

# Computers' Progress Gets Personal

A DECADE ago, workers were warned: "Look alert! You could be replaced by a computer." Now that computers are being made to read newspapers, set type, answer questions, play chess and speak in plain English, the rivalry could become more personal.

Astonishing gains are being made in amounts of information that can be stored in tiny computer chips. The volume grows as devices become smaller and cost per unit stored drops.

As recently as 1970, the number of "storage bits," or items of information, that could be stored in "random access memories for main-frame computers" was only 1,000. By 1985, this is predicted to reach 256,000, with "serial memories for mass data storage" probably four times as great.

Business offices have taken to

computers as efficiency devices, with more than 300,000 performing numerous types of chores. They sometimes make mistakes that outdo human errors, but when they are working properly computers outdo humans on many tasks.

Science fiction artists used to imagine robots that would look like mechanized human beings, but few of them do.

Industrial robots, for example, usually bear no resemblance to people, but they can do dirty, dangerous jobs. They can remember hundreds of instructions and execute them without error for days and nights on end.

They can position red-hot parts in the jaws of dangerous machines, and they aren't bothered by fumes. They don't come to work tired or with a hangover.

For years, predictions have been

made that intricate bar codes marked on grocery items would be scanned by check-out computers that would do all sorts of things with the information. For one, they would give customers printed lists of items bought, instead of just prices and meaningless symbols.

The day also may be coming when a person can walk into a doctor's office, be hooked to an array of instruments and get a detailed print-out of his condition. Doctors say they still will be needed to prescribe medicine and perform surgery.

The pattern might be like that of the chess-playing computer. The United States Chess Federation has voted to allow computers to take part in human tournaments but not to win prize money.

That, too, may come before long, because computers can be programmed to spend money, perhaps even better than people.