDRY,DRY CLEANING OPER	362.1	360.0	.0	.0	.0	.0	.1	.0	3.3	2.1	.2	.1
MEAT CUTTERS,EXC MEATPCKNG	189.9	190.0	.1	.1	.1	.1	.0	.0	1.1	1.0	.3	.2
MINE OPERATVS,LABORERS,NEC	281.0	195.0	.0	.0	281.0	195.0	.0	.0	.0	.0	.0	.0
OPERATIVES N.E.C.	5,926.1	7,282.5	37.7	36.4	17.2	18.1	120.5	182.7	4,726.9	5,907.0	2,169.4	2,841.5
SERVICE WORKERS	8,023.0	9,712.0	12.9	11.9	0.7	7.5	20.2	18.0	327.0	283.9	173.0	155.6
PRIVATE HOUSEHOLD WORKERS	1,973.0	1,558.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
PROTECTIVE SERVICE WORKERS	735.0	968.0	2.2	1.5	4.2	3.5	7.4	5.6	116.6	98.1	76.5	66.2
FIREMEN	168.0	188.0	.0	.1	.0	.0	.2	.1	2.6	2.5	2.0	2.0
GUARDS,WATCHMEN,DOORKEEPRS	330.0	373.0	2.1	1.5	4.0	3.1	6.7	5.3	110.2	92.2	72.0	62.0
POLICE,OTH LAW ENFORCE OFF	287.0	415.0	.0	.0	.1	.1	.5	.2	3.9	3.4	2.6	2.2
FOOD SERVICE WORKERS	1,693.0	2,231.0	3.6	2.5	.7	.9	1.7	1.9	19.6	21.3	7.9	9.5
BARTENDERS	163.7	160.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0
COOKS,EXC PRIV HOUSEHOLDS	930.0	760.0	3.3	2.4	.6	.7	1.1	1.0	7.1	8.9	2.5	2.7
COUNTER AND FOUNTAIN WRS	150.4	291.0	.0	.0	.0	.3	.3	.4	4.9	8.6	3.5	4.9
WAITERS AND WAITRESSES	800.9	1,040.0	.2	.1	.0	.0	.4	.4	5.9	5.7	1.9	1.9
OTHER SERVICE WORKERS	3,632.0	4,955.0	7.2	7.9	3.7	3.5	11.0	11.3	190.0	164.1	89.4	78.9
AIRLINE STEWARDS,STWRDSSES	12.9	35.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ATTENDANTS,HOSP,OTHER INST	458.0	838.0	3.8	4.4	.8	.0	.0	.0	.9	.9	.3	.7
CHAR,MEN AND CLEANERS	288.0	272.0	.2	.1	.3	.6	2.6	2.8	22.1	22.8	11.5	11.4
JANITORS AND SEXTONS	629.8	828.0	.8	.5	2.2	1.9	4.5	4.6	91.7	77.2	46.8	39.4
NURSES,PRACTICAL	229.0	370.0	.1	.0	.0	.1	.8	.0	.7	.6	.5	.4
SERVICE WORKERS, N.E.C.	2,110.1	2,620.0	2.3	2.0	1.2	1.2	6.0	3.8	71.7	62.6	30.3	26.0
LABORERS,EXCEPT FARM AND MINE	3,993.0	3,724.0	140.0	156.1	.0	.0	716.4	615.0	1,131.0	983.9	732.6	633.3
FARMERS AND FARM WORKERS	3,176.0	3,126.0	3,176.0	3,126.0	.0	.0	.0	.0	.0	.0	.0	.0

Table 1. Number of employed persons by occupation and industry, 16 years of age and older, 1960 and 1970—Continued

OCCUPATION	NONDURABLE GOODS MANUFACTURING		TRANSPORTATION COMMUNICATIONS PUBLIC UTILITIES		WHOLESALE AND RETAIL TRADE		FINANCE INSURANCE AND REAL ESTATE		SERVICES		GOVERNMENT PUBLIC ADMINISTRATION	
	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP	60 EMP	70 EMP
OTHER CRAFTSMEN	195.4	180.0	102.4	90.9	179.9	204.5	8.2	9.8	154.2	189.9	23.9	31.8
BAKERS	89.5	61.0	.2	.2	23.7	27.0	.1	.0	8.2	12.1	.3	.4
CABINETMAKERS	.8	.9	.4	.3	16.8	18.0	.1	.1	5.3	6.8	.8	1.0
CRANE,DERRICK,HOIST MEN	8.1	8.8	7.7	8.7	6.1	9.2	.1	.2	.7	1.5	1.9	2.3
GLAZIERS	.2	.2	.0	.0	6.6	8.2	.0	.1	.5	.6	.1	.1
JEWELERS AND WATCHMAKERS	.0	.0	.0	.0	17.0	17.4	.0	.0	9.8	8.4	.1	.0
LOOM FIXERS	24.8	23.8	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0
OPTICIANS,LENS GRINDERS	.0	.0	.0	.0	9.3	10.6	.0	.0	1.8	3.4	.1	.2
INSPECTORS,LOG AND LUMBER	.9	1.1	.2	.1	1.9	2.3	.0	.0	.2	.8	.1	.0
INSPECTORS,OTHER	2.0	1.7	46.5	37.5	6.7	7.2	3.0	3.5	10.3	16.4	.0	.0
UPHOLSTERERS	1.3	1.5	.9	.7	9.3	11.5	.0	.0	19.9	22.8	.7	.9
CRAFTSMEN N.E.C.	89.7	83.1	46.7	43.6	82.5	93.0	4.8	5.8	97.5	117.0	19.9	27.0
OPERATIVES	3,650.9	4,104.0	1,187.7	1,271.1	1,892.7	2,028.9	11.4	17.3	811.6	1,007.2	111.5	145.0
DRIVERS AND DELIVERYMEN	318.4	289.1	839.1	919.7	813.7	658.1	2.6	3.4	145.8	184.1	36.4	48.7
DRIVERS,BUS,TRUCK,TRACTOR	143.0	128.9	700.4	778.9	418.8	404.4	1.7	2.0	76.8	111.2	32.5	41.9
DELIVERYMEN AND ROUTMEN	173.4	162.2	138.7	140.8	194.9	253.7	.9	1.4	69.0	72.9	4.0	4.8
TRANSP AND PUB UTIL OPERATVS	3.8	4.2	140.5	126.2	1.0	.8	.0	.0	.4	.9	1.3	1.0
BRAKEMEN AND SWITCHMEN RR	.4	.4	97.3	82.0	.3	.3	.0	.0	.0	.0	.2	.2
POWER STATION OPERATORS	2.8	3.5	15.2	15.9	.1	.0	.0	.0	.2	.6	.3	.5
SAILORS AND DECKHANDS	.4	.4	27.9	26.3	.6	.5	.0	.0	.2	.2	.7	.3
SEMISKILLED METALWORKING OCC	18.3	22.7	15.0	18.0	15.7	24.5	.0	.0	26.4	44.3	3.9	5.2
FURNACEMN,SMELTRMN,POURERS	.1	.2	.1	.1	.0	.0	.0	.0	.0	.1	.0	.0
HEATERS,METAL	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WELDERS AND FLAME-CUTTERS	16.1	22.5	14.9	18.0	15.6	24.4	.0	.0	26.3	44.9	3.9	5.2
ASSEMBLERS,MTLWRK,CLASS A	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ASSEMBLERS,MTLWRK,CLASS B	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
INSPECTORS,MTLWRK,CLASS B	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
MACHINE TOOL OPER,CLASS B	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ELECTROPLATERS	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ELECTROPLATERS HELPER	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SEMISKILLED TEXTILE OCCUP	750.5	918.2	.0	.1	.3	.4	.0	.0	.2	.2	.0	.0
KNITTERS,LOOPERS,TOPPERS	44.0	47.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SPINNERS,TEXTILE	44.9	49.7	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
WEAVERS,TEXTILE	60.0	58.9	.0	.0	.3	.4	.0	.0	.2	.2	.0	.0
SEWERS AND STITCHERS,MFG	598.6	760.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OTHER OPERATIVES N.E.C.	2,564.2	2,871.7	197.1	209.1	1,062.0	1,343.1	8.8	13.5	638.9	777.2	69.9	92.0
ASBESTOS,INSULATION WKRS	2.4	2.8	.3	.4	1.0	1.2	.0	.0	.2	.2	.2	.2
ATTEND,AUTO SERVICE,PARKING	.6	.5	1.8	1.7	350.9	293.1	1.4	1.7	22.3	29.0	1.1	2.2
BLASTERS AND POWDERMEN	.2	.2	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
LAUNDRY,DRY CLEANING OPER	3.1	2.0	.1	.1	1.5	1.5	.1	.1	385.0	354.5	2.0	1.8
MEAT CUTTERS,EXC MEATPCKING	.8	.8	2.9	2.3	181.9	180.6	.0	.0	3.1	5.2	.7	.8
MINE OPERATVS,LABORERS,NEC	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
OPERATIVES N.E.C.	2,557.1	2,865.5	188.0	204.6	526.8	766.6	7.3	11.8	226.2	388.4	65.9	87.1
SERVICE WORKERS	153.1	127.9	147.0	148.6	1,701.2	2,143.3	206.8	215.0	5,019.6	6,105.1	579.7	778.3
PRIVATE HOUSEHOLD WORKERS	.0	.0	.0	.0	.0	.0	.0	.0	1,973.0	1,550.0	.0	.0
PROTECTIVE SERVICE WORKERS	40.1	31.8	33.0	28.0	17.0	17.9	19.4	22.4	78.3	120.7	489.0	672.5
FIREMEN	.6	.5	.4	.4	.1	.0	.0	.0	1.2	1.8	143.5	175.2
GUARDS,WATCHMEN,DOORKEEPRS	38.2	30.2	28.0	19.7	15.5	15.9	18.3	21.0	61.8	98.2	85.4	116.2
POLICE,OTH LAW ENFORCE OFF	1.3	1.2	4.6	8.0	1.4	1.9	1.0	1.4	13.3	20.7	260.1	381.1
FOOD SERVICE WORKERS	11.6	11.8	18.7	15.7	1,201.6	1,559.3	4.2	5.0	393.3	612.2	9.8	12.4
BARTENDERS	.1	.0	.3	.1	141.7	139.1	.0	.0	21.7	20.7	.0	.0
COOKS,EXC PRIV HOUSEHOLDS	4.6	4.3	10.0	8.3	306.0	417.5	1.4	1.5	194.2	293.3	6.3	8.3
COUNTER AND FOUNTAIN WKRS	3.0	3.7	1.0	1.3	88.5	164.8	1.2	1.7	51.7	112.5	1.2	1.6
WAITERS AND WAITRESSES	4.0	3.8	7.4	5.9	665.4	837.9	1.7	1.8	125.7	185.7	2.2	2.4
OTHER SERVICE WORKERS	101.3	84.2	95.3	106.9	482.6	566.2	183.3	187.6	2,577.1	3,814.2	81.0	93.4
AIRLINE STEWARDS,STWRDSSES	.0	.0	12.9	35.0	.0	.0	.0	.0	.0	.0	.0	.0
ATTENDANTS,HOSP,OTHER INST	.2	.2	.0	.0	.2	.2	.0	.0	443.0	817.4	2.5	7.1
CHARWOMEN AND CLEANERS	14.7	11.4	6.8	6.7	23.7	34.3	26.5	27.1	106.3	169.2	7.4	8.5
JANITORS AND SEXTONS	45.0	37.9	23.9	21.6	47.3	52.1	76.6	76.7	338.2	551.6	41.7	41.7
NURSES,PRACTICAL	.2	.2	.1	.1	.1	.1	.2	.2	221.9	344.3	1.9	2.8
SERVICE WORKERS, N.E.C.	41.3	34.6	51.6	43.5	411.3	479.4	82.0	83.7	1,467.7	1,909.6	27.4	33.3
LABORERS,EXCEPT FARM AND MINE	399.2	350.6	459.8	475.5	556.5	674.7	44.1	53.6	390.3	397.3	114.0	187.9
FARMERS AND FARM WORKERS	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

Table 2. Estimated employment in selected occupations in selected metal-working industries, United States, October 1968

(Employment in thousands)

