

Information Society and Democratic Prospects

Tehrani, Majid*

Indeed the Idols I have loved so long
Have done my credit in this World much wrong:
Have drown'd my Glory in a Shallow Cup
And sold my Reputation for a song.

—Omar Khayyam

Totems and technologies seem worlds part—as far apart as “primitive” and “advanced” societies. Yet, if we look carefully at the history of communication technologies, we may discern an interesting connection between the rise of certain technologies and the emergence of certain communication elites and social systems. Totemism is a primitive religious belief that systematically associates groups of persons with species of animals (occasionally plants or inanimate objects) and a certain element of social organization. (Freud, 1919; Malinowski, 1927; Levi Straus, 1963). Communication technologies, from the invention of writing to informatics, also seem to have occasioned social, political and cultural formations peculiar to their own biases. (Innis, 1950, 1951) As a form of identity fetishism, totemism has occasioned belief in the magic of certain totemic objects, plants or animals as representations of tribal power. Has technological fetishism similarly led to idolatrous beliefs in the power and magic of certain communication technologies as signs of superiority of certain social systems?

The celebration of the Age of Information in recent years in both scholarly and popular literature calls for a critical re-examination of the concept's underlying myths and realities. Has the advanced capitalist world really entered a new historical stage known as the “post-industrial information society”? Are the new information technologies creating new possibilities of “technological leapfrogging” for the less developed countries? Can the global spread of the new technologies narrow the information gaps among and within nations? Will they bring about world integration on the basis of a universal secular-scientific civilization? Or will they exacerbate the existing inequalities

* Professor, Department of Communication, University of Hawaii

and lead to a cultural backlash against the onslaught of modernization? Will they foster democratic equity and participation or totalitarian efficiency and tyranny?

Without attempting to respond conclusively to these questions, I will attempt to provide an historical perspective that should shed some light on the contradictory potentials of information technologies at our own particular historical juncture. I will begin with the current theoretical controversy on the so-called "information society," then provide a conceptual framework that correlates the evolution of communication technologies (from pre-speech to fifth generation computers) with their corresponding cultural/epistemological paradigms (from magic to ecology), communication elites in society (from soothsayers to futurologists), and communication institutions and networks (from primitive bands to the emerging global Integrated Services Digital Network—ISDN). In the light of this framework, I will then move on to examine the two distinctly different potentialities of the new information technologies, and conclude by offering a vision of a future "communication society." This is a vision in the great tradition of "communitarian" criticism of modern industrial society. Such critics have included Jean Jacques Rousseau, the European utopian socialists, the American transcendentalists, Ruskin, Goethe, Tolstoy, and Gandhi. In more recent years, Kenneth Boulding, Johan Galtung, Jean Voge, Osmo Wiio, Fritjof Capra, Ariyaratne, and Bjorn Hettne, among others, have also offered parallel visions in their writings.

A. The Problematic of Information Society

The explosion of a great diversity of information technologies and their diffusion around the world during the past two decades have given rise to hopes for accelerating global development and democratization. However, what some liberal theorists have considered the dawn of a now post-industrial, information society, Marxist theorists have generally viewed as the increasing commoditization and privatization of information in the worldwide expansion of monopoly capitalism. By contrast, a third and emerging school of thought, to be labelled here as "communitarian," considers the same processes as an example of the dual effects of information technologies—the harbinger of new possibilities for increasing levels of participatory democracy as well as new possible threats to individual freedom, social and information equality, and

Table 1.

Exhibit
The postindustrial society: a comparative scheme

Modes	Preindustrial	Industrial	Postindustrial
Mode of production	Extractive	Fabrication	Processing & recycling services
Economic sector	Primary Agriculture Mining Fishing Timber Oil & gas	Secondary Goods producing Durables Nondurables Heavy construction	Tertiary Transportation Utilities Quaternary Trade Finance Insurance Real estate Quinary Health Research Recreation Education Government
Transforming resource	Natural power—wind, water, draft animal, human muscle	Created energy—electricity, Oil gas, coal, nuclear power	Information*—computer & data transmission systems
Strategic resource	Raw materials	Financial capital	Knowledge†
Technology	Craft	Machine technology	Intellectual technology
Skill base	Artisan, farmer, manual worker	Engineer, semiskilled worker	Scientist, technical & professional occupations
Methodology	Common sense, trial & error, experience	Empiricism, experimentation	Abstract theory: models, simulations, decision theory, systems analysis
Time perspective	Orientation to the past	Ad hoc adaptiveness, experimentation	Future orientation: forecasting & planning
Design	Game against nature	Game against fabricated nature	Game between persons
Axial principle	Traditionalism	Economic growth	Codification of theoretical knowledge

*Broadly, data processing. The storing, retrieval, and processing of data become the essential resource for all economic and social exchanges.

†An organized set of statements of facts or ideas, presenting a reasoned judgment or experimental result, that is transmitted to others through some communication medium in some systematic form.

Source: "Communications Technology—for Better or for Worse," *Harvard Business Review*, May-June 1979

cultural autonomy and identity.

