

Looking To The Future

Some practical observations



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The availability of very inexpensive and powerful microcomputers is sure to have tremendous impact over the next 20 years. Although it isn't possible to predict all of the changes computers will bring to our lives, I'd like to at least discuss a few possibilities which may develop.

It would also be easy to provide an "on line" computer dating service or a car pool service through a community bulletin board system.

You've heard of "the information explosion" and it appears we are drowning in a rapidly expanding sea of information. Books, magazines, professional journals and other publications are churning out at an ever-increasing rate. The day of the Renaissance Man, who was able to keep up with all new developments, is now past. Over specialization has locked us into tiny compartments of knowledge which are often cut off from each other.

A National Data Base

Now imagine what it might be like to "fly" through the field of all available information and "land" on the facts relevant to any problem. It is conceivable that the contents of the Library of Congress could be put into a national data base, continually updated by new publications. Every citizen could tap this data base via a home computer and either a telephone link or perhaps the cable TV network (the information capacity of a cable TV line is much greater than a telephone line).

You might sit at your keyboard, type a list of keywords to describe your area of interest and begin reading text as it scrolls on your video monitor. A joystick under your right hand controls the display. Pushing it away from you slows the scrolling or stops it, pulling the joystick toward you speeds the

display. Tipping the stick to the right causes the information to become more summarized so that you see only major topic headlines or indices, while tipping the stick to the left causes more detail to be displayed so that eventually you progress from the titles of works to abstracts and then to the row text.

You could place standing orders through your computer so that you'd be notified of any new publications in your area of interest. By careful choice of keywords, you could learn of publications in specialties remote from your own which contain ideas useful to you. Such cross-fertilization of ideas would be only one of the benefits of a national data base.

You could ask to be instantly notified of any pending legislation which might involve issues of importance to you. If your computer signals that an important legislative debate will take place on a law affecting your job or community, you may choose to sit down at the keyboard and text-edit a brief message to your legislator, indicating your opinion and interest in the matter. This feedback could be analyzed by your legislator's office computer to maintain a closed feedback loop between citizen and government. When election time rolls around, it would be very easy for you to request a printout of your candidate's voting record on every issue of interest. You could easily compare this to an earlier list of campaign promises, also stored in the data base.

It might be possible for a new form of publishing to be implemented through the national data base. An author could submit a work to the data base with a tag attached which would cause the reader's account to be billed for a modest fee if the document is accessed by the reader's home computer. The fee might be low for video screen access and somewhat higher if a hard copy of the work is created.

Computerized Communications

In case all of this seems far off in the unlikely future, I'd like to tell you

about some of the related developments which are happening now. Digitizing, for example, is now in the experimental stage. This technique involves the transmission of digital data via a subcarrier on either a television or FM radio station. The digital data may be news, advertising or any other form of information. If your home computer is hooked up to a receiver, you may be able to program it to select the items of interest to you.

Suppose, for example, that you'd like to buy a used car, that you have between \$1,000 and \$1,500 to spend and that you'd like a Volkswagen. You could ask your computer to search all incoming ads for anything meeting these criteria. This would save you a lot of searching and reading of uninteresting ads. The advertisers will be more sure of reaching interested buyers, yet this form of advertising should be quite inexpensive. The rate at which digital data may be transmitted is much faster than conventional speech or reading; many ads could be transmitted every minute.

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Community computer bulletin boards are a related development. These consist of a computer with a lot of mass storage and with one or more modems for telephone data exchange. You may use your home computer and telephone to either explore the messages and ads left on the bulletin board, or you might leave a message or ad yourself. This can be a nice way to run a flea market, find a home for rent, learn about club meetings and more.

Imagine such a bulletin board being used by postage stamp collectors. Each collector could list the

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stamps available for trade and the stamps desired. A computer search could turn up the names of folks with complementary desires. It would also be easy to provide an "on line" computer dating service or a car pool service through a community bulletin board system.

While the cost of home computers has been dropping, you might still argue that many folks will not have access to computers for many years to come. I don't think this will be true. Computers are already appearing in many schools and some grammar school students are already learning how to write programs. I expect to see computers in public libraries, perhaps coin operated in much the same way photocopy machines are. Timesharing companies are already offering very inexpensive access to their networks. I saw a recent ad quoting \$8 per hour. It is worth noting that some of these networks cover vast geographical areas.

There have been some experiments with conferences held via computer network. Participants may be scattered around the world but are linked to a central computer. Each may deposit messages in the computer,

addressing each message to the entire meeting, to a committee, to a special interest group, or to an individual. This turns out to be a surprisingly effective communication technique. As the cost of energy for transportation goes up, we may see more innovative use of computers in communications. A large percentage of the folks who now commute to an office where they handle paperwork may be able to simply sit down at their home terminal and do the same job.

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Computer Modelling

It is now difficult and complicated but possible to construct computer models of systems. An airplane may be modelled on a computer and "test flown" before it is actually built. In the same way, economic, social and ecological systems may be modelled. The effects of proposed legislation,

new industry or other changes may be evaluated with the help of the computer model. Possible effects of such changes may be projected months or years into the future to aid intelligent decision-making.

Of course, it is important to remember "Garbage In, Garbage Out." Computer models are never even as good as the data fed into them. A model is, of necessity, a simplification of the incredible complexities of a real-life system. But there is reason to believe that it will become easier to build more accurate computer models in future years, and eventually it may become so easy that the average citizen can use modelling as an aid in making personal decisions. The trend toward increasingly powerful high level computer languages may eventually lead to a language in which such modelling would be very easy. With the aid of a national data base, it might become possible to improve model accuracy by taking into account more factors influencing the real-life system.

I'm sure that I haven't begun to scratch the surface of this topic. The future of inexpensive computers is limited primarily by our imagination. As the next generation grows up learning one or more computer languages in grammar school, we should expect truly startling developments. □

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