Occupation	Total, all industries		Ordnance and accessories (SIC 19)		Fabricated metal products (SIC 34)		Machinery, except electrical (SIC 35)		Electrical equipment (SIC 36)		Transportation equipment (SIC 37)		Professional instruments (SIC 38)	
	Estimated employment	Relative error	Estimated employment	Relative error	Estimated employment	Relative error	Estimated employment	Relative error	Estimated employment	Relative error	Estimated employment	Relative error	Estimated employment	Relative error
All employees	8,256.3	-	336.1	-	1,413.9	-	1,918.1	-	2,002.8	-	2,123.3	-	462.3	-
Total production, maintenance workers	5,597.1	(1)	193.5	1	1,110.2	1	1,278.1	1	1,296.0	1	1,447.5	1	271.8	4
Assemblers	1,311.7	2	46.7	9	144.3	8	205.8	4	519.7	3	303.8	3	91.4	13
Class A	307.0	3	(2)	-	35.5	8	72.5	5	87.0	7	79.3	3	21.4	16
Class B	431.7	4	(2)	-	40.5	11	78.0	6	165.6	5	96.4	5	(3)	-
Class C	573.0	3	(2)	-	66.3	11	55.3	10	267.1	4	128.1	2	37.1	9
Blacksmiths	2.1	17	(3)	-	(3)	-	(3)	-	(3)	--	(3)	-	(3)	-
Carpenters	16.7	15	(3)	-	(2)	-	2.7	9	1.7	9	6.1	11	(3)	-
Coremakers	5.7	9	(3)	-	(2)	-	2.9	12	(3)	-	(3)	-	(3)	-
Bench-floor	3.1	11	(3)	-	(2)	-	2.0	15	(3)	-	(3)	-	(3)	-
Machine	2.6	14	(3)	-	(2)	-	(3)	-	(3)	-	(3)	-	(3)	-
Cranemen	22.3	4	(3)	-	8.2	6	6.6	7	(2)	-	5.3	4	(3)	-
Die setters	16.9	7	(3)	-	10.1	11	2.0	18	2.8	10	1.5	3	(3)	-
Die sinkers	1.8	18	(3)	-	(3)	-	(3)	-	(2)	-	(3)	-	(3)	-
Electricians	44.0	3	1.9	3	7.2	5	9.6	5	8.5	4	15.4	2	1.4	10
Filers, grinders, polishers	99.5	4	1.5	19	37.2	7	27.3	7	9.5	15	18.5	10	5.5	12
Flame cutters	12.5	7	(3)	-	5.6	15	3.8	7	(3)	-	2.6	7	(3)	-
Foremen, nonworking	225.0	2	(2)	-	42.7	3	52.3	2	41.5	2	67.8	2	8.7	6
Forging and straightening roll operators	4.2	17	(3)	-	1.8	19	(3)	-	(3)	-	(3)	-	(3)	-
Hammersmiths	18.5	7	(2)	-	8.7	13	2.1	16	(2)	-	4.8	4	(2)	-
Heaters, metal	4.1	12	(3)	-	(3)	-	(2)	-	(2)	-	1.3	8	(2)	-
Heat treaters	18.9	4	(3)	-	3.6	8	7.1	9	1.6	15	5.8	2	(3)	-
Inspectors	290.6	2	17.5	6	34.9	5	50.7	3	85.8	4	83.3	1	18.4	9
Class A	81.4	3	4.6	13	11.2	9	19.9	3	18.8	6	22.0	6	4.9	6
Class B	80.7	4	5.0	15	9.3	9	15.8	4	24.2	5	17.2	8	9.2	20
Class C	128.5	2	(2)	-	14.4	6	15.0	6	42.8	5	44.1	1	4.3	11
Instrument makers	4.3	17	(3)	-	(3)	-	(2)	-	(2)	-	(3)	-	(2)	-
Layout men, machine shop	17.9	5	(3)	-	6.3	11	6.6	6	1.5	10	2.9	9	(3)	-
Machine-tool operators	648.9	2	19.4	9	129.0	10	202.1	4	70.5	6	142.2	3	25.7	9
Class A	234.6	3	4.4	17	36.4	18	117.8	5	22.3	9	44.3	6	9.4	13
Class B	198.0	3	4.5	18	30.3	9	46.0	6	21.6	6	47.4	7	8.2	9
Class C	210.3	4	(2)	-	62.3	9	58.3	7	26.6	8	50.5	8	8.1	15
Machinists	178.8	6	3.6	8	21.9	7	91.4	11	20.4	6	35.2	7	6.3	8
Mechanics	132.8	2	6.7	13	26.2	7	24.5	5	29.4	6	38.7	3	7.0	7
Automobile	8.2	7	(2)	-	1.3	11	(2)	-	(3)	-	4.2	1	(3)	-
General	25.4	6	(2)	-	4.5	18	6.6	11	4.7	15	6.9	8	1.5	14
Instrument repairmen	11.7	7	(3)	-	(3)	-	(2)	-	5.1	10	1.7	9	1.7	11
Maintenance	62.3	4	2.8	13	15.7	10	11.0	5	14.8	12	15.2	3	2.8	10
All other mechanics	25.2	5	(2)	-	4.0	12	3.6	14	4.6	8	10.7	7	(3)	-
Millwrights	28.1	3	(2)	-	5.4	8	5.4	8	3.5	8	11.8	4	(3)	-
Molders	17.0	12	(3)	-	(2)	-	(2)	-	(2)	-	1.7	15	(3)	-
Hand, metal	7.6	12	(3)	-	(2)	-	(2)	-	(2)	-	1.3	18	(3)	-
Machine, metal	9.4	18	(3)	-	(2)	-	(2)	-	(2)	-	(3)	-	(3)	-
Painters, maintenance	11.6	4	(3)	-	2.5	12	2.7	10	1.4	8	3.9	7	(3)	-
Patternmakers	16.5	7	(3)	-	(2)	-	10.9	8	(3)	-	2.2	12	(3)	-
Platers	45.3	6	(3)	-	28.5	9	2.9	16	7.7	12	4.5	3	1.2	12
Plumbers and pipefitters	18.9	3	1.2	6	2.0	9	2.6	7	3.2	6	9.4	5	(3)	-
Pourers, metal	4.5	11	(3)	-	(2)	-	1.8	9	(2)	-	(3)	-	(3)	-
Setup men, machine tool	57.8	3	2.2	18	12.7	9	14.0	7	8.0	12	18.2	2	2.7	11
Sheet-metal workers	91.3	5	(2)	-	36.4	9	20.0	8	10.9	10	19.3	6	(2)	-
Stationary engineers	7.1	4	(2)	-	(3)	-	1.2	9	1.8	9	2.4	2	(3)	-
Tool and diemakers	144.0	4	(2)	-	34.0	8	60.4	9	19.2	5	23.7	2	4.3	10
Welders	237.3	2	1.9	12	75.8	6	67.5	3	16.1	7	73.0	1	3.0	10
Class A	117.5	3	1.2	-	35.7	5	40.1	5	7.1	13	31.8	4	1.6	12
Class B	119.8	3	(3)	20	40.1	8	27.4	5	9.0	9	41.2	2	1.4	15
Service workers	140.9	2	6.5	5	19.4	5	31.3	4	32.8	4	44.3	5	6.6	3
Plant clerical workers	229.4	2	11.5	18	30.6	3	52.6	3	59.5	7	60.3	4	14.8	-
Expeditors	46.4	4	2.2	8	5.3	6	10.2	4	12.0	5	14.4	12	2.3	5
Production clerk, coordinator	58.1	4	2.2	13	8.0	5	15.7	7	13.7	6	14.3	14	4.2	8
All other plant clerks	124.9	3	7.1	11	17.3	6	26.8	4	33.8	10	31.6	5	8.3	10
Office clerical workers	788.0	1	34.4	16	103.6	3	209.3	2	197.6	3	1[illegible].0	3	56.1	7
Bookkeepers	67.8	2	1.5	3	17.3	3	22.2	4	12.4	4	9.6	3	4.8	6
Console operators (computer operators)	17.2	4	1.1	10	2.2	10	5.0	10	4.0	6	3.8	8	1.1	8
Secretaries	127.5	4	5.2	19	15.7	5	32.8	3	35.8	4	26.5	17	11.5	10
Stenographers	53.5	2	2.6	15	6.8	7	14.2	3	13.0	4	13.9	3	3.0	11
All other office clerks	522.0	1	24.0	-	61.6	4	135.1	2	132.4	3	133.2	1	35.7	9
Administrative, technical	1,500.9	1	90.0	5	150.1	4	346.7	2	416.9	3	384.2	3	113.0	5
Tool programers	5.5	6	(3)	-	(3)	-	2.3	9	(3)	-	1.1	6	(3)	-

1 Standard error of less than 0.5.
2 Relative standard error greater than 20 percent.
3 Less than 1,000 employees.

NOTE: Detail may not add tototals due to rounding.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics

Table 3. Estimated employment in selected occupations in the printing and publishing industry, United States, March 1970

(In thousands)

Occupation	Estimated employment	Percent of total	Relative error (percent)
All employees	1,112.3	100.0	0
Managers and officials	74.2	6.7	2
Professional and technical workers	111.5	10.0	2
Accountants and auditors	6.2	.6	7
Commercial artists	10.8	1.0	6
Commercial designers	(1)	-	-
Engineers	1.1	.1	5
Estimators	4.7	.4	6
Mathematical scientists	(2)	-	-
Natural scientists	(2)	-	-
Personnel and labor relations specialists	1.3	.1	5
Photographers	5.8	.5	5
Purchasing agents	3.0	.3	9
Social scientists	(2)	-	-
Systems analysts, electronic data processing	1.0	.1	10
Writers, editors, and reporters	65.1	5.9	2
Technicians	6.6	.6	7
Computer programers	2.1	.2	11
Draftsmen	(2)	-	-
Electrical and electronic technicians	(2)	-	-
All other technicians	3.2	.3	8
All other professional workers	3.9	.4	11
Salesworkers	62.4	5.6	3
Clerical workers	199.7	18.0	2
Accounting clerks	11.7	1.1	4
Bookkeepers	16.2	1.5	4
Cashiers	1.9	.2	8
Classified-ad clerks, newspaper	5.7	.5	7
Correspondence clerks	3.2	.3	8
Customer service representatives	6.6	.6	6
Invoice-control clerks	3.7	.3	8
Office machine operators	16.2	1.5	5
Billing-and bookkeeping-machine operators	4.8	.4	6
Digital computer operators	1.8	.2	9
Keypunch operators	5.7	.5	7
All other office machine operators	3.9	.4	10
Payroll clerks	3.6	.3	5
Personnel clerks	1.1	.1	5
Procurement clerks	1.3	.1	11
Telephone ad-taker	7.6	.7	6
Telephone operators	5.7	.5	4
Secretaries, stenographers, typists	47.6	4.3	3
Secretaries	20.9	1.9	4
Stenographers	4.3	.4	7
Typists	22.4	2.0	5
All other clerical workers	67.7	6.1	4
Production, maintenance, material movement, and powerplant workers	641.1	57.6	1
Apprentices	33.4	3.0	NA
Apprentice bookbinders	2.5	.2	12
Apprentice compositors and typesetters	8.5	.8	6
Apprentice electrotypers	(2)	-	-
Apprentice etchers and engravers, except photoengravers	(2)	-	-
Apprentice lithographic preparation workers	3.7	.3	8
Apprentice photoengravers	1.1	.1	9
Apprentice pressmen	11.6	1.0	6
Apprentice stereotypers	(2)	-	-
Apprentice, all other printing trades	4.1	.4	9
Apprentice, all other	(2)	-	-
Composing room occupations	139.2	12.5	NA
Copycutters	1.2	.1	10
Hand compositors	24.5	2.2	5
Imposers and makeup men	15.6	1.4	5
Linecasting machine operators	31.6	2.8	4
Linecasting machine keyboard operators	8.9	.8	6
Linecasting machine tenders	3.1	.3	8
Ludlow-machine operators	2.6	.2	11
Markup men	5.2	.5	5
Monotype-casting machine operators	1.0	.1	9
Monotype-keyboard operators	1.0	.1	16
Pasteup men	13.9	1.2	8
Photolettering machine operators	1.3	.1	14
Phototypesetting-machine keyboard operators	6.0	.5	10
Phototypesetting-machine monitors	1.5	.1	13
Phototypesetter operators	(1)	-	-
Proofreader, composing rooms	16.5	1.5	3
Strike-on machine operators	3.0	.3	18
Lithographic-photomechanical preparation occupations	33.8	3.0	NA
Artists	3.1	.3	9
Cameramen	10.0	.9	7
Developers	1.6	.1	12
Platemakers	7.9	.7	7
Strippers	11.2	1.0	6

See footnotes at end of table.

Table 3. Estimated employment in selected occupations in the printing and publishing industry, United States, March 1970—Continued

(In thousands)

Occupation	Estimated employment	Percent of total	Relative error (percent)
Production, maintenance, material movement, and powerplant workers—Continued	641.1	57.6	1
Other platemaking occupations	22.4	2.0	NA
Electrotypers	2.1	.2	10
Etchers and engravers, except photoengravers	[1]	-	-
Photoengravers	9.7	.9	6
Stereotypers	8.4	.8	6
Pressroom occupations	117.5	10.6	NA
Flexographic pressmen	[1]	-	-
Gravure pressmen, rotogravure and sheet fed	2.2	.2	15
Letter pressmen, sheet fed and roll fed	43.2	3.9	4
Letterset pressmen	5.9	.5	11
Offset lithographic-pressmen, sheet fed and roll fed	38.0	3.4	4
Steel die pressmen	[1]	-	-
Press assistants and feeders	24.6	2.2	5
Screen process occupations	3.1	.3	NA
Screen cutters	[2]	-	-
Screenmakers, photographic process	[2]	-	-
Screen printers	[2]	-	-
Binding, mailing, and shipping occupations	173.0	15.6	NA
Bindery machine setup men	8.9	.8	5
Bindery workers	73.0	6.6	3
Bookbinders	10.6	1.0	7
Deliverymen	14.5	1.3	6
Mailers	25.0	2.3	4
Routemen, newspapers	14.5	1.3	7
Shipping and receiving clerks	15.0	1.3	5
Truckdrivers	11.2	1.0	6
Construction, maintenance, repair, and powerplant occupations	13.5	1.2	NA
Carpenters	[2]	-	-
Electricians	1.9	.2	4
Machinists	5.0	.4	4
Mechanics, automotive	[2]	-	-
Mechanics, general	[2]	-	-
Mechanics, maintenance	2.6	.2	5
Mechanics and repairmen, all other	[2]	-	-
Plumbers and pipefitters	[2]	-	-
Stationary engineers	[2]	-	-
All other production, maintenance, material movement, and powerplant occupations	105.7	9.5	NA
Foremen, nonworking	14.5	1.3	3
All other skilled craftsmen and kindred workers	10.9	1.0	11
All other operatives and semiskilled workers	29.4	2.6	8
All other laborers and unskilled workers	50.9	4.6	5
Service workers	23.3	2.1	3
Guards, watchmen, doorkeepers	1.8	.2	7
Janitors, porters, and cleaners	17.5	1.5	3
All other service workers	4.0	.4	10

[1] Estimated employment with relative standard error greater than 20 percent. Does not meet publication standards.
[2] Less than 1,000 employees.
[3] A post-survey analysis indicated reporting errors were made in this occupation, the magnitude of which has not yet been ascertained. Thus, the estimate may be of limited reliability.