The liberal theorists have taken their cue largely from a tradition of research focusing on the technologically propelled changes of social structure. (See Table 1.) The transition from natural sources of energy (muscle power, wind, water) to the steam engine and internal combustion clearly marks the beginnings of the First Industrial Revolution. The liberal theorists have considered the new information society as the harbinger of a Second Industrial Revolution, characterized by the application of information technologies to production, distribution and consumption processes, thereby transforming the old industrial social and economic structures, eliminating the need for routine and repetitive jobs, providing greater opportunities for leisure and cultural creativity, and breaking down socio-cultural differences and inequalities. Others in the liberal school of thought are urging the developing countries, which missed out on the First Industrial Revolution, to make efforts to bridge the widening gap between themselves and the more technologically advanced by "leapfrogging" in order to take part in this Second Industrial Revolution.

The literature of the information society is vast and expanding, but the origins of the concept date back to Colin Clarke's celebrated analysis (Clarke, 1940) that, due to sectoral differences in productivity and the increasing demand for social services (health, education, recreation, consulting, etc.), the labor force in the industrial societies will move increasingly from manufacturing to service sectors. This observation has been borne out by the historical trends, elaborated upon later by Fritz Machlup (1962, 1980), Daniel Bell (1973) and Marc Porat (1977). While Machlup has focused on the production and distribution of knowledge as a key to the understanding of the new economic structures and processes, Bell and Porat provide a broader historical view to suggest a new stage theory of development, a movement from agrarian to industrial and information societies. These transitions are analyzed particularly in terms of the U.S. economy where massive statistical evidence suggests a clear shift from predominantly agricultural to manufacturing, service, and information occupations and employment. (See Table 2 and Fig 1) To quote Porat, "In Stage I (1860~1906), the largest group in the labor force was agricultural. By the turn of the century, industrial occupations began to grow rapidly, and became predominant during Stage II (1906~1954). In the current period, Stage III, information occupations comprise the largest group" (Porat, 1978:7)

Table 2. Typology of Information Workers and 1967 Compensation^(a)

	Employee Compensation (\$ Millions)
Markets for information	
Knowledge producers	46,964
Scientific and technical workers	18,777
Private information services	28,187
Knowledge distributors	28,265
Educators	23,680
Public information disseminators	1,264
Communication workers	3,321
Information in markets	
Market search and coordination specialists	93,370
Information gatherers	6,132
Search and coordination specialists	28,252
Planning and control workers	58,986
Information processors	61,340
Nonelectronic based	34,317
Electronic based	27,023
Information infrastructure	
Information machine workers	13,167
Nonelectronic machine operators	4,219
Electronic machine operators	3,660
Telecommunication workers	5,228
Total information	243,106
Total employee compensation	454,259
Information as percentage of total	53.52%

Note: (a) Based on 440 occupational types in 201 industries. Employee compensation includes wages and salaries and supplements.

Source: Porat, 1978:5

Although the historical evidence offered can be challenged on statistical grounds, depending on how we define "information," some more recent analyses of contemporary trends by Jonscher (1983, 1984) and others suggest that we may be witnessing a reversal or at least a stabilization of the shift towards service and information industries. Nevertheless, the scientific theories of the information society have given rise to a more popular version serving as a new ideology for unabatted capitalist growth. Alvin Toffler (1970, 1980) and John Naisbitt (1982) have provided perhaps the most imaginative and far-reaching of such popular visions of "information society," focusing particularly on the democratizing effects of the new information technologies.

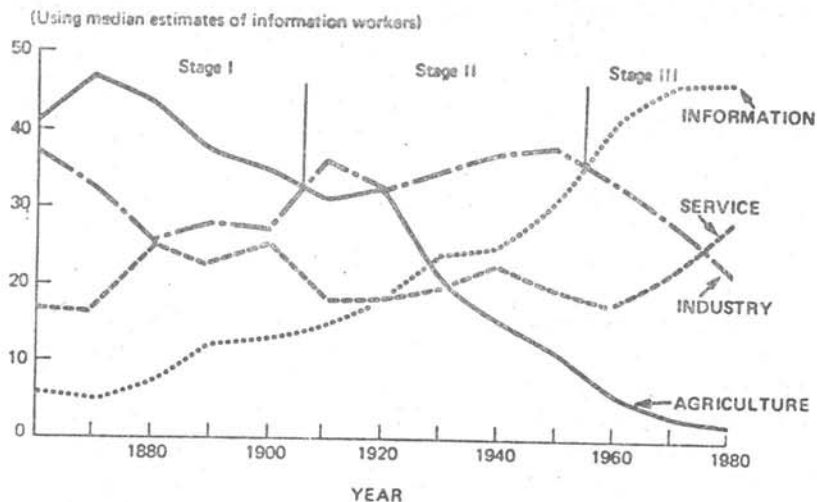


Fig. 1. Four Sector Aggregation of the U.S. Work Force by Percent, 1860~1980

Source: Porat, 1978:7

While Toffler is profoundly ambivalent about the prospects such a society might hold for democracy and human happiness, Naisbitt is enthusiastic. The corporate world of telecommunication and computer industries have, in turn, found some of these concepts congenial to their own interests and views.⁽¹⁾

By contrast to the liberal theorists, the Marxist critics of the information society and its corporate futurologists have generally pointed to the rising tide of dualism at national and global levels, creating islands of riches and information abundance in a global ocean of poverty and information scarcity (Schiller, 1981, 1985; Mosco, 1982; Smythe, 1985; Hamelink, 1983). They have suggested that the new technologies have generally widened the existing gaps, mainly through the privatization, concentration and exploitation of information resources by the transnational corporations (TNC). To avoid increasing dependence and vulnerability, they have argued, the developing world is well-advised to pursue a strategy of dissociation, national self-sufficiency, and collective self-reliance.

