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ABSTRACT

"Exploring Careers" is a career education resource program, published in fifteen separate booklets, for junior high school-age students. It provides information about the world of work and offers its readers a way of learning about themselves and relating that information to career choices. The publications aim to build career awareness by means of occupational narratives, evaluative questions, activities, and career games grouped in fourteen occupational clusters. This third of the fifteen booklets, "Office Occupations," presents an overview of jobs which are performed in offices--clerical, technical, and professional. Narrative accounts focus on a bank officer, a planner, and a computer programmer/systems analyst, explaining what they do and how they prepared for their careers. Exploring sections relate the skills needed for these occupations to students' personal characteristics, and learning activities such as writing reports and visiting various types of offices are suggested. A Job Facts section explains nature and places of work, training and qualifications, and other information for thirty-three office occupations, grouped in occupational clusters of clerical, computer, banking, and administrative occupations. ("Exploring Careers" is also available as a single volume of fifteen chapters.) (KC)

Exploring Careers

Office Occupations

U.S. Department of Labor
Ray Marshall, Secretary

Bureau of Labor Statistics
Janet L. Norwood, Commissioner
1979

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Preface

Exploring Careers is a career education resource for youngsters of junior high school age. It provides the kind of information about the world of work that young people need to prepare for a well-informed career choice. At the same time, it offers readers a way of learning more about themselves. The publication aims to build career awareness by means of occupational narratives, evaluative questions, activities, and career games presented in 14 occupational clusters. *Exploring Careers* emphasizes what people do on the job and how they feel about it and stresses the importance of "knowing yourself" when considering a career. It is designed for use in middle school/junior high classrooms, career resource centers, and youth programs run by community, religious, and business organizations.

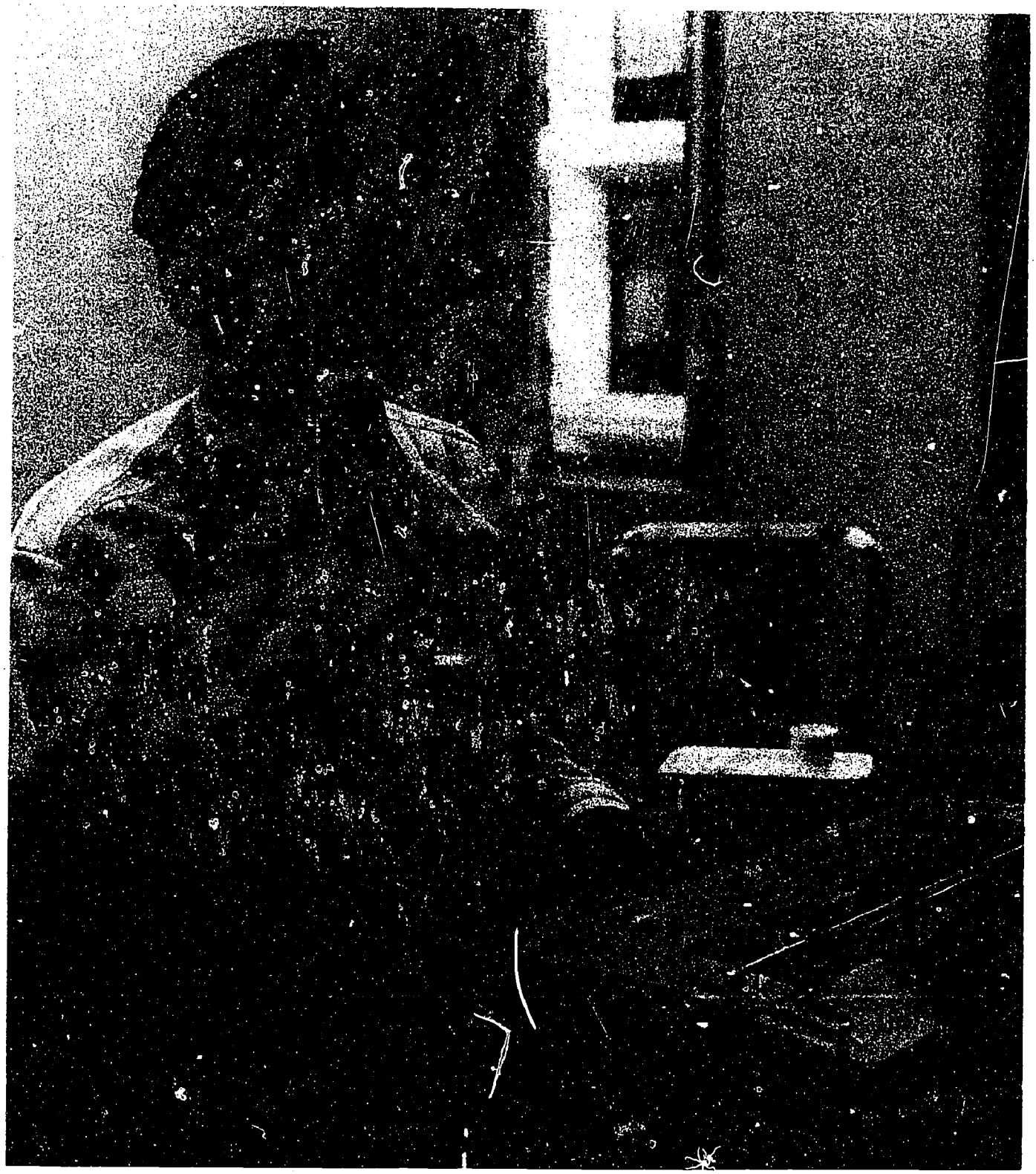
This is 1 of 15 chapters. A list of all the chapter titles appears inside the front cover.

Exploring Careers was prepared in the Bureau's Division of Occupational Outlook under the supervision of Russell B. Flanders and Neal H. Rosenthal. Max L. Carey provided general direction. Anne-Kahl supervised the planning and preparation of the publication. Members of the Division's staff who contributed sections were Lisa S. Dittich, David B. Herst, H. Philip Howard, Chester Curtis Levine, Thomas Nardone, Debra E. Rothstein, and Kathy Wilson. Gloria D. Blue, Brenda Marshall, and Beverly A. Williams assisted.

The Bureau gratefully acknowledges the cooperation of all the workers who agreed to be interviewed and photographed, the teachers and students who field tested a sample chapter, and all who shared their ideas with BLS. Many people in the counseling community offered encouragement and support. Special thanks for her generous assistance go to Cathy Cockrill, Career Education Curriculum Specialist, Fairfax County Public Schools, Fairfax, Virginia.

Although they are based on interviews with actual workers, the occupational narratives are largely fictitious.

Contents



Until the middle of the 19th century, clerical work almost always was done by men.

Danny owns a lunch truck. "Not just any old lunch wagon, but the best rolling cafeteria in the whole city!" he says. Danny sells sandwiches downtown, in the heart of the steel and glass jungle inhabited by the city's office workers. Every Monday through Friday at 11 o'clock in the morning, Danny parks his truck in front of the Benton Building. After loading his special cart with food, he pushes it through the building, selling sandwiches and drinks to the workers there.

Does Danny ever get tired of his job? "No way! You see, people fascinate me. I like talking to them, learning their names, finding out what they do, how many kids they have, everything. Even though I sometimes have to rush to finish my run on schedule, I always manage to find a few minutes to chat. I've been making this run for a couple of years, and I've gotten to know some of these people very well.

"It amazes me how many different kinds of work people do. Now you take this building, for instance. Just 4 floors, no more than 5 or 6 big companies altogether. But I'll bet if you made a list you'd count over 50 different jobs in the Benton Building. All office jobs, but each one different. Some of them I wouldn't mind having myself; some I wouldn't take if they paid me twice as much as I earn now. But even if I wouldn't want their jobs, I never get tired of talking to people and finding out what they do. Why don't you come with me on my run and see what I mean!"

The Commerce National Bank

Danny loads his cart with sandwiches, sodas, pastries, and fruit until it appears ready to spill over. Pushing it towards the double glass doors, he parks it in the lobby next to the Commerce National Bank.

"I've got lots of good customers in this bank," explains Danny as workers leave their desks and crowd around his cart. "Take these two, Burt Lansing and Paula Robinson. They're *tellers*. They act as the bank's cashiers. They take money from people who want to deposit it here. They cash checks and give money to customers who want to withdraw it from their accounts. They handle a lot of money every day, so they've got to be very careful not to make mistakes and not to leave their stations unguarded. If money is missing they might be held responsible.

"Paula used to work in a smaller bank than this one. She and the other tellers handled everything—making deposits and withdrawals, selling traveler's checks, writing money orders, taking Christmas club payments. In this big bank, each teller specializes. Paula misses the variety, but her chances of getting ahead are better here. She and Burt both take courses in the evenings to become *loan officers*.

"Burt says the best part of the job is dealing with the public. He likes people. But sometimes it's quite a challenge to be courteous to an angry, unreasonable customer. Believe me, I know! Burt has unlimited patience, though, and he makes a good teller.

"Most of the people who work in the bank are tellers, like Burt and Paula, or *officers*, or *clerks*. See that fellow in the grey suit? His name's Manuel Ortez. He's a *commercial loan officer*. When business people want to borrow money to build a new store, to buy equipment, or for some other project, he investigates to see whether they'll be able to pay the loan back. If their loan is approved, he discusses with them any problems they might have paying it back. While Manuel handles business loans, other officers specialize in loans to farmers, to people who want to buy land, or to people who want to improve their homes. Manuel is lucky, though, because he has customers all over the country, so he gets to travel more than the others.

"Over there is the woman who hired Manuel, Catherine Wallace. She's a *personnel officer*, and she's been with the bank a long time. She interviews people when there are openings, and hires them if she thinks they'd do a good job at Commerce National. Occasionally she gives an applicant a typing or math skills test. She knows the organization and the personnel policies of this bank backwards and forwards. She knows the laws against discrimination in hiring and promotion. And she knows how to deal with people. That's very important in her work.

"You know, when you walk into a bank like this one, you never see most of the people who make it tick, the *clerks*. They work behind the scenes, processing thou-

The never-ending flow of paperwork in business creates clerical jobs—like this one in a bank.

A pleasant personality is important for receptionists, who represent their employers to the outside world.

sands of little pieces of paper every day. Each of those pieces of paper represents money somebody paid to somebody else, and the bank has to record every one of those payments correctly. Some of the clerks have fancy electronic machines to help them. This fellow, Andy Hayes, for example, is a *reading-sorting clerk.* He operates a machine that prints codes on checks in a special ink so that another machine can read them. Then Andy's machine sorts the checks by the bank they came from. The woman next to him, Christy Ross, is an *interest clerk.* She uses the bank's computer to keep track of how much interest people owe the bank for loans. There are so many other clerks in this bank, it boggles the mind!"

All the time he talks, Danny takes coins and bills and gives change. When everyone has paid, Danny rolls the cart to an elevator and punches the button. "Next stop, the second floor!" he exclaims as he pushes the cart into the open elevator car. Arriving at the next floor, he rolls his cart down the paneled, carpeted hallway toward a large door labeled "All-Risk Insurance."

The All-Risk Insurance Company

"Have you ever visited an insurance office?" asks Danny as he rolls his cart through the doorway into a room with a desk and a leather couch. "Well, step right into the reception area, where you will be greeted by my friend, the *receptionist*! His name is Jim Rodgers," he explains, indicating the man behind the desk. "When visitors come to the office, Jim greets them, asks them whom they came to see, and sends them to the right room. He also answers the phone and switches calls to the proper people. Now and then he helps with typing, too. You find a receptionist in just about every office you walk into. But none of them is as friendly and helpful as Jim!"

Danny smiles as Jim announces his arrival over the intercom. Soon, men and women wander out of the rear of the office and gather around Danny's cart. Once again he takes money and makes change, talking all the while.

"I've already told you about some of the clerical workers who keep things moving at Commerce National. Well, an insurance company needs clerical workers, too. In fact, you'll find clerks wherever you find paperwork or number work, which is just about everywhere! Let me tell you what the clerical workers here at All-Risk do. Those folks standing over there in a group are good examples. The tall fellow is Jeff Graham, a *typist.* He spends most of his time at an electric typewriter, typing forms for insurance policies or claims. That guy can type up a storm—better than 60 words a minute. And he never gets distracted by all the hubbub around him. He just types away, fast and clean.

"The other guy, McCoy Johnson, is a *file clerk.* Now you may think filing is easy, but not in a place like this. They keep information on thousands of people. To organize all that information so it can be found easily, they have a special system. McCoy works like a librarian, and he has to know that system. When someone needs a file, he finds it. He keeps track of who is using it, and puts it back when they're done. And he has to make sure he puts it back in the right place, because otherwise a lot of time could be lost looking for it the next time it's needed.