NA= Not available. The relative error was computed for all specific occupations but not for all occupational groupings.

NOTE: Detail may not add to totals due to rounding.

SOURCE: U.S. Department of Labor. Bureau of Labor Statistics

Table 4. Estimated distribution for selected occupations in the communications equipment industry, except telephone and telegraph (SIC 3662). September 1967, September 1968, and March 1970

(In thousands)

Selected occupation	1967 employment	1968 employment	1970 employment	1970 percent distribution
Total employment	385.3	390.6	352.5	100.00
Administrative, managerial, professional, sales, and technical personnel	172.7	172.2	159.3	45.19
Clerical workers	63.4	64.0	57.4	16.28
Accounting clerks	3.5	3.4	3.2	.90
Expediters	5.5	5.7	6.0	1.70
Office machine operators	5.3	5.2	5.0	1.41
Console operators	1.2	1.1	1.1	.31
Keypunch operators	2.1	2.0	1.7	.48
Tabulating-machine operators, A, B, C	.6	.7	.4	.11
Other office-machine operators	1.4	1.5	1.8	.48
Payroll or timekeeping clerks	1.0	1.1	.8	.22
Secretaries	12.3	12.5	11.2	3.17
Shipping or receiving clerks	1.7	1.9	1.6	.45
Stenographers	3.4	3.1	2.9	.82
Typists	5.3	5.5	4.2	1.19
Stock clerks	2.9	3.5	3.1	.87
Other	22.5	22.1	19.5	5.55
Skilled trades and other	143.4	148.1	129.7	36.79
Assemblers	47.5	52.3	43.7	12.39
Coil winders	2.1	2.0	1.7	.48
Electricians	.9	1.1	1.2	.34
Filers, grinders, and polishers	.9	1.1	.9	.25
Foremen (nonworking)	5.6	5.7	4.7	1.33
Inspectors	11.2	12.1	9.8	2.78
Machine tool operators	6.7	7.1	7.5	2.12
Machinists	4.1	4.4	4.3	1.21
Mechanics and repairmen	2.4	2.7	2.8	.79
Millwrights	.3	.2	.3	.08
Painters, maintenance	.4	.4	.3	.08
Painters, production	.9	1.1	1.0	.28
Platers	.8	.9	.7	.19
Platers, helpers	.3	.2	.2	.05
Plumbers and pipefitters	.4	.4	.4	.11
Power truckers	.3	.4	.4	.11
Punch-press operators	1.0	1.2	.9	.25
Setup men, machine tool	.5	.5	.5	.14
Sheet-metal mechanics	1.7	2.0	2.2	.62
Stationary engineers	.1	.2	.2	.05
Testers	9.2	8.7	7.3	2.07
Toolmakers and diemakers	2.2	2.0	1.8	.51
Truckdrivers	.7	.7	.6	.17
Welders, hand	.8	.7	.8	.22
Welders, machine	.3	.4	.3	.08
Wiremen	9.1	11.5	10.8	3.06
Other skilled trades and other manual occupations	32.9	27.9	24.3	6.89
Service workers	7.1	6.4	6.2	1.75

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

Table 5. Employment of engineers, by industry, January 1961-69

(In thousands)

SIC code	Industry	1961	1962	1963	1964	1965	1966	1967	1968	1969
	All industries	640.1	669.7	711.6	726.4	749.2	776.2	824.0	847.7	849.0
07-09	Agriculture, forestry, and fisheries [1]	-	-	-	-	-	-	-	-	-
10-14	Mining	([2])	([2])	17.0	17.0	17.3	17.2	17.3	17.3	18.7
15-17	Contract construction	36.2	37.5	38.8	38.8	42.0	46.7	43.3	48.0	46.8
	Manufacturing	450.2	472.3	503.3	504.4	519.9	536.2	577.5	585.7	586.5
19	Ordnance and accessories	36.2	41.1	46.2	47.4	50.7	51.5	51.9	53.7	54.2
20	Food and kindred products	5.8	5.8	5.8	4.4	4.8	4.9	5.2	5.2	7.4
22,23	Textile mill products and apparel	2.6	2.7	2.9	3.8	3.4	3.7	3.7	3.9	3.7
26	Paper and allied products	9.0	9.5	9.5	9.3	9.6	9.7	9.4	9.6	9.2
28	Chemicals and allied products	32.2	33.2	34.6	39.4	38.6	40.6	42.5	42.9	44.2
29	Petroleum refining and related industries	9.4	9.5	9.6	9.8	10.1	9.9	10.7	10.6	8.8
30	Rubber and miscellaneous plastics products	5.3	5.1	5.6	6.0	7.2	7.8	9.7	9.0	10.3
32	Stone, clay, and glass products	7.6	7.9	8.0	7.8	8.4	8.9	9.6	9.6	9.7
33	Primary metal industries	20.5	21.1	20.3	18.6	20.0	20.5	21.4	21.4	21.6
34	Fabricated metal products	23.9	23.9	24.7	24.8	26.2	27.9	29.2	29.2	28.7
35	Machinery, except electrical	62.3	65.3	69.6	72.7	73.5	75.1	81.5	83.5	81.1
36	Electrical machinery, equipment, and supplies	117.7	122.7	133.9	129.6	132.1	135.5	142.0	145.0	146.7
37	Transportation equipment [3]	85.9	90.5	97.3	96.7	100.6	103.6	119.5	121.0	123.7
38	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks	24.3	25.9	26.8	26.7	27.9	29.6	32.4	33.0	30.0
	Other [4]	6.1	6.4	6.7	6.5	6.7	7.0	7.8	8.1	7.2
	Transportation, communications, and utilities	43.2	44.7	44.8	46.6	50.8	51.6	53.2	55.4	53.1
40	Railroad transportation	8.8	8.7	8.3	8.8	4.1	4.1	4.2	4.3	3.3
41-47	Other transportation services	-	-	-	-	4.3	4.3	5.1	4.8	4.1
48	Communication	12.5	12.8	12.9	13.7	16.8	17.1	17.9	18.8	18.7
49	Electric, gas, and sanitary services	21.9	23.2	23.6	24.1	25.5	26.1	25.9	27.5	27.0
50-59	Wholesale and retail trade	15.0	16.7	18.2	23.1	21.6	23.0	24.8	25.6	20.8
60-67	Finance, insurance, and real estate	2.5	3.1	3.1	5.0	4.0	4.2	4.4	4.9	4.7
	Services	75.7	78.9	85.5	90.5	93.7	97.3	103.4	109.1	118.3
70-79	Hotel, personal, business, repair, amusement recreation, and legal [5]	28.8	30.0	35.7	36.5	35.2	36.1	39.4	41.1	49.0
81	Medical and dental laboratories	-	-	-	-	-	-	-	-	-
807	Engineering and architectural services	46.9	48.9	49.8	54.0	58.5	61.2	64.0	68.0	69.3
891										

[1] Estimates for engineers in this industry group are included in the total only, since they have averaged fewer than 1,000 over the years.

[2] No estimates for engineers in mining are shown for 1961 and 1962 because the data are not comparable with later years.

[3] Due to a change in estimating procedure and the allocation of consolidated reports in the motor vehicle industry, the 1967, 1968, and 1969 data are not comparable with 1966 and earlier years. This adjustment also affects to a lesser degree ordnance and industries in the electrical machinery group.

[4] Included are: Tobacco manufactures (SIC 21); lumber and wood products (SIC 24); furniture and fixtures (SIC 25); printing and publishing (SIC 27); leather and leather products (SIC 31); and miscellaneous manufacturing (SIC 39).

[5] Virtually all the employment is contained in commercial laboratories, research and other business services (SIC 739).

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data cover payroll employment in private industry and are drawn from the annual surveys conducted by the U.S. Department of Labor, Bureau of Labor Statistics with the support of the National Science Foundation. (For further details see BLS Bulletin 1609, Scientific and Technical Personnel in Industry 1961-66 and BLS Bulletin 1674, Scientific and Technical Personnel in Industry, 1967.) Scientific and technical Personnel in governments, colleges, and universities, and nonprofit institutions were excluded because they are covered in separate surveys.

Table 6. Employment of scientists by industry, January 1961-69

(In thousands)

SIC code	Industry	1961	1962	1963	1964	1965	1966	1967	1968	1969
	All industries	146.9	154.3	158.8	164.6	168.6	178.4	189.1	200.5	213.5
07-09	Agriculture, forestry, and fisheries[2]	-	-	-	-	-	-	-	-	-
10-14	Mining	([3])	([3])	10.5	10.1	11.6	12.0	14.4	14.7	14.7
15-17	Contract construction[2]	-	-	-	-	-	-	-	-	-
	Manufacturing	115.2	120.1	122.4	125.9	123.5	129.7	135.8	144.6	149.2
19	Ordnance and accessories	4.5	6.1	6.7	7.2	7.8	8.4	9.0	9.7	8.8
20	Food and kindred products	7.2	6.7	7.1	7.6	7.2	6.9	7.4	8.4	7.3
22,23	Textile mill products and apparel	1.2	1.3	1.3	1.2	2.3	2.5	1.8	1.9	2.1
26	Paper and allied products	3.6	3.9	3.9	4.0	3.9	4.1	4.5	4.0	5.5
28	Chemicals and allied products	47.2	49.9	50.4	51.5	53.4	57.1	56.9	60.0	59.3
29	Petroleum refining and related industries	4.9	4.9	5.0	5.1	4.0	4.0	4.0	4.1	3.9
30	Rubber and miscellaneous plastics products	1.9	2.0	2.1	2.0	3.0	3.2	2.7	2.8	4.1
32	Stone, clay, and glass products	2.1	2.1	2.1	2.1	1.5	1.7	2.4	2.4	2.4
33	Primary metal industries	9.9	10.5	9.5	9.5	7.3	7.2	7.8	8.1	10.5
34	Fabricated metal products	2.2	2.1	2.3	2.6	2.6	2.3	2.6	2.7	2.5
35	Machinery, except electrical	4.9	5.2	5.8	7.1	6.5	6.5	7.1	8.3	8.7
36	Electrical machinery, equipment and supplies	9.2	9.5	10.4	9.7	8.2	9.0	10.5	11.2	13.9
37	Transportation equipment[4]	9.5	8.9	8.7	9.1	8.7	8.9	11.3	12.6	12.2
38	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks	4.4	4.6	4.7	4.7	5.4	6.0	5.7	6.5	5.8
	Other[5]	1.7	1.6	1.7	1.9	1.7	1.9	2.0	1.9	2.3
	Transportation, communication, and utilities	1.6	1.6	1.7	2.0	1.8	1.8	1.9	2.0	3.3
40-47	Transportation and related services[2]	-	-	-	-	-	-	-	-	1.6
48	Communication[2]	-	-	-	-	-	-	-	-	-
49	Electric, gas, and sanitary services	1.0	1.0	1.1	1.2	1.2	1.2	1.2	1.2	1.3
50-59	Wholesale and retail trade	2.7	3.1	3.5	4.3	7.9	8.6	10.1	10.0	8.4
60-67	Finance, insurance, and real estate	2.1	2.1	2.1	2.3	4.4	4.8	4.8	4.9	5.1
	Services	13.2	15.3	17.2	19.0	18.6	20.5	21.2	22.9	31.3
70-79, 81	Hotel, personal, business, repair, amusement recreation, and legal[6]	10.3	12.4	13.8	14.7	15.1	16.2	16.6	17.6	24.5
807	Medical and dental laboratories	1.0	1.1	1.1	1.2	1.3	1.4	1.6	1.6	1.8
891	Engineering and architectural services	1.9	1.8	2.3	3.1	2.2	2.9	3.0	6.1	5.0

[1] Scientists include chemists, physicists, metallurgists, geologists and geophysicists, other physical scientists, agricultural scientists, biological scientists, medical scientists, other life scientists and mathematicians.

[2] Estimates for scientists in this industry group are included in the total only, since they have averaged fewer than 1,000 over the years.

[3] No estimates for scientists in mining are shown for 1961 and 1962 because the data are not comparable with later years.

[4] Due to a change in estimating procedure and the allocation of consolidated reports in the motor vehicle industry, the 1967, 1968, and 1969 data are not comparable with 1966 and earlier years. This adjustment also affects to a lesser degree ordnance and industries in the electrical machinery group.

[5] Included are: Tobacco manufactures (SIC 21); lumber and wood products (SIC 24); furniture and fixtures (SIC 25); printing and publishing (SIC 27); leather and leather products (SIC 31); and miscellaneous manufacturing (SIC 39).

[6] Virtually all the employment is contained in commercial laboratories, research and other business services (SIC 739).

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data cover payroll employment in private industry and are drawn from the annual surveys conducted by the U.S. Department of Labor, Bureau of Labor Statistics with the support of the National Science Foundation. (For further details see BLS Bulletin 1609, Scientific and Technical Personnel in Industry 1961-66 and BLS Bulletin 1674, Scientific and Technical Personnel in Industry, 1967). Scientific and technical personnel in governments, colleges and universities, and nonprofit institutions were excluded because they are covered in separate surveys.

Table 7. Employment of technicians[1] by industry, January 1961-69

(In thousands)

SIC code	Industry	1961	1962	1963	1964	1965	1966	1967	1968	1969
	All industries	570.0[2]	589.5	619.0	636.5	646.5	673.2	734.7	745.5	772.5
07-09	Agriculture, forestry, and fisheries[3]	-	-	-	-	-	-	-	-	-
10-14	Mining	([4])	([4])	10.4	10.4	10.3	10.1	12.3	10.3	13.7
15-17	Contract construction	26.0	26.2	27.8	23.8	25.4	30.2	25.7	36.7	31.5
	Manufacturing	329.6	355.9	365.3	370.0	369.4	380.4	416.0	410.9	421.9
19	Ordnance and accessories	16.9	18.2	19.3	19.2	19.4	19.3	20.9	19.9	20.1
20	Food and kindred products	3.2	3.9	4.0	4.7	4.1	4.2	5.1	4.5	5.9
22, 23	Textile mill products and apparel	2.6	2.8	2.8	2.7	2.2	2.6	2.4	3.2	2.9
26	Paper and allied products	5.7	6.2	6.3	6.3	6.0	6.0	8.1	6.8	6.8
28	Chemical and allied products	35.6	35.5	36.8	38.0	36.7	38.3	40.8	41.1	45.4
29	Petroleum refining and related industries	5.4	5.8	4.7	4.6	5.7	5.8	6.2	5.9	6.9
30	Rubber and miscellaneous plastics products	5.1	5.1	4.9	4.7	5.0	4.9	5.5	5.4	5.9
32	Stone, clay, and glass products	5.1	5.4	5.7	5.8	5.6	5.6	7.4	6.0	7.0
33	Primary metal industries	16.0	18.1	16.5	17.3	17.4	17.6	18.2	18.5	19.7
34	Fabricated metal products	23.3	25.8	25.3	25.9	24.7	24.7	25.8	25.9	25.4
35	Machinery, except electrical	53.8	57.9	61.7	64.9	65.5	67.4	77.8	75.4	76.3
36	Electrical machinery, equipment, and supplies	84.1	92.6	93.8	93.8	96.8	100.9	104.4	109.5	106.4
37	Transportation equipment[5]	47.8	51.2	55.4	56.0	55.2	56.8	64.4	61.2	61.8
38	Professional, scientific, and controlling instruments; photographs and optical goods; watches and clocks	18.5	20.0	20.6	18.7	19.3	20.2	22.5	22.8	23.3
	Other manufacturing industries[6]	6.5	6.9	7.5	7.9	5.8	6.2	6.2	4.6	8.1
	Transportation, communication, and utilities	52.3	54.3	55.6	57.9	56.9	58.4	62.4	64.4	70.1
40	Railroad transportation	6.2	6.0	6.0	6.5	4.5	4.7	4.0	7.6	4.3
41-47	Transportation services	-	-	-	-	2.1	2.1	2.7	2.9	3.7
48	Communication	29.8	30.4	30.7	31.3	30.6	31.7	34.5	33.6	38.6
49	Electric, gas, and sanitary services	16.3	17.9	18.9	20.1	19.6	19.8	21.2	20.3	23.5
50-59	Wholesale and retail trade	22.9	21.6	23.3	25.8	29.4	31.2	38.0	32.9	39.7
60-67	Finance, insurance, and real estate	4.3	4.4	4.6	4.6	5.2	5.8	7.2	5.9	6.3
	Services	106.6	113.8	129.2	142.5	149.1	156.2	172.5	184.4	188.5
70-79	Hotel, personal, business, repair, amusement, recreation, and legal[7]	37.0	36.0	39.8	40.2	39.6	39.9	48.5	46.2	51.1
81	Medical and dental laboratories	13.5	15.6	16.2	18.7	18.6	18.5	20.7	21.4	22.5
807	Engineering and architectural services	56.1	62.2	73.2	83.6	90.9	97.8	103.3	116.8	114.9
891										

[1] Technicians include draftsmen, surveyors, electrical and electronic technicians, other engineering and physical science technicians, life-science technicians and all other technicians.

[2] The 1961 technician total includes the addition of 15,000 surveyors, made to insure comparability of the time series on an occupational level, but it has not been possible to allocate this input on an industry level.

[3] Estimates for technicians in this industry group are included in the total only, since they have averaged less than 1,000 over the years.

[4] No estimates for technicians in mining are shown for 1961 and 1962 because the data are not comparable with later years.

[5] Due to a change in estimating procedure and the allocation of consolidated reports in the motor vehicle industry, the 1967, 1968 and 1969 data are not comparable with 1966 and earlier years. This adjustment also affects to a lesser degree ordnance and industries in the electrical machinery group.

[6] Included are: Tobacco manufactures (SIC 21); lumber and wood products (SIC 24); furniture and fixtures (SIC 25); printing and publishing (SIC 27); leather and leather products (SIC 31); and miscellaneous manufacturing (SIC 39).

[7] Virtually all the employment is contained in commercial laboratories, research, and other business services, SIC 739.

NOTE: Detail may not add to total because of rounding or inclusion in total of items not shown separately.

SOURCE: Data cover payroll employment in private industry and are drawn from the annual surveys conducted by the U.S. Department of Labor, Bureau of Labor Statistics with the support of the National Science Foundation. (For further details see BLS Bulletin 1609, Scientific and Technical Personnel in Industry 1961-66 and BLS Bulletin 1674, Scientific and Technical Personnel in Industry, 1967.) Scientific and technical personnel in governments, colleges and universities, and nonprofit institutions were excluded because they are covered in separate surveys.

Table 8. Employment of scientists by occupation and industry, January 1969

(In thousands)

SIC code	Industry	Total physical and life scientists	Physical scientists					Life scientists	Mathematicians
			Total	Chemists	Physicists	Geologists geophysicists	All other		
	All industries	213.5	150.9	90.5	20.6	15.9	23.9	23.6	39.0
07-09	Agriculture, forestry, and fisheries	.6	[1]	[1]	[1]	[1]	[1]	.6	[1]
10-14	Mining	14.7	14.3	.9	.2	12.8	.4	[1]	.4
15-17	Contract construction	.9	.4	.1	[1]	.3	[1]	[1]	.5
	Manufacturing	149.2	111.2	76.6	13.3	1.1	20.2	16.8	21.2
19	Ordnance and accessories	8.8	4.7	1.5	2.5	.2	.5	.2	3.9
20	Food and kindred products	7.3	4.6	4.3	[1]	[1]	.3	[1]	.4
22,23	Textile mill products and apparel	2.1	1.9	1.8	[1]	[1]	.1	[1]	.2
26	Paper and allied products	5.5	4.1	3.3	.1	.1	.6	1.0	.4
28	Chemicals and allied products	59.3	45.7	41.6	2.2	.2	1.7	11.9	1.7
29	Petroleum refining and related industries	3.9	3.7	3.3	.1	.3	[1]	[1]	.2
30	Rubber and miscellaneous plastics products	4.0	3.7	2.7	.1	[1]	.9	[1]	.3
32	Stone, clay, and glass products	2.4	2.2	1.4	.3	.2	.3	[1]	.2
33	Primary metal industries	10.5	10.0	2.9	.2	[1]	6.9	[1]	.5
34	Fabricated metal products	2.5	2.1	1.0	.3	[1]	.8	[1]	.4
35	Machinery, except electrical	8.7	4.9	2.0	1.0	[1]	1.9	.2	3.6
36	Electrical machinery, equipment and supplies	13.9	9.4	2.8	3.4	[1]	3.2	.3	4.2
37	Transportation equipment[2]	12.2	7.7	3.1	2.0	.1	2.5	.1	4.4
38	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks	5.8	4.7	3.2	1.1	[1]	.4	.5	.6
	Other[3]	2.3	1.8	1.7	[1]	[1]	.1	.3	.2
	Transportation, communications, and utilities	3.3	1.4	.6	[1]	.4	.4	.2	1.7
40-47	Transportation and related services	1.6	.6	.2	[1]	.1	.3	[1]	1.0
48	Communication	.4	[1]	[1]	[1]	[1]	[1]	[1]	.4
49	Electric, gas, and sanitary services	1.3	.8	.4	[1]	.3	.1	.2	.3
50-59	Wholesale and retail trade	8.4	4.0	3.0	.4	.1	.5	1.1	3.3
50-67	Finance, insurance and real estate	5.1	[1]	[1]	[1]	[1]	[1]	.4	4.7
	Services	31.3	19.6	9.3	6.7	1.2	2.4	4.5	7.2
70-79, 81	Hotel, personal, business, repair[4] amusement, recreation and legal	24.5	16.3	8.5	5.5	.6	1.7	2.7	5.5
807	Medical and dental laboratories	1.8	.2	.2	[1]	[1]	[1]	1.6	[1]
891	Engineering and architectural services	5.0	3.1	.6	1.2	.6	.7	.2	1.7

[1] Fewer than 50.

[2] Due to a change in estimating procedure and the allocation of consolidated reports in the motor vehicle industry, the 1969 data are not comparable with 1966 and earlier years. This adjustment also affects to a lesser degree certain other industries, namely ordnance and industries in the electrical machinery group.

[3] Included are: Tobacco manufactures (SIC 21); lumber and wood products (SIC 24); furniture and fixtures (SIC 25); printing and publishing (SIC 27); leather and leather products (SIC 31); and miscellaneous manufacturing (SIC 39).

[4] Virtually all the employment is contained in commerical laboratories, research and other business services, (SIC 739).

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data cover payroll employment in private industry and are drawn from the annual surveys conducted by the U.S. Department of Labor, Statistics with the support of the National Science Foundation. Scientific and technical personnel in governments, colleges and universities, and non-profit institutions were excluded because they are covered in separate surveys.

Table 9. Employment of technicians, by occupation and industry, January 1969

(In thousands)

SIC code	Industry	Total	Draftsmen	Surveyors	Electrical and electronic	Other engineering and physical science	Life science	All other technicians
	All industries	772.5	275.5	27.1	177.9	174.7	30.3	87.0
07-09	Agriculture, forestry, and fisheries	.8	[1]	[1]	[1]	[1]	.6	.2
10-14	Mining	13.7	3.7	1.4	1.5	4.2	.2	2.7
15-17	Contract construction	31.5	17.8	3.2	6.4	1.4	[1]	2.7
	Manufacturing	421.9	140.8	1.4	97.7	129.5	6.3	46.2
19	Ordnance and accessories	20.1	4.3	[1]	9.0	5.8	[1]	1.0
20	Food and kindred products	5.9	.8	[1]	.4	1.7	.9	2.1
22,23	Textile mill and apparel products	2.9	.3	[1]	.2	1.0	[1]	1.4
26	Paper and allied products	6.8	1.4	.1	.8	3.3	.1	1.1
28	Chemicals and allied products	45.4	4.4	[1]	1.7	26.6	4.2	8.5
29	Petroleum and refining and related industries	6.9	.8	.1	.3	4.6	[1]	1.1
30	Rubber and miscellaneous plastics products	5.9	1.5	[1]	.2	3.0	[1]	1.2
32	Stone, clay, and glass products	7.0	2.6	.1	.7	2.3	.1	1.2
33	Primary metal industries	19.7	5.5	.2	1.7	9.1	.1	3.1
34	Fabricated metal products	25.4	17.4	.2	1.4	4.8	[1]	1.6
35	Machinery, except electrical	76.3	38.7	.1	14.8	15.4	.2	7.1
36	Electrical machinery, equipment and supplies	106.5	30.1	.4	49.1	19.8	.1	6.9
37	Transportation equipment[2]	61.8	22.2	.1	9.3	25.0	.1	5.1
38	Professional, scientific and controlling instruments; photographic and optical goods; watches and clocks	23.3	6.6	[1]	7.1	5.4	.5	3.7
	Other manufacturing industries[3]	8.1	4.2	.1	1.0	1.7	[1]	1.1
	Transportation, communication and utilities	70.1	10.1	2.9	32.6	17.6	.1	6.8
40-47	Transportation and related services	8.0	2.2	1.1	1.9	1.2	[1]	1.6
48	Communication	38.6	1.3	.2	23.6	11.2	[1]	2.3
49	Electric, gas, and sanitary services	23.5	6.6	1.6	7.1	5.2	.1	2.9
50-59	Wholesale and retail trade	39.7	5.5	[1]	17.7	3.0	1.8	11.7
60-67	Finance, insurance, and real estate	6.3	.7	[1]	.1	.4	.2	4.9
	Services	188.5	96.9	18.2	21.9	18.6	21.1	11.8
70-79	Hotel, personal, business, repair, amusement recreation, and legal[4]	51.1	16.7	.2	14.8	13.8	.5	5.1
81	Medical and dental laboratories	22.5	[1]	[1]	[1]	[1]	20.5	2.0
807	Engineering and architectural services	114.9	80.2	18.0	7.1	4.8	.1	4.7
891								

[1] Fewer than 50.

[2] Due to a change in estimating procedure and the allocation of consolidated reports in the motor vehicle industry, the 1967 and 1969 data are not comparable with earlier years. This adjustment also affects to a lesser degree certain other industries, namely, ordnance and industries in the electrical machinery group. However, the impact of this adjustment is largely restricted to 2 occupations, engineers and engineering and physical science technicians.

[3] Included are: Tobacco manufactures (SIC 21); lumber and wood products (SIC 24); furniture and fixtures (SIC 25); printing and publishing (SIC 27); leather and leather products (SIC 31); and miscellaneous manufacturing (SIC 39).

[4] Virtually all the employment is contained in commercial laboratories, research and other business services (SIC 739).

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Data cover payroll employment in private industry and are drawn from the annual surveys conducted by the U.S. Department of Labor, Bureau of Labor Statistics with the support of the National Science Foundation. Scientific and technical personnel in government, colleges, and universities, and nonprofit institutions were excluded because they are covered in separate surveys.

Table 10. Employment of scientific, professional, and technical personnel by State governments, January 1964 and January 1967

(In thousands)

Occupation	1964	1967
All occupations[1]	156.8	200.5
Engineers	34.5	34.2
Civil engineers[2]	31.0	30.6
Sanitary engineers	1.2	1.3
Other engineers	2.3	2.3
Scientists	16.7	20.6
Chemists	1.4	1.7
Geologists and geophysicists	1.0	1.1
Other physical scientists	.1	.4
Agricultural scientists	3.3	4.6
Biomedical scientists	2.0	2.4
Other life scientists	2.9	3.3
Mathematicians	.3	.3
Statisticians	1.6	1.6
Economists	.7	.9
Sociologists and anthropologists	.2	.3
Other social scientists	.5	1.0
Clinical psychologists	2.0	2.3
Social psychologists	.1	.2
Other psychologists	.4	.5
Social workers[3]	9.2	42.8
Selected health professions[4]	36.2	41.0
Public health officers (M.D.)	.8	1.0
Psychiatrists (M.D.)	3.8	4.1
All other physicians (M.D. and D.O.)	4.4	4.9
Dentists (D.D.S. or D.D.M.)	1.0	1.2
Professional nurses (R.N.)	21.6	25.3
Veterinarians (D.V.M.)	1.1	1.0
Sanitarians	3.4	3.5
Technicians	60.2	61.9
Draftsmen	7.9	7.1
Surveyors[5]	12.0	7.8
Engineering technicians	30.5	33.1
Physical science technicians	1.5	2.5
Agricultural technicians	2.0	2.1
Biological technicians	1.8	1.8
Medical and dental technicians	3.7	4.5
Other technicians[6]	.8	3.1

[1] The 1964 and 1967 totals are not comparable. See footnote 3.

[2] Includes electrical, mechanical, and traffic engineers.

[3] Data for 1967 are not comparable with 1964 because of a change in definitional requirements. The 1967 data include holders of bachelor's degrees and above, while the 1964 data include only holders of master's degrees and above.

[4] The relevant occupations do not include physicians and dentists dealing with patients.

[5] Data for 1964 were overstated to the extent that chainmen and rodmen were included.

[6] Computer programers included for the first time in 1967.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: 1964 data, Employment of Scientific, Professional, and Technical Personnel in State Governments January 1964, Bulletin 1557 (1967). 1967 data, Bureau of Labor Statistics, unpublished sample survey preliminary data.

Table 11. Employment of engineers and scientists by universities and colleges, January 1965[1]

(In thousands)

Field of employment	Full time			Part time[2]		
	Total	Teaching	Other[3]	Total	Teaching	Other[4]
Total	159.6	98.2	61.2	102.1	60.1	42.0
Engineers	22.9	13.2	9.7	14.5	7.1	7.4
Aeronautical	1.1	.6	.6	.9	.4	.6
Chemical	1.6	1.0	.6	1.6	.7	1.0
Civil	2.8	2.2	.6	2.0	.9	1.0
Electrical	6.7	3.2	3.5	3.7	2.1	1.6
Mechanical	4.7	2.9	1.8	2.4	1.5	.9
Industrial	1.0	.8	.3	.6	.4	.1
Other engineers	4.9	2.6	2.3	3.3	1.2	2.1
Physical scientists	38.7	26.6	12.1	29.4	18.2	11.2
Chemists	11.0	7.3	3.7	9.9	5.8	4.2
Earth scientists	3.7	2.7	1.0	2.8	1.6	1.1
Physicists	10.4	6.0	4.4	8.1	4.1	4.0
Mathematicians	11.9	10.0	1.9	7.7	6.4	1.3
Other physical scientists	1.8	.7	1.1	1.0	.3	.7
Life scientists	63.4	29.3	34.1	38.0	20.2	17.8
Agricultural	13.4	2.9	10.5	5.0	1.0	4.0
Biological	21.0	12.7	8.3	12.4	6.7	5.7
Medical	29.0	13.7	15.3	20.6	12.5	8.1
Psychologists	7.1	5.7	1.3	5.7	3.7	2.1
Social scientists	26.6	22.9	3.6	14.3	10.8	3.4
Economists	6.4	5.1	1.3	3.7	2.6	1.1
Sociologists	4.7	4.3	.5	3.0	2.2	.8
Political scientists	4.9	4.5	.4	2.3	1.9	.4
Other social scientists	10.4	9.0	1.4	5.3	4.2	1.1
Other scientists, not specified	.9	.5	.4	.2	.1	.1

[1] Includes employment in Federally funded research and development centers administered by universities and colleges. These centers accounted for almost 5 percent of employment and were almost exclusively involved in research and development.

[2] Graduate students were slightly more than 50 percent of all part-time employees and were concentrated in the physical sciences occupations. Other part-time employees were concentrated in the life sciences occupations.

[3] Includes administrative and other functions. Over 70 percent were involved with research and development functions. Less than 20 percent were employed in the Federally funded research and development centers.

[4] Includes administrative and other functions. Almost all were employed by the universities and colleges, and over 85 percent were involved with research and development functions.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Scientific Activities at Universities and Colleges, 1964 NSF 68-22, May 1968, National Science Foundation, and unpublished data at the National Science Foundation.

Table 12. Employment of engineers and scientists by universities and colleges, January 1967[1]

(In thousands)

Field of employment	Full time			Part time[2]		
	Total	Teaching	Other[3]	Total	Teaching	Other[4]
All occupations	184.7	107.7	77.2	118.5	67.3	51.4
Engineers	25.8	13.4	12.4	17.0	7.5	9.6
Aeronautical	1.3	.6	.7	1.0	.3	.8
Chemical	1.6	.9	.7	1.7	.7	1.0
Civil	3.3	2.3	1.0	2.4	1.0	1.4
Electrical	7.6	3.3	4.2	4.5	2.2	2.3
Mechanical	5.2	2.7	2.5	2.5	1.3	1.1
Industrial	.8	.6	.2	.7	.5	.3
Other engineers	5.9	2.9	3.0	4.2	1.5	2.7
Physical scientists	47.1	30.8	16.3	34.5	20.8	13.7
Chemists	12.9	8.2	4.7	11.5	6.5	5.0
Earth scientists	4.6	3.1	1.6	3.7	1.9	1.8
Physicists	12.3	6.4	5.9	8.5	4.1	4.5
Mathematicians	15.3	12.3	2.9	9.7	7.9	1.8
Other physical scientists	1.9	.8	1.2	1.1	.4	.7
Life scientists	70.1	30.2	40.1	41.5	21.2	20.3
Agricultural	15.3	3.0	12.3	5.4	.9	4.6
Biological	23.9	14.3	9.6	15.2	8.0	7.2
Medical	30.9	12.8	18.1	20.9	12.3	8.6
Psychologists	8.6	6.6	2.0	6.8	4.4	2.4
Social scientists[5]	32.3	26.4	5.9	17.9	13.1	4.8
Economists	7.9	5.9	2.0	4.8	3.1	1.6
Sociologists	5.9	4.9	1.0	3.3	2.6	.8
Political scientists	5.9	5.2	.7	2.9	2.3	.6
Other	12.6	10.4	2.2	6.9	5.1	1.8
Other scientists, not specified	.8	.3	.5	.8	.3	.6

[1] Includes employment in Federally funded research and development centers administered by universities and colleges.

[2] Part-time employment was nearly 40 percent of total employment; graduate students employed as scientists and engineers were over 60 percent of the part-time employment and were concentrated in the physical sciences and mathematics group. Other part-time employees were concentrated in the life sciences occupations.

[3] Includes administrative and other functions. Over 70 percent were involved with research and development functions. Less than 15 percent were employed in the Federally funded research and development centers.

[4] Includes administrative and other functions. Almost all were employed by the universities and colleges, and 90 percent were involved with research and development.

[5] The social science definition was expanded in 1967 to include research in education.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Based on unpublished survey data at the National Science Foundation.

Table 13. Employment of engineers and scientists by universities and colleges January 1969[1]

(In thousands)

Field of employment	Full time			Part time[2]		
	Total	Teaching	Other[3]	Total	Teaching	Other[4]
All occupations	215.2	140.3	74.9	135.2	81.0	54.2
Engineers	26.5	15.9	10.5	17.9	8.9	9.0
Aeronautical	1.4	.8	.6	1.0	.4	.6
Chemical	1.8	1.1	.7	2.0	.9	1.0
Civil	3.4	2.7	.7	2.7	1.4	1.4
Electrical	7.8	4.1	3.7	4.7	2.5	2.2
Mechanical	5.5	3.3	2.2	3.0	1.7	1.3
Other engineers	6.6	3.9	2.6	4.4	1.9	2.5
Physical scientists	53.8	39.5	14.2	40.3	25.2	15.1
Chemists	14.0	10.0	4.0	12.9	7.8	5.1
Earth scientists	3.0	1.9	1.1	4.1	2.3	1.8
Physicists	13.1	8.1	5.0	9.5	4.7	4.8
Mathematicians	19.5	16.5	3.0	12.2	9.8	2.3
Other physical scientists	2.2	.1	1.2	1.7	.5	1.1
Life scientists	79.6	38.0	41.6	43.7	23.9	19.9
Agricultural	14.0	3.0	11.0	5.9	1.3	4.6
Biological	26.0	17.9	8.0	14.9	8.8	6.1
Medical	39.6	17.1	22.5	23.0	13.9	9.1
Psychologists	11.7	9.6	2.2	8.9	6.0	2.9
Social scientists[5]	43.7	37.3	6.4	24.4	17.1	7.3
Economists	8.7	7.2	1.5	5.2	3.5	1.7
Sociologists	7.4	6.6	.9	4.6	3.4	1.1
Political scientists	6.8	6.3	.5	3.5	2.7	.8
Historians	12.6	12.1	.5	5.2	4.4	.7
Other social scientists	8.2	5.2	3.0	5.9	3.0	2.9

[1] Includes employment in Federally funded research and development centers administered by universities and colleges.

[2] Part-time employment was nearly 40 percent of total employment. Graduate students employed as scientists and engineers were 63 percent of the part-time employment and were concentrated in the physical and life science groups excepting the medical series.

[3] Includes administrative and other functions. 67 percent were involved with research and development functions. Less than 15 percent were employed in the Federally funded research and development centers.

[4] Includes administrative and other functions. Almost all were employed by universities and colleges and 85 percent of the part-time employment were involved with research and development.

[5] The social science definition was expanded in 1967 to include research in education.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Resources for Scientific Activities at Universities and Colleges, 1969, NSF 70-16, National Science Foundation, Washington, D.C.

Table 14. Employment of technicians, by universities and colleges,[1] January 1965, January 1967, and January 1969

(In thousands)

Field of employment[2]	Total			Research and development			Other activities		
	1965	1967	1969	1965	1967	1969	1965	1967	1969
Total	47.0	57.5	57.6	36.2	44.8	42.4	10.8	12.7	15.2
Engineering and physical science	17.4	23.9	20.8	14.9	19.8	16.3	2.2	3.9	4.5
Life science	28.3	32.2	34.0	20.2	23.9	24.1	8.4	8.5	9.8
Social science	1.3	1.4	2.8	1.1	1.1	2.0	.2	.3	.8

[1] Includes employment in Federally funded research and development centers managed exclusively or primarily by universities and colleges. These centers had about 20 percent of employment in 1965 and 15 percent in 1967 and 1969. Technician employment at these centers were almost exclusively engaged in research and development.

[2] The small category of other technicians, composed of those in interdisciplinary pursuits, were distributed proportionately by weight to the other three fields of employment for 1965, 1967 and 1969.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: 1965 data. Scientific Activities at Universities and Colleges, 1964, NSF 68-22, May 1968, National Science Foundation. 1967. 1967 data unpublished at the National Science Foundation. 1969 data. Resources for Scientific Activities at Universities and Colleges, 1969, National Science Foundation. NSF 70-16 Washington, D.C.

Table 15. Employment of engineers, scientists, and technicians by independent nonprofit institutions, January 1965, January 1967, and January 1970

(In thousands)

Field of employment	Employment[1]		
	1965[2]	1967	1970
Total	21.3	25.6	[3] 23.7
Engineers	4.3	5.5	5.2
Physical scientists	3.5	4.1	3.7
Mathematicians	2.4	2.5	1.5
Life scientists	7.6	8.5	8.0
Psychologists	1.3	1.9	1.4
Social scientists[4]	2.2	3 1	3.9
Total technicians	19.7	21.2	25.4
Engineering and physical science	2.7	3.4	3.8
Life science	15.7	16.3	20.4
Social science	1.3	1.5	1.2

[1] Employment includes full-and part-time workers. Includes independent research institutes, Federally funded research and development centers administered by nonprofit institutions, foundations, professional and technical societies, academies of science, science exhibitors and other nonprofit organizations. Includes voluntary nonprofit hospitals and health agencies except State and local hospitals and educational institutions.

[2] 1965 data for engineers and physical scientists have been adjusted to eliminate double counting since some hospitals in 1965 were counted as research institutes.

[3] In 1970, over 90 percent (21,600) of the scientists and engineers were engaged in research and development. Also in 1970 Federally funded research and development centers accounted for 25 percent of the scientist and engineer employment.

[4] Includes economic type research supporting the military.

NOTE: Because of rounding, sums of individual items may not equal totals.

SOURCE: Scientific Activities of Independent Nonprofit Institutions, 1970. NSF 71-19; National Science Foundation, Washington, D.C.

Table 16. Employment of teachers and librarians, in fall of school year, 1959-60 through 1968-69

(In thousands)

Occupation	1959-60	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69
Elementary and secondary[1]	1,531	1,600	1,668	1,727	1,806	1,882	1,951	2,028	2,095	2,185
Elementary school teachers	952	991	1,015	1,036	1,062	1,096	1,123	1,159	1,193	1,234
Public	832	858	869	886	908	940	965	1,006	1,040	1,079
Nonpublic	120	133	146	150	154	156	158	153	153	155
Secondary school teachers	580	609	653	690	743	786	828	869	902	951
Public	524	550	592	621	669	708	746	783	815	864
Nonpublic	56	59	61	69	47	78	82	86	87	87
College instructional staff[2]	282	294	311	334	356	387	427	449	478	505
Instructors or above	243	253	265	285	303	329	363	382	406	426
Full time	162	169	177	190	202	220	243	255	271	3.1
Part time	81	84	88	95	101	109	120	127	135	95
Junior instructional staff[2]	39	42	46	49	53	58	64	67	72	79
Librarians[3]	62	63	66	69	73	77	81	83	87	90
Public elementary and secondary	20	20	22	23	25	27	28	29	31	32
Nonpublic elementary and secondary	3	3	4	4	4	5	5	5	6	6
College and university	9	10	10	11	12	12	14	14	15	16
Public library	20	20	20	20	21	21	22	22	22	22
Special library	10	10	10	10	12	12	13	15	15	16

[1] The estimates of elementary and secondary school teachers are from the U.S. Office of Education. The estimates of nonpublic classroom teachers and instructional staff during 1960-61 through 1965-66 were revised in 1968-69 on the basis of the 1965 Office of Education Survey.

[2] Data are for the 50 States and the District of Columbia. Data cover only faculty for resident instruction in degree-credit courses. Data for 1960-61, 1962-63, and 1964-65 are interpolated. Data for 1965-66, 1966-67, 1967-68 are estimates. Data for 1968-69 are preliminary data from the U.S. Office of Education. The 1968-69 junior instructional staff figures are projected.

[3] BLS estimates for years ending 1966-67, through 1968-69. (Includes full-time equivalents of part-time professional librarians.)

SOURCE: Data for elementary and secondary school teachers are from Projections of Educational Statistics to 1977-78, 1968 edition, U.S. Department of Health, Education, and Welfare, Office of Education, publication No. OE-10030-68 table 23. Data for college instructional staff are from Projections of Educational Statistics to 1977-78, ibid., table 28. Data for librarians are from Digest of Educational Statistics, 1965 and 1966 edition, publication Nos. OE-10024-65 table 128, and 1966 edition, publication No. 10029-66, table 138.

NOTE: Because of rounding, sums of individual items may not equal totals.

Table 17. Employment in selected occupations, regulated interstate industries, 1960-69

(In thousands)

Occupation[1]	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Class I railroads (line-haul)[2]	780.5	71".5	700.1	680.0	665.0	640.0	630.9	610.2	590.5	578.3
Conductors, railroad	39.0	36.9	37.0	37.1	37.4	38.0	38.7	38.0	38.0	38.0
Office-machine operators	7.0	6.6	6.3	6.0	6.0	6.1	6.1	6.0	5.8	5.8
Secretaries	3.8	3.6	3.5	3.5	3.4	3.4	3.4	3.3	3.3	3.4
Stenographers and typists	10.4	9.5	9.0	8.6	8.3	8.0	7.9	7.6	7.2	7.0
Telephone operators	2.8	2.5	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5
Carpenters	7.1	6.5	6.3	6.1	6.0	5.7	5.5	5.2	5.0	4.8
Linemen and servicemen (telephone and telegraph)	2.5	2.4	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1
Blacksmiths, forgemen, and hammermen	2.0	1.7	1.8	1.8	1.8	1.8	1.7	1.5	1.5	1.4
Boilermakers	2.3	2.1	2.0	2.0	1.9	1.8	1.3	1.7	1.6	1.6
Stationary engineers	1.0	.9	.9	.8	.8	.7	.7	.6	.6	.6
Lomotive engineers	36.2	34.1	34.2	33.9	34.3	35.1	36.2	35.3	35.4	35.7
Lomotive firemen	38.8	36.6	36.5	35.9	30.0	21.8	19.6	19.2	18.0	17.4
Drivers and deliverymen	5.9	5.7	5.8	5.8	5.8	5.9	5.9	5.7	5.4	5.3
Railway Express Agency, Inc.[2]	30.8	30.4	30.4	30.4	31.4	32.1	30.9	29.5	24.8	20.3
Drivers and deliverymen	9.0	9.2	9.4	9.6	10.0	10.4	10.3	10.0	8.7	7.5
Train messengers	1.5	1.3	1.2	1.1	1.1	.9	.7	.5	.1	(3)
Warehouse and platform laborers	5.5	5.3	5.2	5.3	5.7	5.9	5.3	5.0	4.0	2.9
The Pullman Company[2]	7.3	6.7	6.4	5.9	5.5	5.3	4.9	4.2	2.9	(4)
Conductors	.7	.6	.6	.6	.5	.5	.5	.4	.3	-
Porters	2.9	2.6	2.5	2.2	2.2	2.1	2.0	1.7	1.2	-
Oil pipelines[2]	21.3	20.3	19.2	18.2	17.1	16.9	16.2	15.9	16.0	15.7
Station engineers and pumpers	3.3	3.0	2.8	2.5	2.5	2.3	2.2	2.1	2.0	2.0
Gager-deliverymen and oil receivers	3.6	3.4	3.2	3.1	2.9	2.9	2.8	2.7	2.7	2.5
Pipeline repairmen	2.3	2.1	2.0	1.8	1.7	1.5	1.4	1.4	1.4	1.5
Other mechanics	.8	.7	.7	.7	.7	.7	.7	.8	.8	.8
Laborers	1.1	1.1	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.0
Scheduled airlines[5]	166.1	169.9	172.8	178.9	191.8	205.9	244.0	276.0	300.0	311.9
Airline pilots and copilots	13.5	13.9	13.8	14.3	15.1	16.3	21.0	23.4	24.6	26.3
Airline stewardesses and pursers	10.6	11.9	12.2	13.1	14.5	17.1	20.9	25.1	30.0	33.6
Other flight personnel	3.8	4.2	4.2	4.0	4.4	4.8	6.8	7.5	8.0	8.4
Communications personnel	4.2	3.7	3.4	3.7	3.2	3.2	3.2	3.3	3.4	3.3
Mechanics and maintenance personnel	34.2	34.1	34.9	34.5	39.4	40.7	45.3	50.0	52.0	52.9
Aircraft and traffic service personnel	43.3	44.6	46.7	49.1	51.9	56.3	66.6	74.9	83.0	86.5
Office employees	35.4	36.6	37.0	37.9	40.3	42.9	51.0	59.3	63.2	63.7
Other employees	21.1	20.9	20.7	22.4	23.0	24.7	29.2	32.4	36.4	37.3
Telephone industry[6]	694.9	672.5	669.6	678.7	699.9	717.9	767.0	777.3	809.6	877.4
Professional and semiprofessional personnel	50.5	52.0	53.4	60.9	64.0	67.5	72.4	74.5	77.7	84.5
Business office and sales employees	49.8	51.6	52.0	51.4	52.7	54.3	58.8	59.4	63.4	68.9
Clerical employees	144.9	142.6	142.9	142.5	147.9	152.2	161.9	164.1	171.0	185.4
Telephone operators	216.3	196.8	188.5	189.2	193.1	199.1	212.2	212.8	216.5	232.2
Foremen, telephone craftsmen	26.0	25.5	25.9	26.1	27.2	28.9	31.4	32.1	34.4	38.4
Central office craftsmen	58.0	59.1	62.0	63.1	65.9	69.0	75.3	78.0	82.8	89.9
Installation and exchange repair craftsmen	71.2	72.0	73.2	75.1	77.7	79.6	85.1	86.8	91.3	99.9
Line, cable, and conduit craftsmen	43.0	38.8	38.1	37.0	38.3	39.2	41.6	41.2	43.2	46.7
Building, supplies, and motor vehicle employees	28.8	27.9	27.2	26.0	25.4	24.9	25.2	25.1	25.5	26.8
Laborers	.5	.5	.5	.4	.4	.4	.4	.5	.4	.4
Other employees	1.7	1.5	1.4	2.4	2.3	2.7	2.7	2.8	3.2	4.1
Telegraph industry	37.6	36.5	34.9	32.8	31.6	30.9	31.9	31.4	31.6	30.3
Professional and semiprofessional personnel	1.4	1.4	1.4	1.2	1.2	1.4	1.7	1.7	1.8	2.0
Office superintendent	3.1	3.0	2.9	2.8	2.6	2.6	2.5	2.5	2.4	2.3
Sales employees	.6	.6	.6	.5	.5	.5	.5	.5	.6	.6
Clerical employees	8.7	8.5	8.1	7.7	7.3	7.2	7.5	7.5	7.7	7.5
Telegraph operators	8.7	8.0	7.4	7.0	6.3	6.1	6.2	6.0	6.2	6.0
Telephone operators	1.9	1.8	1.6	1.5	1.3	1.3	1.5	1.5	1.4	1.5
Construction, installation, and repair employees	6.6	6.9	7.1	6.5	6.9	6.9	7.4	7.2	7.1	6.9
Building service employees	.9	.9	.8	.7	.6	.6	.6	.6	.6	.5
Messengers	5.9	5.6	5.1	5.0	4.5	4.3	4.1	3.9	3.7	3.1

[1] Group totals include data not shown separately.
[2] Average number of employees for the year based on the number of employees on payroll at mid-month for 12 months.
[3] Less than 100.
[4] The Pullman Company was dissolved in 1969. Pullman service is now being provided by the individual railroads.
[5] Full-time equivalents.
[6] Adjusted to include part-time workers and exclude officials and managerial assistants with independent telephone companies.

SOURCE: See text p. 10

Table 18. Federal employment in selected white-collar occupations, October 1964, October 1966, October 1967, and October 1968

(In thousands)

Series code	Series	1964	1966	1967	1968
	Total selected white-collar occupations	1,097.4	1,204.6	1,261.7	1,276.2
	Professional occupations	220.7	226.4	236.9	241.2
	Social science	7.6	8.1	8.6	8.8
0110	Economics	3.6	4.1	4.5	4.3
0180	Psychology	1.8	1.9	1.9	2.0
0185	Social work	2.1	2.1	2.2	2.4
	Biology and agriculture	16.3	15.4	18.4	18.4
0401	General biological science	1.0	1.2	2.4	2.5
0457	Soil conservation	4.8	4.8	4.8	4.8
0460	Forestry	6.0	6.1	6.1	5.9
0470	Soil science	1.9	1.9	1.9	1.8
0475	Agricultural management	2.6	3.2	3.2	3.3
	Accounting	31.0	32.3	33.8	33.4
0510	Accounting	18.3	19.0	19.8	20.2
0512	Internal revenue agent	12.8	13.2	14.0	13.2
	Medical	38.7	37.6	37.9	37.0
0602	Medical officer	11.7	9.7	10.1	9.9
0610	Nurse	22.6	23.0	22.7	22.1
0630	Dietitian	1.2	1.1	1.1	1.0
0644	Medical technologist	1.1	1.4	1.6	1.6
0660	Pharmacist	.9	1.1	1.2	1.2
0680	Dental officer	1.3	1.2	1.3	1.3
0701	Veterinary science	2.3	2.3	2.4	2.4
	Engineering	79.4	79.0	78.3	79.9
0801	General	10.4	11.6	12.4	13.1
0808	Architecture	1.4	1.4	1.5	1.5
0810	Civil[1]	8.5	17.6	17.6	17.6
0811	Construction	3.5	-	-	-
0812	Structural	1.3	-	-	-
0813	Hydraulic	2.2	-	-	-
0819	Sanitary	1.0	1.0	1.3	1.3
0820	Highway	1.9	-	-	-
0830	Mechanical	8.4	8.8	9.7	9.5
0840	Nuclear	.9	1.0	1.1	1.3
0850	Electrical	4.4	4.4	4.4	4.6
0855	Electronic	13.2	13.9	15.0	15.7
0861	Aerospace	8.2	8.9	9.4	9.5
0870	Marine	.9	1.0	1.0	1.0
0871	Naval architecture	1.1	1.0	1.2	1.2
0893	Chemical	1.3	1.3	1.5	1.4
0896	Industrial	2.0	2.1	2.2	2.2
0905	Attorney	9.1	9.1	9.4	10.0
1224	Patent examining	1.1	1.1	1.1	1.2
	Physical science	26.0	27.0	27.6	28.4
1301	General physical science	6.5	6.2	6.3	6.5
1310	Physics	5.0	5.5	5.8	6.2
1320	Chemistry	7.7	8.1	8.3	8.5
1340	Meteorology	2.2	2.3	2.4	2.4
1350	Geology	2.0	1.9	1.9	1.8
1370	Cartography	2.7	2.9	3.0	3.1
	Mathematics	4.1	5.0	5.8	6.5
1515	Operation research	.6	.9	1.1	1.5
1520	Mathematics	3.1	3.6	4.1	4.3
1529	Mathematical statistics	.4	.5	.6	.7
1710	Edcuation and vocational training	14.0	14.7	13.4	15.3
	Administrative-technician (general) occupations	292.0	323.2	347.8	359.9
0018					
0018	Safety management	1.4	1.6	1.8	1.7
0080	Security administration	2.1	2.3	2.6	2.7
0132	Intelligence	2.8	3.0	3.2	3.3
0188	Recreation	1.8	2.0	2.2	2.3

See footnotes at end of table.

Table 18. Federal employment in selected white-collar occupations, October 1964, October 1966, October 1967, and October 1968—Continued

(In thousands)

Series code	Series	1964	1966	1967	1968
	Quality control and inspections	10.4	12.8	13.7	13.9
1901	General commodity quality control and inspection	2.1	2.0	2.2	2.3
1903	Quality control and inspection management	1.6	1.8	2.0	2.0
1936	Electronic equipment quality control and inspection	2.4	3.0	3.1	3.1
1940	Mechanical equipment quality control and inspection	1.5	2.4	2.7	2.6
1942	Aircraft quality control and inspection	1.0	1.6	1.7	1.8
1948	Ammunition quality control and inspection	.8	1.0	1.2	1.3
1950	Missile quality control and inspection	1.1	.9	.8	.7
	Supply	31.3	31.2	30.8	29.8
2001	General supply	11.8	10.2	9.4	10.3
2010	Inventory management	13.0	14.4	14.5	14.3
2030	Distribution facilities and storage management	1.2	1.1	1.1	1.1
2050	Supply identification systems	3.9	4.0	4.2	4.0
2090	Publications supply[5]	1.4	1.5	1.6	-
	Transportation	8.0	8.2	8.8	9.2
2101	General transportation	1.8	1.8	1.9	2.0
2130	Traffic management	1.5	1.7	1.8	1.8
2131	Freight rate	2.3	2.2	2.2	2.3
2132	Travel	1.4	1.5	1.7	1.8
2181	Aircraft operation	1.0	1.0	1.1	1.3
	Administrative-technician (Government) occupations	88.0	93.6	98.5	102.3
0007	Correctional officer	2.9	2.8	2.7	2.7
0105	Social insurance administration	9.5	9.7	9.9	10.7
	Accounting	15.4	17.1	18.1	18.5
0526	Tax technician	2.8	3.0	3.0	2.7
0560	Budget administration	6.2	6.4	6.8	7.2
0592	Tax accounting	6.4	7.7	8.3	8.6
0685	Public health program specialist	1.6	1.9	2.4	2.5
	Claims examining	10.2	11.8	12.8	13.4
0962	Contract representative	1.2	1.3	1.3	1.4
0963	Legal instruments examining	2.2	2.1	2.2	2.2
0993	Social security claims	5.1	6.2	7.1	7.6
0996	Veterans claims	1.8	2.2	2.2	2.2
1169	Internal revenue officers	6.4	6.2	6.4	6.0
	Investigation	22.4	24.3	25.2	25.8
1811	Criminal investigation	11.3	12.3	12.6	12.8
1813	Wage and hour law	1.2	1.2	1.2	1.2
1816	Immigration inspection	1.2	1.2	1.2	1.2
1854	Alcohol, tobacco tax inspection	1.1	1.1	1.2	1.1
1863	Food inspection	3.7	4.4	4.9	5.3
1890	Customs inspection	2.7	2.8	2.8	2.9
1896	Immigration patrol inspection	1.3	1.3	1.3	1.3
1980	Agricultural commodity grading	2.9	3.0	2.9	2.8
2152	Air traffic control	17.6	16.9	18.0	19.9
	Aid-assistant occupations	42.2	44.7	45.7	47.9
	Medical support	39.9	42.1	42.7	44.7
0621	Nursing assistant	36.0	37.4	38.1	36.8
0636	Physical-medical rehabilitation therapy assistant	1.0	1.1	1.1	1.1
0681	Dental assistant	1.3	1.8	2.0	1.9
0699	Medical aid	1.6	1.9	1.5	1.6
1411	Library technician	2.3	2.6	3.0	3.3
	Clerical (specialized) occupations	93.7	108.2	114.9	118.0
	Personnel clerical	13.5	15.6	18.0	19.5
0203	Personnel clerical and assistance	7.5	7.8	9.0	9.5
0204	Military personnel clerical and technician	6.0	7.7	9.0	9.9

See footnotes at end of table.

Table 18. Federal employment in selected white-collar occupations, October 1964, October 1966, October 1967, and October 1968—Continued

(In thousands)

Series code	Series	1964	1966	1967	1968
	Personnel	15.0	16.2	17.0	17.2
0201	Personnel management	8.0	8.8	9.2	9.1
0212	Personnel staffing	2.9	3.3	3.5	3.7
0221	Position classification	2.4	2.3	2.4	2.5
0235	Employee development	1.6	1.7	1.8	1.9
	Computer and management services	44.2	53.9	63.4	70.6
0330	Digital computer systems administration	1.1	1.2	1.2	1.3
0331	Digital computer programer [2]	5.4	-	-	-
0332	Digital computer systems operation	3.7	5.5	6.6	7.5
0334	Computer specialist [3]	3.4	12.1	14.8	16.9
0335	Computer aid and technician	-	.9	2.1	3.1
0340	Program management	2.6	2.8	3.0	3.2
0341	Administrative officer	9.5	9.4	9.6	9.5
0342	Office services and management and supervision	2.0	2.0	2.3	2.5
0343	Management analysis	8.3	8.5	8.8	9.2
0344	Management technician	3.5	3.9	4.1	4.2
0345	Program analysis	-	2.5	5.0	6.4
0362	Electric accounting machine project planning	1.5	.9	.7	.6
0392	General communication	2.0	2.5	3.2	3.8
0393	Communication specialist	1.1	1.6	1.9	2.4
	Agricultural support	6.3	8.7	9.0	8.9
0403	Microbiology	1.2	1.4	1.4	1.5
0404	Biological technician	2.2	4.4	4.7	4.6
0458	Soil conservation technician	2.9	2.9	3.0	2.9
	Accounting, finance support	26.8	26.1	26.8	27.6
0501	General accounting, clerical, and administration	11.1	10.6	10.8	10.9
0525	Accounting technician	13.0	12.6	12.9	13.3
0570	Financial institution examiner	2.7	3.0	3.2	3.5
	Medical	4.1	4.6	4.7	4.5
0645	Medical technician	2.6	2.9	3.0	2.9
0647	Radiology technician	1.5	1.6	1.7	1.7
	Engineering support	49.9	54.8	60.5	62.0
0802	Engineering technician	21.8	25.3	27.3	28.0
0809	Construction inspection	2.8	3.0	3.0	2.9
0817	Surveying technician	4.6	4.2	3.9	3.3
0818	Engineering drafting	3.9	3.9	4.0	3.7
0856	Electronic technician	16.8	18.3	20.3	21.8
0895	Industrial engineering technician	-	.1	1.9	2.4
	Fine arts	13.4	14.7	15.9	16.1
1020	Illustrating	2.4	2.6	2.8	2.9
1060	Photography	2.5	2.9	3.2	3.3
1081	Public information	1.7	2.1	2.3	2.3
1082	Writing and editing	1.7	1.8	1.9	1.9
1083	Technical writing and editing	1.5	1.7	1.8	1.8
1085	Foreign information	1.9	1.9	2.0	1.9
1087	Editorial assistance	1.7	1.8	1.9	1.9
	Business and industry	36.0	39.6	42.0	44.1
1101	General business and industry	1.9	2.5	2.8	3.4
1102	Contract and procurement	15.0	17.0	18.0	18.5
1104	Property disposal	1.3	1.2	1.2	1.2
1150	Industrial specialist	3.8	4.6	5.2	5.1
1152	Production control	6.5	6.3	6.6	7.8
1165	Loan specialist	2.2	2.4	2.6	2.5
1170	Realty	2.8	2.9	2.9	2.9
1171	Appraising and assessing	2.6	2.8	2.6	2.6
	Physical science support	8.0	9.2	9.6	9.4
1311	Physical science technician	2.9	3.4	3.6	3.6
1341	Meteorological technician	2.6	2.4	2.5	2.5
1371	Cartographic technician	2.5	3.4	3.4	3.3
1410	Librarian	3.4	3.5	3.5	3.6
1530	Statistician	2.3	2.3	2.3	2.2
	Equipment and construction	13.7	15.3	16.4	16.9
1640	Construction and maintenance	2.6	2.7	2.6	2.9
1670	Equipment specialist	11.1	12.7	13.8	14.1
1712	Instruction	6.6	8.4	9.3	9.4
	Investigation	4.4	4.4	4.5	4.4
1810	General investigation	2.8	2.9	2.9	2.7
1825	Aviation safety officer	1.6	1.6	1.6	1.7

See footnotes at end of table.

Table 18. Federal employment in selected white-collar occupations, October 1964, October 1966, October 1967 and October 1968—Continued

(In thousands)

Series code	Series	1964	1966	1967	1968
0309	Correspondence clerk	1.7	1.9	1.9	1.8
	Accounting clerical	27.1	28.1	29.3	29.8
0520	Accounts maintenance clerical	11.6	11.6	11.8	12.0
0540	Voucher examining	5.4	5.5	5.8	5.9
0544	Payroll	4.4	4.5	4.6	4.6
0545	Military pay	3.6	4.5	5.1	5.2
0590	Time and leave	2.1	1.9	2.0	2.0
0998	Claims clerical	2.9	9.2	10.7	10.9
1531	Statistical assistant	7.0	6.8	6.8	6.0
	Supply clerical	41.5	46.7	48.2	50.0
2005	Supply clerical and technician[4]	-	-	-	34.6
2020	Purchasing	8.2	8.6	9.1	9.2
2040	Supply clerical and assistance[5]	29.0	32.7	33.6	-
2091	Sales store clerical	2.5	2.8	3.0	3.0
2134	Shipment clerical	1.9	2.6	2.5	3.1
	Clerical (general) occupations	243.9	276.4	278.6	260.5
	Office occupations	240.6	273.6	275.7	257.7
0302	Messenger	1.7	1.9	2.0	1.8
0304	Information receptionist	.8	1.2	1.2	1.1
0305	Mail and file	24.0	26.7	27.6	26.4
0312	Clerk-stenographer and reporter	51.9	53.3	51.8	47.9
0316	Clerk-dictating machine transcribing	6.5	6.7	6.7	6.4
0318	Secretary	54.9	57.1	59.5	61.0
0322	Clerk-typist	70.6	94.0	93.4	81.5
0350	Office-machine operating	1.5	1.7	1.7	1.7
0356	Card punch operation	12.3	16.1	17.1	16.2
0357	Coding	1.5	1.7	2.0	2.1
0359	Electric accounting machine operation	5.8	4.4	3.8	3.3
0382	Telephone operating	6.8	6.7	6.6	6.2
0385	Teletypist	2.3	2.1	2.2	2.1
0530	Cash processing	3.3	2.8	2.8	2.8
	Other occupations	116.9	132.1	139.4	146.4
	Protective	26.8	27.9	28.8	29.4
0081	Fire protection and prevention	11.4	11.8	12.3	12.6
0083	Police	2.3	2.6	2.7	2.9
0085	Guard	13.1	13.4	13.8	13.9
0301	General clerical and administrative	90.2	104.2	110.6	117.0

[1] Coverage of 0810 expanded to include series 0811, 0812, 0813, and 0820, which were discontinued in 1966.
[2] Included in 0334 computer specialist after 1964.
[3] Includes digital computer programer after 1964.
[4] Effective June 1968, the supply clerical and technician series was added while the supply clerical and assistance and publication supply were discontinued.
[5] After 1967 included in supply clerical and technician series.

SOURCE: 1968, Occupations of Federal White-Collar Workers, October 31, 1968, Pamphlet SM 56-08; 1967, Occupations of Federal White-Collar Workers, October 31, 1967, Pamphlet SM 56-7; 1966 Occupations of Federal White-Collar Workers, October 31, 1966, Pamphlet MS 56-6, U.S. Civil Service Commission, Washington D.C.; 1964, unpublished data of the U.S. Civil Service Commission.

Table 19. Federal government civilian employment of blue-collar workers by job family and selected occupational series, October 1960, 1962, 1966, and 1968

(In thousands)

Code	Job families and selected occupations	1960	1962	1966	1968
	All job families	612.2	623.6	629.3	628.2
2500	Wire communication equipment installation and maintenance	3.2	3.0	3.0	2.8
2600	Electronic equipment installation and maintenance	24.3	26.3	26.8	28.0
2700	Quartz crystal work	.1	.1	.1	.1
2800	Electrical installation and maintenance	32.3	33.3	31.0	31.8
2805	Electrical installing and repair	20.3	20.1	17.8	17.3
2892	Aircraft systems electrical	4.1	4.3	5.0	4.4
2900	Electronic equipment operation	.2	.1	.1	.2
3100	Fabric and leather work	6.3	6.0	6.5	5.4
3106	Upholstering	.6	.5	.5	.5
3111	Sewing-machine operating	1.9	2.0	3.0	2.1
3200	Glass work	.1	.2	.1	.1
3300	Instrument maintenance	6.2	7.2	7.8	7.8
3400	Machine-tool work	31.9	31.6	26.6	25.9
3403	Modelmaking, metal	1.2	1.1	1.0	1.0
3414	Machining general	16.8	16.0	14.0	32.0
3416	Tool, die, gage making	2.2	1.8	1.5	1.4
3500	Manual labor	66.9	64.4	69.8	65.2
3502	Laboring	63.2[2]	42.1	43.1	38.1
3503	Housekeeping	.5	5.6	7.1	7.0
3504	Grounds maintenance	1.9	.9	1.4	1.5
3565	Custodial working	-	1.2	.7	1.2
3566	Janitorial work	-	12.0	14.4	13.9
3600	Masonry, plastering and roofing	2.4	2.6	2.4	2.5
3602	Cement finishing	.6	.4	.4	.4
3603	Masonry	.8	.8	.8	.8
3605	Plastering	.3	.3	.4	.3
3607	Roofing	.2	.3	.2	.3
3700	Metal processing	15.3	16.2	13.5	14.4
3702	Flame cutting	.6	.6	.2	.3
3703	Welding	9.2	9.6	7.7	8.9
3704	Blacksmithing	.6	.5	.4	.4
3711	Electroplating	1.0	.9	1.1	1.0
3752	Aircraft welding	.5	.6	.7	.8
3800	Metalwork	23.2[2]	24.1	22.9	24.4
3804	Coppersmithing	.6	.6	.2	.2
3806	Sheet-metal working	7.5	7.4	6.4	6.6
3807	Structural-iron working	.6	.6	.4	.7
3808	Boilermaking	2.2	2.6	1.6	2.6
3853	Aircraft sheet-metal working	7.2	7.2	9.0	8.5
3900	Motion picture, radio, T. V. and sound equipment working	.6	1.2	.9	.9
4000	Optical work	.3	.1	.2	.2
4100	Painting and paper-hanging	13.9	13.9	11.3	12.6
4200	Pipefitting	17.7	18.4	15.8	17.5
4300	Plastic work	.4	.4	.6	.6
4400	Printing and reproduction	14.9[3]	14.9	15.6	14.9
4500	Rubber work	.8	.9	.7	.6
4600	Woodwork	21.9	23.1	21.2	20.0
4605	Cabinetmaking	.5	2.1	1.7	1.9
4606	Carpentry, marine	1.7	1.3	.9	1.0
4607	Carpentry	10.6	10.5	9.7	8.6
4652	Woodworking	1.2	1.2	1.0	1.1
4700	General maintenance and operations	12.5	15.5	17.6	17.7
4800	General equipment and maintenance	2.1	2.6	2.7	3.0
5000	Agriculture forestry and kindred	.8[4]	4.1	3.6	2.7
5300	Fixed industrial equipment maintenance	16.2	16.8	18.1	19.5
5306	Refrigeration and air conditioning equipment repairing	4.3	4.6	4.9	5.1
5309	Heating equipment repairing	2.6	2.2	2.2	2.2
5315	Millwright	2.1	2.1	2.1	2.1
5400	Fixed industrial equipment operation	37.3	35.6	32.6	31.3
5402	Boiler and steam plant operating	8.9	8.1	7.2	6.6
5405	Steam plant operating	3.5	3.5	3.2	3.0
5406	General utilities operating	1.8	1.4	1.4	1.3
5407	Power plant operations	4.3	3.7	3.6	3.5
5408	Sewage disposal plant operating	1.0	1.0	1.0	.8
5409	Water treatment plant operating	1.6	1.2	1.2	1.2
5413	Fuel distribution systems operating	1.5	1.1	1.0	1.0
5417	Parts and equipment steam cleaner operating	1.0	1.8	2.1	1.9
5423	Sandblasting	1.4	1.3	1.4	1.5
5436	Lock and dam operating	2.5	2.4	2.2	2.2
5438	Elevator operating	3.3	3.0	1.8	1.6

See footnotes at end of table.

Table 19. Federal government civilian employment of blue-collar workers by job family and selected occupational series, October 1960,1962, 1966, and 1968—Continued

(In thousands)

Code	Job families and selected occupations	1960	1962	1966	1968
5600	Currency, security, coin and medal manufacturing	[3]	2.1	2.3	2.1
5700	Mobile industrial equipment operating	48.3	47.4	47.6	50.7
5710	Crane operating	2.3	2.1	1.9	2.0
5712	Electric bridge crane operating	.7	.7	.6	.6
5716	Engineer equipment operating	2.0	2.9	2.9	2.8
5722	Rigging	5.0	4.7	3.9	4.7
5756	Tractor trailer operating	3.4	3.2	3.2	3.6
5800	Mobile industrial equipment maintenance	24.2	24.1	26.5	24.8
5803	Engineer equipment repair	4.2	4.1	3.9	4.0
5807	Combat vehicle repair	1.3	1.4	1.9	1.6
5823	Automotive equipment repair	9.2	9.8	10.0	10.5
5900	Marine operation	9.3	12.2	14.7	12.9
5906	Deck hand-seaman	1.2	1.5	1.6	1.5
5924	Revetworking	.6	.7	.6	.3
5921	Pilot	.3	.3	.3	.3
5926	Wiper oiler	.8	.3	.3	.3
5923	Quartermaster	.1	.1	.2	.2
5909	Dredging equipment operating	.2	.2	.2	.2
6000	Railroad operation	1.4	1.1	1.1	1.2
	Conductor	.2	.3	.3	.3
	Locomotive engineer	.4	.3	.4	.4
6100	Railroad maintenance	.9	1.1	.9	.8
6200	Marine maintenance	14.3	13.0	10.1	11.7
	Marine equipment repairing	5.2	5.2	4.3	5.2
	Ship fitting	6.0	5.8	4.0	4.5
6500	Ammunitions and explosives	9.3	10.3	15.4	16.5
6600	Armament work	5.2	5.4	5.2	5.2
6700	Manufacture and repair shop operation	7.8[4]	3.1	2.8	2.5
6900	Warehousing	50.8	51.6	52.3	51.4
6954	Service station operating	-	.4	.3	.4
6955	Service station attending	-	.9	.8	1.0
6965	Materials and equipment inspecting	2.4	2.3	2.0	1.9
7000	Packing and processing	10.3[5]	9.9	10.2	10.6
7300	Laundry and dry cleaning	9.8	9.7	9.7	8.6
7400	Food preparation and serving	27.9[1]	27.5	31.4	33.3
7402	Baking	.7	.7	.7	.8
7404	Cooking	7.8	7.0	7.2	8.2
7407	Meatcutting	1.6	2.2	2.9	3.3
7408	Food service working	16.0	16.1	19.1	19.4
7500	Medical services	1.2	1.4	1.5	1.4
7600	Merchandising and personal services	2.8	4.5	5.7	6.7
7700	Animal caretaking	1.1	1.0	1.2	1.1
7800	Farming	.5	-	-	-
8200	Fluid systems	.7	3.5	4.6	4.9
8300	Instrumentation	.3	.6	.5	.3
8400	Reclamation work	.1	.1	.8	.9
8500	Aircraft propeller overhaul	1.0	.9	.9	.7
8600	Aircraft engine overhaul	10.5	10.2	8.7	9.1
8700	Manufacture, repair and industrial support, supervisory	-[6]	.6	.7	.6
8800	Aircraft overhaul	22.2[7]	19.0	20.1	19.4
9000	Film processing	-	-	-	.1
	Miscellaneous occupations[10]	1.2	.7	2.6	.9

[1] 1960 data in this group includes custodial working and janitorial and part of housekeeping.
[2] 1960 data include part of currency, security, coin and medal manufacturing.
[3] Includes part of currency, security, coin and medal manufacturing.
[4] Part of 1960 data is included in manual labor. Data after 1960 includes farming.
[5] Included in metalwork, printing and reproduction, and miscellaneous occupations.
[6] 1960 data includes manufacture, repair and industrial support supervising.
[7] 1960 data included in aircraft overhaul.
[8] 1960 data included in manufacture and repair shop operation.
[9] 1960 data includes fluid systems.
[10] Miscellaneous occupations include those in series 4900, plastic material manufacturing; 5200, miscellaneous occupations; and 5500 quarry work.

NOTE: Job families include data not shown separately.

SOURCE: U.S. Civil Service Commission.

Table 20. Employment in selected post office occupations, October 1960-69

(In thousands)

Occupation	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
All occupations[1]	568	580	585	590	593	610	692	705	714	728
Postmasters[2]	35	35	35	34	34	33	33	32	32	31
Supervisors	30	31	31	32	32	32	33	34	36	38
Postal clerks	234	239	239	239	240	250	300	304	304	310
Mail carriers[3]	190	195	198	200	202	207	225	230	233	237
Special delivery carriers	5	4	4	4	4	4	5	5	6	6
Mail handlers	29	30	31	31	32	32	44	44	46	47

[1] Includes data not shown separately.
[2] Does not include assistant postmasters.
[3] Includes part-time carriers on a full-time equivalent basis.

SOURCE: Post Office Department. Bureau of Finance and Administration. Paid Employees Report, form 1988.

Table 21. Occupational employment data available from professional associations, 1960-70

(In thousands)

Occupation	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Health professions:[1]											
Dentists	87	88	89	89	90	91	91	92	93	93	95
Nurses, professional	504	(2)	550	(2)	582	(2)	621	640	659	680	700
Optometrists	(2)	(2)	(2)	(2)	(2)	17	17	17	17	18	18
Osteopaths	12	12	[3]11	11	11	11	12	12	13	13	13
Pharmacists	117	117	117	117	118	118	121	122	122	124	(2)
Physicians	224	231	239	248	255	265	272	278	280	287	(2)
Podiatrists	(2)	(2)	8	8	8	8	8	8	8	8	8
Veterinarians	20	(2)	21	(2)	21	(2)	23	23	24	24	25
Other professions:											
Architects, registered	26	(2)	27	(2)	30	32	32	(2)	33	34	34
Foresters	(2)	18	20	(2)	(2)	(2)	23	(2)	25	25	25

[1] For a detailed and comprehensive presentation of employment and other characteristics of health professions and occupations, see Health Resources Statistics, 1969, 1969, U.S. Department of Health, Education, and Welfare, Public Health Service.
[2] No estimates made.
[3] Approximately 2,200 osteopaths in California were awarded the medical doctor degree in 1962.

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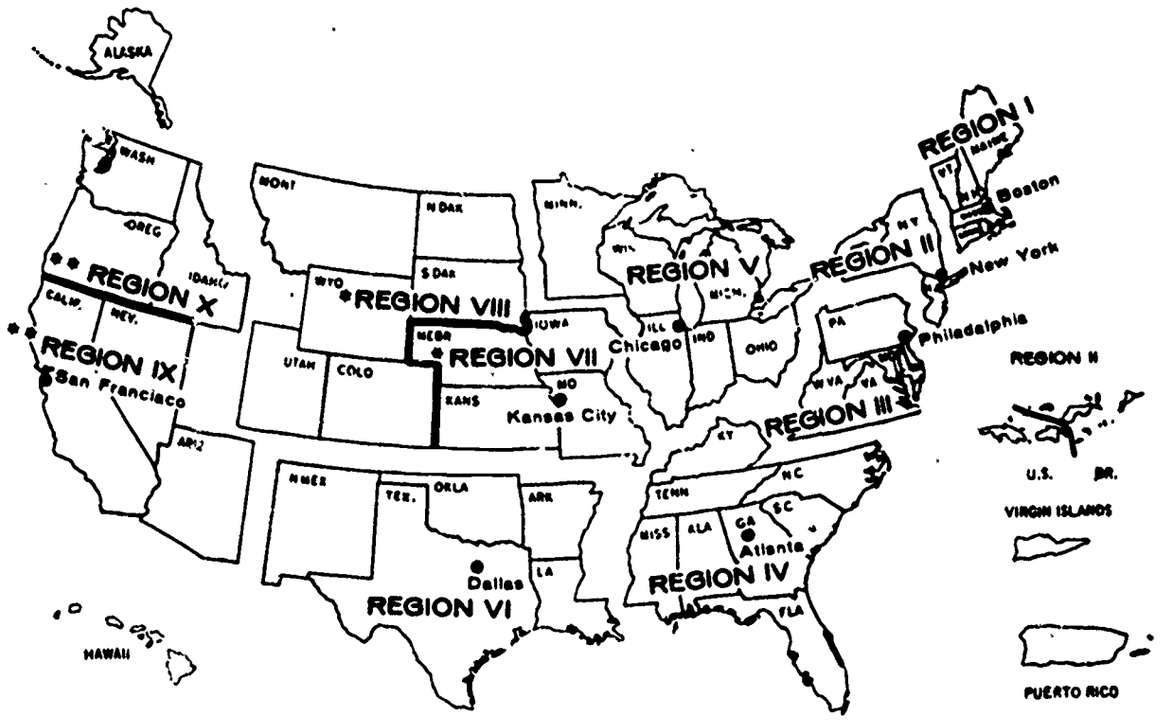

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