The two schools clearly represent the increasing stratification of the world

(1) It is not surprising, therefore, that Naisbitt has been adopted as a corporate futurologist while attaining public fame and fortune as a best-selling author and a thriving business consultant.

into centers and peripheries of wealth, power and information. But the communication technologies that have contributed to this stratification have also created a global interdependence whose future depends vitally on cooperation rather than confrontation. Furthermore, international trade and cooperation in the field of information—perhaps more than any other field—depends on a clear understanding of the nature of this unique resource and its role in the historical transformations of our own era. The following critical questions might be therefore well worth considering:

- Does the increasing abundance of information also mean increasing levels of *data* (relevant information), *knowledge* (interpreted data), and *wisdom* (contextualized knowledge)?
- Or, conversely, is the explosion in the sources and varieties of information leading to information-overload, future shock, and intellectual confusion?
- Are the technological and socio-economic advances of the information age creating greater information equality or information gaps and dualisms between the information rich and poor?
- Does the phenomenal growth in channel capacity, brought about by the introduction of cable television, direct satellite broadcasting, teletext, videotex, and fiber optics, imply greater political freedom and participation, cultural pluralism and enrichment, *or* centralization, political surveillance, cultural domination and impoverishment?
- Are the processes of automation, implied by the application of robotics and computer assisted design and manufacturing (CAD-CAM), leading to greater leisure and cultural creativity, *or* increasing levels of structural unemployment and waste of human resources?
- Will the worldwide extension of the new technologies lead to the diffusion of a universal, modern, scientific and technological civilization, *or* cultural backlash against the onslaught of modernization?

A more balanced view of the possible impact of information technologies on society should perhaps begin with a critique of the concept of the "information society" itself. I will present here the beginnings of such a critique in terms of three fundamental points:

First, in a profound sense, all human societies may be considered to have been "information" societies. No human society can be, in fact, conceived without a system of signs, meanings and communication—however "primitive"—that vitally binds it together. Peter Berger (1967:22ff) has put the central

argument of this position rather poignantly:

"The most important function of society is nomination. The anthropological presupposition for this is a human craving for meaning that appears to have the force of instinct. Men are congenially compelled to impose a meaningful order upon reality. This order, however, presupposes the social enterprise of ordering world construction. To be separated from society exposes the individual to a multiplicity of dangers with which he is unable to cope by himself, in the extreme case to the danger of immanent extinction. Separation from society also inflicts unbearable psychological tensions upon the individual, tensions that are grounded in the most anthropological fact of sociality. The ultimate danger of such separation, however, is the danger of meaninglessness. This danger is the nightmare par excellence, in which the individual is submerged in a world of disorder, senselessness and madness. Reality and identity are malignantly transformed into meaningless figures of horror. To be in society is to be 'sane' precisely in the sense of being shielded from the ultimate 'insanity' of such anomic terror. Anomie is unbearable to the point where the individual may seek death in preference to it. Conversely, existence within a nomic world may be sought at the cost of all sorts of sacrifice and suffering—and even at the cost of life itself, if the individual believes that this ultimate sacrifice has nomic significance."

Second, to proclaim the dawn of a new "information society" as the unique hallmark of our own age, as some theorists and publicists have, is to confuse information with the commoditization of information. In advanced capitalist societies, information has been increasingly commoditized to provide an expanding infrastructure of on-line information networks and transborder news, data and currency flows for a new international division of labor. The traditional world capitalist division of labor relegated the production of raw materials to the peripheries, while manufacturing was concentrated at the centers of industrial production. With the rise of land, labor and residual costs (including the costs of environmental protection imposed by the new anti-pollution measures in the industrial countries), manufacturing (the so-called "sunset industries") has increasingly moved from the centers to the peripheries. Such peripheries as the southern states in the United States and the newly industrializing countries (the so-called NICs, including Brazil,

Argentina, Mexico, South Korea, Taiwan, India, Singapore, Malaysia, and the Philippines) have experienced rapid rates of growth because of this. Their textile, steel and automobile industries have thus shown considerable expansion in exports during the last two decades. In the meantime, the sunrise industries (including telecommunication, computer, aero-space and weapons industries) and the services associated with them (investment banking, value-added networks, electronic publishing, etc.) have shown remarkable growth in the advanced capitalist countries at the expense of the manufacturing activities.

Figure 1 bears out this argument rather dramatically in the case of the United States. U.S. manufacturing takes a downward turn in 1945, precisely at the moment that the United States assumes the role of a dominant super-power in world affairs. Subsequence to that, U.S. manufacturing industries had begun to invest massively abroad wherever economic conditions proved favorable (i.e. lower land, labor and residual costs) and political conditions more secure (in allied or client states). The Marshall Plan in Europe and the Point Four Aid Program in the Third World were, in fact, designed not only as efforts towards the reconstruction of war-torn economies but also as conduits for the encouragement of American investment abroad. They succeeded particularly well in Western Europe and in a number of other U.S. client states in Africa, Asia and Latin America, where U.S. corporations have become a dominant force in the national economies. A commensurate rise in the services and information sectors during the same period suggests not only a rise of demand for these activities (as Colin Clarke predicted) but also the transformation of the United States from an exporter of mainly manufactured goods to an exporter of banking, insurance, shipping, high technology and information services.

