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ABSTRACT

We are now at a stage in human global development in which the continuous review and assessment of the long-range future implications of our past and present actions becomes crucially important for the survival of human society. This report includes a synoptic view of world trends and alternative futures. The first and major portion of the publication discusses world trends including both long-term and short-term changes: (1) Evolutionary Intervention; (2) Physical Extension; (3) Conceptual and Social Expansion; (4) Major Technological Change Events; (5) Population; (6) Urban Growth; (7) