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# CLERICAL OCCUPATIONS FOR WOMEN

## Today and Tomorrow



U.S. DEPARTMENT OF LABOR—W. Willard Wirtz, Secretary  
WOMEN'S BUREAU—Mary Dublin Keyserling, Director

BULLETIN 289

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# CLERICAL OCCUPATIONS FOR WOMEN Today and Tomorrow

Bulletin No. 289



UNITED STATES DEPARTMENT OF LABOR  
W. Willard Wirtz, *Secretary*

WOMEN'S BUREAU  
Mary Dublin Keyserling, *Director*

Washington : 1964

## *Acknowledgments*

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This bulletin was prepared by Janice N. Hedges under the direction of Rose Terlin, Chief of the Branch of Employment Opportunities, and Jean A. Wells, Deputy Chief of the Division of Economic Status and Opportunities, of which Mary N. Hilton is Chief.

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Figures 1 and 3—National Urban League

Figure 2—National Association of Educational Secretaries

Figure 4—Allan J. de Lay

Figure 5—Remington Rand Office Systems

Figure 6—International Business Machines Corporation

Figure 7—Del Ankers

Figure 8—Washington-Lee High School, Arlington, Va.

Figure 9—Strayer Junior College, Washington, D.C.

Figure 10—The President's Committee on Employment of the Handicapped

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## *Foreword*

Clerical jobs have been the subject of a number of Women's Bureau publications. The Bureau's first study in this field dates back 40 years to another generation of office workers. Its continuing interest in these occupations is natural, for clerical work has offered employment since the turn of this century to millions of women, and is today the largest field for women.

Clerical workers still carry on many of the same basic functions they have performed since the beginning of recordkeeping. They record, classify, file, compute, and communicate. But there is a continual change going on in the nature of their duties. At present the pace of change is rapid as technological advances make inroads on some types of office jobs and create others. This is, therefore, a particularly appropriate time to reexamine the clerical field, highlighting the changes in demand, duties, and preparation.

The need for a new appraisal of clerical occupations is reinforced by the life pattern of today's women. The number of women who work and the years they work have increased until virtually all girls can expect to hold a paying job, many of them for a significant part of their lives. A larger number of these girls will find employment in clerical jobs than in any other field. It is important for them to be informed of the different clerical jobs available so that they will be better able to find positions which match their abilities and interests. And in this period of rapid change, it is also important for women to be made aware of future occupational demands.

This bulletin is directed to the student yet to hold her first job, the mature woman coming back into the labor force, and the employed woman who wishes to explore new opportunities. It is intended also for vocational counselors, placement workers, and employers.

MARY DUBLIN KEYSERLING  
*Director, Women's Bureau*



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## Chapter I

# TRENDS IN CLERICAL JOBS

Today the clerical field is in a period of the most significant change since the invention of the first office machines. It is in part a change in clerical work, brought about by automation and other technological trends. It is also a change in the qualifications and characteristics of the people who hold clerical jobs. Interwoven with these developments is the rapid expansion in clerical employment that has gone on for 60 years and more.

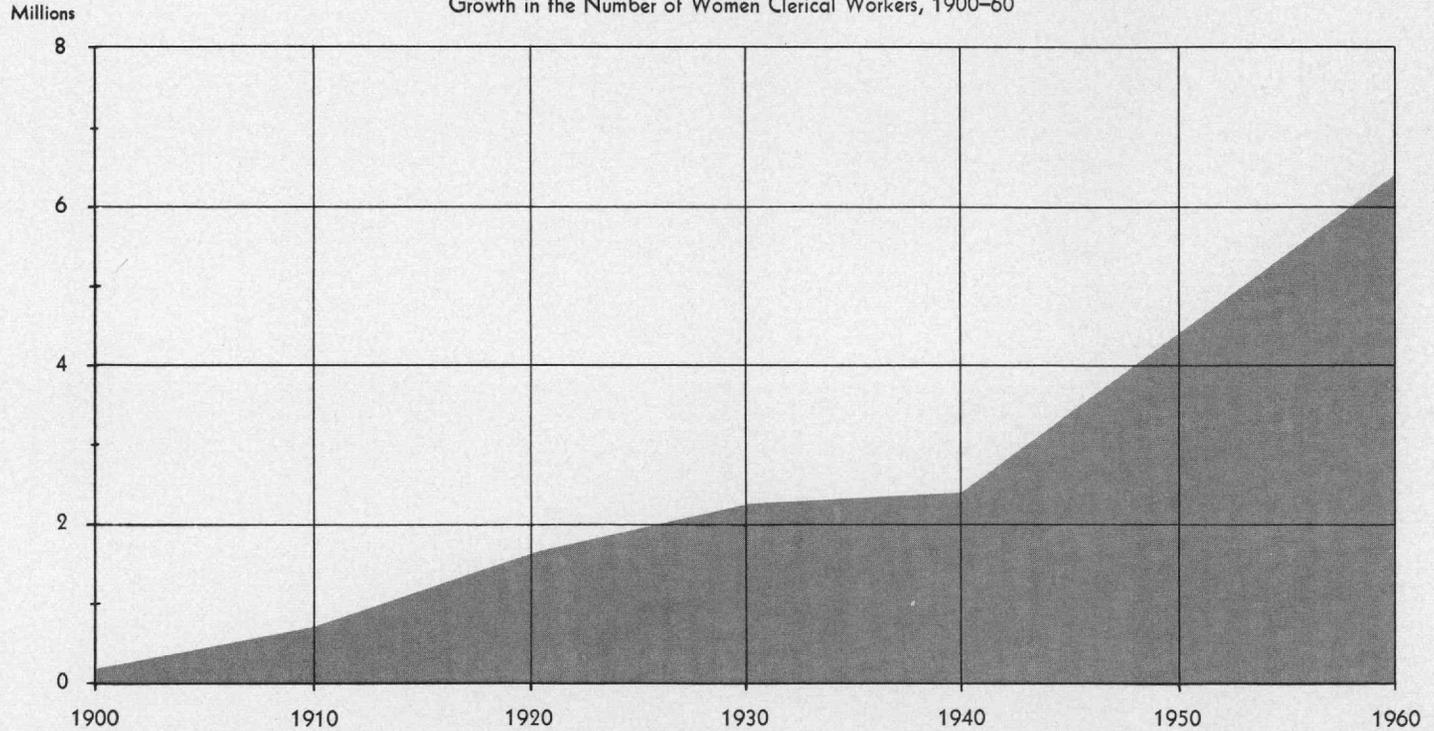
### Growth in Clerical Employment

Clerical workers today are the largest of the white-collar groups. In 1900 they were the smallest. In that year, when the country was still in the early stages of the transition from an agricultural to an industrial nation, fewer than 900,000 employees were required to handle all the clerical work of the country. Ten years later, clerical employment had almost doubled, and totaled more than the number of workers in professional and technical occupations combined, or in sales work. By 1920 clerical occupations offered jobs to more people than did any other white-collar occupation—as they have each year since then. In 1963 about one out of every seven workers in the United States, or some 10 million people, held clerical jobs. Over 7 million of them were women. (See chart A.)

Underlying the tenfold increase in clerical workers from 1900 to 1960 was the general and rapid expansion of manufacturing, transportation, communication, trade, and services, as well as the growing activity of government at all levels—local, State, and Federal. The tremendous increase in the country's population, up 100 million since 1900, was of course in itself responsible for a part of the growth in clerical employment. Furthermore, as business firms shifted from small, family enterprises to large corporate organizations, as production expanded and became diversified, and as the science of business

CHART A

Growth in the Number of Women Clerical Workers, 1900-60



Source: U.S. Department of Commerce, Bureau of the Census.

administration developed, there was a vast increase in all kinds of paperwork.

No less striking than the growth in the number of clerical workers between 1900 and 1960 are the advances made in the way clerical tasks are accomplished. Automation and other technological developments have provided a wide range of innovations to aid in calculating, recording, tabulating, and performing many other tasks done by hand in 1900.

What is the outlook now for clerical employment? It can be summed up briefly as *continued change all along the line*—in equipment, duties, requirements, training, and personnel—and continued expansion. Employment probably will mount at a slower rate, however, than in earlier periods.

## Automation

Clerical work has been described in the modern language of technology as "information handling." Technological advances on a broad front are responsible for the changes underway in which information regarding inventories, sales, and costs is handled in the office. Advances in communication which affect the office, for example, include new techniques such as closed-circuit television and extended telephone service. The key to the most abrupt and fundamental changes taking place, however, is automation.

What is automation? Perhaps it can best be defined through familiar examples. In the home, automation affects the everyday lives of those who push a button to set in motion the automatic disposal of garbage, the laundering or drying of clothes, or the heating and cooling of rooms. In the automated office, the push of a button can activate a transcribing machine, an automatic typewriter, copying equipment, or a computer system. Not every office worker nor every office will be affected by automation. Broad though the changes are, there are many offices, particularly smaller ones, where clerical duties and procedures will remain untouched. Automation in one form or another, however, will affect the working lives of large numbers of clerical workers. Many of them already have had firsthand experience with automation.

## Electronic Computers

Of all the forms of office automation, the electronic computer is easily the most dramatic. It may seem to be a new phenomenon, but it is in part the sophisticated product of the centuries-old search for power-driven machinery and for mechanisms to feed and guide the

machines and control their processes. The computer is the symbol and the prime agent of the changes that automation is making in the office. No other form of automation is so versatile—able to calculate, compare, match, process, store, retrieve, and print out data according to instructions. No other form of office automation has the same influence on the duties and requirements of so many clerical jobs.

The possible applications of the computer to clerical work are legion. The facts put into the machine may pertain to payrolls, accounts receivable, or sales. The output may be salary checks, customer bills, or a sales analysis. In an airline office, a computer can make the reservation, check the seating plan, estimate the price and tax, print and issue the ticket, and record the transaction. In a bank it can process transactions while the customer is at the teller's window, and propose and obtain the answers to such questions as: "Was the passbook submitted at the time of the last transaction? Has interest due been recorded?"

The first models of computers designed for processing business data were not available until 1953. Their high speeds (reckoned first in thousandths of a second and later in millionths of a second) and their accuracy and versatility combined with a long-term shortage of skilled clerical workers to bring them quick acceptance. By 1963 more than 12,000 electronic computers were in use in the United States. The number of offices with computer installations is expected to continue to grow rapidly (see p. 45) as smaller, less expensive models come on the market. The sale of "computer time," from both computer centers and automated firms with surplus time on their machines, will bring electronic data processing (EDP) within the price range of a much larger number of firms.

The degree of automation and the rate of changeover to EDP vary from industry to industry and from plant to plant. We are in a period in which it is possible to find, next door to each other, an office which is in the same stage of mechanization as the office of 1930 and even earlier, and another that is the prototype of the future. But office automation is a fact of business life, a step in the continued technological development that is essential to the growth of our economy and to our ability to compete in international markets.<sup>1</sup>

## How Many Jobs Tomorrow?

Clerical employment may reach 14 million in 1975, or about 14 clerical workers for every 10 employed in 1963. Each year during the remainder of the 1960's several hundred thousand openings are

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<sup>1</sup> For a fuller discussion of computer systems in the office, see app. A: "A View of the Effect of Automation on Clerical Work," p. 61.

expected to occur. The total number of clerical jobs available will be influenced by many factors, among them the growth in the size and complexity of business. Banks, insurance companies, manufacturers, and the wholesale and retail trades will provide particularly numerous opportunities. There will also be many new jobs created in State and local government offices, educational institutions, and professional service organizations. And the number of openings will be heavily influenced by turnover as workers retire or leave their jobs for other reasons.

Automation, too, will influence the number of clerical jobs. "Silent firings," the term used to describe those who would have been hired except for automation, will increase as the use of computers spreads. The net effect of office automation—as it increases average workloads, eliminates some jobs, and creates others—will be to slow down the rate of increase in the total number of clerical jobs relative to the amount of clerical work to be done.

## **Changes in the Work Force**

The characteristics of people who hold clerical jobs differ from decade to decade as a result of changes in job duties, customs, equipment, opportunities in clerical work as opposed to other work, and a host of other factors. The changeover from all-male clerical staffs in 1890 to the predominantly female staffs of today is but one example of the constant shifts taking place. Office automation and other technological advances will continue to leave their imprint on the composition of the clerical force. Early studies indicate that their effect may be to halt the long-term trend toward the mounting percentage of clerical jobs held by women. The following trends, however, already are well established.

### **Mature Women Workers**

There has been a striking increase in the average age of women workers in recent years. The median age of women in all types of clerical work increased about 6 years between 1950 and 1960, from under 30 years to 36 years. In other words, half of the women clerical workers in 1960 were over 36 years of age. Over 1.8 million women in clerical jobs were 45 years of age and over in 1960. However, women over 45—and even some over 30—still find it more difficult to find clerical jobs than younger women do.

The resistance to employment of women in older age brackets does not reflect differences in performance on the job. Supervisors

have rated older workers high in reliability, emotional stability, and loyalty to the job. Older workers also compare favorably with younger workers in production. In a study made of office workers in comparable clerical jobs during the winter of 1958-59 by the Bureau of Labor Statistics, the output of older office workers was found to equal that of younger workers in both quantity and accuracy, and was at a steadier rate. The work of many older employees in the study was superior to that of the average work of younger employees. Older workers, particularly 55 years or older, had higher-than-average output in jobs such as typing, filing, and sorting. Since the physical demands of most clerical jobs are relatively low, further relaxation of age ceilings for the vast majority of clerical jobs should not be delayed.

Former experience, even after the lapse of many years, and updated office skills are valuable assets to an older woman seeking employment. A limited number of older workers who lack marketable skills have been trained under the Manpower Development and Training Act and the Area Redevelopment Act, many of them as stenographers and typists. Most of the older trainees have found employment upon completion of training. Specialists in the employment of older workers are located in a number of State employment services affiliated with the U.S. Employment Service.

### **Nonwhite Workers**

The number of Negro women in clerical work increased from about 74,000 in 1950 to about 182,000 in 1960, or at more than three times the rate of increase for white women in clerical jobs. Nonwhite (mainly Negro, oriental, American Indian, and Eskimo) women clerical workers, however, still held less than 4 percent of all clerical jobs in 1960, although they represented more than 12 percent of all employed women in that year.

Growing numbers of Negro women are working as secretaries, stenographers, typists, cashiers, bookkeepers, as well as in other clerical jobs, according to a recent study of the Women's Bureau.<sup>2</sup> The increasing prevalence of fair employment practices and greater opportunities for education and training will bring expanding employment for this group.

### **Part-Time Workers**

In 1962 women working on less than full-time schedules—that is, less than 35 hours a week—accounted for more than one-fifth of all

<sup>2</sup> See "Negro Women Workers in 1960."

women in clerical work. Many part-time workers were employed as typists or cashiers, and others as bank tellers, bookkeepers, office machine operators, receptionists, and file clerks. Some worked in establishments whose regular hours were less than 35 hours a week; for example, in a number of physicians' or dentists' offices, schools, and welfare and religious organizations. Others worked during rush periods in stores, restaurants, banks, and other business places. A few part-time clerical workers, particularly typists, worked in their own homes.

