WORKING PAPER FOR THE UNIS/UN STUDENT CONFERENCE

ON

THE COMMUNICATION REVOLUTION: FREEDOM OR CONTROL

United Nations International School

8-9 March 1984

IN THE GENERAL ASSEMBLY HALL, UNITED NATIONS, NEW YORK

84-43697

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With special thanks to our editors, Paul Stark, Mike Uretsky, and Hannah Wassermann, and to Marian Weinert, UNIS Librarian, for help with the Bibliography.

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INTRODUCTION

Revolution

The word revolution means rapid and radical change. The staggering advances in communication technologies and their impact on the world's political and cultural development can quite rightfully be termed a revolution in this sense. More information can be stored, retrieved and transmitted than could ever have been imagined a few decades ago, and the world we will inhabit in the year 2000 will be very different as a result of these new technologies. We are becoming more and more aware that these changes and their effects need to be understood. The United Nations declared 1983 "World Communications Year". Now, in 1984, we wonder whether the computer will help fulfill George Orwell's prophecy of a world full of surveillance and manipulation. Certainly, this new technology has emphasized and added new dimension to the power relationships between the "haves" and "have-nots". Those who control information and its dissemination can exploit those who do not. The United Nations has declared 1985 "International Youth Year". This generation will live with the fundamental changes the communication revolution is creating in the world. It is up to us to try to make use of these changes for the benefit of all.

Technology

The new technology has tremendous capabilities. People can send written materials, voice and pictures anywhere instantaneously. People can retrieve vast amounts of information from a computer simply by pushing a button. Eventually we will take these new inventions for granted, just as we do the telephone, radio and television. But the current changes will have far more powerful effects than those earlier technologies. Our way of life is changing rapidly and drastically as we are ushering in a new age -- call it what you will -- the "Information Age" or the "Post-Industrial Society". Will we have any say in how this change should happen? People can be either objects or determiners of their fate; they can let things happen to them, or they can participate in decisions affecting them. To control these changes is a challenge: it requires awareness of the world around us and a commitment to participate in decision making.

Control

This conference raises the question of who will control this new technology. Is information the "Common Heritage of Mankind", as are the resources of the oceans and of space? Or is it a commodity -- property -- that can be bought and sold? Corporations have a vested interest both in the manufacturing of the hardware that deals with information and in information itself. Governments need information for their bureaucracies to function. They also gather and store vast amounts of information. Do both these institutions want power for manipulation and surveillance, or to ease and enrich our lives? And who will decide whether an action falls into one or the other category?

Freedom

People need the freedom and opportunity to use the new technology rather than be used by it. They need privacy, the right to participate in producing and disseminating information, and the choice of listening to and watching what and when they want. They have the right to accurate information and to protest the actions of governments and corporations. They need to have easy access to data about themselves and to information that does not infringe upon the privacy of others or jeopardise the "security" of the state.

The Haves and the Have Nots

There are many instances of conflict between freedom and control of information and communication. The technology for the communication revolution is mostly produced by and used in developed countries. More than 50 percent of the people working in the United States are employed in producing or disseminating different kinds of information. However, to work in the information sector of society requires technical training and investment in hardware. Thus, a segment of society will not be able to use this technology. They will become the "under-privileged" and will be left behind in the enjoyment of the benefits of the new society. This inequality not only exists within nations but between nations, most obviously in the relationship between industrial and developing countries. People who cannot participate in the new technology lack power, and those without power cannot be free.

Information and Communication

The words information, communication and knowledge are often used interchangeably. Information is data, or facts, and communication is the transfer of information between one "point" and another, between machines, people or groups.

Information can come in the form of writing, figures, charts and speech. It is also transmitted through the news media, as well as the more subtle forms of cultural expression, such as music, art, drama, dance and literature. Knowledge presumes an understanding of information. Whether the flood of data that is surging around the globe is increasing our understanding, it is difficult to say. Communication is PROCESS and information is CONTENT. Some people say that HOW something is done will not affect what information is passed through the medium of the machine or the purpose for which the information will be used. Others say that the medium does indeed affect the message and sometimes becomes the message itself. The way people perceive data, news and entertainment is affected by the way it is presented.

Optimists and Pessimists

There are two opposing views of the new information technology; that of the optimist and that of the pessimist.

The latter sees these new technologies as threats to privacy of the individual and to humanity itself. They see the use of computers as a challenge to the qualities which make us human. Their future is the bleak future of Orwell: the total lack of privacy, surveillance of every sort, the absence of individual free thought and the eradication of all human feelings. There is also the possibility of permanent isolation. The world will become a network of computers and each person will live with his terminal, eyes glued to the screen. The pessimist's is a frightening world, where the technology of today will result in the total and complete dehumanization of mankind.

The optimists do not see technology as a threat. Rather, they see it as an absolute necessity and a benefit to all. They claim that instead of limiting free thought, technology will greatly enhance it. If computers can perform menial tasks, the human mind will be at liberty to think of "higher" things. The new technology will make essential, menial tasks more efficient, allowing for more leisurely human activity and human thought. The human element will not be eradicated, instead it will be strengthened. The optimist sees a future of diversity in communications, bright and promising compared to Orwell's world.

Which future will we choose -- or will choose us? The process of technological change and its effects is a complex one and we have no ready answers to this question. We hope that this conference will provoke discussion and make us all more aware of the nature of the problem that we face.

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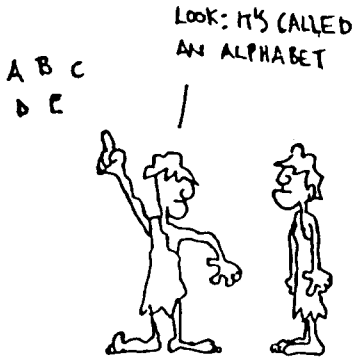
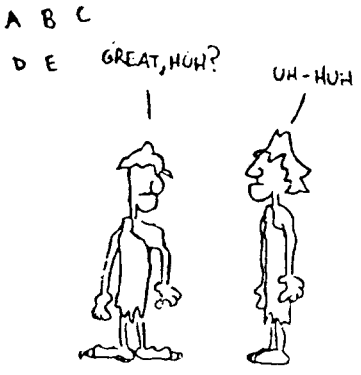
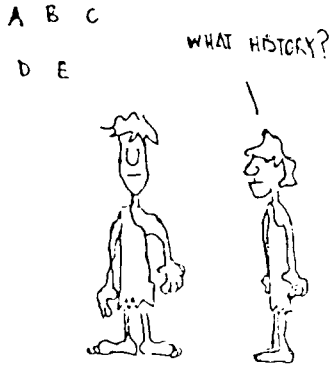






100 AD: CHINA

HISTORY

B.C.

3000 - Sumerians develop first system of writing.

1500-1000 - Semites develop first alphabet.

A.D.

100 - T'sai Lin, a Chinese government official, invents paper.

1045 - Pi Sheng, a Chinese printer, invents movable type.

1450 - Johannes Gutenberg, a German metalsmith, reinvented movable type.

1500s - The English make first graphite pencils. Graphite is still used today.

1684 - Dr. Robert Hooke invents a shutter semaphore which utilizes visual symbols designed to be read easily when seen through a telescope.

1811 - Friedrich Koenig, a German printer, invents a steam-powered printing press called a cylinder press.

1837 - Louis J.M. Daguerre, a French painter, develops an improved photography method.

1840 - Samuel F.B. Morse, an American painter, patents the electric telegraph.
- Modern postal system begins.

1864 - James Clark Maxwell, a British physicist, publishes the theory of electromagnetism which will eventually lead to the birth of radio.

1866 - First successful trans-Atlantic telegraph cable links Europe to North America.

1868 - Carlos Glidden, Christopher Latham Shoales and Samuel W. Saule, three American inventors, invent the first practical typewriter.

1876 - Alexander Graham Bell patents his telephone.

1877 - Thomas Edison develops the first practical phonograph.

1888 - Heinrich Hertz, a German physicist, discovers electromagnetic waves.

1895 - G. Marconi, an Italian inventor, develops the wireless telegraph (radio).

1920 - Monroe and Baldwin invent the first electric calculating machine.

1924 - IBM comes into existence.

1929 - Vladmir K. Zworykin, a Russian-born physicist, demonstrates the first all-electronic television system.

1936 - The British Broadcasting Corporation makes the world's first television broadcast.

1946 - Vacuum tubes replace electric relays, greatly increasing the speed of electronic equipment.
- The development at the University of Pennsylvania of ENIAC, the first large scale electronic computer.

1947 - Bell Laboratories develop transistors.
- Dennis Gabor, a British engineer, invents Holography (3-D photography).

1951 - The first commercial computer, UNIVAC, delivered

1959 - Transistors replace vacuum tubes, making computers 2,500 times faster.

1960 - The Xerox Corporation perfects xerography, a copy process.
- Echo 1 becomes the first satellite to receive radio signals from a ground station and reflect them back to Earth.

1970 - Corning glassworks produces first optical fiber suitable for long-range communication.

1971 - First computers (microprocessors) on a single "chip".

1970s - Several manufacturers develop videotape recorders.

1975 - Apple Corporation starts selling the first (non-kit) home computers.

There have been three highly significant turning points in the history of communication since the invention of writing. The first occurred in the mid-1400s, when Johannes Gutenberg reinvented movable type. The significance of this discovery was immense. Since information no longer had to be written by hand, it could now be widely disseminated. The impact was far-reaching. This surge of information opened new horizons. It brought about changes in values and perceptions and made the dissemination of scientific discoveries easier and faster. Within one hundred years Europeans had circumnavigated the globe and had settled on every continent. The printing press became

indispensable as a form of mass communication and as a persuasive political tool. For a long time to come, it was only through the printing press that information could be conveyed to a large number of people at once and whoever had access to one had the potential for influential power.

The second major step in communication came as a result of the discovery of electricity in the mid-19th century. The telegraph, telephone, radio, film and television came into existence. These devices have increased the speed of person-to-person communication over a distance, as well as the broadcasting of information to many people at one time while they remained in their own homes. Again, there were economic, social and political consequences of this technology. Businesses were organized into large corporations that could afford the capital expenditure for the new machines and services. War became more effective and terrible. The mass media developed to amuse and persuade more people than had ever been reached before.

Computers, the microchip and satellites are the third giant leap in communication. A great deal of credit goes to the microchip, without which information technology as we know it today would not be possible. The development of the microchip promises to help expand communication as did the printing press in the 1400s. It enables the production of inexpensive computers which are small in size but with large capacities for processing information. The possibilities that the microchip offers are seemingly endless. It has already made possible the first steps of man into space and will permit perhaps even greater achievements in the future. We are at the threshold of these changes and cannot gauge precisely where they will lead. But a study of history shows how wide ranging the effects of technology can be. Understanding this fact can help us to direct the process of change in ways most beneficial to the majority of people.

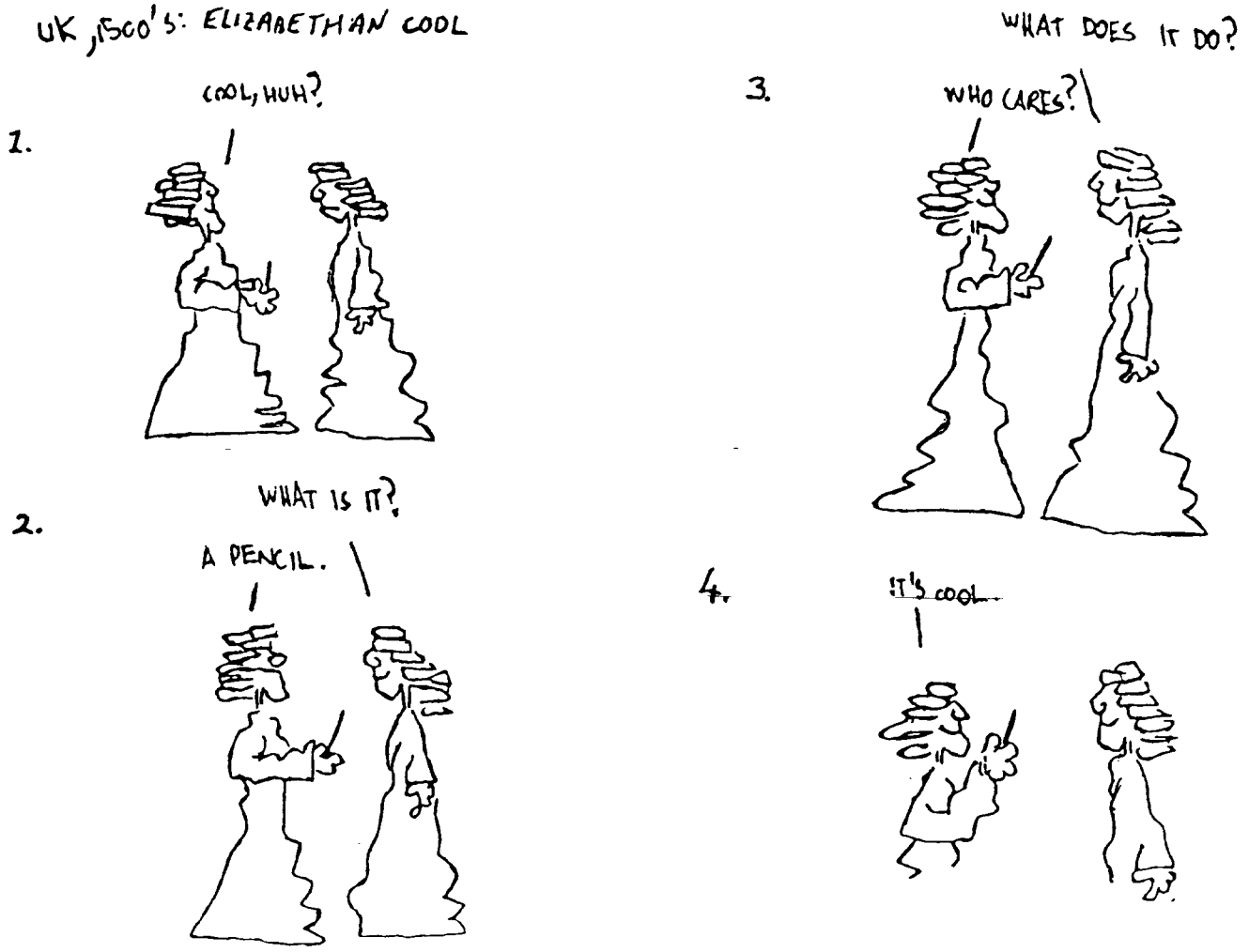
INFORMATION AS A RESOURCE

Information is a resource just like oil or land. Unlike other resources, however, information cannot be used up but becomes more valuable the more it is used. It creates wealth by facilitating the most efficient use of other resources. It makes other things more valuable and may be seen as being a product in itself. It is a commodity which is subject to the same economic and political theories and tensions as heroin or oil, and it can be as powerful as nuclear armaments.

Access to information is essential to its value. A farmer needs information in order to plant the crops most suitable for the soil and climate and most in demand. Having a computer on his farm can give him access to satellite information on soil and weather, to a marketing data bank for costs and prices, and to a research institute for the latest findings on seeds and pesticides. Mines can be excavated where satellites have detected resources and can be operated with the aid of computers. Business management can become more efficient. Doctors can check symptoms and treatments by referring to a medical data bank.

The equipment and programs **necessary** to store, retrieve and transmit information, and the people trained to operate them, are a resource. The information services that the equipment and people offer are also a resource. Information in all its forms is wealth, and therefore power.

The question arises how to share access to this new technology and the information it can process more equitably among groups and among nations. Corporations want to retain the economic advantage of monopoly. Governments want to safeguard national security and the right to censor information. Writers of programs want to safeguard their work with copyright laws. Information is most valuable when it is used. The problem is to ensure that it is circulated as much as possible at the same time that the rights of those who derive profit from it, or have legitimate reasons to control it, are protected.



THE NEW TECHNOLOGY

There are two techniques primarily responsible for the tremendous advances in the field of information technology. They are miniaturization, which decreases costs and increases efficiency, and the combination of computers and telecommunications, which allows information to be transmitted and processed at an incredibly rapid rate.

Computers

The machines which have made possible the processing of the massive amounts of data handled today are computers. The most important component of a conventional computer is the Central Processing Unit (CPU). This is a "chip" of semiconducting silicon which is engraved with an "integrated cicuit" which allows it to perform logical operations. This integrated circuit enables the computer to read and take action on given instructions. One of the great advantages of the computer is that it stores a great deal of information and has instant recall. Information can be stored in the computer's memory with punch cards, through a keyboard, or through a magnetic medium, such as a diskette or tape. This information is usually in the form of binary numbers. Binary numbers are expressed in terms of 1 and 0. These can be represented in a computer by switches which are on and off. This process enables computers to operate at incredible speed. Since it responds to electrical impulses, it can complete normally tedious tasks in a number of seconds. Today, the price of computers is steadily dropping, making them available to more people.

Optical Fibers

Optical Fibers are the most prominent of the breakthroughs in the methods of transmitting data. These glass fibers can carry speech, text, photographs, music -- virtually any type of data. To transfer data through optical fibers it must be converted into light pulses, transmitted, and then reconverted. The fiber itself consists of a very clear glass core which channels light, "cladding", which keeps the signal in the core, and a protective coating of plastic or resin. These cables have many advantages, one of which is that they are light, making them very easy to handle. The main advantage is the size and capacity of these cables. Dozens of cables, which can handle one- hundred -thousand phone calls, can fit through the eye of a needle. Conventional cables, made of metal wires, are far more bulky and cannot handle as much information. They are gradually being replaced by optical fibers.

Satellites

Satellites have done much to aid the communication of business information, entertainment programming, research data and a myriad of other types of information. While attention to satellites may be **focused** on their military

purposes, their benign uses for the improvement of human living are significant and varied. For example, hundreds of thousands of telephone calls take place and hundreds of television programs are broadcast each day of the year at the speed of light and across the globe. Such efficiency in telecommunications, incomparably more impressive than in trans-Atlantic cable days, implies even further efficiency in business transactions, communiques, news, etc. Many major companies such as R.C.A. and Western Union have invested in their own satellites to take advantage of their abilities.

Both governments and private corporations in the developed world have placed satellites in orbit, and the best spots in space are rapidly filling up. A satellite 35,900km above the Equator will remain in orbit above a country and service its communication needs twenty-four hours a day. Brazil, China, India and Indonesia have placed satellites in such orbits, with the help of corporations and industrialized countries, who manufactured the satellites, and NASA which sent them up. They provide these countries with their own radio, T.V. and telephone networks, an important step towards communication independence.

Satellites have proved their value in the search for oil, coal, minerals and ores, as well as in the analysis of agricultural crops and natural vegetation. Many plant substances and rocks absorb and/or reflect different types of light. Cameras on the satellites take photographs and computers "on board" organize the images into numeric form. These are transmitted to receiving stations on earth where they are analyzed. The same method is being applied to the fishing industry. Because it is understood that certain sea creatures prefer various ocean temperatures, infra-red thermography can be used to monitor the temperature of various fishing grounds. Weather forecasting, navigation and rescue missions have all **benefited** from the use of satellites. The use of satellite-to-satellite communication has further increased the speed and flexibility of information flow. Data can leap-frog across space until it reaches that satellite whose transmissions are best received in the desired location. Satellites, more than any other new communication technology, have made the earth a "global village".

Radio

A less expensive method of broadly disseminating information is radio waves. Two main classifications of radio waves transfer information. "Medium wave" is the type which is most commonly used. These waves are used for land and maritime communications and radio broadcasting. The two types of medium waves are amplitude modulation (AM) and frequency modulation (FM). Unfortunately, these waves are "direct". They travel along the earth's surface and so cannot go beyond the horizon. Short waves, on the other hand, are indirect. They are reflected off the ionosphere and therefore can travel considerably **farther** than medium waves. This particular quality makes short wave the ideal medium for national broadcasting, which only need to be broadcast once to cover as large an area as many medium-wave stations.

Spectrum

The spectrum is the range of electro-magnetic frequencies that will support radio and television transmissions. Each broadcaster requires a certain width of the spectrum on which to transmit. The finite width of the electromagnetic spectrum has forced the development of more sophisticated transmitting and receiving equipment to allow more broadcasters to operate. This is possible because the widths this equipment requires are narrower than was possible with earlier technology.

COMMUNICATION SERVICES

New information technology presently provides a number of useful services and the range of services that can be offered in the future is large. Various forms of transmission can reach computers and display screens in government offices, schools, businesses and homes all over the world. Some people can have instantaneous access to information which would have taken far longer to send and even longer to research by conventional means. They can subscribe to services that are brought to them by cable television or telephone. Many people who have cable TV in their homes already enjoy these services. Others have modems to connect their computers to the telephone. In this way they have access to data banks all over the world for scientific, economic, legal and medical information. They can get material from libraries and information on the weather and the stock market. They can do their shopping, banking and even work at home. Airlines can check schedules and reservations instantly; florists can transmit orders all over the country.

There are other services which the new technology can provide to businesses and homes. Teleconferencing enables people to carry on a long-distance discussion using video screens. Teletext transmits written material over phone lines to a computer monitor. Videotext, still an experimental system, allows two-way communication. The subscriber is provided with a keypad which allows him to send data to a central broadcasting computer. Polls can be taken in this way and governments or other organizations can be in close touch with the opinions and tastes of citizens and customers.

With the integration of a computer system and telephone lines, different types of electronic mail have emerged; there is the "computer-to-computer" type (purely electronic), as introduced by GTE (TELENET), as well as "computer-to-people", introduced by the postal service. When discussing the computer-to-computer transfer of data, one must consider the advantages as compared to the "old" means of mail. In business, direct terminal-to-terminal connection is much faster than first-class mail. At the personal level, electronic mail also provides faster carrier services than the old mailing system. Data is first transferred from the originating point to a post office offering this service as pure electronic mail. After this is completed, the post office prints the letters, stuffs them into envelopes and delivers them to their various destinations via carriers.

Electronic bulletin boards are becoming an increasingly popular way for people to share information. Notices of apartments for rent, or items for sale, recipes, new ideas, poems, short stories can all circulate among subscribers who may never meet each other.

Many of these services, or networks, are called Value Added Networks or VANS, because they lease cables, telephone wires or frequencies on which they broadcast a specific service, as mentioned previously. In the U.S. they are privately owned, with some regulation by the government. In Britain, PRESTEL, a government-owned company run by the post office, offers these services. Japan is planning an ambitious Information Network System (INS) that will integrate all the services and revolutionize the way people work, study and lead their private lives.

We are on the threshold of a way of life where computers and their programs can bring the world to our doorsteps. Not all these services are or will be available to everyone. What economic and political factors will determine who has this technology and who does not?

Spectrum Allocation

With so many activities using various channels of communication, the question arises: who allocates and controls the spectrum through which they pass? Will it be all "used up", or can it be "stretched" and expanded? The question is very important to those who have not yet caught up with the new technology.

The increasing competition for the use of the air waves creates political as well as economic problems. It is part of the problem of development, of the conflict between the "haves" and the "have-nots". The air waves are getting crowded. A developing country, wishing to use a certain frequency to communicate via satellite with a remote village, may have two problems. First, the frequency may already be "occupied", and secondly, the cost of using the satellite may be prohibitive. New technology is capable of using previously unused frequencies, or narrower bandwidths, but it requires expensive transmitting and receiving equipment, something the poorer countries cannot always afford.

The problem of re-allocation will become more urgent as more and more developing countries expand their communication networks. The International Telecommunication Union, an agency of the United Nations based in Geneva, allocates bandwidths and registers the frequencies nations use. The World Administrative Radio Conference met in Geneva in January of this year to attempt to re-allocate spectrum frequencies in response to the great demand for them.

CORPORATIONS

Business has been given a new area for expansion with the explosion of the communications market. Previously, when capitalism hit a depression, critics would say a war was needed to gear up business to full production. Presently, the unlimited opportunities for retooling the world with communications hardware and software should stimulate production for quite a while.

A comparatively small number of corporations are involved in communications. The Economist estimates that companies based in the United States control 50 percent of world electronic production, those based in Japan 40 percent, and those in Western Europe 10 percent. This includes computer and telecommunication hardware as well as transmission and processing of data. IBM controls 70 percent of the world market in mainframe computers and 30 percent of the US personal computer market. IBM, however, may soon be boxed in by its own standards and the insistence that new models **be not** too different from the old for the sake of compatibility. The Japanese are concentrating on the production of "plug-in" (easily attachable) compatible hard and software that can be used on virtually any computer. Their share of the US market is $4 billion now and is expected to become $40 billion by 1988.

Tremendous profits are to be made in the field of information technology. The amount to be spent in the telecommunications market alone in 1984 is estimated to be $100 billion. The largest competitors in this field are AT&T, ITT, Siemens of West Germany, L.M.Ericsson of Sweden, and GTE, a division of Northern Telecom which is based in Canada. In the field of long-distance voice and data communication, the big competitors are AT&T, ITT, GTE, MCI and Satellite Business Systems, a new consortium of IBM, COMSAT and Aetna Insurance. The competition among these giants could actually be beneficial and oring down the telecommunications costs for everyone.

These large corporations have the capital, technical, legal and managerial expertise to achieve control of their markets. That is not necessarily a bad thing. Their efficiency and the links they create across the world are valuable assets to the development of international trade. The most powerful among them are the transnational corporations (TNCs). Sometimes the word "multinational" is used to describe these giants. They function in many nations and create a new form of geographically unbounded state on their own. People who work in them may find that their first loyalty is to the corporation rather than to their nation. When TNCs offer their services in a spirit of cooperation to developing countries, a very effective partnership can be established. Too often, however, the needs of the countries conflict with the interests of the corporation. Many developing countries consider the TNCs to be the chief obstacles to their development, rather than valuable sources of investment capital and agents for the transfer of technology.

TRANSBORDER DATA FLOWS

Much of the information flowing around the world is in the form of data concerning the activities of TNCs. The communication channels through which this data flows are organized differently in the United States than in most of the rest of the world.

Ownership of communication networks is private in the United States. The Federal Communications Commission (FCC) imposes certain regulations on companies like AT&T -- common carriers which provide a needed service to everyone. But the regulations and licensing of the networks which lease channels from the common carriers are far less intrusive. Some corporations even build their own communication channel using satellites. IBM and AT&T are the giants in that business.

When a corporation wishes to link its operations all over the world, they find that in most countries the government controls the communications networks through a post, telegraph and telephone company (PTT). To most governments it is a matter of national sovereignty and security to know what information comes into and goes out of its country: they want to see it (have access to it), classify it and perhaps tax it. TNCs, on the other hand, see the information they transmit and receive as private business and encode it to avoid its leakage to competition. Governments would like to forbid such encoding and many do not allow TNCs to run their private lines through their countries.

The problem is also one of profit. PTTs charge for the use of their telecommunications lines, sometimes more than private networks do. Transnationals object to the costs; PTTs make money. There is even more money to be made from the sale of the equipment that is used for telecommunications. Brazil, for example, has a national communication network, TELEBRAS, which is expanding rapidly to add new services. The government insists that all communications equipment be made in Brazil, whether by Brazilian corporations or TNCs based in Brazil. All information processing services must be provided by Brazilian firms. A distinction is made in charging tariffs between data, which is actually the object of trade, and information that the TNCs need for their internal activities. The TNCs would like to see free trade in the flow of information, but as they charge access fees for the use of their data banks, governments consider their charges taxable.

There is another problem troubling countries throughout the world, whether developed or developing: the largest data banks are located in the United States. They hold information about people, businesses and governments who have placed it there for convenience, but who consider it private. These countries, however, feel that their control over who has access to their information is inadequate, and therefore they try to control what goes out of their country in the first place.

The struggle between the corporations that want control of their transborder data flows and the countries that want control of what passes through them is still in progress. In Europe and some other countries the transnationals have had to compete with very strong PTTs. In developing countries which have yet to build up their information infrastructures, the big corporations would like to install their equipment and their methods in exchange for their aid in that buildup. It is a trade-off which may be beneficial to both corporations and governments, or which may exact a toll on the independence of the developing countries later on.

ADVANTAGES AND DISADVANTAGES

a. Privacy vs. Freedom of Information

The Universal Declaration of Human Rights declares that "everyone has the right to seek, receive and impart information and ideas through any media".

George Orwell's 1984 predicts a world devoid of privacy and individual thought. We may not yet have reached the complete control and terror depicted in this novel, but with the current advances in communications technology we are rapidly progressing towards this bleak Orwellian future. The multiple uses of this new technology are leading to a deprivation of personal privacy -- a fundamental human right. Freedom is an inalienable right of the people, of various organizations, and of the state; all should have the right to express themselves freely and independently (in order to fulfill their own needs and to achieve maximum efficiency). Sometimes, however, the rights of one of these groups infringe upon the right to privacy of another; both groups have rights which must be respected; a compromise must be reached.

There are still many routine governmental actions and operations that never reach the headlines nor appear on television. The government must make judgements as to the amount of secrecy that is required to preserve national security. However, the public must have the right to question this secrecy if it violates its right to know. In the United States, personal information collected by the IRS for tax purposes has been shared with other agencies such as Social Security for non-tax purposes. Here, the government's right to freedom which it deems necessary for effective administration is violating personal privacy. The state has the responsibility of ensuring personal privacy and the freedom of the individual; and the individual must in turn respect the privacy and the secrecy of the state. Neither must violate or dominate the other's freedom or privacy; thus the flow of information between the individual and the state can be maintained at a dynamic equilibrium.

As communications technology rapidly becomes more specialized, we are faced with two choices: are we to live as manipulated automatons with warped perceptions - the products of complete control - or are we to use the availability of information to participate in more intelligent decisions and make more accurate judgements? Will the new technology provide the power for

manipulation and surveillance, rapidly progressing towards an Orwellian nightmare, or will it ease and enrich our lives? How can we determine and control the way information is to be used? How can we insure the privacy of the individual and still use the immense power that the new communications technology offers us?

Infringements of Personal Privacy

New technology frees us from drudgery and delay, but also enables certain components of our society to censor information, to restrict the right of access and to infringe upon personal privacy. Corporations in the United States have over thirty million files concerned with personal information and seven million new dossiers are added every year. These files contain information on a person's past and present jobs, salary, marital status, lists of debts, payments, criminal records, law suits and real estate holdings. A greater amount of data pertaining to the private life of the individual can be gathered and stored and later disseminated to a wider audience than the individual consented to or anticipated when he originally surrendered the information. In relation to personal data, there is the need to ensure confidentiality so as to protect the privacy of the individual; he must be informed of the reasons for which the information is being collected. In the United States, people have recourse to the Freedom of Information Act which allows them to have access to the files the government has on them.

Centralization and Decentralization

The more information about citizens of a country is centralized, the easier it is to abuse their right to privacy. It is already possible for an insurance company to check a prospective policy holder's health record through access to several data banks. What would happen if, at the push of a button, a person's complete profile could be made to appear on a screen? Who would want this information, and how and why would it be used?

Decentralization of data banks is a safeguard for personal privacy. Decentralization of other communication activities is also a way of spreading employment and ensuring diversity of cultural expression. Centralization leads to greater control, decentralization to greater freedom and democracy.

b. **Surveillance**

During World War I records and files on individuals were kept for draft purposes in the United States. However, this type of surveillance is insignificant in comparison to the kind that is possible with today's technology. Now, the atmosphere is one of electronic eyes, pervasive surveillance, record keeping, giant memory banks and telescreens. In the United States, the National Security Agency does private research in order to prevent security leaks, both nationally, and internationally, by direction electronic surveillance on world communications networks; it eavesdrops on millions of telephone conversations both inside and

outside the United States. Often, other federal agencies are allowed to disseminate this information. They also have access to files built by the CIA through illegal computerized tracking systems. Thirty American companies manufacture minute microphones and other eavesdropping devices which include wire taps, transmitters, tape recorders, telescopic lenses, candid cameras, two-way mirrors and closed-circuit television systems. On a more sophisticated level, the NSA breaks codes, spies on satellite communications, intercepts electronic messages, recognizes codes and spoken communications, and stores, organizes and lists all the information. It is able to monitor international communication links deemed "foreign intelligence" and is able to intercept radar and missile launching systems.

Evidence of this kind of surveillance is available to ordinary citizens in the United States. Similar activities go on in many other countries. The technology is there. Rationalization for its use follows easily.

c. Computer Theft

Computer theft is the stealing of information by one computer from another computer's data banks. This new form of theft has been widely publicized with the success of the movie "War Games" and with the success of the "Minnesota 4" in breaking into the Sloan Kettering Institute's medical data banks.

The ability to commit computer theft is more easily acquired than one would think. Given the computer, all one needs to link into other computers is a device called a modem. A modem links a computer to telephone lines. Most data banks are protected by the use of passwords; since these are often chosen arbitrarily, they can be difficult to break unless one keeps on trying all possible combinations and hits upon one by luck. Once the code has been broken, it is possible to roam at will through a computer's data bank. Because of the relative simplicity of this process, anyone with even a small personal computer can break into and tamper with, for example, the data banks of a large hospital, corporation or even, as has already happened, the government's atomic research laboratory at Los Alamos.

There are no laws, as yet, which prohibit entering another computer and seeking information without proper authorization. However, it becomes a concern when it leads to the intrusion of privacy, the damaging of other lives and tampering with security. The issue is now being debated in the United States Congress with a view to developing laws to prosecute computer theft.

Several measures are being undertaken to prevent computer theft. Many businesses have separated their data banks into two sections; one for private, one for business use. The U.S. Defense Department split their global data bank, ARPANET (Advanced Research Projects Agency Network) consisting of 300 computers and 50,000 people, into military (MILNet) and civilian (R+DNet) sections. Hence, the people belonging to ARPANET cannot get information from a section of which they are not members.

Though some safeguards are in use to prevent computer theft, many people say that improvements in technological measures of prevention will not be able to keep up with the ingenuity of those wishing to break into data banks. Legal actions to protect privacy might be possible but could have the adverse effect of infringing upon the legitimate right of people to know. Computers have brought about new concern in ethics over the clash between privacy and the right to know. This problem is not yet solved.

d. Communications for War

Computers and satellites play an important part in the strategic systems of the superpowers, making war more likely rather than less so, according to a recent report by the Worldwatch Institute in Washington.

"Lightning-quick communication and information retrieval have shifted the focus of the arms race away from the power or speed of weapons to the ability to detect and target the enemy's forces and to hide and communicate with one's own...this makes first strikes more tempting in crisis situations. Such systems will be of greatest advantage to the side that strikes first and uses them while they are intact." (The New York Times, July 31, 1983.)

Space has long been militarized with scores of communications, early warning and intelligence satellites supporting Earth-based military forces. No longer is war confined to our lands, oceans or skies. In fact, in a major world conflict, nuclear weapons would be detonated in space in an effort to wipe out these communications satellites (so vital are they to the functioning of societies.) For example, NORAD depends greatly on its surveillance satellites to sweep the surface of the earth, scanning military installations, positions of military hardware and other satellites. Bristling with the latest equipment to sense a broad range of signals (infra-red, gamma rays, x-rays, neutron emissions, radar and radio waves), reconnaissance satellites are thus some of the most discreet and efficient spy networks. The U.S. Defense Department has, in fact, begun to develop satellites armed with laser-beam weapons capable of destroying enemy satellites at close ranges (1 to 2 miles). The USSR in 1967 activated its own ASAT (anti-satellite) program with the introduction of killer-satellites. Tests have shown that it is possible to send up a killer satellite and detonate it on command so as to destroy another at a range of five miles.

Satellites are not yet capable of destroying ICBMs (Intercontinental Ballistic Missiles) in flight due to the relatively short range of their weapons. Experiments are in progress to develop laser and particle weapons. These weapons are so dangerous that many people around the world are calling for a ban on all future space weaponry. There are, however, difficulties in doing this in practice. "It would be virtually impossible to ban satellites that provide passive military functions without restricting valuable civilian satellites." (The Defence Monitor.) Clearly, the potential uses of satellites are not limited to telecommunications but may extend to immense destruction. War in space is a possibility today. Will it become a reality?

3. Labor

The advance in information technology has affected the labor forces of many countries, especially the members of the Organization for Economic Cooperation and Development (OECD). According to a report published in 1981, occupations related to communications now account for more than a third of the OECD nations' work force. A Canadian study determined that this was due to the relationships between information labor, non-information labor, and the cost of capital. The new technology lowers the cost of capital drastically and the number of information related jobs increases while the number of other jobs decreases. This may seem to pose a problem, as jobs in non-information related fields will become obsolete. As the new technology advances, however, assuming that freedom of access to information is maintained, workers will find themselves with an even greater array of jobs and access to information which would allow them to fill these jobs.

Furthermore, the new technologies will increase productivity by creating job flexibility, especially insofar as it affects when and where work may be done. It will be possible for those with physical disabilities to work effectively from home. The speed with which high-quality work may be done will be increased, freeing more of society for jobs to improve the quality of life and for leisure and educational activities.

Computers may someday be programmed entirely in languages such as English. The concept of "user friendliness", which enables anybody to use computers, may be achieved. It may be possible in the very near future to have a conversation with a computer, communicating through the spoken word, so that even those who do not understand the workings of a computer will have access to the vast store of information and the facilities that it offers.

This is the optimistic view of the impact of the new information technology on employment. The pessimistic view sees a division of labor both nationally and internationally that leaves many unemployed people behind in the race to computerize and automate production and services.

In this view, the future labor market will be divided into three sections: the inventive élite which truly understands the new technology; the button pushers who need a minimum of training to manipulate the increasingly "user friendly" machines; and the rest. Where will the jobs come from for this last category? Who will pay for them? There are no satisfactory answers as yet.

The international division of labor is of even greater concern in Third World countries. The developed countries will continue to control the modern information technology; the developing countries will do the dirty, time-consuming jobs that require cheap labor. What happens to employment opportunities in the Third World when their jobs eventually become automated too? Can the information industry provide production and services that are "labor intensive", and so better serve the needs of developing countries.

f. Education

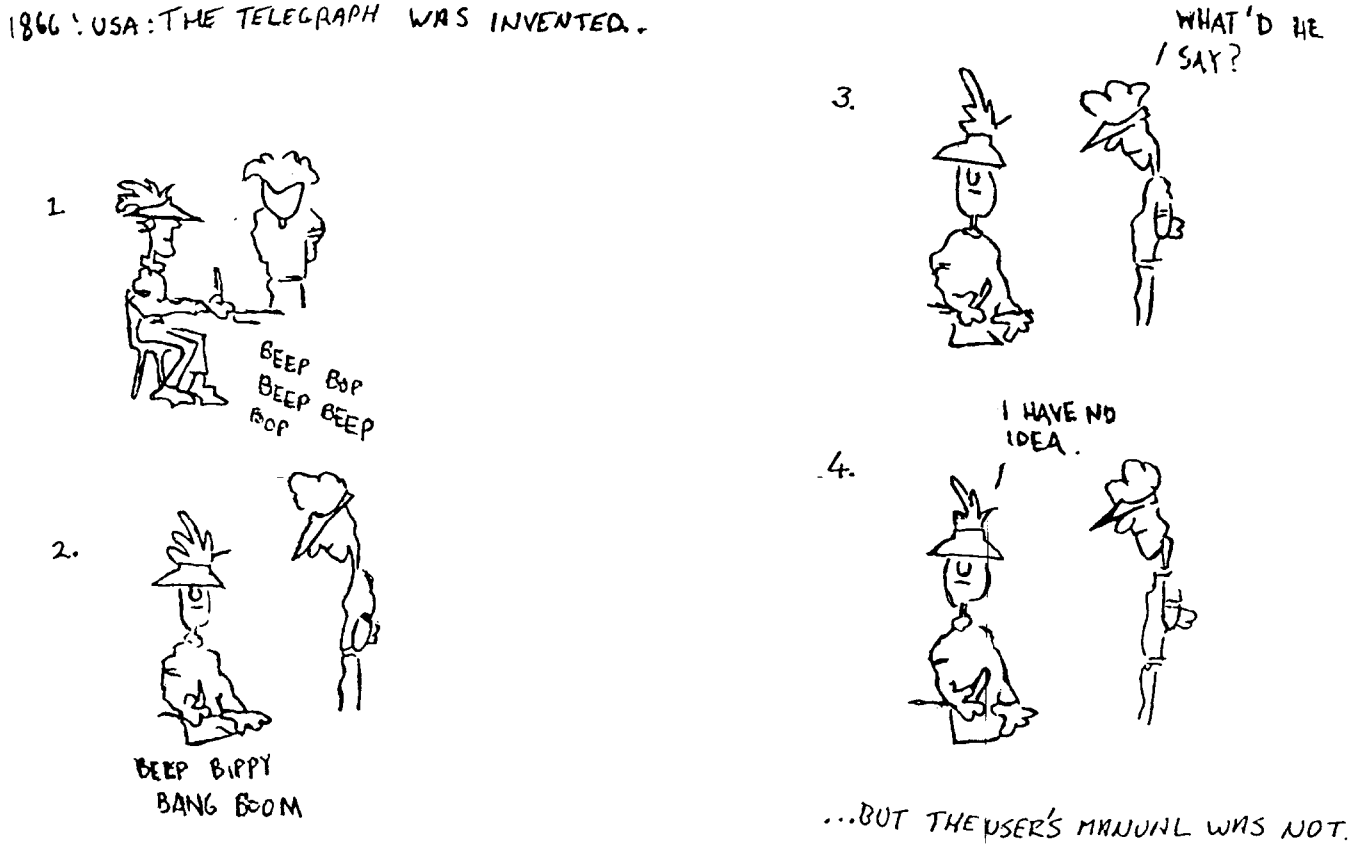
A major concern is the effect of computers on education. The following two quotations illustrate some ideas on the opportunities and disadvantages.

> "People often fear that using computer models for people will lead to mechanical or linear thinking: They worry about people losing respect for their intuitions, sense of values, powers of judgement. They worry about instrumental reason becoming a model for good thinking. I take these fears seriously but do not see them as fears about computers themselves but rather as fears about how culture will assimilate the computer presence. The advice 'think like a computer' could be taken to mean always think about everything like a computer. This would be restrictive and narrowing. But the advice could be taken in a much different sense, not precluding anything, but making a powerful addition to a person's stock of mental tools...true computer literacy is not just knowing how to make use of computers and computational ideas. It is knowing when it is appropriate to do so."
>
> Seymour Papert, Mindstorms, 1980

> "Our troubles are compounds of historical, economic, political, social, psychological, technical, and moral forces. They can only be addressed by Renaissance men and women, adept in all those realms, capable of synthesizing knowledge (as distinct from information), able to inspire and motivate others, and willing to persevere. If we are to stand any chance of solving our social and economic problems, we need to create a large pool of citizens with a basic liberal arts education, in touch with the best thinking from other places, times, and cultures."
>
> Harriet T. Bernstein, Phi Delta Kappan, October 1983

Using computers for education can provide two alternatives. It can either eliminate individual creativity and replace it by mechanical logic, or it can provide much additional information and facilitate the process of learning. Computers can cause the atrophy of the abilities of critical and original thought, leading to a renunciation of both. This in turn would only facilitate the manipulation of people by advertisers and politicians. There is the threat of an increasing dependence upon machines as people become compulsive button pushers.

Seymour Papert, the inventor of the computer language Logo, considers the computer a liberating and enlarging tool. Harriet Bernstein warns that unless computer literacy is part of a wider humanistic education, our abilities to think and process information on our own will indeed atrophy. A balance is obviously the best solution. Schools in developing countries are only just beginning to use computers. An experiment in Senegal, using LOGO, proved much of what Seymour Papert says. The students were delighted with a program where they could write about and draw scenes from their village. The importance of the experiment lay not only in the obvious learning and enjoyment of the students, but in the transfer that was possible between a program designed in the United States and its use by Senegalese children in their own language. From a global perspective, it is also important not to impose western educational methods on children who will in any case have difficulty as adults maintaining their cultural identity. There seems to be a universality in the way children take to computers -- a hopeful sign of their positive effect in education.



COMMUNICATION AND DEVELOPMENT

Communication is an essential part of development. Unfortunately, developing countries are not as advanced as the industrialized countries in the technology and use of information and are likely to fall even further behind unless concerted measures are taken within the next few years to balance out this inequality.

The problem is even more serious because of the effects of the microelectronic revolution on those industries in which the Third World had hoped to hold its own in the competition for world trade. Cheap labor has enabled developing countries to produce textiles and some electrical components at lower prices than would have been possible in the developed countries, so many factories employing local labor were established in Asia and Latin America. The computer is depriving developing countries of that advantage and unless they automate their factories also, manufacturing processes may be brought back to the industrialized countries to be closer to their markets.

The computer augments the information-processing function of the human brain. Previously, information would travel from the brain to the hand and then to the machine. Now it goes directly from the computer to the machine, eliminating the need for the human worker. As one executive of an American firm said, it is not only the cost of wages that is saved, but also the costs of heating, air-conditioning and other facilities which make the work-place comfortable for people. After the initial capital expenditure of computerizing operations has been covered, goods can be produced faster, more cheaply and often more effectively than with the old-style labor. Some futuristic scenarios see this as a wonderful opportunity for leisure and learning for those humans freed from drudgery. The reality could be unemployment and poverty, unless the computer is also used to educate a new generation of skilled workers.

The developing countries recognize the urgency of the problem. Alternative employment must be found. Third World governments must be in a better position to bargain with the industrialized nations and the transnational corporations for a more favorable share in world trade. To do this they need more information. There are five areas in which these countries need information. First, they need considerable technological and scientific know-how for the production of goods and services. That is the problem of the transfer of technology that several United Nations agencies are concerned with. Second, there is the need for information concerning the country's resources - information that comes from satellites. There is another area of information that has more to do with management than with production; developing countries need an understanding of the world banking system to get the most favorable terms for loans. They need up-to-date facts on world market trends to get the best prices for their commodities. They need to understand how TNCs operate to keep them under control.

The two areas of information technology that would have the widest influence on developing countries are satellites and a telecommunications network. Governments and corporations are putting satellites into space at a rate that will soon overcrowd it. Of the developing countries, only Brazil, China, India and Indonesia have been able to finance the sending of their own satellites into orbit. Other countries must build their own receiving stations, or pay for access to data banks in the developed world. The United States operates its **Landsat** system and makes the information available to anyone who wishes to buy it. There is considerable controversy over the right of countries to gather information about each other from space and to supply it to anyone without the observed country's permission. It is an infringement of the security and sovereignty of nations and makes those countries who lack the sophisticated technology to join in this spy-from-space game very vulnerable. The information from satellites is very useful. However, highly trained people are needed to translate the digitalized information that a satellite sends back to earth, and too few of those who are trained work for agencies in the Third World. Transnational corporations have the advantage in negotiations over mining rights, when they know where the best deposits are, and the host country does not.

Telecommunications are even more important for development. The Third World has only 7 percent of the world's telephones. Studies made in Egypt and Kenya show that the existence of a telephone in a small factory or a village increases productivity immediately. Telephone lines are expensive to install -- $1000 a line -- but developing countries may well have an advantage in starting late. Equipment is constantly being modernized and the competition among the big corporations for the world market in equipment might well bring the price down. The countries themselves will be able to pay for the building of this information infrastructure with the revenues they collect from their services. There is so great a demand for better telephone communication, that people are willing to pay a higher price for it.

There is, however, the question of priority in development. The support services that are needed to build an information infrastructure are often not there and the investment in them could be heavy. Electricity must be generated and transported to where it is needed before information can be received, processed and transmitted. The hardware must be bought, or factories built to make it. Technicians must be trained to run the system and given every support through travel and access to journals and data banks to keep up with the latest research. It is a major financial commitment for countries which have other pressing needs like health care, food and education for their growing population. Making this new technology a priority can be justified only if it is seen as solving the problems of development faster and in a better way.

There is a hidden danger in this rush to close the information gap. The structure of the information business has been set by the developed countries and in taking it for granted the developing countries may once again give up the control of their own societies. The Third World is seen, by some transnational corporations, as a captive market for their goods. Indeed, some economists from developing countries even point to the tidal wave of advertisements in imported western news and entertainment as part and parcel of the same process. The Third World can become increasingly dependent on the industrialized world, as its

technocratic élite emulate the developed world's methods, and their own creative approach to their problems withers away. The answer to that danger is expressed by Francisco Delich:

> " The dispute is no longer about change, since process of change is underway, but about the kind of change being operated, and the transformation desired. In this context, it seems clear that the needed cooperation, at this moment in the evolution of society, is probably no longer the pure transfer of resources from one society to another, but the awakening in equivalent societies to the perspectives of helping themselves and helping each other . . . The Third World must simultaneously confront problems that took other societies perhaps centuries to resolve while at the same time advancing solidly towards dominating sophisticated knowledge. "
>
> quoted by Atul Wad, Third World Quarterly, October 1982

In the area of information and communication, perhaps more than any other, it is essential that the developing countries cooperate with each other to develop methods more suited to their needs and to retain their identities in the face of this powerful technology.

THE NEW WORLD INFORMATION ORDER

Information must precede and accompany development, whether on a personal or national level. After more than a decade of independence, the Third World countries became deeply concerned with the slow pace of their economic development and, in two special sessions at the United Nations in 1974 and 1975,they called for a New International Economic Order (see UNIS/UN Working Paper, 1977). In 1976, they called for a re-evaluation of the way in which information was disseminated throughout the world. They were not only concerned with the transfer of technological information which would enable them to build their economies in the most effective ways; they also wanted some control over the way in which developed countries regarded them and influenced the self-image and values their own people had.

At its General Conference in Belgrade in 1980, the United Nations Educational, Scientific and Cultural Organization (Unesco) adopted two resolutions to redress the unbalanced flow of information between developed and developing countries. The first contained eleven "considerations" which urged "freedom" and "responsibility" of the press, and the development of the news - gathering capabilities of Third World countries. The second, the McBride Commission Report, was the result of two years' discussion among sixteen representatives of different viewpoints. The Unesco proposals got an immediate response from the Western news media and have been debated ever since. Some journalists feared that the proposals would lead to the licensing of journalists and the review of their copy by governments. Why might developing countries feel that they need such control, and is the response of the journalists justified?

The image that the world has of Third World countries is often unfair and distorted. Reporting is based on sensationalism. The Western press is mostly concerned about developing countries when there are "newsworthy" stories of natural disasters, like floods and famines, or political coups and riots. The editors know that sensationalism appeals to their readers and will sell newspapers. Western reporters may wish to write more in-depth articles explaining some of the difficulties and achievements of developing countries, but they are handicapped by deadlines or by editorial policy regarding what is "newsworthy". Another problem is the possibility of bias with which some journalists may approach a story. A Western reporter will **analyze** a situation through Western eyes. His perceptions are culturally formed, based on the values of his society. Can the readers back home get a "true" picture of life in a different world if it is filtered through the eyes of a reporter who may not fully understand what he is observing?

Developing countries may be concerned about the image that developed countries have of them because it can influence the amount and type of aid the wealthier countries are willing to give them. Voters in the Western democracies are hardly likely to give their representatives a mandate for massive aid programs if they think that Third World countries are not managing their affairs very well. Seen in another way, these same voters are being deprived of information they need to help them understand the world they share with less privileged people and to make decisions that are needed to preserve this fragile globe for us all.

But the problem arises not only with news going out from the developing countries. Third World countries are as concerned with what comes in. Very often, the news people get of themselves comes back to them via the Western press. They may see themselves as belonging to poor, ignorant, crisis-ridden countries which are generally not very successful. At the same time they are exposed to news items, pictures, films and television programs which portray the developed countries as prosperous and exciting. They would like to imitate those people and enjoy the material goods they see advertised and used in the foreign media. They learn to despise themselves and have little hope that their own efforts will ever change the problems of their societies. These attitudes do not inculcate the values needed for a nation to pull together toward the development of its economy and its people. What is required is pride and hope, and the recognition that material benefits may have to be postponed but can be planned and worked for now.

Censorship

Journalists throughout the world, and not only from the Western democracies, are suspicious of the ways in which governments want to control information. Such control not only distorts news, it also prevents criticism of the existing power structure. How sincere are those governments that support this kind of control on the press about safeguarding the values and traditions of their people, or are they more interested in retaining their own power? Who makes the decision on what can be known? Who are the "gate-keepers" in the flow of information? Are they governments or the agencies and corporations that own the news media? Or is information to be freely available to all?

Whether we realize it or not, we are all subject to some form of censorship. Somebody makes the decisions about what to print or show. Fifty corporations own the news media of the world. Their decisions are based on profit; they want people to buy their product and the products of their advertisers. They do not want too much criticism of their monopoly. But the product that they sell -- news or entertainment -- is usually geared for a "mass" audience whose tastes become trivialized by a diet of sensational and/or inconsequential news. Western governments, too, engage in censorship of news and information. The press in the United States, although enraged, was not allowed by the government to cover the early days of the Grenada operation. Another example of censorship is President Reagan's attempt (vigorously **opposed** by the United States Congress) to direct all government employees that they must sign a contract not to reveal confidential information both while employed by the government and after; this would cut off a valuable source of information that might be critical of the government. However, in the Western countries, sources of news and information are available for those who seek them. Censorship, although subtle, is never complete. And in the United States, the First Amendment to the Constitution specifically guarantees freedom of expression.

The News Agencies

News gathering and distribution is an expensive business. Not only must reporters and their travel expenses be financed, but the equipment to transmit and print the news must be bought and maintained. News loses value the slower it travels, so equipment that speeds up the transmission of information becomes important. The communication revolution, and the use of electronic news gathering (ENG) equipment, has enabled reporters in the field with hand-held TV cameras to transmit their pictures instantaneously via satellite to receiving stations all over the world. Not every newspaper or broadcasting network can afford to keep reporters everywhere, so must depend upon the services of a few agencies to fill in stories their own people have not been able to cover.

The big five agencies are the United States based Associated Press (AP) and United Press International (UPI), the London based Reuters News Agency, the Paris based Agence-France Presse and the Moscow based Tass News Agency. These agencies are very powerful because their far-flung operations give them unique coverage. But each interprets the news through the perceptions of its own people, however much they claim objectivity.

Solutions to the Problem

At first it appeared that there was a complete impasse between the developing countries who wanted to control their news and the Western media who accused them of censorship to protect their governments from criticism. One solution came from the industrialized countries who offered to help Third World countries develop their own news-gathering and transmitting activities so that instead of censorship there would be diversity of news coverage. Corporations like CBS

have offered to train journalists. Other companies have offered to sell and install transmitters. The capacity of the Third World to project its own image would be enhanced.

Such aid and development projects have their usefulness. Some people feel they would provide the industrialized world's information industries with yet another market. But they do not solve the problem of the Third World's independence in the making and dissemination of news. They would be using Western technology, Western production methods, and Western trained journalists.

To overcome this problem news agencies in the Third World have come together to share news on a regional basis. The Inter Press Service (IPS) originally began as a Latin American news agency but is now independent of any government and disseminates news about many Third World countries. It is concerned not only with news items (it publishes a daily bulletin) but also interprets the news in weekly supplements to which many newspapers and journals subscribe. It has two hundred journalists and satellite links all over the world. The Non-Aligned News Pool was formed by eighty-five nations in 1976, as a result of the Fifth Summit Conference of the Non-Aligned Nations held in Colombo, Sri Lanka. The Yugoslavian news agency, Tanjug, took the lead in organizing this news pool, but as the news it offered was international, the governments of the developing countries did not always use them for their national needs.

The Responsibilities of the Journalist

In the history of Western civilization the press has played a crucial role, keeping people informed and uncovering abuses in government and private institutions. It won its rights after a hard struggle, but now it must examine more carefully whether it is fulfilling its responsibilities. A journalist knows what his obligations are: to report fairly, accurately and completely, in order to provide his readers with all the information he can possibly deliver; to comment intelligently, courageously, clearly separating opinion from fact. However, with the growing sophistication in the art of "disinformation" there has recently been a loss of confidence in the press in the Western countries. A story may be planted that is not true to mislead readers and a lot of harm has been done before the error is cleared up. Manipulation and propaganda are not the role of a free press, whether in the developed or developing countries. People are best served by a free press that recognizes as its prime responsibility the reporting of the truth.

CULTURE AND COMMUNICATION

The Homogenization of Culture

Formal culture used to be the monopoly of the educated classes. With the advent of radio, film and television, "culture" could be brought to a wider audience. Mass "culture" grew out of the mass media. A common denominator of what appeals and what sells, a homogenization of content and values,

dominates the media. After an evening of watching Western television one is exhausted by the bombardment of signs, most of them conveying messages that trivialities are important and that the purpose of life is to be an active consumer. Psychologists and sociologists discuss the effects of such viewing on citizens in developed countries. Do they become docile, uncritical, dependent? And further, what is the impact of such programs on people in developing countries? In the West, the resources exist to create a rich diversity of cultural forms. The developing countries, on the other hand, cannot maintain this cultural diversity; they cannot afford to become consumers of Western imports while at the same time developing and enhancing their own cultural forms.

Cultural Imperialism

Although the Soviet Union is also a large exporter of news and entertainment -- 2000 hours of radio programs weekly in 84 languages -- the Western media dominate the world market. Corporations find it profitable to sell their literature, films, radio and television programs to developing countries. But there is a sinister side to this process. As Anthony Smith notes in The Geopolitics of Information, "..the flow of media exports acts as a kind of ideological prerequisite for the flow of other material exports".

The imposition of Western cultural values not only creates a market for Western goods; it also robs people of the resources and creativity needed to sustain their own cultural identity. As a result of this foreign influx, many developing countries are unconsciously sacrificing their cultural identity to conform to new foreign values. Unfortunately, they can do this only at the expense of their own economic development and their own indigenous cultures.

The Western transnationals do not see themselves as necessarily dominating the cultural scene. Rather, they see themselves as benefiting the developing world and they discount the adverse effects of their communication technology. They argue that telecommunications have contributed to development in many areas of the world by disseminating knowledge on improved food production, health, sanitation, nutrition and other basic human needs. It is unquestionable that these benefits do exist; however, the crucial problem of cultural imperialism remains.

The media play an important role in determining the attitude of a country toward itself. And media as they exist today do not promote a dialogue. Developing countries are often depicted and interpreted through Western eyes and thus they are not represented accurately or fairly. They have practically no voice in the media. They are depicted in degrading stereotypes and they come to see themselves as the West sees them: inferior, simple and rightfully dominated by the developed nations. Such attitudes have caused concerned people such as author Nadine Gordimer to protest. In a recent conference on culture and communication she stated, "People are too often told who they are, forced to become 'European', taught to despise or to deny their own cultures, a subjugation of the most personal kind, as culture is essentially learning who you are". The developing countries and their people are in serious danger of losing their cultural identities.

The few countries that have taken over the world's communications market through their advanced technology make it difficult for individual countries to control their own media. The United States controls much of the world's film markets and wields much influence through its movies. In recent years, the US has provided 50 percent of the budget of ANICA, an Italian film trade association, and 90 percent of the cash invested in British films. Moreover, through its influence, it has created the standards by which national film companies must abide if they wish to profit. This forces them to mimic Western ideals and Hollywood standards instead of cultivating and improving their own cultural styles.