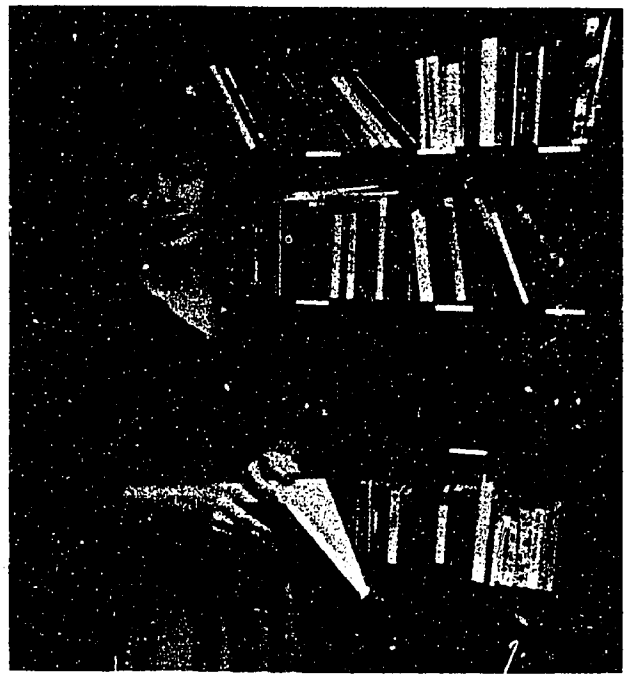
"That lady talking with Jeff and McCoy is Linda Inouma. She's a *secretary*, and a hard worker, from what I hear. She answers her boss' phone calls, takes dictation, types letters and reports that her boss writes, and takes care of files. I don't know where her boss would be without Linda; a good secretary is awfully important.

"The woman with the cheese sandwich in her hand is Donna Murphy. Donna is a *statistical clerk.* "Statistical" means working with numbers—in this case numbers about people. You see, Donna assists that woman in the white blouse, Betty Fong. Betty is one of All-Risk's *actuaries.* She helps figure out what All-Risk's rates should be.

"It works this way: I want insurance for my truck in case I have an accident. All-Risk decides to insure me, for a price. The greater my chances of having an accident, the higher the price. Right? Right!

"But how do they know my chances of having a wreck? They don't. But they can come up with a pretty

Precise and orderly work habits are a "must" for bookkeepers.



The profession of legal assistant, or paralegal, is quite new.

good estimate by looking at the accident record of lunch truckdrivers as a group. Putting together that information is Betty's job.

"The person who actually decides whether I'm a good risk—which is a short way of saying I'm worth insuring—is the *underwriter.* All-Risk has many underwriters, including that man in the pin-striped suit, Pat Wash. Pat specializes in automobile insurance, while others handle life or health insurance. They all act a bit like private investigators, finding out whether a person or a business is a good risk.

"My neighbor, Judy Schwarz, is a *claim adjuster* for All-Risk. If something happens to you and you want to collect money on your policy, she's the one to see. Let's say you have a policy that protects your home from damage from natural causes. A big windstorm comes and blows your tree over. The tree falls on the roof of your back porch and puts a hole in it. After you call the company, Judy comes out and looks at the damage. First she sees whether the damage is covered under your policy. If so, she estimates the cost of fixing the hole and writes you a check, or maybe arranges to have it fixed.

"Judy doesn't work in this office. She works in one of the many adjustment centers throughout the city. But she actually spends most of her time out checking on claims.

"Of course, not all claims are so simple to adjust. Two years ago, a car hit my truck down on Main Street. The other guy said I ran the red light, but that wasn't true. Since we couldn't agree on who should pay for repairs, the case went to court. My claim adjuster gave the case to the company's legal department, where it was handled by their *lawyers.*

"These two getting coffee, Elisabeth Kahl and Ed Novak, are lawyers. They buy lunch from me when they're too busy to eat out. I guess they have a lot of cases these days. They've been buying my sandwiches for the last 3 weeks! Elisabeth took care of my claim against the so-and-so who hit me 2 years ago. She handled all the court procedures, collected evidence, and argued my case in the courtroom. And I finally got my money!

"Ed and Elisabeth tell me that some lawyers work for large corporations, because big businesses have enough legal matters to keep a lawyer busy full time. But most lawyers work for law firms. Some practice alone, others have partners and assistants. And those lawyers handle lots of matters besides insurance claims. They handle problems concerning divorces, wills, contracts, patents, taxes, and government regulations. And we can't forget criminal cases. Some lawyers never see the courtroom; others seem to live there."

Danny glances at his watch. "Omigosh! I've got to

stop babbling so much and move on. I'm late!" Packing up the cart again, he wheels it back to the elevator and takes it to the third floor. The hallway is identical to that of the floor below, except that now Danny enters a door labeled "A. J. Marx Garment Company." The receptionist announces his arrival.

The Marx Garment Company

"This office," Danny begins, "is the headquarters for a large company that manufactures women's and children's clothing. They actually make the clothes in a factory just outside town. But they handle all their business here.

"There are people here with jobs like those we saw downstairs. The first person we met was the receptionist. There are secretaries, typists, file clerks, maybe even a lawyer lurking around here somewhere. But you'll find some new occupations here, too.

"This woman with the corduroy suit is Lois Terlizzi, *chief purchasing agent.* She's in charge of the purchasing department, which is especially busy these days. The company is getting ready to produce its new fashions for spring. The designers have finished drawing patterns and choosing fabrics. Now the purchasing agents must buy the fabrics.

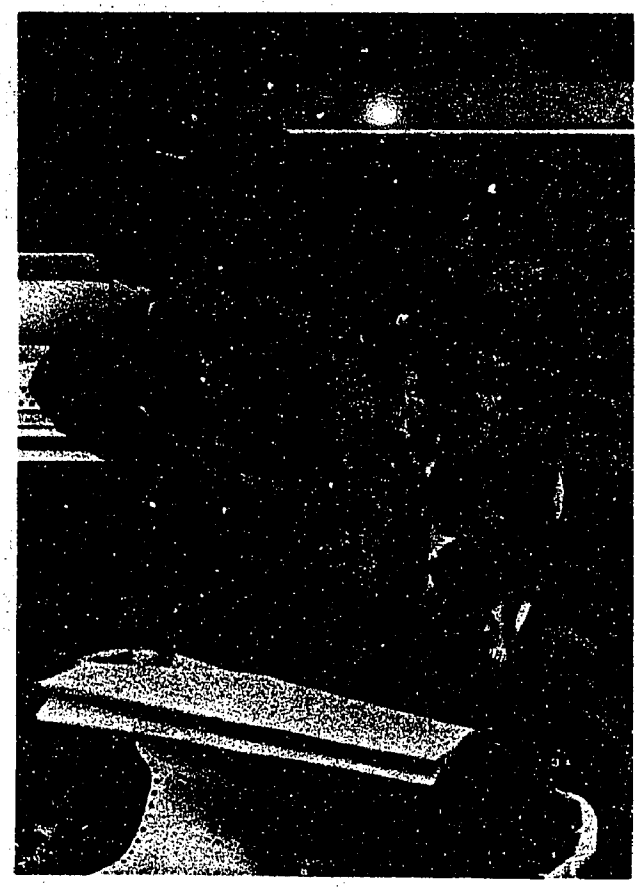
Purchasing agents work under pressure almost all the time.

"Lois' staff has frantically phoned and visited fabric suppliers, inspected their fabrics, and written reports. With all that "legwork" completed, Lois knows what's available. Now she and her staff will decide what and how much to buy. To do that, they have to know how much fabric is used for each garment and how many garments will be produced. Then, in another flurry of phone calls and visits to suppliers, they hunt down bargains and buy, buy, buy!

"Now, this man in the tan three-piece suit is the advertising manager. He never buys my food, but I know all about him. Name's John Vorhes. John and his staff plan the advertising campaign for the spring fashions. They decide how much to spend on ads and how to spend it. Then they create the ads. Sometimes they do the writing and artwork themselves. But for a big campaign like this, they'll call in an advertising agency.

"John's people depend heavily on the work of this woman in the green skirt, Ann Karras. She's a *market researcher.* It's her job to find out who buys Marx clothes and why. Her staff conducts surveys to find out what the

Lawyers complete 3 years of law school after graduating from college.



Advances come so rapidly in the computer field that it's essential to take courses to keep your skills up to date.

public wants. Their information helps John's advertising workers aim their ads at the consumers most likely to buy from Marx. Ann's work also helps the designers know what designs will be most popular.

"Of course, you may be offering the best clothes in the world, and have the customers lined up at the store with their money in hand. But you won't sell a stitch if you can't move it from the factory to the store. That's the job of this lanky lad with the pencil on his ear, Ray Clark, the Marx Company's *industrial traffic manager.* Ray knows the shipping regulations and rates. He figures out the cheapest, most efficient way to ship clothes all over the country.

"And you can't run a business unless you can keep track of your money, believe me. That job goes to the accounting department. Maria Fernandez, the lady with the wire-rimmed glasses, is one of their *accountants.* She manages Marx's taxes. She keeps records of how much the company spends and each year she fills out its tax return. Others in her department make decisions about how to spend money and expand the company."

Danny continues chatting until it's time to move on, then packs up and rolls the cart to the elevator again. On the fourth floor, the final stop, he enters the offices of Computer Resources, Inc., otherwise known as CRI.

Computer Resources, Inc.

Danny parks his cart again and begins to talk as people gather around him.

"The work in this office all revolves around one machine, the computer. CRI has fantastic computers that can store billions of little bits of information and do thousands of calculations at lightning speed. These computers are used to do work for other businesses. The bank we visited uses CRI's computers to keep track of savings accounts, while the insurance company uses them to store and process statistics.

"Not all computers are alike. There are many kinds, designed to handle different kinds and amounts of work. CRI has a variety of equipment to choose from. So when a company wants to use CRI's services, the first step is to design a system. This woman in the brown sweater, Leila Kermani, handles that responsibility. She's a *systems analyst.* She knows which computers can do what, and she finds out all she can about the work to be done. In this way she can design the best system for the job.

"After Leila has designed the system, a *programmer* takes over. Vince Scaglia, the man in the plaid tie, is one. He knows the languages, or special number codes, that

Computer programmers need imagination to find new ways to solve problems.

are used to tell a computer what to do. He writes the program, a detailed, step-by-step set of instructions in the appropriate language. Maybe you know that a computer can't actually think the way a human brain can. So when it finds an error in the program, it can't figure out what the programmer meant. Vince takes great care in writing programs, and even so he expects to spend lots of time working out the "bugs."

"Once Vince has written the program, it has to be fed into the computer. Now, a computer can't read handwriting from a piece of paper the way we can. But it can "read" holes punched in a card or information recorded on magnetic disks or tape. So the program and the numbers it will operate on—known as data—must be put onto cards, disks, or tape. That job belongs to Tony Klein, that redheaded fellow, or one of the other *key entry operators.* Tony is a lot like a typist because the machines he uses have typewriter keyboards.

"There are other people who actually run the computer. Mary Mitchell, that woman with the green jacket, is a *console operator.* She feeds in the program and data, runs the equipment, and tries to find the source of any problem that occurs. The man next to her, Matt Janicki, is a *high-speed printer operator.* He runs a machine that prints out the results of the program so fast it takes your breath away.

"You know, this office has over 50 workers. It always amazes me that it takes so many trained, intelligent people to operate a machine. But that's how complex computers can be. And they're used every day, everywhere, for almost everything!"

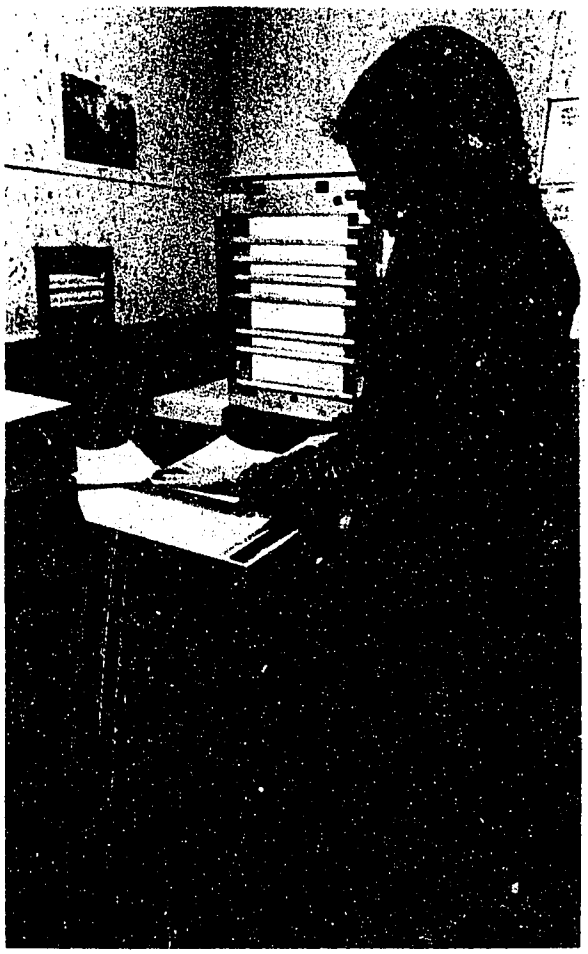
This inventory clerk is using a desk-top terminal linked to a computer several miles away.

Keeping track of all the tapes at a university computer center is this tape librarian's job.

When the last wave of hungry workers has passed by, Danny packs up the cart once more. A short elevator ride later, he is back on the street. "Now you see what I mean," he reflects. "You find so many different occupations in these offices. I pointed out a couple of dozen, but there are many more in this building, not to mention the other high-rises all along the street.

"All these people work in clean, well-lighted offices. Most of them have desks. And most of them work a normal 9-to-5, Monday-through-Friday week. But the similarity ends there. Some office occupations require creativity, while others are routine. Some are for high school students, others for Ph. D's. Some work with numbers, others deal in words. Some involve nonstop contact with the public, others involve none at all. There's so much variety . . . take your pick!"

Danny pauses for a moment, scratches his head, then reaches into his cart and pulls out two square items wrapped in paper. "All that talking made me forget how hungry I am! Here, have a cheese sandwich, on the house!"



Employers prefer high school or business school graduates for jobs as office machine operators.

Cashier training is offered in many high school distributive education programs.

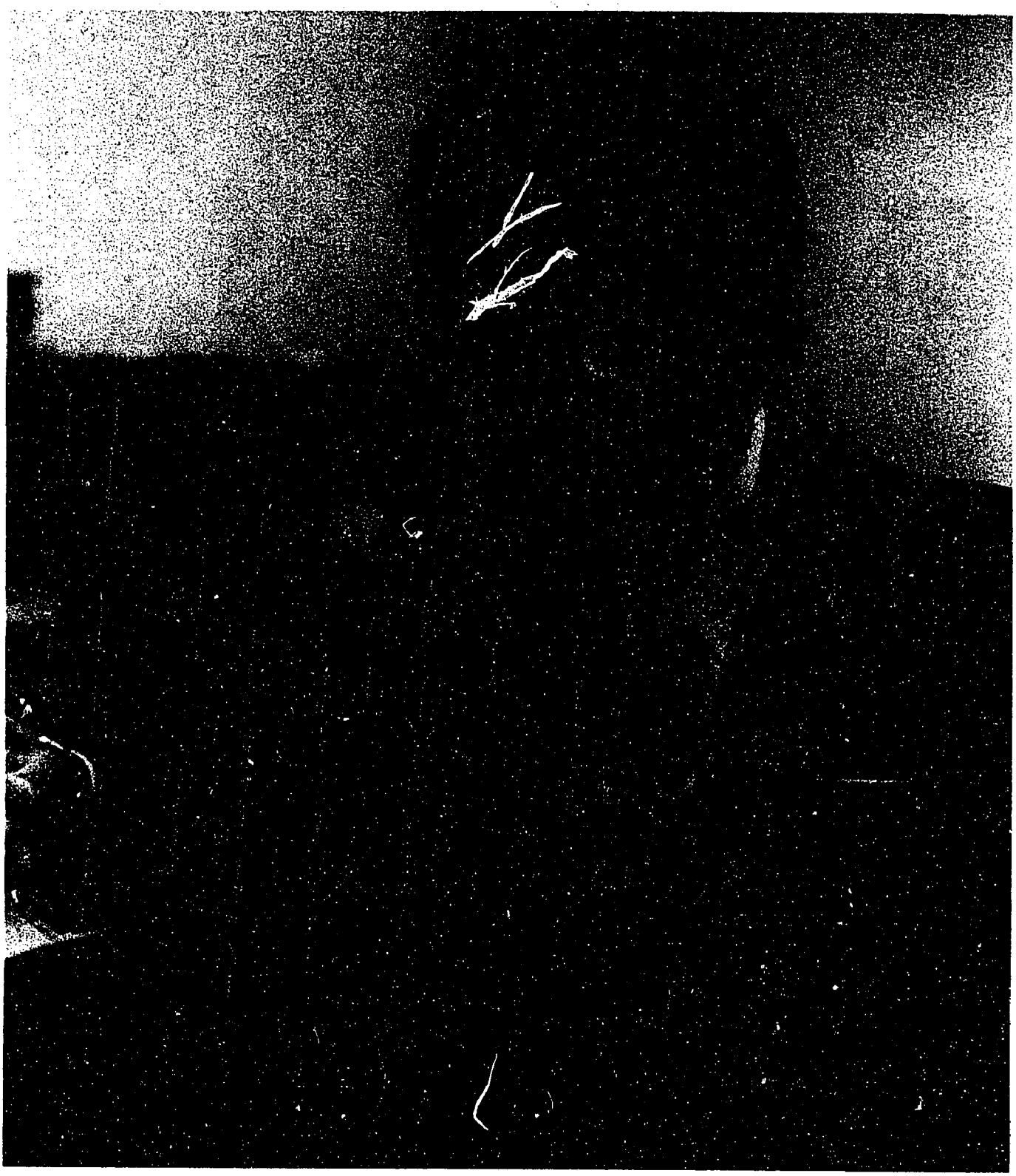
Training

There's a lot of variety in office occupations, as Danny says. And the training you would need for these occupations varies almost as much. If you want to be a bank teller, for example, high school is all the preparation you really need before you begin. The bank will train you to do what tellers do. But to become a lawyer, to take another example, you must do much more. After finishing high school, you attend college for 4 years, then spend 3 years in law school. And when you graduate from law school, you face another hurdle. Before you may practice law, you must pass a long, difficult test called a bar examination. Not every office occupation, of course, requires so much preparation. The training requirements for each are given in the Job Facts at the end of this chapter.

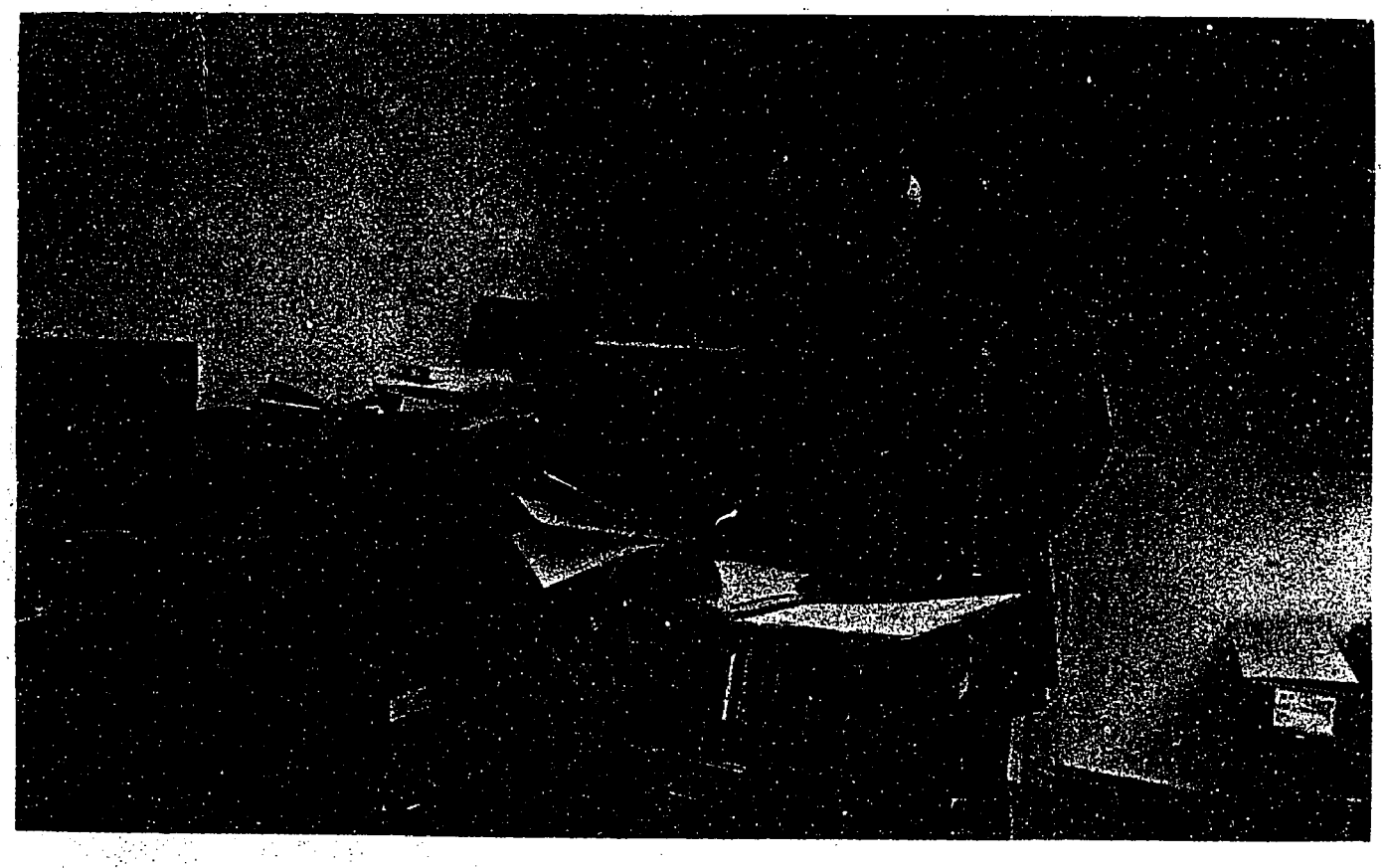
You don't have to go to college to enter the world of office work. Many high schools have business education courses. These courses teach you skills that are useful in office occupations, including typing, shorthand, bookkeeping, accounting, business economics, and office procedures. Some high schools have courses that teach you how to use a computer.

Many high schools allow you to work part time at a related job while you study. The job gives you a chance to practice your training and gain experience in the working world. In addition, many schools have a chapter of Future Business Leaders of America or Junior Achievement. These organizations work with the schools and the business community to sponsor local and national activities that are both fun and educational for students in business education. The activities include contests, community service projects, and model or actual businesses. A high school counselor or business education teacher can give you information about activities in your area.

Bank Officer



Bill Hooker is an assistant cashier for the Commerce National Bank.



"I joined the bank right after receiving my bachelor's degree in economics."

The telephone on the desk rang twice. A tall man in a three-piece suit punched the lighted button and picked up the receiver before the third ring escaped.

"Good morning, Commerce National Bank. William Hooker speaking."

"Hi, Bill. How's the bank's busiest assistant cashier?" asked a voice at the other end of the line.

"Fine, Liz, but you're right, I'm awfully busy. Can we meet for lunch at noon? I should eat at my desk today, but I can't stand Danny's lunchwagon specials 3 days in a row."

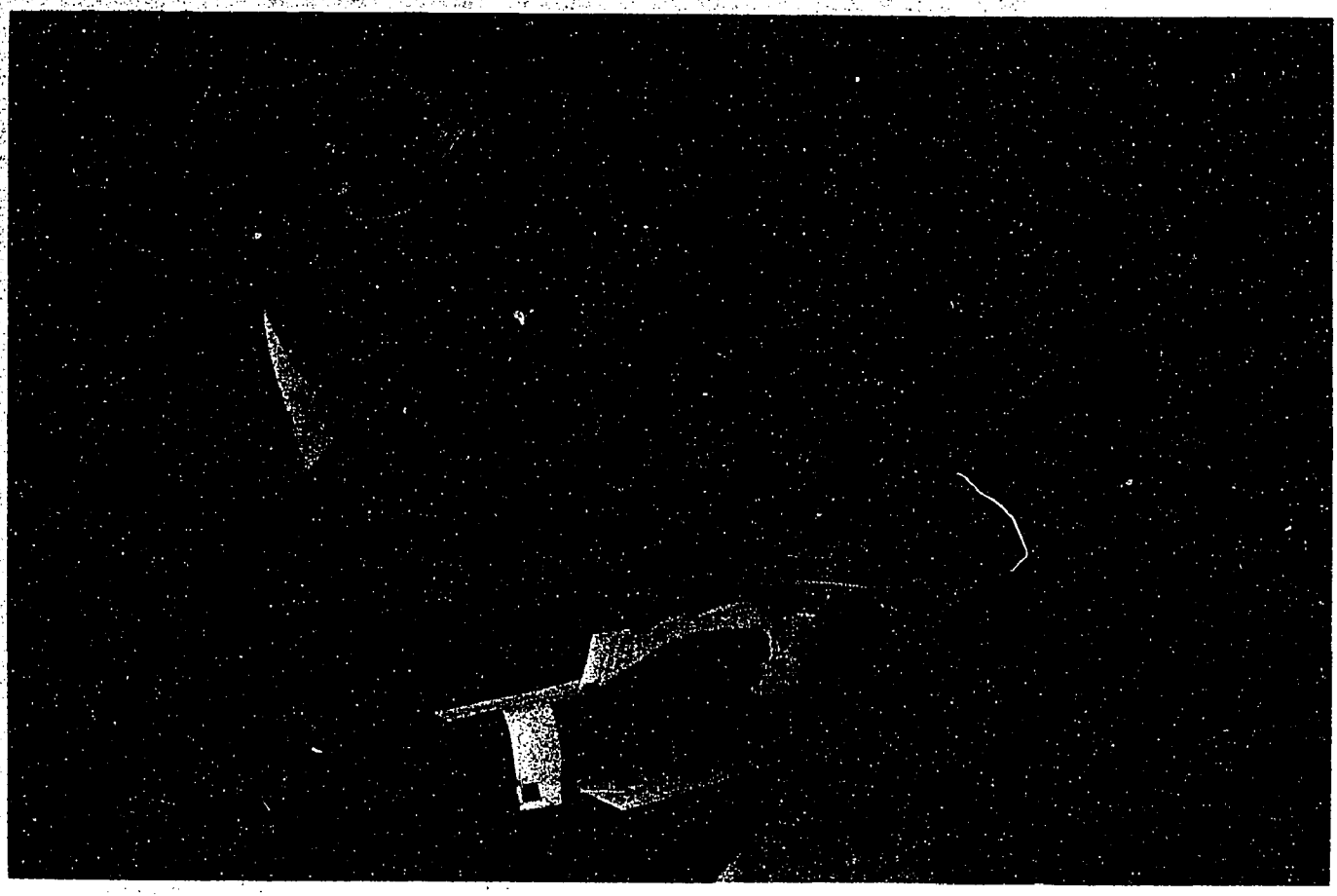
"No problem," answered Liz. "We'll get a quick bite down the street. I'll come by at 12. See you then."