In this respect, the United States followed a pattern the British economy had traversed before, i.e. the transformation of an imperial economy from manufacturing to service industries in which the capitalist class began to clip coupons on their investments abroad through their shipping, banking, and consulting activities. In the meantime, other capitalist economies (such as the "defeated" Germany and Japan) moved into the manufacturing fields in which the United States was losing its competitive edge. "Coupon clipping imperialism," to borrow a phrase from Stuart Hall, has thus had deleterious effects not only for the United States as an industrial power but also for

the work ethics and motivational forces that sustain an industrial society. Although the United States is a greater economic and political power than Britain ever was, one cannot escape the conclusion that economic decline awaits any imperial power that depends too heavily on the insecure hinterlands for its vital resources.

To appreciate the significance of the differences in employment structure between the imperial and non-imperial industrial powers, it would be instructive to compare and contrast the service and information sectors in the United States and Britain with those of Japan and Germany. As holders of world financial centers (London, New York, San Francisco), United States and Britain provide a great complex of banking and investment services. As the world's most advanced commercial societies with the most elaborate legal structures, both countries employ legions of lawyers at the service of TNCs. In the United States for example, the number will soon surpass one million as compared to about 1,000 in Japan! As the world's two leading Great Powers of the 20th century, the size of government (both civilian and military) has been large and growing in the former two countries. Despite an ideology of *laissez faire*, Britain and the United States currently lead West Germany and Japan both in the size and wages of central government employees. (*The Economist*, December 17, 1983:89; IMF, Government employment and pay, Occasional paper 24.) As the world's leading exporters of media commodities (Tunstall, 1977; Head, 1985), both countries outpace Germany and Japan in the size and composition of their cultural production and exports. For all of these reasons, it is not surprising that their information sectors are large and growing suggesting their pre-eminent position in the world cultural and communication industries.

In the United States, where productive possibilities typically run ahead of increases in consumer purchasing power, this necessitates an ever-expanding marketing, advertising and promotional activities to induce demand. The U.S. system of adjudication of social conflict through litigation has also necessitated a complex legal system and a huge legal establishment to operate it. By contrast, in Japan where production and exports are far more important than domestic sales and where conflict is often adjudicated through the informal processes of interpersonal mediation, the relevant "information" professions are largely unnecessary to the operations of the industrial system.

The situation in the less developed countries is even more confounded. Caught in the fusions and confusions of living simultaneously at several different stages of technological evolution and in different socio-economic systems, the solutions they have adopted as often as inappropriate as the problems are felt and pressing. Before having fully reached the age of print and literacy, for example, most developing countries have to face the age of satellites and computers. High levels of illiteracy among the masses are thus combined with high levels of education for elites tied to the global information and power networks. The contradictions of combined and uneven development have thus affected them more than the more developed countries. Technological and social leaps are theoretically possible, but so are the intellectual confusions and social dislocations of having to deal with too much social imbalance and complexity too soon.

This new international division of labor in the world capitalist system and its consequences for the changing structure of employment should not be taken, therefore, as conclusive evidence for the rise of a new social system. The fundamental features of the world capitalist system have clearly remained unchanged. These include the legal rights of private property, the corporate domination of the economy, a social class structure flowing from the inequalities in the ownership of the means of production, a liberal political system that intervenes in the economy only at times of crisis to correct the economic imbalances, and a cultural environment supportive of the motivational patterns of capitalist growth and inequity. These fundamental features have continued to operate successfully at the centers and have even expanded into some metropolitan centers of the Third World.

Third and last, despite the foregoing, the growth of the information sector has meant increasing automation through robotics, reduction of repetitive and routine jobs, a commensurate rise in total leisure time available to society as a whole, greater social networking possibilities, and immense potentials for a new cultural effervescence and political participation. These opportunities have coincided with a complex variety of worldwide grass-root movements, new democratic ideologies and counter-cultural theories well-articulated in the works of Schumacher, Illich, Friere, Ariyaratne, Galtung, Habermas, Berger, Capra, Roszack, Salé, and many others. I have called third school of thought "communitarian," in that they all focus, more or less, on the need for the reconstruction of community, identity, and solidarity

in the face of the atomizing, disintegrating, and anomic effects of modern industrial society. In contrast to the liberals and Marxists, whose central emphases are, respectively, on freedom and equality, the communitarians' primary concern is with human solidarity. In the face of the threats of nuclear war, bureaucratic domination (of both the capitalist and communist varieties), and cultural and environmental disintegration, the peace movement, populist revolts, and the struggles for indigenous cultural identity have all converged in a variety of Green and Rainbow coalitions.⁽²⁾ These movements have found in the new, smaller, less costly, more accessible, less surveillable and more interactive media a new alliance.

B. The Seven Ages of Human Communication

Historically, however, information technologies have always shown a Janus face—they have served centralizing as well as devolutionary trends, unifying as well as disintegrating forces, homogenizing as well as pluralizing values. To provide a historical perspective on the contradictory potentialities of our own current situation, I will now focus on a conceptual framework that points to the interactions of information technologies and their corresponding social systems. Despite some correspondence, however, it will be argued that there are no necessary historical stages at work. Agricultural societies are not necessarily followed by industrial and information societies. As noted before, in a real sense, all human societies are information societies. The increasing diversification of information technologies and professions simply point to an increasing productivity of the industrial system and its cultural and epistemological lags in channeling this productivity into higher levels of democratic achievements—of political freedom, social justice, and human solidarity.