The influence of American films has progressed to the point where it can be seen as brain-washing. Through exposure to the glamor and standards of living depicted in movies, viewers all over the world have come to adopt new notions of what is desirable. Thus, unnatural trends are established where they are not really appropriate. In the developing world, this can be especially damaging since resources are limited and needed for more utilitarian ends. Communication may upset many cultural taboos and time-tested indigenous ways of life. As one UN delegate said: "An effort is being made to impose upon us a standard of life, of style, of ideology that is contrary to our very way of being: the glorification of the cowboy, the slaughter of the Indian and buffalo, sex and violence . . . " There are many examples of the influence of the Western media on developing societies. In an Inuit community, as a result of broadcasting American programs, more people wanted to migrate south to cities and towns, and for the first time, as a result of viewing NHL games on ABC TV, there was fighting at local hockey games. In Malaysia, where 71 percent of television programming is imported, and DALLAS is the most popular show, the society, especially the youth, has begun adopting the modes of dressing, eating and living as seen on the screen.

The Right to Control?

Should the developing countries have the right to control the flow of information and entertainment in order to prevent their people from being exposed to Western culture? If they are allowed to do so, the question of censorship is raised -- how much does a government have the right to control? At what point does control violate the public's right to know? Even though a government wishes to restrict the public's access to information, it may not always be feasible to do so. When satellites are used to transmit information, it may be impossible to detect and stop this reception unless the necessary technology is available. Often, government protectionist policies, such as the restriction of foreign ownership of broadcasting equipment and imports through taxation, bans, and censoring, prove ineffectual. People still prefer the foreign programs for lack of good, indigenously produced ones. But efforts continue to develop alternative art forms and are becoming increasingly successful.

Solutions and Alternatives

Individual countries must find ways to reconcile technology with their respective cultures. Instead of destroying culture, technology should enhance it. Countries counter the overwhelming influence of the Western world by raising national cultural awareness and pride. They must use alternatives to mass media such as art, music, dance and drama as forms of communication. They should promote domestic film-making and literature. However, the arts can never be static, and must change to express each person's reaction to reality. Art is always modified by the cultures with which it is in contact. Protection may be as fatal as any interaction. Traditional cultures, artificially "protected", may produce forms suitable only as tourist attractions. The argument of those who decry "cultural imperialism" is the lack of balance between the indigenous cultures and the onslaught of the Western media. Change is inevitable, but it should develop more slowly and more naturally to give artists the opportunity to express their reactions in their own way. To do this, more must be done to promote traditional culture. For example, in Nigeria, a film was made for the first time in 1981 in the native language. The Basarwa people of Botswana have now set up a radio station in their own language to diffuse cultural songs and news important to their community. Similar local radio stations have been established in Kenyan villages.

These are all attempts to strengthen different cultural expressions against the impact of Western mass media. But there is another dimension to the problem of "cultural imperialism", which is not easily discussed in many nations with diverse minorities. National unity is sometimes difficult to maintain in many new and some older countries. The encouragement of minority art forms can enrich the national experience, but it can also fragment it. It is difficult to maintain a balance to encourage local languages and customs, and yet find a means of communication to overcome the language barriers and express national unity. In this struggle, minorities may feel that a culture is being imposed upon them, in the same way that developing countries feel the pressure from the Western media.

For a true understanding of and respect for human diversity, reciprocity of culture is needed within and among nations. At the moment, the flow of culture and information is mostly one way.

Imported television programs

United States	1.2 percent	Middle East	50.0 percent
Soviet Union	5.0 percent	Asia	50.0 percent
Japan	2.5 percent	Western Europe	30.0 percent
Latin America	50.0 percent	Eastern Europe	24.0 percent

Cultural Survival Quarterly, Summer 1983

Understanding, money and effort are needed to reverse this flow, and prevent humanity from slipping into a mass-produced mold, without cultural or individual identity.

The human experience is like a multi-faceted diamond -- it can be understood from different angles. The many alternate ways of expressing feelings and perceptions are a source of strength, creativity and ingenuity in dealing with our problems. We are all impoverished when this pool of human understanding is diminished.

FREEDOM, CONTROL, RESPONSIBILITY, PARTICIPATION

Many people call for freedom of information, that is, freedom in gathering, transmitting and receiving it, without qualifying their demands. One should consider what unlimited freedom, or its opposite, total control, would mean.

There are many apparent advantages which would result from such freedom, or which require it in order to function at theoretically optimum levels. Progress in science comes about through problem solving. The process is quicker and more efficient when all interested people are able to work on it. These people should also have access to work done by others on the same or similar topics. Historically, solutions have often been found by people in entirely different fields, or amateurs. Therefore, it is important that the information not be restricted to those working specifically in the area of the problem, and that there is free access to journals, and research done elsewhere.

Corporations extol the value of free enterprise where everyone has the opportunity to use their ingenuity for their own profit. This profit is the incentive which releases the creative energy of the members of a society and enables new and better ways of living to be tried and to succeed. As the economy expands, it benefits people who might otherwise never have had a chance to work, to invest in new ideas and to improve themselves. Freedom is believed to lead to economic expansion which allows more people to share in the general prosperity of the society.

The economic freedom that corporations use to justify their operations has been traditionally based on political freedom, the free expression and the free exchange of ideas which generate ever new ways of improving life. Knowledge of the actions of government and its explanations for those actions is believed to improve the government to the benefit of the society.

Unfortunately, it is not possible for complete freedom of information to exist in the real world. There are dangers inherent in such absolute freedom: society could degenerate into chaos and thus perhaps lose all freedom. For instance, a country would be foolish and naive to allow its enemies free access to its defense strategy. If it did so it would run a very real risk of being destroyed or taken over, thus sacrificing its liberties. Practical difficulties, such as limited resources in telecommunication infrastructure or trained personnel, also prevent freedom of information from existing. These facts raise some questions. Since restrictions are necessary, how should they be made, by whom, and to what extent in order to preserve individual liberties as much as possible?

Two institutions in society which are capable of exercising control over people are governments and corporations. Each may consider its form of control to be less of a danger to the "true" freedom of individuals. However, corporations that see themselves as the guardians of economic freedom are often monopolistic and do not compete in a laissez-faire system such as that formulated by Adam Smith. Another question of deeper concern to developing nations is the one-sided nature of the prosperity that this freedom has created. The ideal picture of capitalism envisions universal prosperity. In the experience of the developing countries, profit has been made at the expense of another's loss, namely their own. If capitalism is to maintain its credibility as offering greater freedom to greater numbers, it must address this problem with greater diligence and more responsibility.

Governments claim to control the worst abuses of capitalism, or not to allow the system to flourish at all within their borders. But does a government exert this control to enable all its citizens to share equally in the benefits of a free and prosperous society, or to protect an élite in the enjoyment of what little prosperity there is?

Both governments and corporations see their function as protectors of the people's freedom. However, they can also be seen as manipulating people so as to maintain their power and control. There is a Latin saying "Quis custodiet ipso custodes?" Who will guard the guards themselves? If these two guardian institutions call themselves the watchmen of our freedom and well-being, who insures that they will perform their functions in a responsible manner? The answer is, those very people who must not be lulled into uncritical acceptance of their "protected" status. Freedom is never handed over on a silver platter. It must be fought for and protected by alert and informed people who participate in decision making with strength and knowledge and insist on the responsible use of power by both governments and corporations.

CONCLUSION

The Communication Revolution has changed the world drastically and the potential for further change, for better or for worse, is tremendous.

Technology, by itself, does not have the power to influence our thinking: it is man who possesses ultimate control. Mankind can use this technology in one of two ways. We can use it constructively, to " fight illiteracy, encourage respect for human rights and the rights of peoples, consolidate national unity, foster international understanding and promote economic and socio-cultural development". (Unesco Courier, March 1983.)Some would say that we can hope for moral improvement, by which mankind can discover and achieve its true purpose.

But we may also use this technology destructively to "subjugate man, to incite to war or racism, to restrict the liberty and sovereignty of peoples, to encourage cultural alienation, and to propagate 'disinformation'". (Unesco Courier, March 1983.) People may give in to the machinery, becoming mechanized extensions of computers, having no life beyond the performance of their functions. The death of creative thinking and intelligence and thus of our humanness could result.

There must exist a free flow of information; the means of communication (a two-way process) must be made available to all sectors of society. Those who control the flow of information must be held accountable for the way in which they use it, especially in relation to those people most affected by it. Communications should not be controlled by the power structure, be it that of the market or of the state.

There are many dangers arising from the dissemination of information about scientific discoveries which could have disastrous effects on individuals and societies if they were used. The generation of scientists that worked on the atom bomb has had difficulty coming to terms with the ethics of its use. A balance must exist between the scientific and technological advancements of our time and the cultural and moral questions that consequently arise from them.

We must either seize the possibilities and the future in our own hands or through our inaction give up all hope of the future. There are no other choices, because events are already in motion to carry us to our destruction as intelligent beings. Unless we set ourselves back on course we are lost.

We hope that this Working Paper has offered you enough information to enable you to start thinking and to give you a chance to learn enough to act. We leave the matter in your hands.

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