Bill put the receiver down and sighed as he looked at the pile of work before him. Sometimes it was too much for him—and Bill certainly wasn't afraid of hard work! Thinking back over the 3 years he had spent with the Commerce National Bank, Bill could remember quite a few times when he had worked long into the night. He had joined the bank right after receiving his bachelor's degree in economics. During his first year at the bank, he was a trainee. He became familiar with the many different kinds of business that Commerce National handled by spending a few months "learning the ropes" in each of the bank's divisions. He worked in commercial lending first and then transferred to checking. After that he worked in the international division. After a year he knew the bank as well as some of the more experienced officers.

During the time he worked as a trainee, Bill decided that consumer lending interested him most. A job was available in that division, and Bill spent the next 9 months lending people money for new cars, home improvements, vacations, college tuition, and other personal needs. Then he was promoted to the job of assistant cashier. He was expected to handle any problems or business that customers brought to him. If he couldn't take care of them himself, he had to know who could. His performance never slackened, but still there were days like this one, when the mountain of work just continued to grow.

As he was about to dig into that mountain, Bill noticed a middle-aged couple approaching his desk. "May I help you?" he asked, smiling.

"I think so," answered the man. 'My name is Joseph Lupovich, and this is my wife Margaret. We'd like to borrow some money to buy a new car."



Bill is expected to handle any financial problems that the bank's customers may have.

"Well, I can certainly help you with that. Please have a seat, Mr. and Mrs. Lupovich," said Bill, indicating the chairs next to his desk. "Now, how much did you want to borrow?"

"We found a car that costs $5,500. We have $2,000 in savings that we can spare, and the dealer will give us $500 for our old car. So we need $3,000 more," said Mrs. Lupovich.

"Does the $5,500 include State and local taxes, license, and extra insurance costs?" asked Bill.

"No, we'd forgotten about those."

"Well, they will bring the cost of the car to around $6,000. So you'll need about $3,500. No problem so far," said Bill. "Now, if you'll fill out this two-page loan application form, we'll be able to evaluate your request."

Bill handed Mrs. Lupovich the standard form used at Commerce. Together, the couple began filling it out. They wrote down their names and address, where each one worked and how much each earned. They also gave information about their savings, checking, and charge accounts, as well as previous loans they had received. When they were finished, they handed the form back to Bill, who looked it over.

"Now, let's see. Together, you earn about $30,000 a year. You have one child. The mortgage, taxes, and insurance on your house cost you about $350 a month, and you don't owe very much on your charge account.

"On our new car loans we charge interest at an annual rate of 9 percent and the loan must be repaid in 3 years. So besides the original $3,500, you'll owe us another $516 for interest. That's the "cost" of the loan. If you take the entire 3 years to pay us back, you'll pay about $111 a month. I should think you'd have no trouble with that."

"So what do we do now, Mr. Hooker?" asked Mrs. Lupovich.

"Nothing, until we call you back. We'll simply check to see that everything you wrote here is in order, and then you'll receive your loan. Since you have a checking account with us, I can look at our records myself to make sure you maintain the account properly. Your savings and charge accounts and your mortgage are all with

other banks, however. To check on those, I'll give your application to our credit investigator. She will call the central credit bureau for your credit history. She'll also call your employer to verify your income. This will all take a few days; then you can come in to sign the papers and receive your money.

"There's one other thing. On most consumer loans, your signatures are the only assurance we need that you will pay us back. These are called "unsecured loans." For a new car, however, we ask that you sign an agreement called a "chattel mortgage." It says that if you fail to pay us, we can take the car as payment. Now, we have faith that you will pay us on time, of course. This is just a precaution."

"I understand," replied Mr. Lupovich. Mrs. Lupovich nodded in agreement. "Then we'll hear from you shortly?"

"Right, and thank you for coming in!" said Bill, wishing them a pleasant day.

"Back to the mountain of paperwork," he muttered to himself after the couple left. "And now it's even higher!" But he really didn't mind. He spent almost half of each workday talking with customers and enjoyed that part of the job very much. In fact, now that he thought about it, helping people like Joseph and Margaret Lupovich gave him more pleasure than any other aspect of his work. Bill hoped their credit history was in order. They seemed nice, and Bill wanted them to have their new car. Usually everything checked out properly, but not always....

Bill picked up some papers from his desk and looked through them. Here's a request I'll have to turn down, he thought. A man wanted to buy a boat for $20,000. He had $3,900 and wanted to borrow the rest. Normally the bank would ask him to pay at least $5,000 himself, but he had a checking account and another loan with them. So Bill thought he could bend the rules. But he found that several of the man's checks had "bounced" (had been returned because he had too little in the account to cover them). And some of his loan payments were late.

"Helping customers gives me more pleasure than any other aspect of my work."

Bill knew he couldn't lend the man more money; he was unreliable. Bill disliked this part of his job—telling someone he couldn't approve a loan they wanted—but it had to be done. The whole purpose of investigating a person's credit history was to weed out these "bad risks."

Much of the work on Bill's desk involved consumer loans: Evaluating an application for approval or rejection; looking at the bank's records; having the credit investigator check someone's credit history; calling the customer and saying the loan was approved; or having the secretary type up papers for the customer to sign. For loans of more than $3,500, he also had to consult his supervisor. (As he gained experience with the bank, his "assigned lending authority"—the amount he could lend on his own judgment—would increase).

He did other things, too, and some of them had nothing to do with loans. Yesterday, a man who was not a Commerce customer wanted to cash a check from a different bank. The teller asked Bill to approve the check. The day before, a woman who had just moved to town came in to open a savings account. Bill filled out a form, deposited her money, and gave her a passbook.

A regular customer, planning a long vacation in France, came in first thing this morning to ask how he should carry his spending money. Bill advised him that travelers' checks were much safer than cash. "You sign the checks once now and again when you spend them," he explained. "If they get lost or stolen, they are no good to anyone else, so the bank can pay you back for them. But if your cash is lost or stolen, it's next to impossible to recover it."

As Bill was examining a loan application, the mail clerk dropped a batch of letters in his "In" box. He immediately noticed the letter on top of the pile. It was on thin airmail stationery and had Japanese postage stamps. The letter came from Russell Anderson, an American businessman who had been sent to Tokyo for 6 months. In his letter, he asked Bill to transfer $500 from his Commerce account to a Toyko bank. Bill laid the letter aside and made a mental note to take care of it as soon as he finished reading this loan application.

Exploring

Bank officers must show their best side to customers.

- Do you like meeting and talking with people?
- Do you enjoy getting to know strangers?
- Are you comfortable talking with strangers on the telephone?
- Can you remain friendly and courteous, even with irritating people or when something is troubling you?

Bank officers must know how to "read" people as well as financial records when judging a request for a loan.

- Are you a good judge of character?
- Can you tell when a friend has made up a supposedly "true" story?
- Do you question things you read or hear that don't seem right?

Bank officers deal with large sums of money and with information about people's private lives. They must be honest and trustworthy.

- Are you careful with another person's belongings and with valuables?
- Are you careful with money?
- If you receive an allowance, do you spend it wisely?
- Do people trust you?
- Can you keep a secret even though you want to tell someone?

Bank officers are part of a team. They must be able to get along with their co-workers.

- Do you enjoy working with others in group projects?
- Do you like team sports?
- Are you willing to follow another person's instructions?

Bank officers work with detailed financial statements, which they must read and write very carefully.

- Do you enjoy working with numbers?
- Are you good at math?
- Do you check your homework before handing it in?
- Are you an organized person?

Bank officers often have to refuse loans, even to customers they would like to help.

- Do you know how to say no?
- Do you keep people from taking advantage of you?
- Can you stand firm with your younger brothers and sisters, even if they beg or cry?

Suggested Activities

Arrange a class tour of a large bank. Talk to employees in several different departments. Find out how they started in banking, what they do, and how they fit into

the total operation. Make a list of the different kinds of officers in the bank.

Invite officers from two or three departments of a bank to visit your class and present a panel discussion. Ask them to describe the work they do and the training they needed to get their jobs. Prepare questions for the panelists.

Serve as treasurer of a club or other organization. Volunteer to help collect and count money for a school event. This will give you experience handling money. By keeping a careful record of all the money received and spent, you can also learn something of bookkeeping.

Role-play a meeting between a loan officer and customer requesting an auto loan. Plan the roles ahead of time: How much money is requested and for how long? What is the borrower's financial situation? What questions does the loan officer ask? Use a loan application from your local bank.

As a topic for a report in your English, social studies, or mathematics class, investigate the difference between a bank and a savings and loan association. You might start by talking to an official of each. In your report, try to answer these questions: What do banks have in common with savings and loan associations? What services does each offer that the other does not? What laws apply to each? What occupations are found in one, but not the other?

When people think of money, they usually think of cash—coins and bills. In fact, most of the "money" in circulation in the United States is not in the form of cash, but in the form of approximately 25 billion checks written each year. Use checking as a topic for a report in your English, social studies, or mathematics class. Talk to your parents, your school or public librarian, and the officers of a local bank to find answers to these questions: How do you use a checking account? What happens to the check after it is written? (Make a diagram to illustrate this.) What happens if a check "bounces?" What kinds of bank occupations are connected with checking accounts? Report the results of your investigation to your class.

What does "interest" mean to a banker? In the story you read, Bill explained to Mr. and Mrs. Lupovich that interest is the cost of borrowing money from the bank. But if they had a savings account, the bank would pay them interest for keeping their money there. Interest, quite simply, is the price someone (a person or a bank) pays for using another's money.

Use the topic of interest and interest rates for a report to your English, social studies, or mathematics class. Answer the following questions: What interest rates do banks in your area set for loans? Why do they charge different rates for different kinds of loans? What interest rates do they set on different kinds of savings accounts? How do banks' rates compare with those of savings and loan associations?

Interview one of the officers at your local bank to find out how a 24-hour teller works. Ask whether the bank needed fewer people to work as tellers after the machine was installed. Report to the class, bringing with you examples of the different kinds of forms needed to conduct transactions with an automatic teller.

Have you ever looked closely at a dollar bill? Notice the words above George Washington's picture: Federal Reserve Note. They refer to the Federal Reserve System, or "Fed", which regulates the amount of money in circulation in the United States. Use the history of money as a topic for an individual or group report in your English, social studies, or mathematics class. Answer the following questions: When and how did our national currency come to be? How has it changed over the years? What gives paper and coin money its value? When and why was the Fed created? How is it run? Who is its current leader? How does it regulate the amount of money in use?

Join a Banking or Finance Explorer Post if there is one in your area. Exploring is open to young men and women aged 14 through 20. To find out about Explorer posts in your area, call "Boy Scouts of America" listed in your phone book, and ask for the "Exploring Division."

Write for information on careers in banking to the Bank Personnel Division, American Bankers Association, 1120 Connecticut Avenue, N.W., Washington, D.C. 20036.

Related Ocupations

Bank officers are one of many kinds of workers who do detailed financial work. Several others are listed below, along with possible descriptions of what they do. For each occupation, see if you can choose the correct description.

1. **Accountant**

   a. Prepares financial reports and tax returns for businesses or individuals.

b. Opens new checking and savings accounts for customers at a bank.
c. Counts freshly printed dollar bills at the U.S. Bureau of Engraving and Printing to be sure how many were made.

2. **Appraiser**

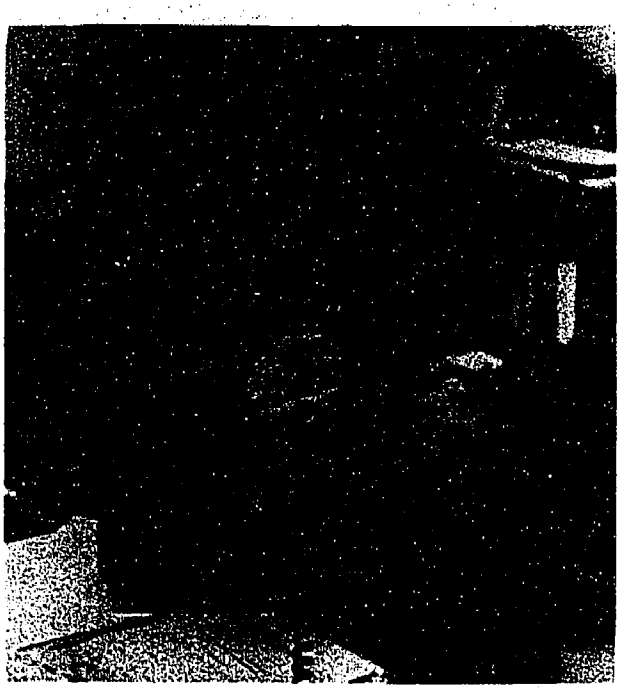
a. Gives final approval to all requests by businesses for bank loans.
b. Keeps track of bank employees' work and tells them when they are doing a good job.
c. Determines the value of land and buildings for tax purposes.