The following conceptual framework should be considered only a preliminary effort towards an understanding of the interactions of communication technologies, overlapping cultural paradigms, emergence of new communication elites in society, and their corresponding institutional origins.

(See Table 3.)⁽³⁾

(2) The Green Party in West Germany and Jesse Jackson's Rainbow Coalition in the last U.S. presidential elections provide two examples of such movements.

(3) The scholars who have most notably contributed to the understanding of this

Table 3. The Seven Ages of Human Communication: Communication Revolutions and Historical Change

Social System	Communication Technologies	Cultural Paradigms	Communication Elites	Communication Institutions
Band	Pre-Speech	Magic: Supernatural	Shaman	Hunting Bands
Tribal	Speech	Mythology: Magic	Poets & Soothsayers	Tribe
Agrarian Feudalism	Writing	Religion: Revelation	Priesthood	Temple
Commercial Capitalism	Print	Science: Reason	Intellectuals	University
Industrial Capitalism	Film & Broadcasting	Ideology: Action	Ideologues & Persuaders	Mass Media & Movements
Technocratic Capitalism	Computers Satellites	Technology: Program	Technologues	National/Global Technocracies
Communitarian Society	Informatics: ISDN	Community: Discourse	Communologues	Global/Local Networks

In considering Table 3, three important caveats are in order. First, this schematic view of thousands of years of historical evolution does not presume any determinist stage theory of history. It merely suggests a series of *possible* correspondences between emerging communication technologies, cultural paradigms, communication elites and institutions emerging in history. The seventh social system, characterized here as "communitarian society," is clearly not yet a historical reality but only a potential to which we may aspire.

Second, the table presumes no technologically determinist view of history. In the ongoing debate on the causal links between technologies, social institutions, and cultural values, an interactionist rather than a materialist or idealist view is presented here. It is argued that no causal links can be universally established unless we consider each case on its own merits and in a given historical context. In historically specific situations, however, we are likely to find strong multilinear and interactive rather than linear and unidirectional causation.

set of historical interactions, include Innis (1950, 1951), McLuhan (1964, 1962), Gouldner (1976, 1979, 1980), Thompson (1971, 1985), and Eisenstein (1979). For an extensive and annotated bibliography on Culture Technology and Communication, see Carey (1981).

Third, in a global situation characterized by combined and uneven development, we often encounter overlapping and interlocking communication technologies, paradigms, elites and institutions. In other words, magic is as present in post-industrial, technocratic societies as it is in hunting band societies. It only appears in different forms; the magic of technology replaces the magic of the supernatural. But the dominant paradigm in technocratic societies is clearly "technology" and its programmatic imperatives, while the dominant paradigm in pre-speech societies seems to have been the anthropomorphic convergence of the human and nonhuman into a unified worldview. But the emerging unity of mysticism and science, as in quantum physics (Capra, 1976), is leading us back once again to an understanding of the delicate balance between humans and nature, which we have largely lost in industrial civilization.

Each of the following ages of human communication could be the subject of a single chapter in book or better yet, the subject of a separate book. I will provide here only brief and hopefully suggestive characterizations, which of necessity will be schematic and prone to misunderstanding. I hope, however, that what we lose in precision and pendency is well compensated by the gains of an historical perspective.

The Age of Magic is characterized primarily by hunting, "band" social organizations, epistemological unity of the objective and the subjective in human consciousness, a pre-speech language of signs, and the leadership of what anthropologists call "the Big Man" with Shamans as his conduits to the world of magic and super natural.

The Age of Mythology, by contrast, represents the gradual evolution of speech, the beginnings of mobile settlements in tribal forms, an epistemological dualism between the objective and the subjective, and the unity of the temporal and spiritual authorities in the figure of Divine Chiefs or Kings, advised and guided by the poets, soothsayers and astrologers. (Frankfort et al., 1964)

The Age of Religion corresponds to the invention of writing, the preservation of revelation in the Holy Books, the emergence of the "scribes" and priests as guardians and interpreters of revelations, resulting in the separation of temporal and spiritual authorities, and the emergence of the temple, the church or the mosque, as the institutional bases for this social differentiation.

The Age of Science dawns upon us primarily with the European scientific revolution of the 17th century, propelled by the invention and spread of printing technology. Its pioneering institutions are the emerging modern European cities and universities. Its communication leaders are the new scientist/humanist intellectuals (e.g. Galilei, Newton, Bacon). Its epistemology is grounded in empiricism and a careful separation of the objective and subjective categories, while its "culture of critical discourse" (Gouldner, 1976) presents a scientific outlook on social and philosophical issues.

The Age of Ideology is led by the American, French and other European revolutions of the 18th and 19th centuries, but it has reached its peak with the rise of the mass movements in the 20th century. It is characterized by the emergence of a new communication elite of "ideologues," addressing a "public" created by the extension of literacy and the newly-emerging institutions of the mass media, mass movements and mass organizations (chiefly political parties and trade unions). In contrast to the cultural orientation of the intellectuals, which is scientific and reflective, the ideologues tend to be oriented towards politics and action.

C. Technocratic vs. Communitarian Society

Finally, our own Age of Technology clearly exhibits two contradictory tendencies—here identified as "Technocratic" and "Communitarian" Societies. The Technocratic Society has been led off by the cybernetic revolution, but it is developing further by an accelerating convergence of the print, telephone, broadcasting, cable, satellite, computer, and microprocessing technologies into what has come to be known as "informatics." The Integrated Services Digital Network (ISDN) can simultaneously transmit sound, vision, and data linking global and local networks. At present, the new technologies primarily serve the purposes of the highly centralized global and national technocracies such as the giant transnational corporations and the state military and civilian bureaucracies. They also serve a new communication elite labelled here as "the technologists." This elite is acting as the custodians and managers of the large bureaucratic machines that dominate our world today. The preponderance of the engineers, programmers and efficiency managers has in turn resulted in the dominance of a new cultural paradigm that puts technology above ideology, means over ends, and programming efficiency over spontaneity

and participation.

The "Technological System," as Jacques Ellul (1980) calls this social order, has also bred its own institutions of research and instruction outside of the traditional liberal arts universities. The R&D establishments such as the Bell Labs, Rand Corporation, Arthur D. Little, or Battle Memorial Institute (all in the United States) serve the defense and corporate sectors without much of the moral and material constraints of traditional universities. Numerous "Corporate universities" have also emerged as degree-granting institutions to overtake the tasks of training in the industrial arts without the constraints of teaching the liberal arts. In the United States, these alternative institutions of higher training and applied, industrial research, spend over twice as much as the traditional institutions of higher education.⁽⁴⁾

The Technocratic Society is first and foremost a global system. It is characterized by an international communication regime of information networking indispensable to the operation of its global transportation, banking, finance, and marketing activities. This global information network connects the corporate and government headquarters with their respective localized branches in a vast and complex network of centralized modes of decision-making. It provides services in airline reservation, electronic fund transfers, remote sensing and intelligence, marketing, advertising, transborder news and data flows, etc. (Dordick et al. 1981; Ganley and Ganley, 1982) Information Society discourages, however, spontaneity and participation by its routinized systems of communication and control, innovation and production, reduction of decisions to their technical component, and fragmentation and delegation of decision making powers to the technocratic elites. (Galbraith, 1978; Kumar, 1978; Ellul, 1980)

Are we embarking upon a new, seventh age of human communication, a post-technocratic Age of Communitarian Democracy that could reap the benefits of information technologies without their dulling and enslaving effects? The distinction made here between "Technocratic" and "Communitarian" Societies entertains some measure of cautious optimism on this question. In the debate outlined above between the liberal and Marxist theorists, I am taking a middle ground here by granting to the former that some fundamental changes are occurring in the technological and social structures of what might be

(4) See the recent report published by Princeton University Press on "the Corporate Universities."

considered a "hyper-industrial" information society, but the sum-total of these changes has not as yet manifested itself in the capitalist political and economic institutions. It is hypothesized, however, that the potentials for fundamental cultural, political and economic changes are ever growing and will no doubt manifest themselves sooner or later. These changes could be observed particularly in the cultural spheres, but a variety of "green" political movements in Western Europe and the United States have also made their impact on the ecological and nuclear issues. In the socialist and third world countries, the same set of anti-technocratic sentiments are expressing themselves in movements calling for political decentralization and participation as well as self-reliant development.⁽⁵⁾

A "Communitarian Society" is, of course, a far more difficult entity to define.⁽⁶⁾ There are clearly no historical precedents for it. With the possible exception of modern democracies, all human societies in the past have been based primarily on coercive rather communicative methods of rule. The idea, therefore, represents merely a potential—a hope. But this is a hope that is not altogether utopian; it is a historically-grounded hope. Its central concept, communication, suggests an interactive process sharply in contrast to what goes on in the mass communication systems of the world today. It further suggests "communication" against "coercion" as a procedure for discursive will formation for developing genuine "consensus" rather than manufacturing "consent." The new interactive technologies of communication are making this increasingly more possible. Direct democracy as distinct from representative democracy, therefore, appears a viable alternative or a complementary institution. Moreover, the centralized and bureaucratic institutions of both capitalism and communism have produced a degree of economic exploitation, political alienation and cultural depersonalization, and each currently faces its own particular brands of legitimation crises (witness Poland alongside the advanced capitalist societies).

But history does not move in a new direction simply because of the presence of some new technological or social possibilities; it takes human consciousness and will to reshape institutions. Such movements as the Green Party in Germany, the Solidarity Movement in Poland, and the Sarvodaya

(5) For early accounts of the counter-culture movement, see Roszak (1969, 1972) For its further developments, see Toffler (1970, 1980); Naisbitt (1982); Ferguson (1981). For the Green Movement see Capra (1984).

(6) See Voge (1983, 1985) for similar distinctions and views.

Movement in Sri Lanka, suggest that the ideals of a "communitarian" democracy have spread worldwide.⁽⁷⁾ These ideals call for peaceful, cooperative and anti-technocratic strategies of social change, including nuclear and general disarmament, conservation and ecological balance, decentralization and devolution of power, direct democracy, soft and intermediate technologies, smallness, self-reliance and self-management, cultural pluralism and identity, community media, and an economic growth based on intrinsic human needs rather than extrinsic appetites artificially induced by market or bureaucratic forces.