The growth in part-time employment has been fostered by the development of metropolitan suburbs. This has brought together people who want part-time work (the housewives and students of suburbia) and employers who need part-time workers (the supermarkets, insurance offices, and branch banks). Part-time employment is a practical solution for students and for women with family responsibilities who need earnings but are not able to work full time. It also enables women to acquire experience that may afford entry to a full-time job. The part-time worker is under certain handicaps, however. Her job is likely to be strictly routine, and seldom leads to a responsible position. In addition, to get the job she may need to be better qualified than an applicant willing to work full time.



## Chapter II

# CLERICAL OCCUPATIONS

Today the clerical field encompasses literally hundreds of kinds of jobs, many of which differ basically in the duties and skills involved. This great diversity among jobs in the clerical field makes it possible for people of many skills, abilities, and temperaments to find clerical work suited to them. There are jobs for the highly trained and some for those without specialized training, although competition for the latter is keen. There are clerical jobs for those who are "people oriented" and for those who are "machine oriented."

Since it is not possible to discuss in this bulletin every clerical job, the occupations selected for description are in general those which lead in the number of women workers, those which offer unusual promise, or those which are in process of rapid change.<sup>1</sup>

### *Secretary, Stenographer, Typist*

High school girls planning to work in an office most often express their goals in terms of a job as secretary, stenographer, or typist. In 1960 there were almost 1.7 million women working as secretaries or stenographers, an increase of more than half a million over 1950. Women employed as typists in 1960 totaled about 500,000, or 164,000 more than in 1950. Hundreds of thousands of women were in other jobs which required some typing or shorthand.

Technological changes will affect these three occupations less than many others in the clerical field. However, advances in information handling, including electronic data processing and new techniques of communication, will have a discernible influence on the

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<sup>1</sup> Some clerical jobs not covered here have been the subject of special study by the Women's Bureau. See "Women Telephone Workers and Changing Technology" and "Part-Time Employment for Women."

duties and on the educational and skill requirements of these occupations, as well as on the opportunities they offer for employment and promotion.

## SECRETARY

What is a secretary? Literally, she is a "keeper of secrets," but she is, of course, much more than that. She is, in a real sense, an extension of the executive for whom she works—a good right arm, setting into motion the executive's plans and decisions and relieving her chief of detailed and routine duties.

Probably few jobs offer as wide a variety of tasks as does secretarial work. A survey made some years ago turned up nearly 900 specific duties performed by secretaries. Automation and other technological innovations have added some tasks to that list and eliminated others. No one secretary, of course, is responsible for more than a fraction of all possible secretarial duties.

Duties relating to correspondence are at the core of a secretary's job. In line with these duties she is expected to take dictation, transcribe, type, and in some cases to edit letters or compose replies. Another major group of duties centers around the office records. The secretary usually handles the filing and maintenance of records, although in the large office she may personally handle only those which are of a private or confidential nature; she delegates responsibility for the main files to other employees. Public relations activities, which may include acting as a receptionist, also form an important part of a secretary's duties. Most secretaries make appointments, answer and make phone calls, read and sort the mail, make travel arrangements, and obtain various kinds of information. They also may set up meetings and conferences. Many secretaries also do a certain amount of general clerical work.

The level of the position is one important factor in determining which duties the secretary may be called on to perform. A *secretary-stenographer*, for example, may take dictation, type, file, and perform routine office work. A *junior secretary* may, in addition to the duties of a secretary-stenographer, be responsible for routine correspondence, appointments, and the flow of clerical work. The *private* or *senior secretary* may act as receptionist, schedule appointments and meetings, and carry a good deal of responsibility. A few secretaries move into management positions as *executive secretaries* or *administrative assistants*. Those who hold these jobs have considerable authority for making decisions, planning office routine, and supervising other clerical workers.



FIGURE 1. Taking dictation and answering correspondence are the core of a secretary's job.

The growing recognition of a professional element in top secretarial positions has found expression in the Certified Professional Secretary Program sponsored by the National Secretaries Association, International (NSAI). Under this program experienced secretaries with post high school education may, upon completion of examinations in business law, business administration, economics, and human relations, be designated "CPS." More than 23,000 secretaries are members of the NSAI.

Technological changes will of course influence secretarial duties. In the one-girl office, dictating systems, automatic typewriters, and copying equipment may free the secretary from some routine work and make her more of an administrative assistant to the executive. She may spend less time taking dictation and typing, more time monitoring meetings or doing research. As the correspondence duties of secretaries in larger offices are reduced by the growing utilization of transcribing pools, by greater reliance on long-distance telephone, and by the increase in facsimile and data transmission, there may be a decrease in the number of private secretaries and an increase in the

number of secretaries who work for several executives. Such secretaries with more than one boss schedule their own work, make appointments, and act as liaison between the executives and the service areas; they will assume roles of considerable importance.

The same qualities, however, that always have marked a good secretary will be as valued tomorrow as they are today. Employers will continue to look for the ability to keep confidences, for dependability, loyalty, tact, and commonsense. They will continue to seek a secretary who combines initiative with ability to follow instructions. They will appreciate one who is able to anticipate what her employer will need from the files when he is in conference, talking on the phone, or with a caller. Tomorrow's secretary, like the secretary today, must be punctual in the morning, willing in emergencies to stay until the job is done, and calm under tension.

Certain other time-honored traits assume even greater importance in the automated office. There will be a premium on flexibility as automation brings changes in procedures and personnel, and shifts in policy. Tomorrow's secretary must be ready to embrace change all along the line. The ability to plan work is another skill that will be even more important in the automated office.

## Specialized Secretary

Many professional and business employers prefer secretaries who are versed in their special fields, through either study or experience. These secretaries operate as auxiliary workers, alleviating the current shortages of professionals in law, engineering, medicine, teaching, library work, and a number of other fields. At least 2 years of college are recommended for many of the specialized secretarial jobs.

The growing demand for specialized secretaries enables young women to work in fields whose subject matter parallels their interests. The following fields of specialty are only the major ones from a growing list.

**Legal Secretary.**—Legal secretaries find employment in law firms, trade associations, corporations, courthouses, on the staffs of State and Federal legislators, and in other offices. The legal secretarial field has been described as “undercrowded.”

Duties of a legal secretary differ markedly according to the nature of the employer's work and the size of the staff. Secretarial work in a legislator's office, for example, will be very different from that in a law firm. Even among law firms the work will vary greatly

between a firm specializing in criminal law and another specializing in patent law.

Wherever she works, the legal secretary should be well trained in business subjects, including shorthand, typing, business accounting, filing, and office procedures. Skill standards for the legal secretary are high. She should be able to take dictation at 120-140 words a minute with perfect accuracy and should be able to type without error since erasures are not permitted on some legal documents. In addition to business training, the legal secretary should have a good general education that may include courses in literature, government, economics, psychology, science, and foreign languages. Proficiency in the use of English grammar, spelling, and punctuation is essential. The legal secretary should know the basic legal vocabulary, the standard legal forms, and the specialized shorthand terms and punctuation required in her work. She also should have an elementary understanding of legal principles and a general knowledge of the organization and procedures of the courts.

The National Association of Legal Secretaries (NALS), with over 10,000 members here and abroad, has a program of certification similar to that of the National Secretaries Association. Successful candidates are designated "PLS" (Professional Legal Secretary).

**Medical or Dental Secretary.**—There is a strong demand for trained medical and dental secretaries. Most of them are employed in the offices of physicians or dentists or in large hospitals and clinics. However, sanitariums, nursing homes, insurance companies, factories, public health departments, firms that manufacture and distribute medical supplies, and medical research and medical publishing companies all offer opportunities to the secretary who has specialized in the medical or dental field.

Medical secretaries are found at many points in hospitals and clinics. Some are assigned to the business office or the medical records section. Others work in the offices of the superintendent or of the department heads. One of the lesser known positions is that of the operating room secretary. Working under the surgical supervisor, this secretary schedules operations, notifies the nurses and technicians who are to be present, and prepares the surgical reports following the operations.

The secretary who works in a doctor's or dentist's office makes appointments, receives patients, sorts mail, handles bills and accounts, and checks supplies. In some offices she aids the doctor or dentist in the treatment and examining rooms, writes case histories, and fills out insurance claim forms. She also reports births and deaths, cases of blindness and communicable diseases, vaccinations, immunizations, and other medical information in accordance with State laws. She

may perform routine laboratory work. Her duties are closely related to those of the assistant in a doctor's or dentist's office,<sup>2</sup> but secretarial duties play a more important part in her job than in the job of the assistant.

The education of a medical or dental secretary includes courses in medical or dental office procedure, laboratory technology, and general medical or dental terms. The medical secretary often must learn the medical vocabulary of the particular specialization of her employer.

The hours of a medical or dental secretary may be long and irregular, and may include Saturday and some evening work. The job, however, brings satisfaction to the girl who likes a medical environment. Medical secretaries may belong to the American Association of Medical Assistants, Inc.

**Engineering Secretary.**—Industrial enterprises, engineering firms, and scientific and educational institutions offer opportunities for engineering secretaries. Their work may be related to any one of a number of engineering fields, including aeronautical, electrical, chemical, or mechanical. About 13,000 secretaries are employed by firms providing professional engineering and architectural services.

The duties of engineering secretaries include dictation and transcription involving technical terms, equations, and formulas. Their work may include typing statistical tabulations and technical reports. Some engineering secretaries are called upon for computations requiring algebra, trigonometry, calculus, and statistics, and they are expected to know how to use a slide rule. Accuracy is very important in this field.

Training for engineering secretaries may include study of engineering terminology, engineering shorthand, chemistry, physics, drafting, and blueprints.

**Educational Secretary.**—Educational secretaries work in the offices of elementary schools, junior or senior high schools, colleges, universities, local boards of education, departments of education at all governmental levels, and educational associations. The educational secretary serves the staff, the student body, and the public. Her duties will depend on her specific position, and on the type and size of the educational organization in which she is employed. She may register pupils, prepare transcripts of grades, keep attendance records, order and distribute books and supplies, prepare audio-visual aids, reproduce teaching materials, score objective tests, and do clerical work in

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<sup>2</sup> See Dental or Medical Assistant, p. 22.



FIGURE 2. The educational secretary serves teachers and students as well as parents.

the school library. About 4,200 secretaries are members of the National Association of Educational Secretaries (NAES), a department of the National Education Association.

**Bilingual Secretary.**—The secretary who can take dictation and transcribe it in two or more languages may find work either in the United States or abroad. Bilingual secretaries are needed in export-import offices, banks, travel agencies, manufacturing companies with oversea operations, embassies, and international organizations. Knowledge of languages must be perfect. A good accent also is expected.

## STENOGRAPHER

A considerable part of the stenographer's workday is spent taking dictation in shorthand or by machine and transcribing the notes on a typewriter. In some offices the stenographer's duties may include typing from transcribing machines which have recorded the material in sound. Not all transcription is confined to correspondence and reports. Stenographers may also be called on to record and transcribe executive conferences and meetings.

Stenographers usually carry out a variety of clerical duties in addition to recording and transcribing. These duties will vary with the size of the office and with the industry, and may include compiling reports, sorting and filing letters, opening and distributing mail, answering the telephone, operating a switchboard, and receiving callers. Stenographers whose main duties include those of a general clerk (for example, addressing envelopes and keeping simple records) usually are called *clerk-stenographers*.

A stenographer who knows her employer's policies and practices and who works under a minimum of supervision is usually designated *senior stenographer*. She may supervise junior stenographers. *Junior stenographers* take and transcribe dictation of a routine nature. Generally they work under relatively close supervision.

The growing use of dictating machines may curtail the increase in stenographic jobs requiring shorthand. In an office in which most of the dictation is put on transcribing machines,<sup>3</sup> stenographers may be replaced, to some extent, by transcribing machine operators. Advances in communication which reduce the amount of written correspondence that is necessary also will have an impact on the demand for stenographers.

## Specialized Stenographer

Specialization offers the stenographer many of the same advantages it offers the secretary. High on the list of these is the chance to work in a sympathetic environment in a field of particular interest. Specialization is an asset in getting and holding a job; it increases a stenographer's value to her employer. Certain stenographic specialties, such as court reporting, can bring increased salary.

**Technical Stenographer.**—Stenographers who work in fields that require a technical background or a general understanding of technical terminology often are classified as technical stenographers. Fields of specialization include law, medicine, science, engineering, advertising, public relations, radio and TV scripts, police work, and foreign language work.

**Public Stenographer.**—The main duty of a public stenographer is to prepare correspondence, manuscripts, or documents for clients who pay by the hour or by the page. Some public stenographers also provide copying services and act as notaries public. Superior stenographic skills, business ability, and a knowledge of the terminology

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<sup>3</sup> See transcribing machine operator, p. 18.

and practices of many types of businesses and professions are basic requirements for these positions.

Since public stenographers must be readily accessible to the public, they usually are located in large office buildings or in hotels. Their services also are available on some passenger trains, and arrangements sometimes can be made with airlines for stenographic services on plane flights. Public stenographers often work at night and on weekends and holidays. Their work often is done under pressure. Most public stenographers are self-employed, though some work for firms that provide stenographic services to the public.

**Court and Conference Reporter.**—The stenographers who record the testimony and rulings given in court and those who record the proceedings of a conference usually are called reporters. Other stenographers in this category are those who work in a police department and record statements of accused persons. Reporters may record in shorthand, with a stenographic machine, or with microphone equipment. Their skills must be well above average. The conference reporter must be able to record technical material accurately at a high rate of speed for several hours at a time. The court reporter must be able to make verbatim reports with absolute accuracy, since an appeal to a higher court may depend on the stenographic record. As automatic recording and transcribing devices are perfected, the number of reporter jobs may be curtailed.

## **TYPIST**

The major work of a typist is making typewritten copies of handwritten or printed materials or information recorded in sound. She may prepare stencils or Duplimats, address envelopes, fill in report forms, and do miscellaneous typing. Although her responsibilities are narrower than those of a stenographer, she often performs a variety of duties in addition to typing. She may answer the telephone, file, proofread copy, record information in longhand, and sort mail.

Typists who copy material in final form from rough drafts, combining material from several sources, planning the layout, and typing complicated statistical tables may be called *senior typists*. These typists should be familiar with printer's symbols. *Junior typists* usually type fairly simple copy from relatively clean drafts. They may address envelopes or type headings on form letters and fill out printed forms.

Typists who perform a number of clerical duties, the majority of which require the use of a typewriter, generally are classified

broadly as *clerk-typists*. The typist's specific job title frequently is based on the forms or documents she processes, namely, *c.o.d. biller*, *collection clerk*, *mortgage clerk*, *ticketing clerk* (banking), and *report clerk* (insurance). Sometimes the typist's specific title takes its name from the particular equipment she operates. A *transcribing machine operator*, for example, transcribes material recorded in sound from the tape or record of a transcribing machine. An *automatic typewriter operator* uses a typewriter that is activated by a perforated roll similar to a player-piano roll or a perforated tape. An *embossing machine operator* runs an electrically powered machine which stamps names, addresses, code numbers, and similar information in relief on metal plates for use in duplicating and addressing machines. A *telegraphic typewriter operator* (sometimes called a *teletype operator* or an *automatic telegraph operator*) uses a machine with a typewriter keyboard to send and receive messages. One of the newest specialties is that of *data typist*. This title describes those who use specially designed electric typewriters and magnetic tape to transcribe coded program instructions for electronic data processing.

Well-qualified typists will continue to be in demand. However, a larger share of the growing workload in what was once the typist's exclusive domain will be assumed by copying equipment and automatic typewriters; "turn-around" documents for ordering, invoicing, and shipping; "print-out" of bills, orders, and similar material by computer systems; facsimile and data transmission; and other technological innovations.

## ***Training and Qualifications***

Although secretaries, stenographers, and typists have different levels of responsibility, they form a common group in terms of skill and basic duties. The opportunities that exist, furthermore, for a typist to become a stenographer and for a stenographer to become a secretary make it useful to discuss education and skills for these three occupations as a group.

Typing skill is of course a basic requirement for all three of these jobs, and the employee should be able to operate both electric and manual typewriters. Stenographic and secretarial positions require speed and accuracy in taking and transcribing notes made in shorthand or with a dictation-taking machine. Although standards for taking dictation and typing vary from one employer to another, table 1 indicates some average working speeds which are widely acceptable.

Typing and shorthand courses for beginners are offered in most high schools, and advanced courses are available in a number of them.

TABLE 1.—*Working speeds generally considered acceptable*

| Occupation                             | Words per minute |               |        |
|--|------------------|---------------|--------|
|  | Dictation        | Transcription | Typing |
| <i>Secretaries and Stenographers:</i>  |                  |               |        |
| Secretary and senior stenographer..... | 90-140           | 25-40         | 40-60  |
| Stenographer, junior.....              | 80-100           | 20-30         | 40-50  |
| Court reporter.....                    | 150 or more      | 55-65         | 70-80  |
| <i>Typists:</i>                        |                  |               |        |
| General typist.....                    |                  |               | 40-55  |
| Clerk typist.....                      |                  |               | 40-50  |
| Transcribing machine operator.....     |                  | 25-40         |        |
| Telegraphic typewriter operator.....   |                  |               | 40-60  |

Many business schools seek to prepare their students to qualify for positions whose requirements are in the upper range of the standards for speed indicated in table 1. Successful completion of a 9-month stenographic course in these schools generally requires minimum speeds of 100 words per minute in taking dictation and 50 words per minute in typing. Minimum requirements set by business schools for successful completion of the 12-month course often are 60 words per minute for typing and 120 words per minute for taking dictation. Courses in shorthand and typing also are offered in many colleges. In a number of communities, courses are offered at night by the public high schools, the YWCA and YMCA, the Urban League, private business schools, or community colleges. Stenographic skills also can be learned through correspondence courses.

Employers frequently demand skills in addition to typing and shorthand. The employer may specify, for example, that an applicant know or be willing to learn how to operate a switchboard, keep certain records, or operate a particular office machine or a cash register.

In addition to training in stenographic skills, many high schools and vocational schools offer courses in clerical practice, business English, and other subjects which are useful preparation to the girl seeking a job as a stenographer or typist. A number of schools also have office education programs which provide actual work experience under trained supervision.

Many women in these occupations continue their education and training beyond high school. Half the women employed as secretaries, stenographers, and typists in 1962 had completed 12.6 years or more of schooling. Some had received their training in private business

schools, others in colleges. Post high school training is increasingly specified for secretaries in specialized fields, for private and executive secretaries, and for those jobs clearly designated as trainee positions for a professional or higher level administrative position.

A number of community and junior colleges offer 2-year secretarial programs which include courses in economics, management, marketing, business law, accounting, business correspondence, and a wide range of other business subjects. More than 200 colleges and universities confer a bachelor's degree in secretarial science, and a few confer a master's degree. Four-year college programs offer courses to the secretarial major in psychology, history, sociology, political science, English, and foreign languages. A limited number of secretarial scholarships are available from the National Secretaries Association and the National Legal Secretaries Association.

Future Secretaries Association is an organization for potential secretaries enrolled in educational institutions. The National Secretaries Association is the sponsor of this student group.

## ***Earnings and Working Conditions***

Wide variations exist in the earnings of secretaries, stenographers, and typists. Salary differentials are based in part on individual factors—skill, previous experience, academic and extracurricular record, and personal qualities. Salaries vary also with job requirements, length of the workweek, and the location, size, and type of business of the employer.

A Bureau of Labor Statistics survey of metropolitan occupational pay levels in 1962-63 showed average weekly earnings of \$96.50 for secretaries and \$77.50 for general stenographers. (See table 2.) The average weekly earnings for senior typists were \$77.50; for junior typists, \$65. However, these averages represented a wide range of earnings. For example, although general stenographers averaged earnings of \$77.50 a week, some earned under \$50 and some earned \$110 or more.

The 4-year college graduates usually command somewhat higher starting salaries than others who enter these occupations, and their promotion may be relatively rapid. Management-level positions designated as executive secretary or administrative assistant (see page 10) often are filled by college graduates with secretarial experience. A few college-trained secretaries are able to move into professional occupations.

Secretaries who have had specialized training or experience also may expect relatively higher beginning salaries than those who meet

TABLE 2.—Average weekly earnings <sup>1</sup> of women secretaries, stenographers, and typists in metropolitan areas, 1962-63

| Metropolitan area                  | Secretaries | Stenographers |          | Typists  |          | Transcribing machine operators |
|------------------------------------|-------------|---------------|----------|----------|----------|--------------------------------|
|                                    |             | General       | Senior   | Class A  | Class B  |                                |
| Average, 212 areas <sup>2</sup> .. | \$96. 50    | \$77. 50      | \$89. 00 | \$77. 50 | \$65. 00 | \$71. 50                       |
| Atlanta, Ga.....                   | 93. 50      | 75. 00        | 92. 50   | 70. 00   | 61. 00   | 67. 00                         |
| Birmingham, Ala.....               | 92. 00      | 75. 50        | 93. 00   | 74. 00   | 58. 00   | 69. 50                         |
| Boston, Mass.....                  | 89. 00      | 72. 00        | 79. 50   | 72. 50   | 61. 00   | 69. 50                         |
| Buffalo, N.Y.....                  | 98. 00      | 77. 50        | 93. 00   | 77. 50   | 62. 00   | 71. 00                         |
| Chicago, Ill.....                  | 101. 50     | 83. 50        | 92. 00   | 80. 00   | 69. 00   | 80. 00                         |
| Cleveland, Ohio.....               | 101. 00     | 80. 50        | 93. 00   | 81. 00   | 67. 00   | 75. 00                         |
| Dallas, Tex.....                   | 90. 50      | 72. 00        | 87. 50   | 70. 00   | 57. 00   | 64. 50                         |
| Kansas City, Mo.-Kans.             | 95. 00      | 76. 50        | 88. 00   | 77. 00   | 62. 50   | 67. 50                         |
| Los Angeles-Long Beach, Calif..... | 105. 00     | 89. 50        | 96. 00   | 84. 00   | 74. 00   | 80. 00                         |
| Memphis, Tenn.....                 | 79. 50      | 68. 00        | 91. 50   | 65. 50   | 54. 00   | 62. 50                         |
| Minneapolis-St. Paul, Minn.....    | 89. 50      | 74. 00        | 80. 00   | 70. 50   | 61. 50   | 68. 50                         |
| New York, N.Y.....                 | 101. 00     | 80. 50        | 92. 50   | 78. 00   | 68. 50   | 79. 00                         |
| Philadelphia, Pa.....              | 94. 00      | 74. 00        | 84. 00   | 77. 50   | 60. 50   | 68. 00                         |
| Pittsburgh, Pa.....                | 99. 00      | 82. 00        | 91. 00   | 79. 50   | 68. 50   | 72. 00                         |
| Portland, Ore.....                 | 90. 50      | 76. 50        | 86. 00   | 74. 50   | 64. 50   | 70. 00                         |
| San Francisco-Oakland, Calif.....  | 102. 50     | 84. 50        | 93. 50   | 79. 50   | 70. 50   | 79. 00                         |
| Seattle, Wash.....                 | 100. 50     | 85. 00        | 86. 00   | 79. 00   | 67. 00   | 72. 50                         |

<sup>1</sup> Earnings relate to regular straight-time salaries that are paid for standard workweeks; source: U.S. Department of Labor, Bureau of Labor Statistics, Wages and Related Benefits, Part I: 82 Labor Markets, 1962-63, Bull. No. 1345-83.

<sup>2</sup> See same source, Part II: Metropolitan Areas, United States and Regional Summaries, 1962-63.

only the minimum requirements for education and training. This is particularly true of legal and bilingual secretaries. Starting salaries for these secretaries in Washington, D.C., in 1963, were \$90 to \$100 or more a week.

According to the survey of metropolitan areas cited previously, weekly earnings of secretaries and stenographers were highest in public utilities. Among typists, weekly earnings were highest in manufacturing firms and public utilities. Weekly earnings for all three occupations were lowest in retail trade and finance.

Annual salary rates in the Federal Government in 1964 ranged from \$4,480 to \$7,170 for most secretaries, from \$4,005 to \$6,485 for the majority of stenographers and reporters, and from \$3,680 to \$5,830 for most clerk-typists. Salaries for dictating machine transcribers were somewhat higher than for clerk-typists.

Geographically, weekly earnings for secretaries, stenographers, and typists were generally highest in the West. Weekly earnings for these occupations generally were lowest in the South.

Working conditions for most secretaries, stenographers, and typists are similar to those for most clerical workers. Their working areas may be located in large bays filled with desks, file cabinets, and office machines, although some secretaries and stenographers work in quiet, private offices. Stenographers who specialize in a technical field are more likely than others in this group of occupations to work under unusual conditions—in laboratories, in production plants, or in a police court.

## DENTAL OR MEDICAL ASSISTANT

The job of an assistant (attendant) in a dentist's or physician's office is related to a number of other jobs. Certain duties performed by the assistant also are performed by medical or dental secretaries; others are performed by nurses, or by laboratory technologists or dental technicians. The medical or dental assistant, however, is neither secretary, technician, nor nurse. Her job is to serve the most common office needs of doctors or dentists, and in doing this she uses her knowledge in the several fields mentioned above.

Almost 69,000 women were employed as assistants in physicians' and dentists' offices in 1960. This represented an increase of 30,000 women in this occupation since 1950. More of them were employed by dentists than by physicians.

**Dental Assistant.**—A trained dental assistant's primary duty is assisting the dentist at the chairside. She prepares patients for treatment, sets out instruments, and, during treatment, hands the required instruments to the dentist, mixes filling materials and dental cement as the dentist needs them, and assists in taking X-rays. The dental assistant also sterilizes instruments; orders supplies; does laboratory work; and develops, dries, and mounts X-ray film. Her clerical duties usually include acting as receptionist, scheduling appointments, keeping the books, and billing the patients. The job of dental assistant should not be confused with that of the dental hygienist for which additional study and licensing are required.

Most dental assistants are employed by private dentists. The remainder work in hospitals, in local public health departments, in private clinics, or in the armed services. The growing demand for dental service and the shortage of dentists have created a strong demand for assistants to relieve dentists of routine duties.

Local groups of the American Dental Assistants Association often provide courses including dental anatomy, oral hygiene, instrument sterilization, lab techniques, and assisting at chairside. This program generally provides a total of 104 hours in 2-hour periods one night a week. Some dentists employ girls who have followed a general business program in high school, and train them on the job in the special duties of a dentist's assistant. Courses in biology and chemistry, bookkeeping, typing, and business arithmetic provide useful preparation for the dentist's assistant.

The number of 1- and 2-year educational programs for dental assistants has been increasing rapidly. These programs are some-



**FIGURE 3.** The physician's assistant performs simple laboratory tests and clerical tasks in addition to other duties.

times offered by a university in connection with its school of dentistry. Courses are also available in community or junior colleges, vocational and technical schools, and other educational institutions. The Council on Dental Education has been designated by the American Dental Association as the official accrediting agency for dental assistant educational programs. In 1964 the council gave its approval to seventeen 2-year programs for dental assistants and to twenty-two 1-year programs.

A pleasant personality, poise, and self-control are essential qualities for the dental assistant. She also should be able to work quickly and deftly with her hands.

A dental assistant's salary depends on her training, length of experience, geographic location, and duties. Nationwide the scale ranges from \$50 to \$75 a week to a maximum of about \$100 a week. In the Federal Government an untrained dental assistant starts at civil service grade 2 at \$3,680 a year, and may go as high as grade 6 supervisor at \$5,505 to \$7,170 a year. The assistant usually works 40 hours a week.

Dental assistants may become members of the American Dental Assistants Association. This association accords a certificate of "Certified Dental Assistant" to those who have fulfilled experience and course requirements.

**Medical Assistant.**—The medical (physician's) assistant receives patients, makes out general personal data cards for new patients, provides the physician with the medical record of regular patients, and ushers the patients in turn into the consultation or examination office. She usually assists or directs the patient in preparing for examination, treatment, or minor surgery. She sets out the necessary instruments, and may assist her employer by handing him instruments and performing other duties. She may assist the patient to dress, and then prepare the examining room for the next patient. She sterilizes instruments and keeps adequate supplies in the examining room. Under direction of the physician she may take a patient's temperature and pulse, apply or remove surgical dressings, operate an electrocardiograph or diathermy machine, and make simple laboratory tests. Her clerical duties include ordering supplies, receiving payment for services, preparing and mailing statements, completing insurance forms, taking and transcribing dictation from the physician, and preparing correspondence.

High school graduation is the minimum requirement for the physician's assistant. Those applicants who have had courses in biology, chemistry, health education, typing, shorthand, and bookkeeping are generally preferred. Preparation may include training and experi-

ence as a medical secretary, training as a practical nurse experienced in office procedures, or study at the college level. Formal training, requiring 1 to 2 years, is given in a number of colleges. Courses may include anatomy, physiology, nursing arts, medical laboratory procedures, instrument sterilization, clerical subjects, and on-the-job training in a typical office. The same personal qualities required of the dental assistant apply to the physician's assistant.

Data are not available on the earnings of medical assistants, but they probably are similar to those for dental assistants. The medical assistant commonly works an 8-hour day, 5 days a week. If she is one of several assistants in an office, however, she may work some evening or Saturday hours. Medical assistants may be members of the American Association of Medical Assistants, Inc.

## RECEPTIONIST

The number of women employed as receptionists increased from about 57,500 in 1950 to over 131,000 in 1960. Women fill about 98 percent of all the jobs in this occupation. Each year many openings are available, but competition is keen. Chances for employment are enhanced by such skills as typing, and by experience in operating a switchboard. Receptionist jobs are sometimes filled by promoting qualified file clerks or other clerical workers.

Jobs as receptionists are found in industrial concerns; wholesale and retail firms; professional offices; service establishments, including real estate and insurance offices; public relations and advertising firms; and radio and television stations.

## Duties

The duties of a receptionist are closely related to the profession or business of her employer. In a hospital admitting office she obtains and records information about the patient, acts as custodian for personal property and valuables, directs the patient to the appropriate room, and, upon the patient's discharge, enters the dismissal data. In some organizations she may assist clients to complete applications or other forms. Wherever she works, her role is an important one. The way she handles her responsibilities often will influence the attitude of visitors toward her employer and the services or products offered.

The receptionist receives customers or clients, patients, salesmen, or other visitors who come into the establishment, tactfully determines the purpose of their visits, and directs them to the appropriate person. She may record the names of visitors, the time they called, the reason



FIGURE 4. In many offices the secretary may also serve as a receptionist.

for their visit, and the name of the person to whom she directed them. The receptionist may operate a switchboard to relay incoming and interoffice calls and make connections for outgoing calls. General clerical duties that do not conflict with her primary responsibilities as a receptionist often are part of her job in the small office. Her duties usually include answering routine inquiries. In fact, in some offices her title is *information clerk*.

## Training and Qualifications

Requirements for receptionists are not as standardized as for many clerical jobs. High school graduation usually is required, and courses in English and public speaking are considered particularly helpful in developing the excellent command of English and the ability to express thoughts effectively that are essential in receptionist positions. Some employers specify skills such as typing or operating a switchboard. Although an applicant who is experienced in operating a switchboard has a greater chance of employment, switchboard operation is not a difficult skill and often is learned on the job.

Employers often prefer attractive young women as receptionists. A pleasant voice and a personality that is both gracious and business-like are of prime importance. The job requires poise, great tact, diplomacy, self-control, and patience. The receptionist must be alert

and have a good memory for names, faces, and business facts. In a large firm she must be familiar with the work of each department and know the duties of each executive in order to direct callers intelligently.

## Earnings and Working Conditions

Wages of switchboard operator-receptionists in 212 metropolitan areas surveyed by the Bureau of Labor Statistics in 1962-63 averaged \$72.50. Highest average salary (\$78) was paid in the West; lowest average salary (\$66), in the South.

Although receptionist jobs may carry considerable prestige, earnings are low compared with other clerical occupations which require greater skills. (See page 56.) Some women move from receptionist positions to higher paid clerical or sales positions.

The receptionist usually works in business or professional surroundings. Even though her desk may be in an area isolated from other workers, her job provides contact with people. She generally spends most of her time at her desk, but in many establishments her duties include showing callers to the proper offices. She performs most of her work without direct supervision.

The working hours of the receptionist are usually the normal ones for clerical employees: Monday through Friday, 40 hours a week or less, on the day shift. Those employed in hospitals and physicians' offices may work irregular hours that include night and weekend duty.

## FILE CLERK

Filing essentially is the arrangement and maintenance of records in a methodical manner. The bulk of the files in the average business firm is likely to contain correspondence, orders, and invoices; but files may hold a great variety of data. In an engineering firm, for example, they hold blueprints; in a hospital, medical records; in a travel agency, tour programs and timetables; and in a newspaper office, clippings and background information for articles. Some files hold samples of merchandise, such as yarns which are kept for color comparison, or other samples which are kept to aid clients in making selections.

The files of an establishment have been described as its "memory." They might also be described as its "lifeline." As business activity and the functions of government have grown in scope and complexity, reliance on files has increased accordingly. In fact, modern business is so dependent on its records that loss of the files can result in the

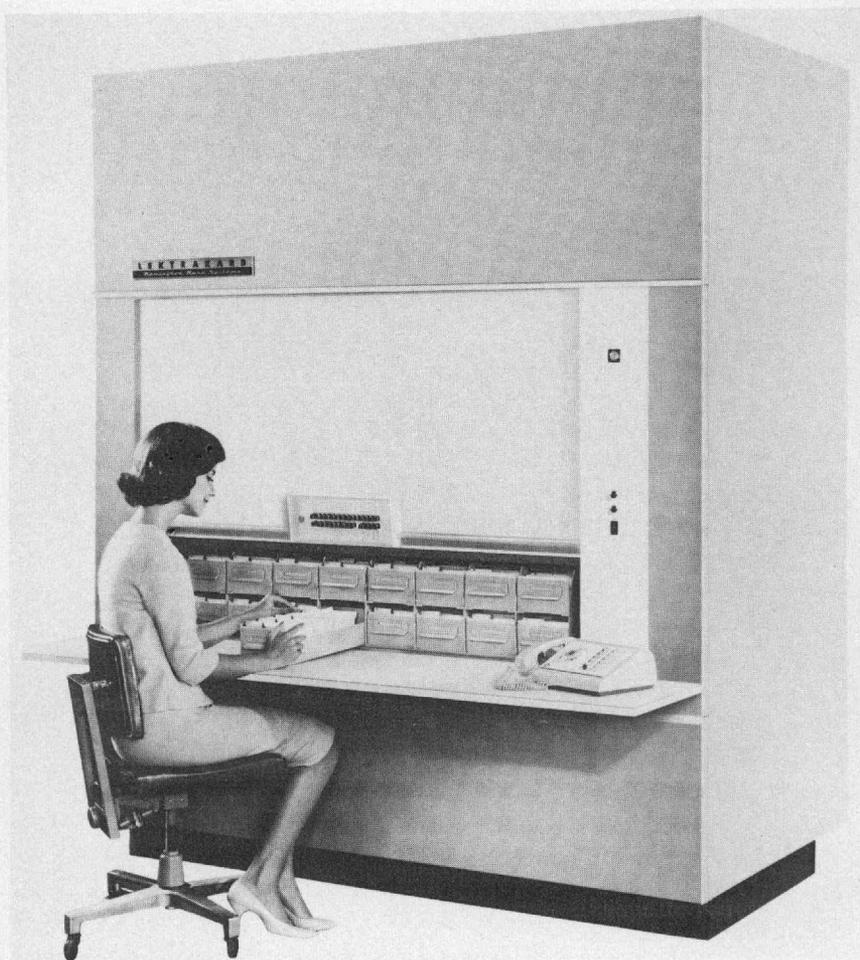


FIGURE 5. Pushbutton controls ease the operation of some files.

closing of a business. The value of maintaining files and speeding access to materials on file is reflected in the development of motorized equipment and pushbutton controls.

In 1960 over 112,000 women were employed as file clerks, almost 21,000 more than in 1950. Total hirings were considerably greater than this growth represented, as labor turnover in this occupation is high. Large numbers of file clerk jobs are vacated each year due to promotions, family responsibilities, retirement, and other reasons. The increase in the number of women employed as file clerks during the decade 1950-60, however, did not keep pace with the average increase in the number of women employed in all clerical occupations.

Filing jobs are found in almost every business and industry; in government; in religious, civic, and social organizations; and everywhere that records are found. In some enterprises filing operations have grown beyond the practical capabilities of traditional filing, and have been transferred to computers. This has taken place in many insurance companies, banks, manufacturing concerns, and a number of government agencies. "Storage and retrieval" are the electronic equivalents of "filing and finding" operations performed by the file clerk. Although computer systems will eliminate many filing jobs in large organizations, there still will be a place for file clerks.

## Duties

The job of a file clerk centers on the filing of material according to a definite system and locating it again as it is required. A *class A file clerk* reads enough of the material to determine its classification under the system used in the office—whether subject, straight alphabetic or numeric, geographic, or other. She indexes it and makes whatever cross-references are necessary under appropriate classifications. In a large office the class A file clerk may supervise other file clerks who do the actual filing and locating. Otherwise she will file and locate it herself. She may keep records of various types, including lists of correspondents and of materials removed from files. She also may select inactive materials for transfer to storage. In some offices she may set up the filing system. Her other clerical duties often are closely related to filing; for example, collecting the mail, typing information from file data, or operating office machines to make calculations or entries that are necessary to bring the files up to date. In addition she may answer the phone, operate the switchboard, and perform other clerical duties.

The *class B file clerk* sorts, codes, and files unclassified material by simple headings, or partly classified material by finer subheadings, and prepares simple index and cross-reference aids. She locates clearly identified material as it is needed. Her duties often include other clerical tasks, such as making the mail round, distributing carbon copies of correspondence to staff members, and stamping the mail.

The *class C file clerk* handles material already classified or which can be classified easily in a simple alphabetic, chronological, or numeric system. She locates readily available material. She may also perform other clerical tasks.

The duties and the title of a file clerk vary with the type of establishment in which she is employed. A *circulation clerk*, for example, keeps records of publication subscriptions. She receives notices of new subscriptions and mails notes of expiration dates. A *film file clerk*

keeps a file of X-rays. Her duties include removing film from the drier, sorting it according to file number and type of X-ray picture, and entering the file numbers and the patients' names on film preserver envelopes. A *map file clerk* keeps files of topographic maps, reference maps, aerial photographs, and other similar material. Sometimes titles are related to the particular filing system used. The *Soundex System file clerk*, for example, files according to phonetic spelling.

## **Training and Qualifications**

Specialized training or experience is not usually specified for filing jobs, although typing skills are sometimes required. Good spelling is essential to the file clerk, and courses in business English, general mathematics, and office practice are helpful. A high school education usually is required for filing jobs. On-the-job training is given by many firms. A new file clerk may require training for 2 to 3 weeks or longer, depending on the file system in use.

Filing jobs require a sense of orderliness, a liking for detail, a desire to serve, and an ability to keep confidential all information learned on the job. Speed and a good memory are valuable assets for the file clerk.

## **Earnings and Working Conditions**

The weekly earnings of file clerks in 212 metropolitan areas in 1962-63 averaged \$77.50 for class A clerks, \$63 for class B clerks, and \$56.50 for those in class C.

Avenues for promotion are very limited without skills such as typing, shorthand, or office machine operation. Possession of these skills, however, combined with the opportunity filing affords to learn about the business, often leads to a job as typist or stenographer. Some file clerks in large establishments become file room supervisors. Others are promoted to phone order clerks or to receptionists.

## **BOOKKEEPER**

Every business today has its books—that is, a record of its financial affairs. In many offices these records are handled by members of an ancient occupation which, since the Middle Ages, has taken its name, “bookkeeping,” from the bound volumes in which transactions generally were entered. Today the occupation is highly susceptible to the technological changes underway in modern offices.

Bookkeeping employed 764,000 women in 1960, an increase of more than 200,000 over 1950. This expansion is due in part to increased bookkeeping responsibilities in connection with tax returns, expense accounts, and other items. Over the long run the growing use of mechanical equipment and electronic computers will hold expansion in the number of bookkeepers to a moderate increase. More of the openings will be for bookkeeping machine operators and accounting clerks than in the past, since bookkeeping functions in many offices are being broken down into comparatively routine tasks performed by bookkeeping machines and electronic computers. "Hand" bookkeepers will continue to be in demand in large establishments to consolidate machine results as well as in small establishments which employ one general bookkeeper for all the analysis, recording, and other work necessary to keep a complete set of books. Turnover will create most of the more than 50,000 openings that are expected each year during the remainder of the 1960's.

## Duties

The basic function of bookkeeping is to record monetary transactions, balance books, and prepare summary reports showing receipts, expenditures, and profit or loss. In a small firm one general bookkeeper may handle the complete set of books, prepare and mail monthly statements to customers, make bank deposits, calculate employee wages, and make out checks. She may use an adding machine or other simple office machines, but most of her work is done by hand. She may also file, type, and do other clerical work.

In a large bookkeeping department much of the work is done by machine although posting and the preparation of summary reports may be performed by hand. A number of bookkeeping workers, both accounting clerks and bookkeeping machine operators, may work under a head bookkeeper or an accountant. A *class A accounting clerk* generally is responsible for keeping one or more sections of a complete set of books. She may post and balance accounts receivable, accounts payable, and other subsidiary ledgers, examining and coding invoices or vouchers. A *class B accounting clerk* performs routine accounting tasks, for example, simple posting and checking that does not require a knowledge of accounting or bookkeeping principles. A *class A bookkeeping machine operator* keeps a set of records requiring both a knowledge of basic bookkeeping principles and experience in the particular system used in the office. A *class B bookkeeping machine operator* keeps records of a phase or section of a set of records



**FIGURE 6.** New automatic equipment has changed the bookkeeper's job markedly.

usually requiring limited knowledge of bookkeeping principles. These phases or sections may include accounts payable, payroll, and inventory control. She also may assist in the preparation of trial balances and prepare control sheets for the accounting department.

Over one-third of all women bookkeepers in the United States in 1960 were working in retail stores or wholesale houses. About one-fifth were employed in manufacturing companies, and about one-sixth in finance, insurance, and real estate. Substantial numbers were working in public utility or construction companies.

## **Training and Qualifications**

Most employers prefer applicants who have a commercial high school, vocational, or business school education that includes courses in bookkeeping and business arithmetic. Some bookkeepers obtain their training through correspondence courses. Junior college training is increasingly required. A growing number of large companies

offer some on-the-job training in bookkeeping practices. Skill in typing and in operating other office machines often is an asset to applicants for bookkeeping jobs.

Bookkeepers and accounting clerks should have above average aptitude for working with numbers and for concentrating on details. Accuracy and a sense of order are essential. Some bookkeeping machine operator jobs require an extensive knowledge of bookkeeping procedures and practices. Others require principally finger dexterity and good coordination of eye and hand.

## Earnings and Working Conditions

Weekly earnings of women employed as class A accounting clerks averaged \$91 in 1962-63 according to a survey of 212 metropolitan areas made by the Bureau of Labor Statistics. Weekly earnings of women employed as class B accounting clerks in the same survey averaged \$77, while earnings of women bookkeeping machine operators averaged from \$66.50 to \$82 a week. In general, salaries were somewhat higher in manufacturing than in nonmanufacturing firms.

## CASHIER

The cashier's job is a very familiar one to most people since many cashiers deal directly with the public in grocery stores, restaurants, hotels, theaters, and other retail and service establishments.

Almost 368,000 women were employed as cashiers in 1960, almost double the number in 1950. About 73 percent of the women cashiers in 1960 worked in food and dairy stores and other retail trade establishments. Creation of many of the new cashier positions resulted from the displacement of retail clerks as self-service became widespread in supermarkets, variety stores, and some department stores.

Over the long run the number of cashiers is expected to increase fairly rapidly, though at a slower pace than in the decade 1950-60. Many of the openings will be for part-time employment. Cashier positions created by business expansion and additional self-service facilities will be partially offset by the installation of vending machines, changemaking machines, and other kinds of mechanical equipment, including automatic checkout machines, which replace the cashier or speed up her work. Job competition is likely to remain keen, since many cashier jobs demand little specialized training and offer opportunities for part-time work.



FIGURE 7. Women find employment as cashiers in a variety of industries.

## Duties

Cashiers total purchases, receive payment, make change, and balance out receipts at the end of the day. Additional duties usually depend on the type of business of the employer. The *checker* in a grocery store may bag purchases and, during slack periods, may restock shelves and mark prices. A restaurant cashier may take reservations for meals, type menus, and stock the cashier's counter with cigarettes and candy. A cashier or *ticket seller* in a theater may answer telephone inquiries concerning the seats available and their prices, and the times of the performances. She also may make ticket reservations. Cashiers in a business office may perform a variety of duties, including keeping records of cash transactions, receipts, and disbursements; balancing cashbooks; and preparing payrolls, paychecks, and bank deposits. Titles for cashiers in these jobs include *cash accounting clerk*, *disbursement clerk*, and *credit cashier*.

A cashier often uses a cash register which, as the sale is rung up, prints a record of the amount on a paper tape and releases a money drawer. Cashiers in hotels and hospitals operate machines similar to accounting machines to prepare itemized bills.

## Training and Qualifications

Employers usually prefer to hire high school graduates as cashiers. Courses in business arithmetic are generally considered desirable. Bookkeeping, typing, or selling experience is required for some cashier jobs. Cashier training is offered in a number of public schools as part of the vocational program. Some firms give informal on-the-job training or brief formal training courses.

In order to do her work with the required speed and accuracy, a cashier needs finger dexterity, good hand and eye coordination, and an ability to do quick mental arithmetic. Since often she is located at an exit or entrance point; she needs to be alert and observant. Like other workers who deal directly with the public, the cashier should be neat in appearance and have a pleasant manner.

## Earnings and Working Conditions

Many large business firms in metropolitan areas paid cashiers without previous experience about \$50 a week in 1962. Cashiers in motion picture theaters in many localities generally earned less than \$1 an hour. Experienced cashiers in some types of retail stores earned \$60 to \$70 a week, while hotel cashiers in some large cities earned about \$85 a week. Restaurants often paid cashiers lower salaries than did other types of establishments, but provided one or two meals a day. A Bureau of Labor Statistics survey which covered eating and drinking places in 26 metropolitan areas in 1961 reported an average hourly rate of less than \$1 to almost \$2 for cashiers. Cashier-checkers in supermarkets earned up to \$100 to \$120 a week, according to limited data available. The relatively high wage level of this group was due partly to the high degree of union organization.

Cashiers in supermarkets and other large retail business firms usually work a 5-day 40-hour week, a number of them on split shifts. Evening and Saturday hours are common and some cashiers, particularly in the West, work Sundays. The work schedules of cashiers in restaurants and places of entertainment include holidays, weekends, and evenings.

About one-third of the women who worked as cashiers in 1960 were part-time employees. Some large food chains have reported that as many as two-thirds of their cashiers are part-time workers. A typical schedule for these workers includes two or three evenings a week and all day Saturday. Some stores use part-time cashiers during midday peaks and on Thursdays, Fridays, and Saturdays.

Cashiers may spend most of their working hours standing. Their working spaces may be confining.

Cashiers who work in retail stores may be members of the Retail Clerks International Association or the Retail, Wholesale, and Department Store Union. These unions are affiliated with the AFL-CIO.

## **BANK TELLER**

In the decade 1950-60 the number of women working as bank tellers increased at a more rapid rate than the number of women working in any other major clerical occupation. In 1950 there were fewer than 29,000 women tellers; in 1960 there were over 89,000 women in this occupation. For many of them it was a part-time job.

Although the work of tellers is being speeded by computers which process transactions while the customer is at the teller's window (see page 4), further expansion in the number of tellers is expected. This increase will be in part an indirect result of anticipated increases in production, sales, and national income. Additional tellers also will be needed as a direct result of changes in banking facilities and services, including the establishment of new suburban branches, the increase in the length of banking hours, and the expansion of such services as revolving check credit plans and the payment of utility bills and charge accounts.

### **Duties**

The specific duties of tellers vary widely, depending on the size of the bank, the types of accounts it handles, and the use it makes of automation and other technological innovations. In every bank, however, there is at least one *paying and receiving teller*. This teller receives deposits from individuals or commercial firms and pays withdrawals. She credits or debits the customer's account, cashes checks, and, after public banking hours, balances her accounts. She may write up or sign deposit or withdrawal slips, sort deposit slips and checks, and perform other incidental duties. In the course of her work, she may use machines for making change and totaling deposits, as well as operate a bookkeeping machine which makes entries simultaneously in the customer's passbook and on the bank's ledger. In some banks a computer system connects individual tellers with the main office and processes transactions while the customer is at the teller's window. Both the handling of the transaction and the teller's after-

hour balancing of accounts are speeded by the use of this system. In large banks a teller's duties may include supervision of one or more clerks. In a small bank, her work may include bookkeeping duties.

Large banks have specialized tellers whose titles reflect their special province. *Trust tellers*, for example, deal in promissory notes, *securities tellers* collect charges and payments on securities, and *foreign exchange tellers* purchase and sell foreign currencies. These are only a few of many specific titles. One of the newest job titles is *drive-in teller*, used to identify the teller who services the customer who banks from her car.

## Training and Qualifications

The work of a teller is exacting; it requires accuracy, speed, and a good memory for faces and signatures. The teller must be able to meet the standards set by bonding companies. Since she represents the bank to most of its customers, it is also important for her to be courteous, helpful, tactful, and neat in appearance.

Teller positions generally are filled from among the bookkeepers, stenographers, or clerk-typists already on the staff. Both seniority and clerical ability are considered.

High school graduation is the minimum educational requirement for teller positions. Some skill in operating office machines is desirable. Experienced tellers who have taken the banking courses offered to all bank employees by the American Institute of Banking may be advanced in some cases to officer positions, especially if they have had some college training.

## Earnings and Working Conditions

Salaries of women commercial and savings tellers who had less than 5 years' service ranged from an average of \$49.50 to \$71.50 per week according to a 1960 survey of banks in 27 metropolitan areas throughout the country. The earnings of part-time tellers were included in these salaries.

Most tellers work a 37½- to 40-hour week, although they may have to work late at least once a week. Tellers who work in banks which are open on Saturday may work either a 6-day or a split week. A still small but growing number of tellers work less than 35 hours a week. Many of these are in suburban branches where their work may include early morning, evening, and Saturday hours. Many tellers stand most of the day, moving about frequently at their counter.

## OFFICE MACHINE OPERATOR <sup>4</sup>

Today, less than 100 years since the sale of the first typewriter, there is an office machine available for almost every clerical task. Some are simple contrivances, operated by general clerical employees as they go about their various duties. Others are complex mechanisms requiring the full time of a team of employees. Many office machines, including some of the newest, are based on variations of the typewriter keyboard, but developments since World War II include paper conveyors, motorized files, and a wide variety of copiers operating on camera or contact processes.

The acceleration in the development and use of office machines is illustrated by the history of machine copiers. Copiers were relatively unknown before the Korean war. Today about 175 different models are offered by 40 manufacturers, and more than 400,000 copying machines are in operation rolling out about 10 billion copies annually.

The number of women working as office machine operators increased from about 117,000 in 1950 to about 228,000 in 1960. Business growth, new machines, and turnover will create many thousands of openings for office machine operators during the remainder of the 1960's. In the long run automation probably will retard the growth rate in the number of office machine operators although the total number of operators is expected to continue to rise.

Rapid changes underway in business technology make it impossible to predict with any accuracy the future demand for operators of specific office machines. A case in point is the keypunch operator. Some of these jobs are being eliminated by optical scanners which read original documents and record the data on magnetic tape or punched cards or which, in some cases, transmit the data directly to an electronic computer. However, the rapid spread of small- and medium-size computers which use cards has sustained the demand for keypunch operators to date. It is expected that the demand for keypunch operators will begin to level off and may even decline.

In the case of tabulating machine operators, the transfer of data processing from tabulating machines to computers will affect some jobs. On the other hand, as costs of tabulating machines decrease, their use will spread to smaller firms. The number of duplicating machine operators may be affected by the growing use of automatic typewriters and the direct copy of computer-printed output by microphotography and other techniques. The analysis of systems and pro-

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<sup>4</sup> These occupations include those which involve use of the most common varieties of office machines as the main assignment. For personnel using computers, see page 43. For bookkeeping machine operators, see page 30.

cedures that usually precedes the installation of a computer also may affect the number of duplicating machine operators insofar as it uncovers records that can be eliminated.

Office machine operators are more concentrated in large cities than most kinds of office workers. Roughly one-third of all office machine operators worked for manufacturing companies in 1960. Almost one-fourth were employed in finance, insurance, and real estate, and about one-sixth in wholesale or retail trade. Federal, State, and local governments employed over one-tenth of the total. A growing number are employed in service centers which are equipped to handle office machine work on a contract basis.

## Duties

The nature of a machine operator's work depends on the type of equipment used. In the operation of some machines—for example, billing, adding, and calculating machines—workers repeatedly press numbered or lettered keys on a keyboard. Other machines—duplicating, mailing, and tabulating machines—run automatically for long periods once they are set in motion by operators. Most of these jobs are routine in nature, as operators usually are given assignments on only one machine. Job titles often designate the equipment used.

**Billing Machine Operator.**—These operators constitute one of the largest groups who work on office machines. These employees prepare statements, bills, and invoices. The operator of a computer-type billing machine transcribes from office records the customer's name, address, and the items purchased or services rendered, using keys similar to those of a typewriter. The machine calculates such items as totals, net amounts, and discounts, and prints them on a bill. The operator of a standard billing machine may use an adding machine or a calculating machine to make needed computations.

**Calculating and Adding Machine Operator.**—These operators, as well as *Comptometer operators*, make the computations needed in preparing payrolls, invoices, financial accounts, and other business or statistical reports. Job titles vary from one company to another.

Calculating machines today are such that they can be used not only to add and subtract but also to multiply, divide, take square root, and do other computations. They are especially useful in computing discounts, interest, percentages, indexes, and calculations involved in taking inventories. By striking numbered keys, operators put into these machines appropriate numbers. By pressing other keys, they make the indicated calculations, and then record the results. There

are three major types of calculators: the nonprinting type, the printing calculating or adding machine, and the Comptometer. Such machines may be electric or manual.

Many operators of adding and calculating machines perform other clerical duties. However, operators of the most complex calculating machines—the Comptometer type—usually devote full time to the operation of their machines.

**Duplicating Machine Operator.**—Mimeograph or Ditto machines are run by duplicating machine operators. These machines can produce several thousand or more copies of a typewritten or handwritten document quickly and inexpensively. The job of the operator is to insert in the machine a master copy—a stencil or a Ditto—of the document to be reproduced; to adjust the ink flow, paper-feed counter, and cylinder speed; and to start and stop the machine. Some operators sort, collate, and staple the copies.

Copying machines which use photographic and chemical processes usually are operated by clerical workers as an incidental duty. These machines generally are suitable for making only a limited number of copies.

**Mail Preparing and Mail Handling Operator.**—These operators run the automatic equipment which handles office mail. Some of these workers open envelopes, using a machine that cuts a thin slice off one edge of a stack of envelopes. Others operate machines that fold enclosures and insert them into envelopes, or that moisten gummed flaps and seal them, or that print addresses and related information from stencils or embossed metal plates. Some operators use machines that affix a postage stamp or print a post date and a canceled postage permit mark on a piece of mail.

**Tabulating Machine Operator.**—The operators of these and related machines run the equipment which includes the keypunch, verifier, sorter, and collator, as well as the tabulating machine. These jobs usually are found in large establishments in many industries, including government, trade, transportation, communication, and manufacturing. Generally the work is divided so that each major operation is performed by a different occupational group, although tabulating machine operators may also operate sorters and collators.

**Keypunch Operator.**—Data are transcribed by these operators from source documents to keypunch cards. Using a machine similar to a typewriter, the operator punches holes in the cards, using the posi-

tion of the holes to represent specific items of information. The key-punch machine may have a keyboard that is numeric, alphabetic, or a combination of both. A *class A keypunch operator* must be able to code, and may be required to locate and interpret information on the document, and to work from several documents. She may train inexperienced operators. A *class B keypunch operator* transcribes data which require little or no selecting, coding, or interpreting. The *verifier operator* uses a keypunch-type machine to check and verify the accuracy of the information punched on cards.

The *sorting machine operator* sets the controls of the sorting device to achieve the sorting which is desired and runs the punched cards through the machine. Similarly, the *collating machine operator* uses a machine to merge or match sets of cards.

The *tabulating machine operator* inserts the sorted punched cards into a machine which lists and counts the various items punched on each card, multiplies and makes other calculations, and prints the results on accounting records and other business forms. The work may involve some wiring from diagrams and the lifting of heavy trays.

## Training and Qualifications

Graduation from high school or business school generally is required for all but the most routine office machine jobs. Training in the operation of various business machines is given in many high schools. For most beginning jobs, a general knowledge of the kind of equipment used is usually sufficient. Specialized training is customarily required for operators of Comptometer-type calculators and some kinds of tabulating and duplicating equipment. Business arithmetic is valuable for jobs involving work with figures. Some skill in typing and the ability to operate more than one type of office machine also are useful.

Some organizations train their own workers on the job and pay them a trainee's wage until they reach a certain level of proficiency. Several weeks of training usually are required for operators of calculating, keypunch, and tabulating machines. Only a few days may be required to train operators of some duplicating or mail-handling machines. Even employees with training or experience in operating office machines may need time to familiarize themselves with the specific equipment they will be using. Often minor, and sometimes major, differences exist between machines built by different manufacturers, or between a new model and an old model. Many workers are trained in schools maintained by machine manufacturers.



FIGURE 8. The majority of clerical workers learn their basic office skills in high school.

Office machine operators are required to be able to operate their machines with a high degree of speed and accuracy. This requires finger dexterity, good coordination of eye and hand movements, and good vision. Machine operators must be able to concentrate despite distractions. They must also be alert to detect obvious errors as they work on their assignments. Some mechanical ability is useful, especially to duplicating and tabulating machine operators.

The rapid evolution of office machines is causing employers to add "flexibility" to the qualities they look for in machine operators. Changing technology demands a readiness at any age to acquire new skills.

## Earnings and Working Conditions

A Bureau of Labor Statistics survey which covered large firms in 212 metropolitan areas in 1962-63 reported average weekly earnings of \$86 for women operating the more difficult tabulating or electrical accounting machines, and \$70.50 for women operating such equipment as the sorter, reproducing punch, or collator. For keypunch operators on more difficult types of assignment, average weekly earnings were \$82.50 a week, and for other keypunch operators, \$71.50 a week. Comptometer operators averaged earnings of \$78 a week. Average weekly earnings for women billing machine operators were \$71.50; for women working as duplicating machine operators, \$68.50. Average salaries of women employed in selected office machine occupations in 17 metropolitan areas are shown in table 3.

Advancement opportunities are rather limited for most office machine operators. Some may be promoted to more difficult work of greater responsibility, and then to supervisory jobs. Some keypunch or verifier operators may be promoted after further training to tabulating equipment operator, or to jobs in data processing. Operators of tabulating machines may advance to preparing wiring unit diagrams, then to project planning. A knowledge of tabulating equipment operation is useful in many electronic data processing operations.

The job of an office machine operator has some aspects in common with factory work. The high cost of office machines often gives rise to shift work and a pressure for speed in order to make the most efficient use of equipment. Records often are kept on the output of keypunch operators. The noise of the machines adds to the factory atmosphere and is disturbing to some employees. The rapid working rhythm coupled with tension and noise may cause extreme fatigue in some workers. For many employees machine operation is more tiring than manual methods of copying and calculating. Tabulating machine operators often stand for long periods at their machines, and may be required to lift and move metal drawers of punched cards weighing up to 30 pounds each.

## ELECTRONIC COMPUTER OPERATING PERSONNEL

In the last decade, electronic data processing (EDP) has opened up a new group of clerical jobs. Common titles of those employed in the operation of computer systems include coding clerk, console operator, peripheral equipment operator, and tape librarian. In addition to these jobs, a number of others are evolving which are not yet clearly defined. EDP also has increased, for the immediate future, the demand for keypunch operators.

TABLE 3.—Average weekly earnings<sup>1</sup> of women in selected office machine occupations in 17 metropolitan areas, 1962-63

| Metropolitan area                     | Billers, machine |                      | Bookkeeping machine operators |          | Comptometer operators | Duplicating machine operators | Keypunch operators |          | Tabulating machine operators |          |          |
|---------------------------------------|------------------|----------------------|-------------------------------|----------|-----------------------|-------------------------------|--------------------|----------|------------------------------|----------|----------|
|                                       | Billing machine  | Book-keeping machine | Class A                       | Class B  |                       |                               | Class A            | Class B  | Class A                      | Class B  | Class C  |
| Atlanta, Ga.....                      | \$72. 00         | \$65. 00             | \$74. 50                      | \$70. 00 | \$77. 00              | \$62. 00                      | \$86. 00           | \$68. 00 | -----                        | \$77. 00 | -----    |
| Birmingham, Ala.....                  | 70. 50           | 59. 00               | 82. 00                        | 61. 50   | 65. 50                | -----                         | 86. 00             | 63. 00   | -----                        | 77. 50   | -----    |
| Boston, Mass.....                     | 71. 50           | 61. 00               | 78. 00                        | 65. 50   | 71. 00                | 62. 50                        | 74. 00             | 65. 50   | \$93. 00                     | 77. 00   | \$64. 50 |
| Buffalo, N.Y.....                     | 79. 00           | 61. 50               | 84. 50                        | 58. 50   | 73. 50                | -----                         | 85. 00             | 70. 00   | -----                        | 90. 50   | 76. 50   |
| Chicago, Ill.....                     | 79. 50           | 71. 00               | 93. 00                        | 77. 00   | 80. 50                | 74. 50                        | 84. 50             | 76. 50   | -----                        | 94. 00   | 83. 50   |
| Cleveland, Ohio.....                  | 73. 50           | 73. 50               | 88. 50                        | 70. 00   | 79. 50                | 70. 50                        | 84. 50             | 79. 00   | -----                        | 93. 50   | 80. 00   |
| Dallas, Tex.....                      | 72. 50           | 63. 00               | 75. 00                        | 65. 50   | 70. 00                | 73. 50                        | 74. 00             | 65. 50   | -----                        | 85. 50   | 72. 50   |
| Kansas City, Mo.-Kans.....            | 74. 00           | 64. 00               | 87. 00                        | 65. 00   | 76. 00                | -----                         | 81. 50             | 74. 00   | -----                        | 89. 50   | 71. 50   |
| Los Angeles-Long Beach,<br>Calif..... | 87. 00           | 86. 00               | 95. 00                        | 73. 00   | 94. 50                | 77. 00                        | 92. 50             | 86. 00   | 117. 50                      | 94. 50   | 82. 50   |
| Memphis, Tenn.....                    | 61. 00           | 59. 00               | 75. 50                        | 60. 00   | 66. 00                | -----                         | 72. 00             | 61. 50   | -----                        | 75. 50   | 68. 50   |
| Minneapolis-St. Paul, Minn.....       | 68. 00           | 67. 00               | 80. 50                        | 63. 00   | 72. 50                | 63. 50                        | 74. 00             | 68. 00   | -----                        | 82. 00   | 64. 00   |
| New York, N.Y.....                    | 76. 50           | 77. 50               | 86. 50                        | 75. 50   | 81. 50                | 69. 00                        | 84. 00             | 72. 50   | 104. 00                      | 84. 50   | 74. 50   |
| Philadelphia, Pa.....                 | 78. 00           | 65. 50               | 78. 50                        | 64. 50   | 73. 00                | 64. 00                        | 79. 50             | 67. 50   | 101. 00                      | 82. 50   | 69. 00   |
| Pittsburgh, Pa.....                   | 76. 00           | 68. 50               | 79. 00                        | 67. 50   | 78. 00                | 72. 50                        | 86. 50             | 74. 00   | 107. 00                      | 91. 00   | 72. 00   |
| Portland, Oreg.....                   | 72. 00           | 62. 50               | 86. 50                        | 72. 50   | 80. 50                | 70. 50                        | 78. 00             | 69. 00   | -----                        | 89. 50   | -----    |
| San Francisco-Oakland,<br>Calif.....  | 87. 50           | 78. 50               | 95. 00                        | 76. 50   | 90. 00                | 74. 00                        | 87. 00             | 82. 00   | -----                        | 94. 50   | -----    |
| Seattle, Wash.....                    | 82. 50           | 81. 00               | 79. 50                        | 68. 50   | 85. 00                | 65. 50                        | 83. 00             | 73. 00   | -----                        | 87. 50   | 70. 00   |

<sup>1</sup> Earnings relate to regular straight-time salaries that are paid for standard workweeks.

NOTE.—Dashes indicate no data reported or data do not meet publication criteria.

Source: U.S. Department of Labor, Bureau of Labor Statistics, Wages and Related Benefits, Part I: 82 Labor Markets, 1962-1963, Bull. No. 1345-83.

Exact information on the number of clerical workers engaged in the operation of computers is not available at this time. The total undoubtedly is small in comparison with the other clerical occupations covered in this bulletin. The experience of the Federal Government, however, serves as an illustration of the growth taking place in computer jobs. In 1961 there were about 35,000 Federal workers employed in data processing; by June 30, 1964, computer personnel in Federal employment totaled 53,600. Further increases are anticipated, since the number of computer systems in operation in the Federal Government is expected to total 1,946 by 1965, an increase of 179 over the number in operation in 1964.

Computer personnel in private industry greatly outnumbers that in the Federal Government. There is general agreement that the number of computers in the private sector also will continue to grow rapidly. For example, a survey of commercial banks made in March 1962 indicated that the number of such banks with computers would more than double within the next 3 years. Electronic data processing personnel is concentrated at the present time in certain industries, particularly in firms manufacturing transportation and electrical equipment, in insurance and finance companies, and in government agencies.

## Duties

Job titles and duties in the computer occupations are still fluid. The descriptions of duties which follow pertain to certain major clerical jobs in computer systems used for payroll processing, sales analysis, inventory controls, billing, and other office records. They do not cover jobs in systems used in connection with controlling factory production or in technical and scientific work, nor do they cover all the occupations necessary to the operation of a computer system. For example, data to be processed on the computer may be on punched cards prepared by keypunch operators, an occupation discussed in a previous section.<sup>5</sup> In some systems the data are on paper tapes prepared by typists or by bookkeeping or adding machine operators working with special perforating equipment. The duties of these workers are essentially the same as those of workers who use ordinary typewriters or bookkeeping or adding machines. In addition to the data to be processed, a computer's input also includes the step-by-step instructions prepared by a programmer. Programmer jobs often are considered professional<sup>6</sup> and so are not covered in this bulletin.

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<sup>5</sup> See p. 40.

<sup>6</sup> See Women's Bureau publication "Job Horizons for College Women in the 1960's."

**Coding Clerk.**—Data are converted by these clerks into codes for use in computer processing. The coder must recognize omissions and errors in the data to be coded, make corrections, and assign codes according to a predetermined system. In some cases, such as coding of checks for optical scanners, the process is more simple. Clerks who do this work use a data encoding machine, and often are called *document encoders*.

Coding for a computer requires extreme accuracy, and an ability to assimilate, retain, and apply a large amount of information. The work is repetitive.

**Peripheral Equipment Operator.**—These operators run auxiliary units in the computer system. These units include converters which transfer data from cards or paper tapes to magnetic tapes, and printers which translate the computer's output into words and numbers. Peripheral equipment operators may wire a fairly simple plug-board, although the equipment requiring manually wired boards is becoming less prevalent. These operators should be able to identify cards or tapes which have been punched incorrectly. They should have a general understanding of the operation of the computer system, and must know how to interpret signals from the control panel on their equipment.

Many operators run all types of peripheral equipment used in a particular computer installation. Some units which are relatively difficult to operate, however, are run by operators who handle only that unit.

**Console Operator.**—Those responsible for controlling the Actual operation or running of the computer system are called console operators. They insure that the proper programs and data are loaded into the computer according to the time schedule provided. In some cases this requires checking the work of the peripheral equipment operators. In other cases the console operator may load peripheral units. Guided by the programmer's instructions for running the job, the console operator takes the necessary action if an error is signaled or if the computer stops. In some systems the printer is connected directly to the computer and monitored by the console operator. Console operators may have to wire plugboards, although the use of pre-wired, interchangeable plugboards is now widespread.

**Tape Librarian.**—Responsibility for classifying and storing tapes after a run and making them available again if needed is assigned to these librarians. Sometimes the console operator or peripheral equipment operator does this work along with her major duties.

## **Training and Qualifications**

Data processing jobs frequently are filled by personnel already employed in the office. Those whose jobs have been eliminated by the installation of a computer (such as tabulating or bookkeeping machine operators) and who pass an aptitude test often are considered for these openings. Some computer personnel, particularly those for complex technical jobs, are recruited from the outside.

Most employers require computer personnel to have at least a high school education for positions in data processing. College training may be required for console operators. Previous experience in computer work and aptitude for it sometimes are substituted for a part of the educational requirements. Hiring requirements may be more strict for outsiders.

Many employers, including the Federal Government, administer aptitude tests to applicants for data processing positions. Extreme accuracy, attentiveness, and the ability to follow instructions are needed in all computer occupations, and mechanical aptitude is required in some.

Equipment manufacturers have provided a major source of training to date. A number of city high schools offer courses in computer-oriented mathematics and in computer operation. Courses in data processing are also available in almost 300 colleges and universities and in more than 130 private data processing schools and business colleges. Most employees receive some on-the-job instruction. The training of peripheral equipment operators may require a few weeks; and that of console operators from 2 to 6 months or longer, although some console operator jobs are very routine and require little training.

## **Earnings and Working Conditions**

According to a private survey of computer operating personnel in over 500 companies in 1962, the average salary for beginning console operators was \$85 a week. The more experienced console operators earned from \$95 to \$105 a week, and senior console operators earned from \$115 to \$135. The average salary of peripheral equipment operators working with high-speed printers was around \$95 a week. Tape librarians averaged about \$90 a week. There were wide ranges in salaries. Employees in some occupational categories earned twice as much as others, depending on the area, the industry, and the difficulty of the job. Identical job titles were sometimes used for jobs that varied widely in the amount of skill required.

Salaries of computer personnel in the Federal Government are roughly comparable with those in private industry. The entrance

salary for trainee console operators in late 1964 was \$5,000 a year (\$96 a week). Inexperienced peripheral equipment operators started at \$3,985 a year (\$76.50 a week).

Experienced operating personnel may be assigned to operate more complex equipment. Some may be promoted to supervisory positions. Console operators who develop an understanding of programing sometimes are trained for programmer positions.

Operators of electronic computer systems generally work the same number of weekly hours and enjoy the same vacations, holidays, and fringe benefits as other office employees. Many console and peripheral equipment operators work on a swing shift or night shift. Tape librarians usually work only during the daytime.

## Chapter III

# GENERAL SURVEY OF THE CLERICAL FIELD

Today more women—over 7 million of them—find employment in clerical jobs than in any other group of occupations. They outnumber women service workers by more than 1 million and women operatives by more than 3½ million.

### What Jobs Do Women Hold?

Although women are found in every type of clerical work, almost two-thirds of them are concentrated in seven occupations. Out of every 100 women clerical workers in 1960, 27 were secretaries or stenographers and 8 were typists. Another 12 were bookkeepers. Six were employed as cashiers and five as telephone operators.<sup>1</sup> Office machine operators accounted for another 4 of the 100. The remaining 38 women of the 100 were employed in a great variety of clerical jobs. (See table 4.)

### Where Do They Work?

A look at the industries in which women clerical workers are employed shows that 20 out of 100 of these women in 1960 were employed in the offices of manufacturing plants, doing the clerical work necessary to the production of aircraft, textiles, soda crackers, and the whole array of manufactured goods. Almost as many, 18 out of 100, were in wholesale or retail trade. Another 16 were in offices that offered medical, educational, legal, or other professional services. Finance and insurance offices employed 14 out of the 100. Local, State, and Federal governments employed another 11. In all, these five major industries offered employment to about 80 out of every 100

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<sup>1</sup> For information on clerical jobs in the telephone industry, see Women's Bureau publication "Women Telephone Workers and Changing Technology."

TABLE 4.—*Leading clerical occupations for women, 1960*

| 1960 rank | Occupation  | Number employed 1960 | Percent increase 1950 to 1960 |
|-----------|---|----------------------|-------------------------------|
| 1         | Secretaries and stenographers.....                | 1, 681, 906          | 43                            |
| 2         | Bookkeepers.....                                  | 764, 054             | 37                            |
| 3         | Typists.....                                      | 496, 735             | 49                            |
| 4         | Cashiers.....                                     | 367, 954             | 100                           |
| 5         | Telephone operators.....                          | 341, 797             | ( <sup>1</sup> )              |
| 6         | Office machine operators.....                     | 227, 849             | 95                            |
| 7         | Receptionists.....                                | 131, 142             | 128                           |
| 8         | File clerks.....                                  | 112, 323             | 23                            |
| 9         | Bank tellers.....                                 | 89, 465              | 211                           |
| 10        | Attendants, physicians' and dentists' offices.... | 68, 944              | 77                            |
| 11        | Payroll and timekeeping clerks.....               | 63, 681              | 125                           |
| 12        | Stock clerks and storekeepers.....                | 48, 718              | 100                           |
| 13        | Postal clerks.....                                | 38, 210              | 70                            |

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

Source: U.S. Census of Population: 1960, U.S. Summary, Detailed Characteristics, table 202.

women clerical workers. The rest were working in a variety of industries, including public utilities, business services, and recreation.

About 80 out of 100 women employed as clerical workers in 1960 worked for a wage or salary in private industry. About 17 were employed by the government. The rest were unpaid family workers or were self-employed.

The widespread availability of clerical jobs throughout the country is one of the advantages of clerical work. Again, however, there is a concentration. The Northeast and North-Central regions together provided about three-fifths of all clerical employment in 1960, almost equally divided between them. Of the remaining two-fifths, the South employed half again as many as the West. There are clerical jobs in suburban and rural as well as urban areas. Nationwide, 85 percent of the clerical workers were employed in urban areas. More than half the clerical workers who lived in the suburbs also worked there.

### **Ratios of Men and Women in Clerical Jobs**

Women hold two-thirds of all the clerical jobs. Some clerical occupations are filled almost entirely by women, while others employ but few women. Ninety-five percent or more of all secretaries, stenographers, typists, receptionists, attendants in physicians' or den-

tists' offices, and telephone operators are women. Other occupations predominantly filled by women include file clerk, bookkeeper, cashier, library attendant and assistant, office machine operator, bank teller, and payroll and timekeeping clerk. (See chart B.)