3. **Auditor**

a. Listens to the explanations of people who can't pay their bills on time.
b. Inspects a company's records and reports on its financial situation.
c. Tracks down people who write phony checks.

4. **Broker**

a. Gives advice to people who have run out of money.
b. Sells automobile insurance.
c. Buys and sells stocks for people and businesses.



Bill collectors need to be pleasant but firm when they try to get people to make good on unpaid bills.

Top jobs in banking require years of experience.

5. **Credit analyst**

a. Checks up on newly hired bank tellers to make sure they can be trusted.
b. Looks at the financial situations of people and businesses to see if they should receive credit.
c. Helps people decide what credit cards to get.

6. **Revenue agent**

a. Helps protect the gold at Fort Knox.
b. Investigates cases of counterfeiting (printing phony money) for the FBI.
c. Checks up on tax returns to make sure people and businesses are paying their taxes.

7. **Treasurer**

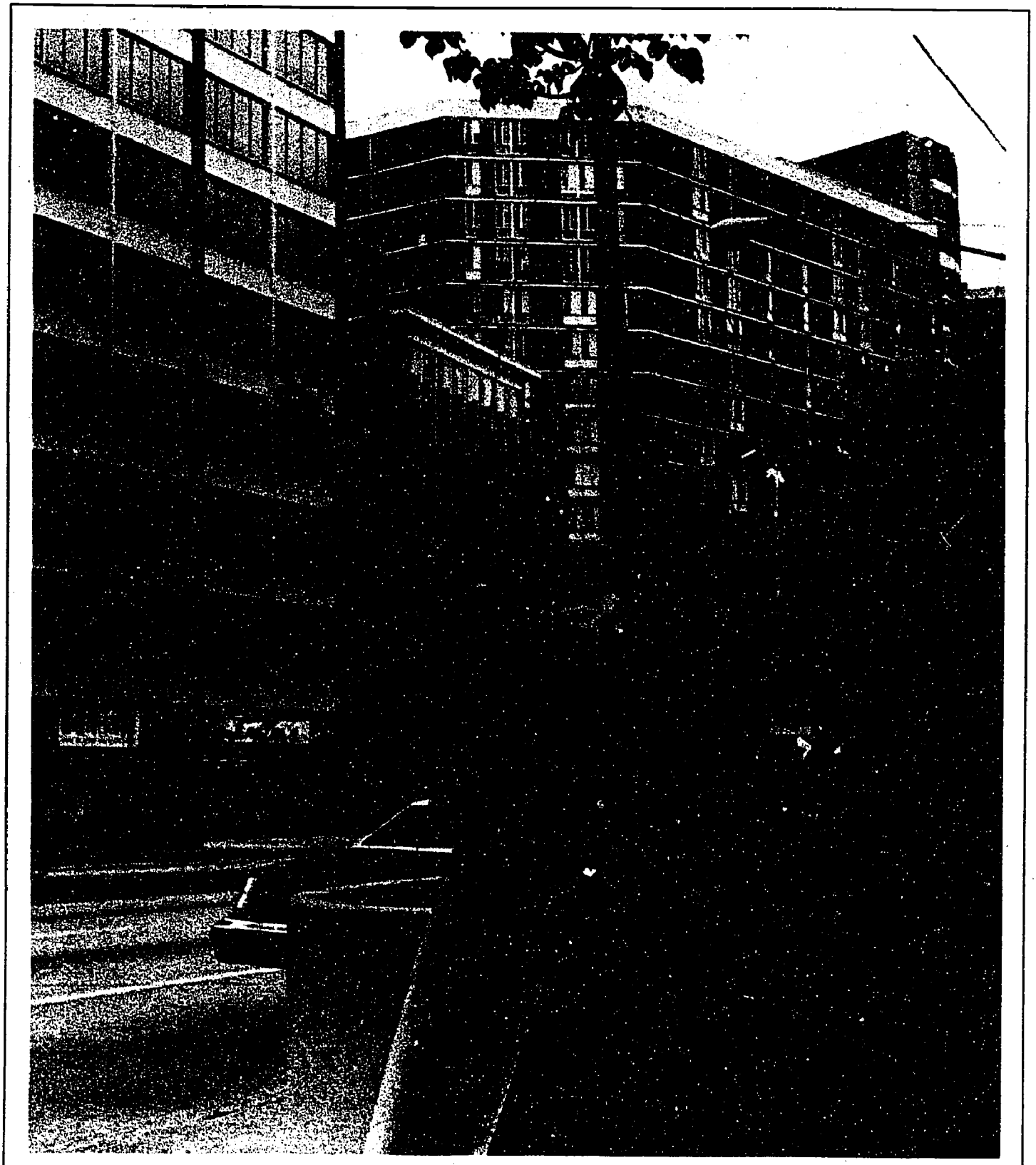
a. Keeps track of how much cash a bank has each hour of the day.
b. Directs the use of a company's money.
c. Tells the President how much money is in the U.S. Treasury.

8. **Underwriter**

a. Approves or denies a person's request for life insurance.
b. Keeps a company's checkbook and signs all its checks.
c. Helps a company find the best way to make money.

See answers at end of chapter.

Planner



As a planner, Lyn wears many hats. "In one day I may talk with a transportation engineer, a lawyer, and an architect."

A community is a living thing. It wakes and sleeps, uses energy and produces waste, just as you do. Its "nerves" carry information while its "arteries" carry traffic through its system. The people who live and work in a community are its blood. Without them, it cannot live.

Like other living things, communities grow and change. Farmland gives way to towns. Towns push outward and become cities. Forests are cleared for new homes. Old brick buildings make way for steel and glass skyscrapers.

But not all parts of a community change in the same way or at the same speed. At the edge of a city, for example, you might see a rapidly growing neighborhood with wide, well-paved streets and clean, modern buildings. Closer in, you might pass through an older part of town. The trees are bigger, the buildings look a little more run down than they did 10 years ago. But nothing else has changed. And at the heart of the city, you might see a different kind of picture. The broken windows and burned-out buildings, the garbage on the sidewalks and graffiti on the walls tell you that this neighborhood is dying.

Communities grow up and grow old, just as people do. And just like people, they need care. Think of what happens to people who don't take care of themselves. They get sick or hurt more often. And they may die sooner. So, too, with a community. Without proper care it becomes run down. Eventually it turns into an unhealthy, ugly, even dangerous place to live.

Who takes care of a community? Many people do in different ways. The police and fire departments protect it from crime and fire. A council makes laws. The mayor guides the community on its day-to-day course. But who sits in the lookout tower? Who keeps track of how the community is changing? Who watches to see that in 10 years it will be the kind of home its residents want?

That job belongs to the planners.

Planners help a community make decisions that will affect its future health. For example:

- Should a factory be built to provide jobs for local residents, even if it will pollute the water they drink?
- Should a county keep its farmland or allow houses to be built on it?
- Should a city tear down houses to make room for a new highway or office building?
- Should the electric company clear a forest to build a new power plant?

Citizens and government bodies face such decisions all the time. But they can't decide what's best for everyone without information. They must know all the effects—good and bad—that each choice would cause. Planners provide that information.

What is it like being a planner? "It's a balancing act," says Lyn Coleman. "On one side, private citizens want to use their land as they please. On the other side, the public wants the land used in a way that will benefit the whole community. The planner has to balance these two sides."

Lyn knows this as well as anyone. As a planner for Montgomery County, Maryland, she performs this balancing act every working day. Right now, for example, she is working on a new "master plan" for the area around the town of Olney. A master plan is a blueprint for the future. It shows how each piece of land should be used, whether for heavy industry, commercial business, single-family homes, farms, recreation, or some other purpose. In this way, a plan guides the growth of the community.

"A master plan is only good for 5 or 10 years," explains Lyn. "Then it becomes outdated." The last Olney plan was written in 1969. Now, like a child outgrowing clothes, Olney has outgrown its old plan and needs a new one.

Lyn and an urban designer, John Carter, are given the job, which will take about a year. They could finish it pretty quickly if they stayed in the office all day long. But if they did that—using just their own ideas and not getting anyone else's—they'd be taking a big chance. Like a person selling refrigerators at the North Pole, they'd soon find that nobody wanted their product. It would simply gather dust on a shelf.

Lyn knows how important it is to be in touch with local citizens from the start. At a public meeting in Olney one evening, she talks to citizens and sets up an advisory committee. The committee will see to it that the people of Olney understand how the master plan will affect their everyday lives. The committee also will advise Lyn and tell her what the citizens want.

After setting up the committee, Lyn returns to research. She must have the answers to a long list of questions about the Olney area before she can begin writing the plan. Part of her list looks like this.

Questions about the natural features of the area:

- What types of soils are found in the area, and where?
- Where are the hills and valleys?
- Where are the waterways? How clean are they?
- In which directions does rainwater run off the land?

Questions about people:

- How many people live there? Where do they live?

- How many children are there? How many older people?
- What about income? Is there a mixture of people with different income levels?
- What kind of business is there?
- How has the population grown over the years?

Questions about land use:

- How is each piece of land used today?
- For what use did the old plan intend it?
- Where are the important historical sites?

Questions about transportation:

- Where are the roads and railroads?
- How much traffic travels on them?
- Where do traffic jams take place?

The answers to these questions come from many places. To find out how the land is being used, Lyn and John study aerial pictures. Then they drive and walk around the neighborhoods to get a closer look. To answer other questions, Lyn relies on studies done by other divisions of the planning staff, other county agencies, and the Federal Government. She also gets useful tips from citizens.

And speaking of the citizens, Lyn's next step takes her back to them. In a series of public meetings, she again tries to get a sense of what the people want for their community. How would they like to see it grow? What kinds of changes are important to them? What things do they *not* want to change? Lyn knows there are almost as many answers to these questions as there are people in Olney. That's why the planners hold several meetings. They talk to farmers at one, land developers at a second, citizens of the town at a third.

And this is just the beginning. During the whole time the plan is being written (and even after that) there will be public meetings. Every time a Chamber of Commerce or a PTA, neighborhood association, or other civic group asks a planner to come and speak, Lyn (or one of her co-workers) will take the colored maps and go. She tells citizen groups what the planning staff has in mind for Olney. She also listens to suggestions and complaints.

Once she has a good idea of what the people want, Lyn starts writing. "As a planner, you must know how to write well. The citizens will read your plan, so you have to keep it clear and simple."

And with the writing begins the balancing act. Lyn brings together all she knows about what the citizens want, what the community as a whole needs and wants, what has already been done, and what makes good sense.

"Planning is an art, not a science."

Bit by bit, piece by piece, she figures out how to use the land in a way that is best for everyone.

If that seems easy, think again. "Planning is an art, not a science," Lyn points out. "There's no formula you can use to answer a question or solve a problem, because every one is different. There are only basic principles of good planning. The rest is creativity, hard work, and common sense. But that's what makes the job challenging and fun."

Lyn draws on the knowledge and expertise of other people on the county planning staff. There are several divisions, and each specializes in something different. One division puts together information on soil, terrain, water, air quality, and other environmental matters. Another covers architectural and engineering problems. There are divisions for parks and recreation, for housing, and for transportation. And a research division gives advice on population characteristics and market trends. The experts in these other divisions help Lyn solve the many problems that come up as she writes the plan. "The Olney plan is a team effort," she explains, "and I'm the team leader. I put it all together."

Working with people in so many different fields gives Lyn's job a lot of variety. "A planner wears many hats," she says. "In one day I may talk with a transportation engineer, a lawyer, and an architect. To speak each one's language, I must know a little about engineering, law, and architecture. Planning is an occupation for someone with many different interests."

Lyn has her own specialty: Rural and agricultural planning. "Most people think of planning as only for cities," she explains. "And it's true that planning started there. But the cities have grown so quickly that the farms and small towns are disappearing. Now planners are trying to preserve them, too."

Lyn's own interest in planning also started with cities. As the daughter of an Air Force officer, she traveled widely in the United States and Europe when she was growing up. "I saw many cities," she recalls, "and I noticed some were nicer than others. I began to wonder why."

Lyn learned more about cities in college. Majoring in political science, she studied urban politics. With her bachelor's degree she got a job as a research assistant in a planning office. "I thought I could work my way up. But I just couldn't pick up what I needed to know."

So Lyn went back to college for 2 more years to earn a master's degree in urban planning. Taking courses in many different departments, she learned a little about everything. "Because planning is so broad, there wasn't time to specialize in school. For me, specialization came in my job. The main thing we learned in school was how to think about and solve problems."