These ideals represent human aspirations against a disturbing situation—replete with the conflicts of a nuclear race, enormous and widening inequalities among and within nations, and cultural homogenization and depersonalization. There is evidence to suggest that if these ideals fail to materialize, we might face serious political problems and tragedies. The rise of a variety of dogmatic and fundamentalist movements around the world, in both developed and developing countries, are currently giving vent to the frustrations of the common people against an incomprehensible and unjust world system. If these movements continue to gain momentum, they could once again turn the world into an arena of uncompromising racial, religious and political conflict.⁽⁸⁾

An "escape from freedom" (Fromm, 1963) and a regression to the sanctity and security of tribal solidarity thus seems to be as likely an outcome of our own age of transition as the realization of its great democratic potentialities. The new information technologies thus present a double-edged sword. On the one hand, they can eliminate routine the repetitive tasks in production and administration, create greater leisure for cultural and political pluralism, facilitate access and participation in a new direct, "electronic democracy," foster open learning systems through teleeducation, and extend a variety of other social services (telemedicine, teleshopping, telebanking, telelibrary, etc.) to the remotest and most deprived sectors of the population. But on the other hand, they can also serve as instruments of a new totalitarian hegemony by reinforcing the surveillance powers of the state, expanding the gap between the information rich and poor, creating unemployment and underemployment through automation and robotics, and

(7) For the Green Movements, see Capra: 1984. For the Sarvodaya Movement, see Ariyaratne(1985).

(8) For the Islamic fundamentalist movements, see Mortimer (1982) and Tehranian (1980). For the Christian fundamentalist movements, see Armstrong(1979).

fostering excessive reliance on high technology in the problems of human conflict. The outcome clearly depends not on our stars but our choices.

D. Conclusion

The current debate on "information society" represents a recurrent pattern in the history of major technological breakthroughs. The Second Industrial Revolution, as the First, has found its celebrants among those who tend to assume technological determinist views of history. They tend, therefore, to underestimate the institutional fetters that stand in the way of spreading the full social benefits of the new technologies. They are the technological optimists. At the other extreme, however, we have the technological pessimists. The Luddites⁽⁹⁾ of the Information Revolution see in the new technological transformations the sinister designs of a new age of slavery. Both schools of thought tend to overestimate the powers of technologies in shaping our lives.

It would be salutary to remind ourselves that modern societies have proved themselves as prone to the powers of magic and myth as their so-called primitive counterparts. Modern political myths have operated as powerfully as any technology to bring about untold human tragedies in this century. Modern technologies have only put mightier means at the disposal of those myths. Such myths as the White Man's Burden in imperial Europe, Manifest Destiny in imperial America, Aryan Supremacy in imperial Germany, Historical Mission of the Proletariat in imperial Soviet Union, the Chosen People in expansionist Israel, and the Islamic Empire in the fundamentalist movements of the Muslim world, provide telling examples. These myths have combined the eschatological promises of a religious zeal with the mundane, political hopes of this worldly gain. This tonic has proved enormously powerful both in developed and developing countries. Political religions as well as religious politics fuse temporal and spiritual authorities into a single state apparatus.

The deification of the state on the basis of extremist secular or religious ideologies emanates from a single, inexorable source of power in modern society: the totalization of the means of social control: in production under

(9) A working class movement around 1811~16 that countered the labor-saving effects of the new machineries by breaking them.

the auspices of state or corporate capitalism, in surveillance under the authority of totalitarian ideologies, in culture under the auspices of mass communication, and in ecology under the awesome power modern technologies. But technologies have no will of their own; they are developed by society in response to human needs as defined by our cultural values and institutional arrangements. They produce some intended but also many unintended consequences. They amplify certain power configurations but also set into motion certain powerful counter-cultural and anti-systemic forces. They can be thus understood and tamed only through a reconstruction of our human traditions of civility.

The new information technologies possess an additional trait that most other technologies of the past lacked. They feed on a renewable, self-regenerative, and exponentially growing resource. The more information we give, the more information we have. Information feeds on information and thus grows at an accelerating rate. But that is also a mixed blessing. The cultural backlash against "information overload" has led in many parts of the world to powerful social movements representing escapes from information. These movements recoil from complexity and call for simpler models and choices in facing reality. Since the current information revolution is global in scope, the backlash is also of global dimensions. And since the gaps in information largely correspond to gaps in income and power, we may anticipate new populist revolts that fall back on the certitudes of the past to face the uncertainties of the future.

References

Ariyaratne, A.T.

1985 "Learning in Sarvodaya," mss. Global Learning Symposium, Univ. of Toronto, April 30-May 2.

Armstrong, Ben.

1979 *The Electronic Church*. Nashville: Thomas Nelson.

Bell, Daniel.

1973 *The Coming of the Post-Industrial Society: A Venture in Social Forecasting*. New York: Basic Books.

Bennet, Tony et al., eds.

1981 *Culture, Ideology and Social Process*. London: Batsford.

Berger, Peter L.

