**THE COMPUTER**

The automatic electronic digital computer is a machine that utilizes electronic circuits to manipulate data expressed in a symbolic form according to specific rules in a predetermined but self-directed way. In brief, it is a machine which uses electronic circuits to handle symbolic 5 data. However, even this simplified definition is somewhat hard to absorb as a whole so let's look at its individual parts to understand it better.

First of all, the computer is a machine. This means that it is inanimate. As it is non-living, it requires an outside power source and without this source it stops working. This also means it can perform only those activities for which the basic capabilities have been specifically designed into the machine. In other words, it is limited to its designed capabilities and the directions given to it. If separated from its outside power source, it ceases to function.

Second, it is automatic. This means that once started, it continues to run without outside interference. Third, it is electronic; that is, it is made up of electronic circuits and runs on electrical energy.

Fourth, the computer is a symbol manipulator. It manipulates data, not physical entities. These data are represented as electronic impulses within the machine. These electronic signals are combined to form number (digital) representations of data. Electronic devices are two-state devices. For example, a switch is either on or off, a spot on the surface of a magnetic tape is either magnetized or not magnetized. Therefore, it seems natural and reasonable to use the base 2 or binary number system as the basic data-representation method in the computer. Only two digits exist in the binary number system, 0 (zero) and 1 (one). They can easily be matched to the two states of the electronic devices. Combinations of 0's and l's can be used to represent non-numeric data as well as numeric data.

Fifth, the computer must follow specific rules in manipulating data. These rules are, in the main, the rules of Boolean algebra. That is, the computer can perform only the processes of addition, subtraction, multiplication, division, and comparison in addition to data transfer between components. Sixth, the computer must follow a predetermined sequence of processes. That is, someone (the programmer) must prepare a programme for the computer to follow.

Finally, the computer can follow the predetermined sequence in a self-directed way. It can store the programme within its own memory and then follow it through under its own direction, without outside 245 guidance. That is, the computer can be made, in effect, to learn a process, store the instructions in its memory, and follow them through, unaided by further supervision and direction. This stored-programme characteristic is what differentiates the computer from other data processing machines. The instructions are stored in the memory and the memory is accessible to a user. Since the memory is within reach of the user, the instructions can be changed easily. The computer can thus be given the ability to handle many different jobs. It is much more flexible than the "programmable" accounting machines because its programmes are a sequence of logic and arithmetic operations.

**COMPUTERS IN THE MODERN WORLD**

The computer is a fairly new invention, but it has already become very important in the modern world, especially in government, science, business, and education. Since computers are very efficient, schools, banks and other organisations use them for many kinds of work in which speed is essential.

For example, banks often use computers to monitor accounts. In many city banks, computers keep all the records of customers' deposits and withdrawals. Customers can also do their banking ât any time of the day, thanks to computers. They can go to an outside window where they punch a code number on a computer. The computer will take care of their deposit or withdrawal. If they are depositing, they put their money in an envelope and insert it in the machine. If the customer is withdrawing, the machine will return money in an envelope. Customers can pay bills without going to the bank since the computers in banks can communicate with computers in other places. People find it more convenient than having to carry cash or cheques with them when they go shopping. When the customer buys something at a store, the computer can immediately subtract money from the customer's bank account and add it to the store's account.

Computers help us in other areas, too. They help scientists do many experiments. Because of computers, we have made progress in many 243 areas, such as health care, communications systems, business management, and space exploration. Large hotels, airlines, and other businesses use computers too to control reservations, keep records, pay employees and compute bills.

In fact, computers are more efficient today than ever before, and it is difficult to imagine the world without them. But it is very easy to predict the importance of these 'thinking machines' in the future.

**WORK AT HOME**

Work at Home - And we're not talking about housework! The electronic cottage. Does it sound strange? Not to futurists. They say that in the future people will work at home, connected to their office by inexpensive computers. In fact, some experts say that, by the year 2000, as many as 10 million \Americans will be working from the home. No more rush-hour traffic problems. No more expensive office buildings. Office workers could work more productively and effectively in their homes, where they wouldn't be constantly interrupted by the phone and other colleagues.

But is the home really the ideal place to work? In experimental projects across the US, several hundred secretaries and professional workers have agreed to try working at home on computers that are connected to their firm's office computers. This kind of work is called 'telecommuting', and employees work at 'flexiplaces' instead of in office buildings.

Although the advantages of computer work at home have always been obvious, the disadvantages haven't been discussed too much. Employers are afraid of losing control over their employees. They don't trust the workers at home and think that if no one is watching the employee, he or she won't work as hard. On the other hand, employees feel out of touch with the office and fear they might be forgotten when it comes to pay raises and promotions (i.e., getting a better job with the same company). Companies are also discovering that working at home is expensive for them because of the high cost of computers.

Unions are against computer work at home. They fear that the home computer workshop will bring back the poor working conditions of the late 19th century. They say it will be easier for employers to pay workers less and not give any health insurance or pension schemes. They are afraid that children will be working at an earlier age and they say employees may even be forced to buy office equipment usually paid for by the firm. At the moment the unions are against all home computer work except for the handicapped, who cannot live a normal life due to their physical or mental disability.

Companies who have experimented with work at home have had some successes but also some failures. Fun Toy Co. says that the workers at home worked 48% more effectively than the workers in the office. But not all the home workers liked it. Three out of eight managers in the programme dropped out. One manager, Sally Evans, wanted to get back to the office after putting on 20 pounds in two months because she was always running to the refrigerator for snacks. Another manager with marriage problems found that being in the house all day made his marriage even worse, and his wife finally moved out. The third manager to leave the programme missed the social contact with friends at the office and found it hard to discipline himself at home.