The Olney master plan promises to be a major step for Lyn in developing a specialty as a planner. Olney is a small suburban community surrounded by farms. The town has grown very quickly in the last few years, eating up the farmland. With the new plan, Lyn hopes to slow the town's growth and save the rural area.

One way this might be done is with a rule requiring every new home to have at least 5 acres of land. In most neighborhoods in a city or town, each home has half an acre of land or less. With a 5-acre rule, there would still be lots of open space.

But every rule makes someone unhappy. In this case it might be a couple who bought 20 acres of that land years ago. They expected the town to expand and they hoped the land would become very valuable. They hoped to sell it for a great deal of money to a developer who would build 40 or 50 new homes on it. But the 5-acre rule would allow only four new homes, making the land much less valuable. The couple could lose thousands of dollars.

When Lyn has to face that couple, the balancing act becomes really tough. "They're almost in tears because this part of the plan will ruin them. And I have to explain why it's necessary. This is the hardest part of my job."

It is also a large part of her job. Many people come in to ask about the new plan (though not all of them are as upset as that couple). Others call or write for information. Lyn talks or writes to each one of them, which takes a great deal of time.

The phone calls, letters, and visits continue while Lyn writes the Olney plan. Do they stop when she has finished? Not at all! In fact, they increase, because the plan she has produced is not a final version. It is only a "sketch plan." After it is published, the people of Olney

"Most people think of planning as only for cities. But cities have grown so quickly that farms and small towns are disappearing. Now planners try to preserve them, too."

have a chance to read it and react to it. For Lyn, this means more phone calls, letters, and visits. It also means more public meetings with the colored maps.

Lyn points out how important this part of her work is. "You have to be quick on your feet. Public speaking ability is essential! After all, as a planner, you're telling people how to use their land. You have to expect opposition. But you also have to convince the people that your plan makes good sense. It won't sell itself."

Lyn enjoys dealing with the public. "Average citizens have become aware of the need for long-range planning. I'm glad to see that, and I like working with them."

Based on the public's reactions, the staff members make changes in the sketch plan. Then they give the new version to the five-person planning board. After the planning board approves the plan, it goes to the County Council, which makes laws for the county, for adoption as official county policy.

And still Lyn's work is not finished! After all, what good is a master plan that stays on paper? It must be put into effect. How? Through zoning regulations. Each piece of land in the county belongs to a zone. And in each kind of zone, only certain types of buildings may be legally built. Let's say you wanted to build a shopping center on land that was zoned for single-family homes. Before you could build, you would have to get the County Council to "rezone" the land (change its zoning) for commercial business.

To put the new plan into effect, much of the Olney area must be rezoned. That means many County Council sessions and public meetings. And as the plan's author, Lyn must be there to explain it. The meetings continue until rezoning is finished and the new plan takes effect.

And where does that leave Lyn?

With other projects to do. With more letters to answer. With more phone calls to return. With more people to speak to.

And with the satisfaction of knowing she's helped improve her environment.

"And that," she says, "is the best part."

Exploring

Planners figure out the long-range effects of building something new—a highway or housing project, for example. To do so, they must think ahead.

- Do you save money for things you can't buy right away?
- Do you enjoy games of strategy, such as checkers, chess, or bridge?
- Do you plan your weekends and vacations in advance?
- Do you daydream about your future?

Planners must have a talent for design and for arranging space.

- Do you like to design and sketch airplanes, buildings, clothes, or automobiles?
- Have you built a model railroad layout or a miniature town?
- Do you sometimes rearrange the furniture in your bedroom?
- Have you ever designed a garden?
- Can you give directions by drawing a map?
- If asked to clean a cluttered closet or garage, do you reorganize the things in it?

Because they deal with many different aspects of community life, planners must know about and be interested in many subjects.

- Do you read books on many different subjects?
- Do you watch a variety of TV programs?
- Do you have more than one hobby, or play several sports?

Planners are concerned about the environment around them.

- Do you react to changes in your neighborhood, such as a new street or building?
- Does it bother you to find garbage in a park or lake?
- Do you participate in local recycling drives?

Planners deal with many different people, including professionals in other fields and the general public.

- Do you enjoy working on group projects?
- Do you get along with most of your classmates?
- Do you like playing team sports?
- Can you listen with interest to another person's point of view?
- Can you convince a group to go along with your ideas?

Planners make plans that take a long time to fulfill and sometimes never take effect.

- Do you enjoy projects that take a long time to complete, such as growing vegetables or putting on a play?

- If you are taking music or dance lessons, do you practice faithfully?
- Do you keep trying if things don't turn out just the way you wanted?

Suggested Activities

As a project for your social studies or government class, find out if your city or town has a planning department. (If not, your county or a nearby town might). Invite one of the planners to speak to your class. Prepare questions beforehand about the process of planning and the work of planners. Be sure to find out what other parts of your local government are involved in the planning process.

As a topic for a report in your history, social studies, or government class, investigate the history of the area in which you live. Try to answer the following questions with your research: When was your city or town founded? Was there a special reason for its location? How did it grow to its present form? If your community is now planned, when and why did planning begin? The library and the local government should be able to help you find the information you need.

Use zoning as a topic for a report in your social studies or government class. You might go to a hearing before the local zoning authority as part of your research. In your report, try to answer these questions: How many different kinds of zones exist? What are some of them? What restrictions does the community set on height and spacing of buildings? Who makes zoning decisions? How can zones be changed? What role can the public play in making zoning decisions?

Using what you've learned about zoning in the preceding exercise, role-play a situation in which a developer wants to build a shopping center on land zoned for single-family homes. Students should work out and play the roles of the developer, merchants who want to open stores in the shopping center, the zoning authority, neighborhood residents opposed to the project, planners, and any others who come to mind.

As a project for your social studies or art class, design a park or playground for a vacant lot or field in your neighborhood. Make a scale drawing of your design, showing where you would place lawn, trees, pavement, playing fields, equipment, and buildings.

Have a panel discussion in your social studies class on a new project proposed for your area, such as a new shopping center, a dam, or a recreational area. (If no suitable project exists, your teacher can suggest an imaginary one). The discussion should center on these questions: How will the project benefit the community? How will it hurt? Are the benefits worth the cost? What changes in the project would you suggest to make it more beneficial?

Put together a group report in your science or social studies class on air and water pollution in your community, dealing with these questions: How bad is the pollution? How is it measured? What are the major sources? What is being done about it? Talk to people with different interests and points of view: Government officials; public relations representatives from power companies; local industry officials; and citizen groups concerned with environmental quality. The class can be divided into smaller groups to gather information.

Join a Government or Politics Explorer Post if there is one in your area. Exploring is open to young men and women aged 14 through 20. To find out about Explorer posts in your area, call "Boy Scouts of America" listed in your phone book, and ask for the "Exploring Division."

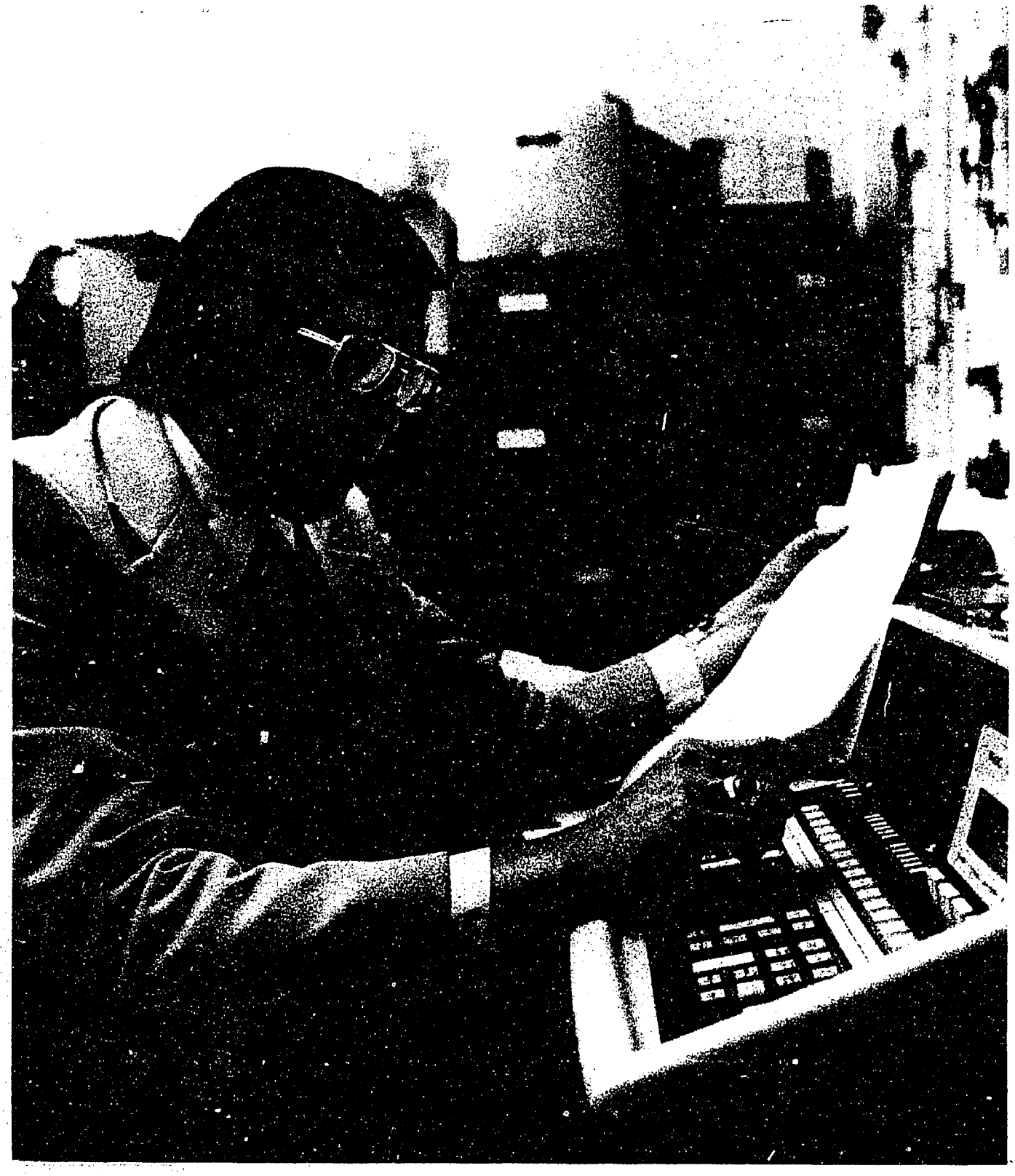
Write for information on careers in planning to the American Society of Planning Officials, 1313 East 60th Street, Chicago, Illinois 60637 and to the American Institute of Planners, 1776 Massachusetts Avenue, N.W., Washington, D.C. 20036.

Related Occupations

Planners aren't the only people with jobs that involve planning and design. Seven other occupations are listed below. See if you can match each item in the right-hand column with the worker who would plan or design it.

1. Architect	a. A golf course
2. Civil engineer	b. A dam
3. Computer systems analyst	c. A computer system to figure salaries and issue paychecks
4. Industrial designer	d. A house
5. Industrial engineer	e. A survey of the breakfast cereals people eat
6. Landscape architect	f. The styling and upholstery of an automobile
7. Market researcher	g. An improved production method for a chocolate factory

See answers at end of chapter.



Computers can't be kept waiting, so Joe occasionally has to work odd hours.

Joe worked his way up in the computer field. "I feel that I've done rather well for someone with no college."

Joe Jaramillo grumbled and rubbed his eyes. The clock on his nightstand read 4:08 ... *4:08 on a Sunday morning*. A phone call had awakened him moments before, and a faraway voice had told him to come down to the bank right away.

Bracing himself for the violent assault on his eyes, Joe turned on the light. "Those are the breaks," he thought. "You have to expect this sort of thing when you're a systems analyst. All my work involves computers, and computers can't be kept waiting. It's no big deal to be awakened in the middle of the night. I have to be available 24 hours a day. All part of the job."

But these thoughts made it no easier for Joe to get up at 4:08 a.m.

Shaking one foot loose from the tangle of covers, Joe planted it firmly on the floor next to the bed. The other foot followed not far behind. As he reluctantly sat up, random thoughts about his job went through the fog of his mind.

"Almost 6 years," he remembered, "6 years next week since I was promoted from programmer to programmer/systems analyst. What a change! Back then I handled the computer all the time. Writing programs, running them, finding the "bugs". And all I saw was my own little slice of the bank. Now I work with people from consumer lending, internal operations, all the different bank departments. I see the whole show. I help people understand what the computer can do for them—how it can help them do their work here. And I have lots of room to be creative.... After I find out exactly what people need, I think things through and design a new system. Then I install it and test it. But I rarely touch the computer anymore; I leave that work to the two programmers under me. If I worked in a smaller bank, I'd probably do more of my own programming...."

Joe reached over and turned on the radio. The voice of his favorite country and western singer filled his ears.

"... I've done rather well for someone with no college education! I've always liked computers, even in high school. I would have liked to learn about them in college, but I couldn't afford to go. That 6-month technical school course was the best alternative for me. It got me a job here with Commerce National Bank. Then I worked my way up the ladder. Even so, I was lucky. I got in when the getting was good. Today I'd need a bachelor's degree to be hired here...."