- 1967 *The Sacred Conopy: Elements of Sociological Theory of Religion*. Garden City, New York: Doubleday & Company, Inc.
- Blumler, Jay; Katz, Elihu
- 1975 *The Uses of Mass Communication: Current Perspectives on Gratification Research*. Beverly Hills: Sage.
- Capra, Fritjof.
- 1976 *The Tao of Physics*. Toronto: Bantam Books.
- Carey, James W.
- 1981 "Culture, Technology and Communications: An Annotated Bibliography," mss. Champaign, Ill.: Univ. of Illinois.
- Clarke, Colin
- 1940 *The Conditions of Economic Progress*.
- Dordick, Herbert S. et al.
- 1981 *The Emerging Network Marketplace*. Norwood, NJ: Ablex.
- Eisenstein, Elizabeth L.
- 1979 *The Printing Press as An Agent of Change*, Vols. 1-2. Cambridge: Cambridge University Press.
- Ellul, Jacques
- 1980 *The Technological System*. New York: Continuum.
- Ferguson, Marilyn
- 1981 *The Aquarian Conspiracy: Personal and Social Transformation in the 1980s*. J.P. Tarcher.
- Frankfort, Henri et al.
- 1964 *Before Philosophy: The Intellectual Adventures of Ancient Man*. Hammondsworth: Pelican Books.
- Freud, Sigmund
- 1919 *Totem and Taboo*. London.
- Fromm, Erich
- 1963 *Escape from Freedom*. New York: HR & W.
- Galbraith, John K.
- 1978 *The New Industrial State*, 3rd rev. ed. Boston: Houghton Mifflin.
- Ganley, Oswald H.; Ganley, Gladys D.
- 1982 *To Inform or to Control: The New Communications Network*. New York: McGraw Hill Book Co.
- Gouldner, Alvin W.
- 1976 *The Dialectic of Ideology and Technology*. Oxford: Oxford University Press.
- 1979 *The Future of Intellectuals and the Rise of the New Class*. London: The Macmillan Press.
- 1980 *Two Marxisms*. Oxford: Oxford University Press.

Hamelink, Cees J.

- 1983 *Cultural Autonomy in Global Communication: Planning National Information Policy*. New York/London: Longman.

Hancock, Alan

- 1981 *Communication Planning for Development: An Operations Framework*. Paris: Unesco.

Head, Sydney

- 1985 *World Broadcasting Systems: A Comparative Analysis*. Belmont, CA: Wadsworth Publishing Co.

Innis, Harold

- 1950 *Empire and Communications*. Toronto: University of Toronto Press.
1951 *The Bias of Communication*. Toronto: University of Toronto Press.

Jonscher, Charles

- 1984 "Information Resources and Economic Productivity", *Information Economics and Policy* 1, "Productivity and Growth of the Information Economy," Communication and Information Economics, ed. by M. Jussawalla & H. Ebenfield. Amsterdam: North Holland.

Kumar, Krishna

- 1978 *Prophecy and Progress: The Sociology of Industrial and Post-Industrial Society*. New York: Penguin.

Lee, Jae-Kyoung

- 1985 "Two Theories of Social Change: Jürgen Habermas and Peter Berger," mss. Honolulu: Com. 650.

Levi-Strauss, C.

- 1963 *Totemism*, Boston: Beacon Press.

Machlup, Fritz

- 1980~84 *Knowledge: Its Creation, Distribution and Economic Significance*, v. 1-3 Princeton: Princeton University Press.

Machlup, Fritz

- 1962 *The Production and Distribution of Knowledge in the United States*. Princeton: Princeton University Press.

Malinowski, B.

- 1927 *Sex and Repression in Savage Societies*.

McLuhan, Marshall

- 1962 *The Gutenberg Galaxy: The Making of Typographic Man*. Toronto: University of Toronto Press.

- 1964 *Understanding Media: The Extensions of Man*. Boston: McGraw Hill.

Mortimer, Edward

- 1982 *Faith and Power: The Politics of Islam*. New York: Vintage Books.

- Mosco, Vinnie
 1982 *Pushbutton Fantasies*. Norwood, NJ: Ablex.
- Naisbitt, John
 1982 *Megatrends: Ten New Directions Transforming Our Lives*. New York: Warner Books.
- Porat, Marc
 1977 *The Information Economy*. Washington, DC: US Office of Telecommunications.
 1978 "Communication Policy in an Information Society," *Communications for Tomorrow*, ed. G.O. Robinson. NY: Praeger.
- Roszack, Theodore
 1969 *The making of Counter-Culture*. New York: Doubleday.
 1972 *Where the Waste Land Ends: Political Transcendence in Post-Industrial Society*. NY: Doubleday.
- Schiller, Herbert I.
 1981 *Who Knows: Information in the Age of Fortune 500*. Norwood, NJ: Ablex,
 1985 *Information and the Crisis Economy*. Norwood, NJ: Ablex.
- Smythe, Dallas W.
 1985 "Needs Before Tools: The Illusion of Electronic Democracy", mss. International Communication Association, Honolulu, May
- Straus, Levi
The Savage Mind.
- Tehrani, Majid
 1980b "Communication and Revolution in Iran: The Passing of a Paradigm," *Iranian Studies*, 13:1-4, Spring.
- Thompson, William Irwin
 1971 *At the Edge of History*. New York: Harper Torchbooks.
 1985 *Pacific Shift*. San Francisco: Sierra Club Books.
- Toffler, Alvin
 1970 *Future Shock*. New York: Bantam Books.
 1980 *The Third Wave*. New York: Bantam Books.
- Tunstall, Jeremy
 1977 *The Media Are American*. New York: Columbia University Press.
- Voge, Jean P.
 From Information Society to Communication Society. PTC Proceedings, Pacific Telecommunications Council, Honolulu.