The ratio of the number of women workers to the number of men workers in office occupations is constantly changing. For example, men outnumbered women as bank tellers in 1950. Over the following decade, however, an average increase of 211 percent in the number of women tellers contrasted with an average increase of 12 percent for men tellers. As a result, the ratio in 1960 was 9 women to 4 men. Men also outnumbered women as payroll and timekeeping clerks in 1950, but the 1960 ratio was 3 women to 2 men. Other clerical occupations in which the number of women has been increasing at a more rapid rate than the number of men include insurance adjusters, examiners, and investigators; stock clerks and storekeepers; and ticket, station, and express agents. On the other hand, although the number of women office machine operators increased 95 percent between 1950 and 1960, the increase in men's employment in this occupation was almost 217 percent.

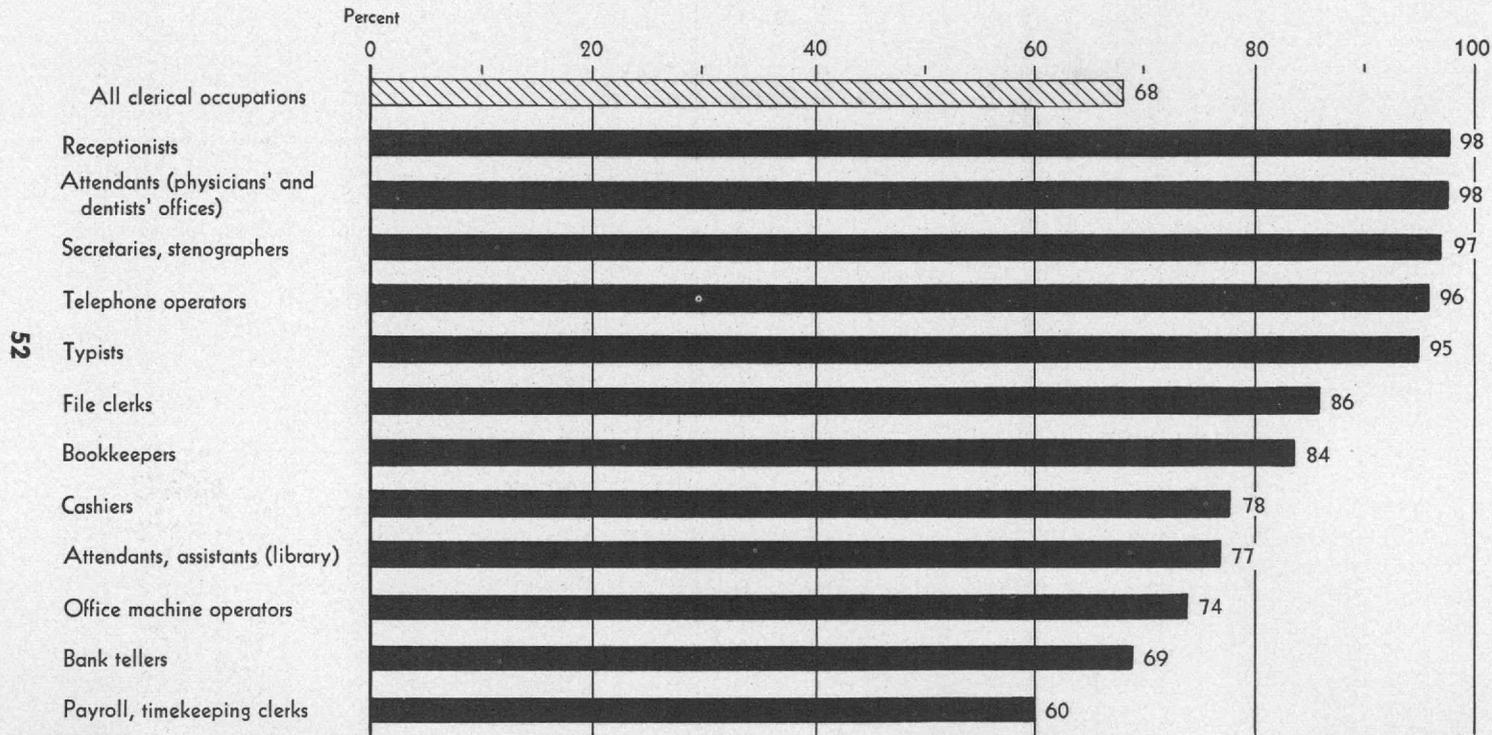
## What Training Is Needed?

As today's offices undergo rapid technological development, educational and training requirements are rising. The narrowing of opportunities for unskilled workers, coupled with an increasing demand for workers with the broad education and training that promote flexibility, is encouraging growing numbers of students to continue their education beyond high school. Some clerical positions now require post high school training or even college work. This is true not only for trainee jobs that lead to higher level administrative or professional positions, but also for an increasing number of other clerical jobs. As automation and other technological advances eliminate a number of low-skill jobs, continuing education, retraining, and refresher courses also assume growing importance.

Many public schools offer training in business subjects which, together with English, mathematics, and other academic courses, provide the basic skills and education needed for clerical work. A number of schools carry on work-study programs in cooperation with employers in the community. Students in these programs may spend half a day in school studying academic and business subjects and work the other half day in offices. A survey made by the Department of Labor in 1963 showed that high school commercial and vocational courses were the largest single source of training for women—representing over half of all the training of women.

CHART B

Clerical Occupations in Which Women Comprised a Majority of All Workers, 1960



Source: U.S. Department of Commerce, Bureau of the Census: 1960 Census of Population.

The Vocational Education Act of 1963 for the first time authorized the inclusion of business courses in the vocational education program supported by the Federal Government. Under the act, Federal funds may be authorized for programs in the vocational education departments of regular high schools, in specialized high schools used principally for vocational education, in technical or vocational schools providing training to those out of high school who are studying full time to prepare for jobs, and to colleges and universities which provide vocational education in at least five different occupational fields.

Approximately 250,000 students are enrolled each year in some 1,300 private business schools, and a number of other students attend 2- or 4-year colleges. About 215 business schools are accredited by the Accrediting Commission for Business Schools, which is recognized by the U.S. Office of Education as an accrediting agency. A survey conducted 4 years ago of some 250 colleges revealed that courses for office workers were listed by about 60 percent of them. This was a smaller proportion, however, than was true 30 years ago.

Training in a wide range of clerical work is also available through correspondence courses. The Office of Education has recognized the National Home Study Council as an accrediting agency for correspondence schools.



FIGURE 9. Some girls train for office jobs in private business schools or colleges.

Business machine manufacturers offer some instruction on their equipment. Employers also often provide on-the-job training, but the majority of clerical workers learn their jobs through formal instruction. Training in certain clerical occupations, including general office clerk, stenographer, and typist, is available in many localities under the Manpower Development Training Act and the Area Redevelopment Act.

### **What About Aptitudes?**

The rapid changes underway in clerical work today put a premium on adaptability and general aptitude. Some clerical jobs, as we have seen in previous sections, do not offer the opportunities they did formerly. Duties and requirements in other clerical occupations are changing. New jobs are opening up. All these develop-

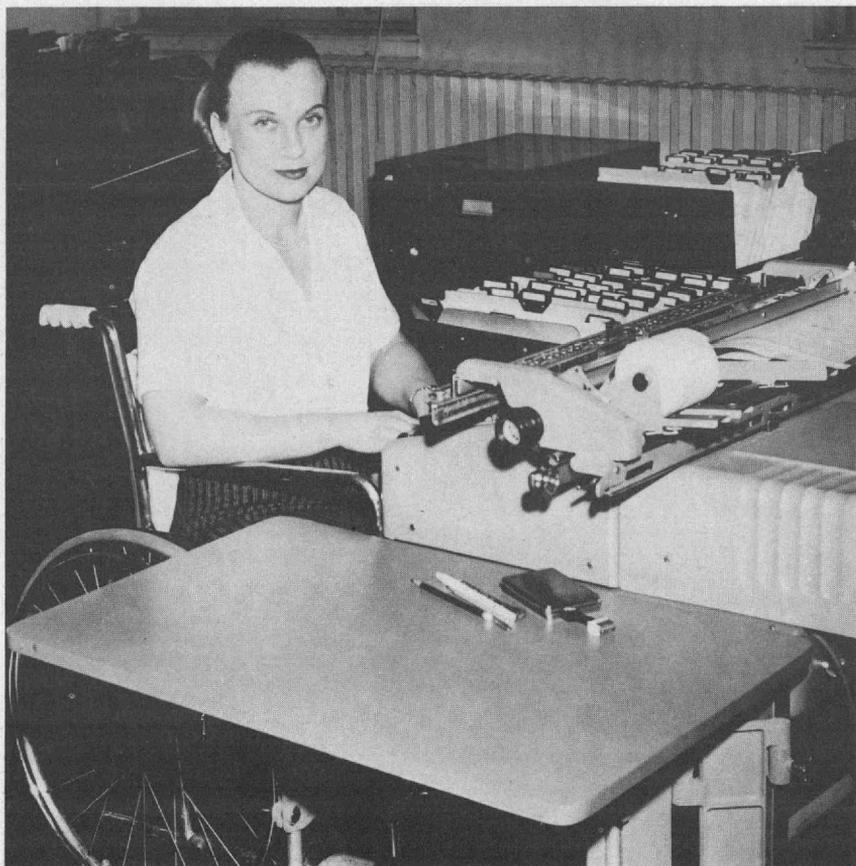


FIGURE 10. Many handicapped workers have successful careers in offices.

ments require flexibility—a willingness to make the adjustments necessary, whether it is an upgrading of skills, the acquisition of new skills, or a willingness to accept transfer to another department, even to another city.

Aptitude and interest tests can be very helpful in matching applicants with jobs. Aptitude tests for clerical occupations are available at many local public employment offices. These tests are given without charge, as a public service.

Manual and finger dexterity and good vision are essential for most types of office work. Some employers routinely require a physical examination. A physical handicap, however, need not be a barrier to employment if it does not interfere with attendance or job performance. Promptness, neatness, and a pleasant and friendly manner usually are specified requirements for clerical workers. Good judgment, initiative, discretion, and the ability to make decisions are important in the more responsible positions.

## **What About Earnings?**

Earnings of clerical workers vary with the responsibility or skill level of the job; length of the workweek; length of service and experience; and the location, size, and type of business of the employer. Office salaries tend to be highest in metropolitan areas and in the western part of the country. Industrywise, the highest salaries for most office occupations are found in public utilities. Salaries tend to be somewhat higher in manufacturing firms than in wholesale and retail trade, finance, insurance, or real estate.

In 1962, half of the women clerical workers employed full time full year earned more than \$3,897, and half earned less. Wages of women in 16 office occupations in 212 areas in 1962-63 ranged from an average of \$56.50 a week for class C file clerks to an average of \$96.50 a week for secretaries. (See table 5.) Within each occupation, however, there was a wide salary range. For example, some file clerks earned less than \$40 a week, while others earned more than \$100.

Salaries for clerical workers in the Federal Government are established by grade, based on the level of skill or responsibility of the position. Each grade has a salary range. Employees whose work is acceptable are given periodic increases until the top salary for the grade is reached.

Most inexperienced clerical workers enter Federal service through examination at the grade 2 or 3 level. Some clerical workers, how-

TABLE 5.—Average weekly earnings of women in selected office occupations in 212 metropolitan areas, 1962-63

| Occupations                                      | Weekly earnings |
|--|-----------------|
| Secretaries .....                                | \$96. 50        |
| Accounting clerks, class A .....                 | 91. 00          |
| Stenographers, senior .....                      | 89. 00          |
| Tabulating operators, class B .....              | 86. 00          |
| Key punch operators, class A .....               | 82. 50          |
| Bookkeeping machine operators, class A .....     | 82. 00          |
| Payroll clerks .....                             | 81. 00          |
| Comptometer operators .....                      | 78. 00          |
| Stenographers, general .....                     | 77. 50          |
| Typists, class A .....                           | 77. 50          |
| File clerks, class A .....                       | 77. 50          |
| Switchboard operators .....                      | 73. 00          |
| Order clerks .....                               | 73. 00          |
| Switchboard operator-receptionists .....         | 72. 50          |
| Accounting clerks, class B .....                 | 72. 00          |
| Billers, machine .....                           | 71. 50          |
| Key punch operators, class B .....               | 71. 50          |
| Transcribing machine operators, general .....    | 71. 50          |
| Tabulating machine operators, class C .....      | 70. 50          |
| Duplicating machine operators <sup>1</sup> ..... | 68. 50          |
| Bookkeeping machine operators, class B .....     | 66. 50          |
| Billers (bookkeeping machine) .....              | 66. 50          |
| Typists, class B .....                           | 65. 00          |
| File clerks, class B .....                       | 63. 00          |
| Office girls .....                               | 60. 50          |
| File clerks, class C .....                       | 56. 50          |

<sup>1</sup> Includes Mimeograph or Ditto machine operators.

Source: U.S. Department of Labor, Bureau of Labor Statistics, Wages and Related Benefits, Part II: Metropolitan Areas, United States and Regional Summaries, 1962-63. Bull. No. 1345-83.

ever, enter at grade 1 and a few at grade 4. Promotion is made to higher grades on the basis of increased skills and superior performance. Table 6 shows beginning and top salaries of the first six grades.

Salary levels of clerical workers in the United States increased 2.6 percent during the year ending February 1963, according to the annual nationwide salary survey made by the Bureau of Labor Statistics.

Many clerical occupations offer good opportunities for advancement. Some of the better paid positions require a knowledge of the company, and often are filled by promotion from within. Skills, personal qualifications, and seniority within an establishment are important considerations in selecting employees for promotion.

TABLE 6.—*Minimum and maximum salaries for Federal clerical workers, grades 1 through 6, effective July 1964*

| Grade | Annual salary range |          | Approximate weekly equivalent |          |
|-------|---------------------|----------|-------------------------------|----------|
|       | Minimum             | Maximum  | Minimum                       | Maximum  |
| 1     | \$3, 385            | \$4, 420 | \$65. 00                      | \$85. 00 |
| 2     | 3, 680              | 4, 805   | 71. 00                        | 92. 50   |
| 3     | 4, 005              | 5, 220   | 77. 00                        | 100. 50  |
| 4     | 4, 480              | 5, 830   | 83. 00                        | 112. 00  |
| 5     | 5, 000              | 6, 485   | 96. 00                        | 124. 50  |
| 6     | 5, 505              | 7, 170   | 106. 00                       | 138. 00  |

Source: Government Employees' Salary Reform Act of 1964.

## What About Working Conditions?

Clerical workers in private industry generally have a 5-day workweek of 35 to 40 hours. Three-fifths of the office workers surveyed in the nationwide study of metropolitan areas made by the Department of Labor in 1962-63 were scheduled to work a 40-hour week. The 40-hour workweek was more prevalent in the West than in other regions. The average workweek of office workers in the Northeast was 37.7 hours—nearly 2 hours less than the average for any other region. Federal Government employees work a 40-hour 5-day week.

Office workers generally receive at least 1 week of paid vacation after 1 year of service with their firm. Additional years of service bring longer paid vacations, ranging up to 4 or more weeks. Federal Government employees receive 13 working days of paid vacation each year during their first 3 years of service; 20 days after 3 but less than 15 years; and 26 days for 15 years or more.