By now Joe's eyes had begun to adjust to the light. With a great effort he lifted himself to a standing position. Picking up his bathrobe, he somehow managed to put his arms in the proper sleeves and tie the belt around the waist. Now if he could only find the bathroom!

"... I've been on this assignment a long time," Joe's brain reminded him. "I started it 9 months ago. The head of the check-processing department, Tom Arnold, wanted a new system for processing checks. So I went over there to speak with Tom. I had to give him ideas on the possibilities and find out just what he wanted. Some people think that systems analysts are magicians, that we have a "sixth sense" that tells us what kind of system would be best. But it doesn't work that way. Unless people tell us what they're trying to do, we can't advise them how to do it.

"Tom complained that his check-processing system relied too much on people and not enough on machinery. He was afraid that the present system would not be able to keep up as the volume of checks grew. While he was at it, Tom wanted a better way of tracking down errors. And he wanted a system that would tell him who the bank's biggest customers were, how much money they maintained on deposit, and how long they kept it there. So I looked at the system he was using at the time...."

Feeling their way along the wall, Joe's hands found a switch and turned it on. Instantly the bathroom appeared around him. His left hand twisted the faucet on the sink; his right hand sprang back from the icy touch of the water. He gave it a minute to warm up.

"... Tom showed me how his department processed checks every day. The checks and deposit slips arrived in bundles. The first step was proofing and encoding. This was done by machines that took each check and printed on it the amount it was written for. The numbers were printed in a special ink that other machines could "read." Tom had 30 of these proof encoding machines in his department, and each was run by a clerk. As the

checks were encoded, the operator and machine made certain that the amounts were the same as a teller's tally. This is known as "proving." Another machine, a reader-sorter, then read the specially printed number on each check and sorted and tallied the amounts of all the checks from the 30 proof encoders. It sorted the checks by the city they came from so they could be sent back to other banks and exchanged for credit. The faster this was done, the more money the banks would have available for use by their customers, loans, credit advances, and the like. Finally, the checks were photographed by a microfilm camera for future reference.

"The system was good at first, but I could see Tom's point. They'd run into problems as more and more checks came through. Tom knew what he needed and I knew what kind of equipment was available from different manufacturers, so together we created a new system. We looked at the latest equipment and considered different ways of setting it up. We had to think about how reliable each machine would be, not just how fast it could do the job. Every time something breaks down and the system stops running, the bank loses money. So reliability mattered a lot. The cost of new equipment was important, too. . . ."

The water had gotten warm. Joe rubbed his face with a wet washcloth. No reason to shave at this hour, he decided.

". . . I met with Tom every day to discuss this project, sometimes for an hour or more. With his help I finally designed the right system. We decided that the hardware produced by the National Computer Technology Company was the best for our needs. Other companies make faster equipment, but it isn't as reliable. . . ."

Back in the bedroom, Joe pulled clothes out of the closet and climbed into them. The sounds of the Beatles on the radio gave him new energy: "Woke up, fell out of bed, dragged a comb across my head. . . ."

". . . With the new system, the checks will be proofed, encoded, and automatically sorted into several categories. With the new proof machine, Tom will easily be able to get that information that he wants about certain accounts—whenever he wants it. The checks will be microfilmed while they're sorted on a high speed reader-sorter, so we will have a film record of them as the bank

"After I find out exactly what people need, I think things through and design a new computer system," says Joe.

received them. That will make it easier to track them down to find errors. And the new reader-sorter equipment will sort checks faster and will allow the bank to forward them to other banks faster than is possible now.

"When the new equipment was installed and tested, we linked it to the bank's computer. Since the two systems use different coded languages, we had to design an "interface" so that they could communicate with each other. My programmers did a great job on that.

"I'm happy with the new system. Simple, reliable, not too expensive. It was more of a challenge than that payroll system I designed last year, and I met the challenge...."

Joe was dressed and ready to go. "At the tone the time will be 4:30," said the radio just before he switched it off. Grabbing his coat, he dashed out the door and prayed that his car would start.

"... So all we have to do now is switch over to the new system. It has to be ready to process checks by tomorrow morning, when the bank opens. I thought the technicians would be able to handle the job, but obviously they've run into a problem if they need me at this hour. Well, fortunately, I don't have to make many of these night calls. If I did, I'd be a nervous wreck. It's a good thing I didn't become a firefighter...."

Exploring

Programmers and systems analysts spend much of their time solving problems.

- Do you enjoy doing math problems?
- Do you like puzzles and brain teasers?
- Do you read mystery stories?

Programmers and systems analysts work with problems that are long and detailed. Solving them takes a great deal of patience.

- Do you enjoy long, detailed projects, such as doing jigsaw puzzles, painting by numbers, or building and rigging a model ship?
- Do you like to read long books?
- Do you check over your homework and tests before handing them in?

Programmers and analysts look for creative solutions to the problems given them.

- Do you enjoy solving puzzles?
- Do you play games of strategy, such as checkers or chess?
- Do you like to think of new ways of doing things around the house?
- Do you occasionally rearrange your bedroom furniture?

Programmers and systems analysts often run into very stubborn problems. If at first they don't succeed in solving a problem, they must try, try again.

- Do you keep trying when you can't solve a problem right away?
- If you play a sport or musical instrument, do you practice faithfully?
- Are you willing to rewrite an essay or redo a math problem until you get it right?

Programmers and systems analysts work with information, called data, that usually is in the form of lists of numbers.

- Are you good at remembering historical dates, batting averages, telephone numbers, bus schedules, or other numerical information?
- Do you like to memorize the amounts of ingredients in a recipe?
- Do you find it easy to use a phonebook or dictionary?

Programmers and systems analysts work closely with others. They must be able to speak and write clearly.

- Do you talk about complicated subjects with your parents, teachers, or friends?
- Can you listen to or give a detailed explanation?
- Can you give clear instructions to do a task?
- Do you find it easy to say what you mean?

Suggested Activities

Arrange for a programmer or analyst to come and speak to your mathematics or science class about his or her work. A major bank, industrial firm, or computer company is a good place to find such a person.

Present a report on computers to your mathematics or science class. Include a brief history of computers and an explanation of their main parts. A diagram would help your presentation. Also explain the differences between: Input and output; analog and digital computers; hardware and software.

Computers are an important tool in many different fields. Report to your mathematics, science, or social

studies class on how they are used in one of these areas: Teaching, crime control, banking, medicine, transportation, or scientific research.

Can a computer think? Talk about different aspects of this question in a social studies or English class report or panel discussion. To prepare, consider these questions: What does it mean to "think?" How does a computer make decisions? How do people make decisions?

As a topic for a report in your math class, discuss the binary system of numbers. Be sure to explain how computers use the binary system and how it differs from the decimal system. Also include examples of binary addition.

As a topic for a report in your math class, find out what a flow chart is and how it is used. Draw a flow chart of a simple system, such as your system for getting ready for school in the morning, or a system for planning and cooking a meal.

Join a Computer Explorer Post, if there is one in your area. Exploring is open to young men and women aged 14 through 20. To find out about Explorer posts in your area, call "Boy Scouts of America" listed in your phone book, and ask for the "Exploring Division."

Write for information on careers in programming and systems analysis to the American Federation of Information Processing Societies, 210 Summit Avenue, Montvale, New Jersey 07645.

Related Occupations

Mathematics and statistics are very important in the work of computer programmers and systems analysts, but many other workers use math and statistics too. Six of them describe their jobs below. See if you can figure out who they are. To help you, there is a list of the six occupations.

1. My job is doing basic research in mathematics. I develop new ideas and techniques in algebra, geometry, topology, and other branches of math. My discoveries are used widely in science, engineering, and many other fields. Who am I?

2. I work for an insurance company. I figure out how often different groups of drivers—young drivers, city drivers, truckdrivers, and sports car drivers, for example—have accidents. The company uses this information to set the prices of its insurance policies. Who am I?

3. When a business is not running smoothly, I use mathematics and computers to solve the problem. First I find out from the managers exactly what the trouble is. Then I make a mathematical model of the situation and feed it to the computer, which helps me find possible solutions. After comparing these I make my recommendations. Who am I?

4. I work for a company doing scientific research. The scientists collect large quantities of raw information from their experiments. With the help of computers and mathematical formulas, I reduce and convert this information into a more usable form. Who am I?

5. I help scientists gather reliable statistics for their research. I plan and conduct surveys to collect the information. Then I analyze the results to see how reliable they are. Computers help me a great deal. Who am I?

6. I work for a corporation that invests a great deal of money in the stock market. My job is to advise the company how best to spend its money. I study the market and my company's financial situation. I collect information, write reports, and make recommendations. Who am I?

Actuary

Financial analyst

Mathematical technician

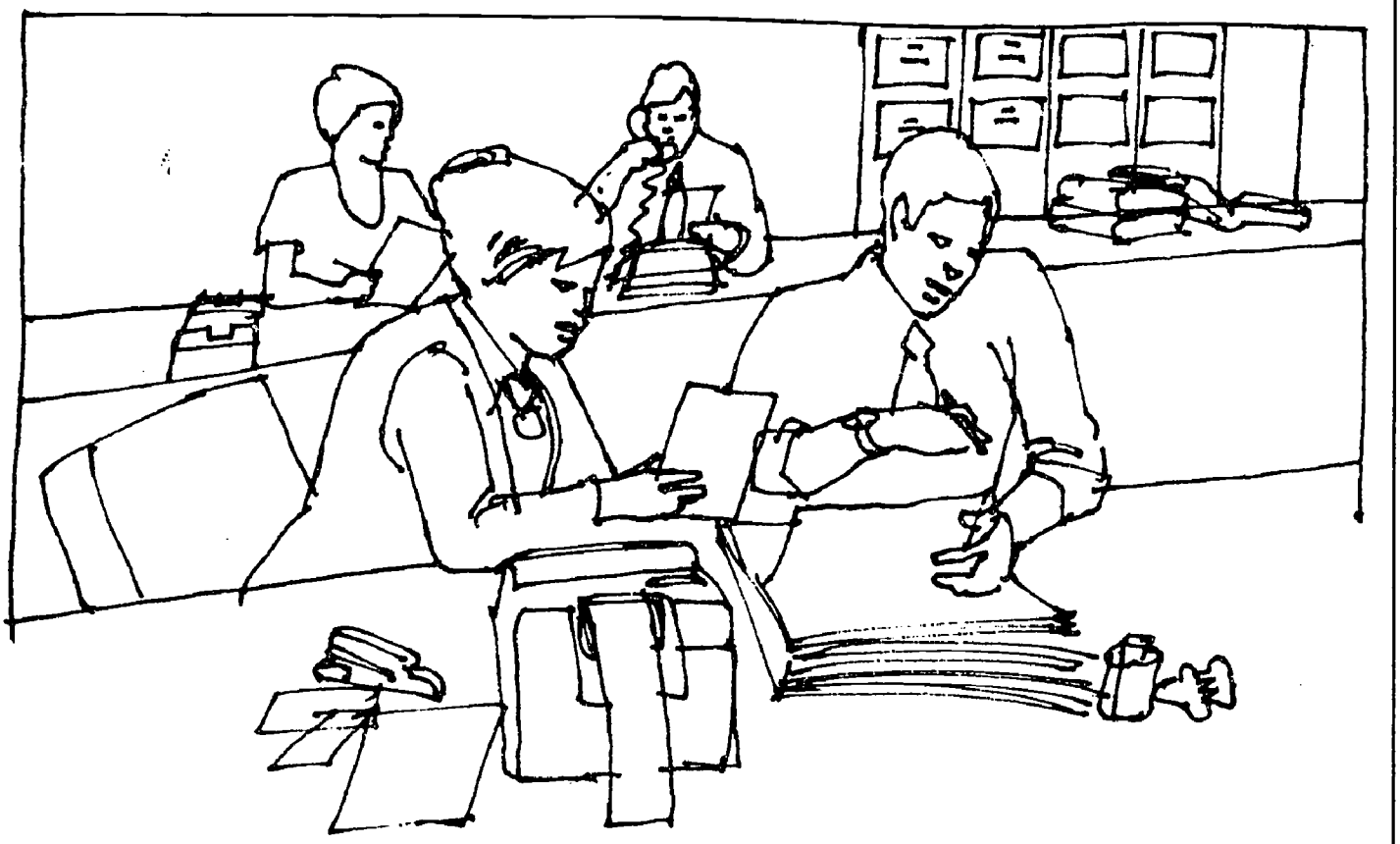
Mathematician

Operations research analyst

Statistician

See answers at end of chapter.

Job Facts



There isn't room in this book for a story about every office occupation. However, you'll find some important facts about 33 of these occupations in the following section. If you want additional information about any of them you might begin by consulting the Department of Labor's *Occupational Outlook Handbook*, which should be available in your school or public library.

Occupation	*Nature and Places of Work*	*Training and Qualifications*	*Other Information*
CLERICAL OCCUPATIONS			
Bookkeeping Workers	All kinds of firms employ bookkeeping workers. About a third of the jobs are in wholesale and retail trade.	Employers generally hire high school graduates who have taken business arithmetic, bookkeeping, and principles of accounting. Some high school students learn bookkeeping on the job through work-study programs. College courses are necessary for some jobs.	An increasing amount of bookkeeping is done by machines, rather than by hand.
Cashiers	Cashiers work in all kinds of business establishments. Supermarkets and food stores employ more cashiers than any other kind of store.	Employers prefer high school graduates. Courses in bookkeeping, business arithmetic, and typing are good preparation. Many schools offer cashier training as part of distributive education programs. But cashiers generally train on the job.	More and more stores and supermarkets are using computerized checkout systems. Many cashiers work part time.

Occupation	*Nature and Places of Work*	*Training and Qualifications*	*Other Information*
Collection Workers	Most collectors work for banks, loan companies, and collection agencies. Others work for wholesale and retail businesses.	High school graduation is necessary for most beginning jobs. Experience in person-to-person contact is helpful, because collectors have to be able to persuade people to pay their bills. Most training takes place on the job.	Collectors do most of their work over the phone.
File Clerks	File clerks work for all kinds of businesses. About half work in banks, insurance companies, factories, or government agencies.	Employers prefer to hire high school graduates who can read quickly and accurately, spell well, and type. Beginning workers learn their employer's filing system on the job.	Filing often is a job for beginning office workers. After working a while, file clerks may be promoted to jobs as typists, secretaries, or office machine operators.
Office Machine Operators	Manufacturing companies, banks, insurance companies, and wholesale and retail stores all employ office machine operators. Some operators work for businesses that specialize in providing word-processing, copying, and other clerical services.	Employers prefer to hire high school graduates who can type and operate an adding machine or calculator. Workers are trained on the job for the particular machines they are to operate.	There are many kinds of office machine operators. Their job titles depend on the machine they use, such as: Bookkeeping machine operators, calculating machine operators, and duplicating machine operators. Workers may operate only one machine or a variety of machines, depending on their job and experience.
Postal Clerks	Many clerks are employed at local post offices, but most work at one of the more than 300 mail processing centers across the country.	High school graduates 16 and older as well as anyone 18 and older may apply. They must pass several tests that measure their clerical and physical ability. Postal clerks are trained on the job.	The Postal Service classifies clerks into four categories. *Casual* employees help with unusually large volumes of mail during Christmas and other peak mailing periods. *Part-time flexible* employees work regularly, but not according to a set schedule, as *part-time regular* employees do. Most clerks begin as part-time flexible workers while waiting for an opening as a *full-time* clerk.
Receptionists	Almost every kind of organization employs receptionists, but about half work in the health field, for doctors, dentists, and hospitals.	Employers usually hire high school graduates. Courses in English, typing, and basic bookkeeping are helpful. A neat appearance and pleasant manner are very important.	Receptionist is a job for beginning office workers. In a large office, however, a receptionist with clerical skills may be promoted to typist, secretary, or administrative assistant.
Secretaries and Stenographers	Two out of three secretaries and stenographers work in banks, insurance companies, real estate firms, government agencies, and other organizations. Medical secretaries work for doctors, and legal secretaries work for lawyers. Executive secretaries work for top officials in business and government.	Employers generally hire high school graduates and may prefer people with additional business or secretarial training. Some secretarial jobs involve a great deal of responsibility, judgment, and skill. For these, secretarial school or college is often a must.	Secretaries do clerical work and handle many of the business and administrative details that need to be taken care of in offices of all kinds. Many of them work temporarily or part time. Experienced secretaries may be promoted to jobs as administrative assistants, office managers, or executive secretaries.

Occupation	*Nature and Places of Work*	*Training and Qualifications*	*Other Information*
Shipping and Receiving Clerks	Factories employ more than half of all clerks. Large numbers also work for wholesale houses and retail stores.	Employers prefer high school graduates who have taken some business courses. Legible handwriting is important. Training generally takes place on the job.	Clerks often must perform strenuous work in cold, drafty, dirty warehouses. Occasionally they may have to work overtime to unload a late shipment.
Statistical Clerks	Although nearly every industry employs statistical clerks, most work in finance, insurance, and real estate companies, in manufacturing firms, and in government.	Employers prefer high school graduates who have had math courses and can do detailed work. Training in data processing, bookkeeping, and typing is helpful.	Many clerks work closely with computers.
Stock Clerks	Factories, wholesale firms, and retail stores employ most stock clerks. Others work for airlines, government agencies, and hospitals.	Employers prefer high school graduates with basic reading, writing, and math skills. Training usually occurs on the job.	Clerks spend much of their day on their feet. They often work in damp, drafty stockrooms and may have to do considerable bending and lifting. With experience, clerks may move to higher positions in stock handling or to sales positions.
Typists	Almost every kind of organization employs typists, though most work in factories, banks, insurance companies, real estate firms, and government agencies.	Most employers require high school graduates with good English skills who can type 50 to 60 words per minute. The ability to operate copying and adding machines is helpful.	A typist's job is often a beginning job; from there it is possible to move into a job as a secretary, office machine operator, or computer operator. One typist in four works part time.
COMPUTER OCCUPATIONS			
Computer Operating Personnel	Most operating personnel work for manufacturers, banks, wholesale and retail businesses, government agencies, and data processing firms. There are several different kinds of operating personnel, including key entry operators and high-speed printer operators.	Employers usually hire high school graduates, and prefer people with college training in data processing. Beginners are trained on the job.	Because computers must be operated at carefully controlled temperatures, operators work in air-conditioned rooms.
Programmers	Most programmers work for large firms that have big computer systems. This includes manufacturers, banks, insurance companies, data processing firms, and government agencies.	College training generally is necessary for a job as a programmer. Firms that use computers to handle scientific and engineering problems usually require their programmers to have a bachelor's degree, preferably in science or engineering.	Programmers occasionally must work nights and weekends, in order to use the computer when it is available.

Occupation	*Nature and Places of Work*	*Training and Qualifications*	*Other Information*
Systems Analysts	Most systems analysts work for manufacturers, banks, insurance companies, and data processing firms. Geographically, employment is concentrated in the midwestern and northeastern States.	Employers prefer college graduates with a degree in a field related to the kind of work the company does, and with training in computer techniques, concepts, and programming. Prior experience with computers in important; many systems analysts start out as programmers.	Systems analysts normally do not work the odd hours that other computer workers do, though occasionally they must work evenings or weekends to finish a project.
BANKING OCCUPATIONS			
Bank Clerks	Although clerks work in every branch bank, the larger branches and main offices employ most of the more specialized workers.	A high school diploma is usually sufficient. Courses in typing, bookkeeping, and other clerical areas are helpful. Clerks receive their training on the job.	The work of bank clerks is often very detailed and repetitious.
Bank Officers	Every branch bank employs officers, but the greatest variety and specialization are found in the large branches and central offices.	Banks prefer college graduates for management training. A degree in business, accounting, or economics is excellent preparation, though graduates in other fields are in demand, too. Occasionally, banks promote outstanding tellers and clerks to jobs as officers.	Officers can specialize in a wide range of areas, such as lending, trust management, or correspondence banking.
Bank Tellers	Specialized tellers generally work in large and main branch banks, while smaller branches usually employ all-purpose tellers.	Employers prefer high school graduates. Basic qualities such as clerical skill, friendliness, neatness, courtesy, and attentiveness are important.	A teller's job is repetitive and demands great attention to detail.
INSURANCE OCCUPATIONS			
Actuaries	Two out of three actuaries work for insurance companies, mostly those that handle life insurance.	Actuaries generally need a bachelor's degree in math, statistics, or actuarial science. They have to pass a series of difficult exams given by one of the professional societies of actuaries.	Most actuaries specialize in life and health insurance, property insurance, or pension plans.
Claim Representatives	While a handful of claim representatives work for banks, finance companies, and other business firms, the majority work for insurance companies.	Many employers prefer college graduates in almost any field, though specialized work experience will often be an adequate substitute for a degree. In some States, claim representatives must have a license.	Many claim settlements involve a great deal of travel.
Underwriters	Most work for property and liability insurance companies. The rest work for life or health insurance companies.	A bachelor's degree in almost any field is preferred for beginning positions. However, to get ahead, further study is necessary.	The work of underwriters is very detailed and carries a great deal of responsibility.

Occupation	*Nature and Places of Work*	*Training and Qualifications*	*Other Information*
ADMINISTRATIVE OCCUPATIONS			
Accountants	There are three main kinds of acountants. *Management accountants* are the most numerous. They handle the records of the companies they work for. *Public accountants* analyze and prepare financial reports for individuals and businesses. They work for, or own, independent accounting firms. *Government accountants* examine the records of government agencies and audit private businesses and individuals whose financial affairs are subject to government regulations.	Most large employers prefer college graduates with a bachelor's degree in accounting or a closely related field. A master's degree may help in some cases, as would computer training. In order to move up, public accountants sooner or later must get their certification, by passing a State exam.	Accountants often specialize in one phase of accounting, such as auditing, tax matters, or management consulting.
Advertising Workers	Advertising workers have jobs with many different kinds of firms. First and foremost, they work for advertising agencies. But they also work in the advertising departments of manufacturing firms, retail stores, and banks, or for printers, art studios, letter shops, and similar businesses.	Most employers prefer college graduates, but work experience may be more important than educational background.	People in this occupation work under great pressure to do the best job in the shortest period of time. Often they work long or odd hours to meet deadlines.
Buyers	Buyers work for retail businesses of every size and variety all across the country. Most, however, work in large cities.	A college degree in almost any field is sufficient for beginning positions. Training takes place on the job.	Buyers regulate their own schedules and often work long or odd hours. They may spend some time traveling, depending on the kind of merchandise they buy.
City Managers	Three out of four city managers work for cities of fewer than 25,000 inhabitants, though many larger cities employ managers, too.	A master's degree in public or business administration is almost essential for a career in city management.	Managers often work long, difficult hours, especially during times of emergency.
Credit Managers	Wholesale and retail businesses employ about half of all credit managers, while a third work for manufacturers and financial institutions.	Employers prefer college graduates who have majored in business administration, economics, or accounting.	Highly qualified credit managers can advance to top-level executive positions.
Industrial Traffic Managers	Most industrial traffic managers work for manufacturing firms. Some work for wholesale and retail establishments.	Employers prefer, and in some cases require, college graduates for this job.	Industrial traffic managers analyze the cost and efficiency of various ways of transporting goods. They need to know the government regulations that affect that transport.
Lawyers	Three out of four lawyers work in law firms. The remainder work for businesses, private organizations, or government.	A bachelor's degree and 3 years of law school are required for a law degree. Degree holders must pass a bar exam to practice law.	Many lawyers specialize in a particular legal field, such as tax, patent, divorce, or criminal law.

Occupation	*Nature and Places of Work*	*Training and Qualifications*	*Other Information*
Market Research Workers	Manufacturers, advertising agencies, and independent research organizations employ most market research workers. However, some work for retail stores, broadcasting companies, and newspapers.	A bachelor's degree in a field such as marketing, business, psychology, or statistics is necessary for a beginning job. However, to get ahead, graduate training is almost essential.	Market research activity goes through ups and downs that depend on the general health of our economy.
Personnel and Labor Relations Workers	Three out of four workers in this occupation are employed in private industry, including manufacturers, banks, and insurance companies. Government agencies also employ large numbers of these workers.	A bachelor's degree in personnel administration, industrial and labor relations, business, or liberal arts is desirable, depending upon the employer. For labor relations work, graduate study is often necessary.	Getting along with people is an essential part of this occupation.
Planners	Most planners work for city, county, or regional planning agencies. Some work for government agencies that deal with housing, transportation, or environmental protection. Still other planners work for public interest organizations or consulting firms.	Employers prefer applicants with graduate training in urban or regional planning. However, people with bachelor's degrees in city planning, architecture, landscape architecture, or engineering also qualify.	In large organizations, planners specialize in areas such as housing or economics, while in small offices they must work in several different areas.
Public Relations Workers	Public relations workers present their employer's image to the public. They work for organizations of all kinds: Manufacturers, insurance companies, public utilities, transportation companies, hospitals, colleges and universities, and government agencies.	A college education with public relations experience is excellent preparation. The appropriate field of study depends on the employer's needs.	Public relations workers often have to work overtime to finish a project. They occasionally travel on business.
Purchasing Agents	About half of all purchasing agents work for manufacturing firms, government agencies, construction firms, hospitals, schools, and other places that buy in very large quantities.	Large firms usually hire college graduates and prefer applicants with a master's degree in business administration. Small firms hire people with fewer years of college.	In large organizations, agents usually specialize in one or more specific items, such as steel or lumber.

Answers to Related Occupations

BANK OFFICER

1. a, 2. c, 3. b, 4. c, 5. b, 6. c, 7. b, 8. a.

PLANNER

1. d, 2. b, 3. c, 4. f, 5. g, 6. a, 7. e.

COMPUTER PROGRAMMER/SYSTEMS ANALYST

1. Mathematician, 2. Actuary, 3. Operations research analyst, 4. Mathematical technician, 5. Statistician, 6. Financial analyst.

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