Almost all clerical employees in large cities receive six or more paid holidays a year. A few, most of them in the Northeast, receive 11 or more holidays. Shorter vacations and fewer holidays tend to prevail in smaller communities than in metropolitan areas. Hospitalization, surgical, and medical insurance; life insurance; and sick benefits are generally provided, as are pension plans which supplement benefits paid under the Federal social security programs.

The words "office work" evoke a picture of clean work in pleasant surroundings. This picture is generally valid. Mechanization, however, has had mixed effects on working conditions. In some cases the introduction of machines has spurred a modernization

of the office, with careful attention given to furnishings, color, and air conditioning. Mechanization, however, in many cases has brought a factory atmosphere into the office. The pressure for speed, the noise, and the close attention to repetitive work may produce a strain on the health of the worker. Eyestrain has always been an occupational hazard in office work, but today, the importance of adequate lighting is increasingly recognized.

## **Job Security**

The unemployment rate for clerical workers is generally below the rate for many other occupations, including service workers and operatives. In 1963 only professional and technical workers; farmers; and the manager, officer, and proprietary group had lower unemployment rates than office workers. The unemployment rate for women clerical employees in that year was 4.2 percent, compared with a rate that averaged 5.4 percent for experienced workers in all occupational groups. There are of course variations in the rate from one clerical occupation to another. Secretaries, stenographers, and typists enjoy greater security than other office workers.

## **Labor Unions**

Union membership is held by a number of office workers, particularly by those in large organizations. Nearly 140,000 women held membership in the Communications Workers of America (AFL-CIO) in 1962. Of these, the great majority were operators and other clerical workers. The Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees (AFL-CIO) and the Office Employees International Union (AFL-CIO) reported 48,000 and 40,000 women workers, respectively, in 1962.<sup>2</sup> The Retail Clerks International Association (AFL-CIO) and the Retail, Wholesale and Department Store Union (AFL-CIO) also include clerical workers in some private industries.

Federal Government workers may join the American Federation of Government Employees (AFL-CIO) or other unions. Membership in the American Federation of State, County and Municipal Employees (AFL-CIO) is open to workers in State, county, and local governments. Clerical workers in post offices have access to several unions for postal workers. The United Federation of Postal Clerks (AFL-CIO) included over 14,500 women in 1962.<sup>3</sup>

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<sup>2</sup> Bureau of Labor Statistics publication "Directory of National and International Labor Unions in the United States, 1963."

<sup>3</sup> *Ibid.*

In addition, some office workers are members of the same union that bargains for production, sales, service, or other nonoffice employees of their firm. Still other clerical workers belong to independent organizations which represent only the workers in a single establishment and are not affiliated with a national union.



## Appendix A

### A VIEW OF THE EFFECT OF AUTOMATION ON CLERICAL WORK

Electronic data processing is concentrated at the present time in certain industries, particularly in firms manufacturing transportation and electrical equipment, in insurance and finance companies, and in government agencies, chiefly Federal. The current leadership in computer installations is based on a number of factors, including the presence of large-volume, routine, paper processing operations, and resources sufficient to provide the necessary risk capital and the required technical knowledge. Despite the current concentration of computer systems, EDP is presently in use in all major branches of manufacturing and in many nonmanufacturing industries. The extension of electronic data processing into every industry and into smaller offices is anticipated as computer technology develops.

It is difficult at this time to gauge the full effects of computer systems on clerical jobs. EDP is still very new. There is little doubt, however, that any development which represents such a radical departure from the customary way of processing data will have an appreciable effect on clerical tasks, and on the distribution and grouping of clerical jobs within an office. Early experience with computer installations indicates that the following changes may be expected in offices which shift to electronic data processing.

#### Centralization of Information Processing

To understand the effect that the installation of a computer system has on jobs, it is useful to look first at its effect on office structure. The efficient use of automated equipment—whether computers, transcribing machines, or copying devices—favors centralization of information processing. In general, the more expensive the equipment, the greater is the incentive to centralize. For example, the installation of transcribing and copying machines in a large establishment creates service centers within divisions, while computer installation

often moves the processing of data on such items as inventories, sales, and wages from the old-line divisions to the computer area. If the automating company is a farflung organization, the move to centralize may close or cut down the functions of local offices, and consolidate clerical operations in regional offices or even in one national center.

### **Fewer Levels of Supervision**

The other major structural change in some automated offices has been a decrease in the number of supervisors and in the levels of supervision. When clerical operations are transferred to computers and office units are consolidated, supervisors are displaced along with the workers they supervised. Although a limited number of new supervisory jobs are created in the computer area, they do not equal in number the supervisory positions eliminated and they may require different skills and abilities.

### **Changes in Clerical Duties**

The effects of electronic data processing go beyond the office structure or framework in which clerical jobs are located, and reach down to the tasks of many office workers. The fundamental changes that occur in clerical tasks are rooted in the shift of responsibility for processing data. In offices without computer systems, the clerical staff, aided by a wide range of office machines, carries out the complete data processing operation. In automated offices clerical duties revolve around "feed-in" to a computer. Other changes in clerical tasks result from the detailed studies (systems analysis) of clerical duties, office procedures, and workflow which usually precede the installation of a computer. Even though management decides not to install the computer system, such studies often lead to greater office efficiency, with less handling of records.

### **Upgrading vs. Downgrading**

Whether EDP upgrades more jobs than it downgrades is still not clear. Many of the operations created—for example, sorting, batching, and machine tending—are as standardized and routine as the jobs eliminated. The degree of initiative required often is reduced along with the variety of duties. The computer preempts responsibility for setting priorities and determining the speed of operations. It also controls the format, the quantity, and the quality of the output. All these are factors which tend to downgrade jobs. Moreover, as additional skills are built into the machine, growing numbers of workers are denied the kind of on-the-job experience

which formerly increased their value to the firm and sometimes led to advancement. On the other hand, EDP offers opportunities for some clerical workers to move into planning, programming, and new supervisory positions. Those selected for the new jobs, however, often are college-trained men with company experience in accounting and related work.

### **Jobs Most Affected**

Although most clerical occupations are affected by the transfer of data processing to computers, some are affected more than others. Among those most affected are the clerks who do the sorting, routing, classifying, filing, posting, checking, and maintaining of records. Tabulating machine operators also are affected by the transfer of data processing to computers, although the effect on the workers in this group is somewhat mitigated by the fact that skills in this occupation sometimes are transferable to computer occupations. Key punch operators are affected by the installation of the more advanced computers using devices which eliminate the need for punched cards. The initial result of electronic data processing, however, has been an increased demand for key punch operators. Other occupations affected by automation include bookkeeping machine operators and some occupations involving computing and statistical work.

In general terms, the unskilled, routine jobs are most affected by EDP. The clerical occupations which are least affected are those which involve public relations. Between these two groups is a large group of semiskilled workers who will be affected according to their particular skills, the way in which computer technology develops, the type of industry in which they are employed, and their job status—whether full time or part time, year round or seasonal. Peak loads are scarcely more demanding than normal loads to a computer that can put out, for example, 3,500 characters a second.

### **EDP Also Creates Jobs**

Computers also generate clerical jobs. Some of the jobs created are directly related to the operation of the computer. In other cases, installation of EDP leads to expanded reporting and control systems which require the services of clerical workers. A variety of jobs—some of them clerical—also are generated in the plants making computers, and in the service centers, consulting firms, and other business services connected with the use of computers. New industries, such as aerospace, generated others; for without the use of computers their needs for practically instantaneous calculations could not be met.

## Problems of Adjustment

The introduction of electronic data processing requires considerable adjustment on the part of clerical employees.<sup>1</sup> It already has resulted in many transfers of personnel to other jobs, to other divisions, or even to other regions. A number of workers who have been transferred had "identified" with their pre-computer jobs. Some had exercised a degree of responsibility and initiative that are not theirs in the work assigned to them in the computer system. The previous job may have offered variety, while the demands of the new job may be primarily for accuracy, speed, patience, unrelaxed attention, and a sense of responsibility for costly equipment. The former job may have been "people oriented"; the new job is "machine oriented." Some transfers to the swing shift or night shift have been made from the day shift that is traditional for clerical employees. The changeover to computers generally is accompanied by uneasiness among employees over the effects on their duties and by fears of unemployment. To date few clerical employees have lost their jobs, since the period required for computer installation has been sufficiently long to permit normal attrition to forestall discharges.

## Smoothing the Transition to Automation

Studies of offices which have introduced EDP have revealed a number of ways in which the impact on office workers can be lessened. Basic to them all is planning. Initiative is required on the part of the employer and on the part of the employee. In offices where a union is a recognized bargaining agent for the employees, the union may play a significant role. The adjustment to EDP is facilitated if management informs employees of the changeover well in advance; if it inventories skills and aptitudes; if it offers counseling, guidance, and retraining. It is important for conversion to be scheduled over a period of time sufficient not only for retraining and reassigning employees, but also for using turnover to effect reduction in office personnel. The employee can enhance her prospects by improving and expanding her skills, taking advantage of training opportunities, and demonstrating a flexible attitude.

Although the impact of automation can be cushioned, the experiences of offices which already have introduced electronic data processing would indicate that EDP will bring substantial cuts in personnel in some offices and will slow the growth in the total number of clerical jobs relative to the amount of clerical work to be done.

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<sup>1</sup> Arlen Gray, "Problems of Adjustment in the Automated Office." *In Personnel*, July-August, 1964, American Management Association, Inc.

## Appendix B

### REFERENCES

Source material for this report includes many of the following references, which are suggested for further reading.

Persons interested in the occupations covered in this report, or in other kinds of clerical work, will want to consult a number of additional reports in this field. The following Government publications<sup>1</sup> provide a great deal of information about office work. Most of them are available in public libraries.

U.S. Department of Labor, Washington, D.C. 20210

Bureau of Employment Security

Impact of Automation on Supervisory and Managerial Occupations, May 29, 1963.

Bureau of Labor Statistics

Adjustments to the Introduction of Office Automation. Bull. No. 1276, May 1960. 86 pp. 50 cents.

Comparative Job Performance by Age: Office Workers. Bull. No. 1273, 1960. 35 pp. 30 cents.

Directory of National and International Labor Unions in the United States, 1963. Bull. No. 1395. 93 pp. 50 cents.

Impact of Automation (a collection of 20 articles about technological change). Bull. No. 1287, November 1960. 114 pp. 60 cents.

Impact of Office Automation in the Internal Revenue Service. Bull. No. 1364, July 1963. 74 pp. 45 cents.

Occupational Outlook Handbook: Career Information for Use in Guidance. Bull. No. 1375, 1963-64 ed. 792 pp. \$4.75. Reprints on individual occupations, 5-10 cents.

Occupational Outlook Quarterly: A supplement to the Occupational Outlook Handbook. Subscription price \$2.50 for 2 years (8 issues), 35 cents per copy.

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<sup>1</sup> Government publications can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402, at prices listed, with a discount of 25 percent on orders of 100 copies or more. Publications for which no price is listed may be obtained from the designated agency.

U.S. Department of Labor—Continued

Bureau of Labor Statistics—Continued

Wages and Related Benefits, Bull. No. 1345-83, Part I: 82 Labor Markets 1962-63. January 1964. 116 pp. 60 cents.

Wages and Related Benefits, Bull. No. 1345-83, Part II: Metropolitan Areas, United States and Regional Summaries, 1962-63. June 1964. 92 pp. 50 cents.

Office of Manpower, Automation, and Training

Reading Machines for Data Processing: Their Prospective Employment Effects. Manpower Report No. 7. June 1963. 12 pp.

Women's Bureau

Future Jobs for High School Girls. Pamphlet 7. 1959. 64 pp. 40 cents.

Job Horizons for College Women in the 1960's. Bull. 288. 1964. 78 pp. 30 cents.

Negro Women Workers in 1960. Bull. 287. 1964. 55 pp. 30 cents.

Part-Time Employment for Women. Bull. 273. 1960. 53 pp. 30 cents.

Suggestions to Women and Girls on Training for Future Employment. Leaflet 33. 1960. 12 pp. 10 cents.

Training Opportunities for Women and Girls. Bull. 274. 1960. 64 pp. 30 cents.

Women in the Federal Service 1939-1959. Pamphlet 4, Revised 1962. 21 pp. 15 cents.

Women Telephone Workers and Changing Technology. Bull. 286. 1963. 46 pp. 25 cents.

1962 Handbook on Women Workers. Bull. 285. 1963. 202 pp. 50 cents.

U.S. Department of Health, Education, and Welfare, Washington, D.C. 20201

The Trained Dental Assistant. PHS No. 1004. 1963. 8 pp. 15 cents.

## Appendix C

### ASSOCIATIONS

- American Association of Medical Assistants, Inc.  
510 North Dearborn St.  
Chicago, Ill. 60610
- American Dental Assistants Association  
410 First National Bank Bldg.  
La Porte, Ind. 46350
- Executives' Secretaries, Inc.  
340 Pine St.  
San Francisco, Calif. 94104
- Future Business Leaders of America  
1201 16th St. NW.  
Washington, D.C. 20036
- Future Secretaries Association  
1103 Grand Ave., Suite 410  
Kansas City, Mo. 64106
- National Association of Educational Secretaries  
1201 16th St. NW.  
Washington, D.C. 20036
- National Association of Legal Secretaries  
1312 Fort Worth National Bank Bldg.  
Fort Worth, Tex. 76102
- National Secretaries Association  
1103 Grand Ave., Suite 410  
Kansas City, Mo. 64106
- The National Federation of Business and Professional Women's  
Clubs, Inc.  
2012 Massachusetts Ave. NW.  
Washington, D.C. 20006

## Appendix D

### LABOR UNIONS

- American Federation of Government Employees (AFL-CIO)  
900 F St. NW.  
Washington, D.C. 20004
- American Federation of State, County and Municipal Employees  
(AFL-CIO)  
815 Mount Vernon Pl. NW.  
Washington, D.C. 20001
- Brotherhood of Railway and Steamship Clerks, Freight Handlers,  
Express and Station Employees (AFL-CIO)  
1015 Vine St.  
Cincinnati, Ohio 45202
- Communications Workers of America (AFL-CIO)  
1925 K St. NW.  
Washington, D.C. 20006
- National Federation of Federal Employees (Ind.)  
1737 H St. NW.  
Washington, D.C. 20006
- Office Employees International Union (AFL-CIO)  
1012 14th St. NW.  
Washington, D.C. 20005
- Retail Clerks International Association (AFL-CIO)  
Connecticut Ave. and De Sales St. NW.  
Washington, D.C. 20006
- Retail, Wholesale and Department Store Union (AFL-CIO)  
132 West 43d St.  
New York, N.Y. 10036
- United Federation of Postal Clerks (AFL-CIO)  
817 14th St. NW.  
Washington, D.C. 20005

## Appendix E

### ACCREDITING AGENCIES

Agencies recognized by the U.S. Office of Education as accrediting agencies for private business schools and correspondence schools:

The Accrediting Commission for Business Schools

Schools Center Building

5057 Woodward Ave.

Detroit, Mich. 48202

National Home Study Council

2000 K St. NW.

Washington, D.C. 20006

Agency recognized by the American Dental Association as the accrediting agency for dental assistant educational programs:

Council on Dental Education

222 East Superior St.

Chicago, Ill. 60611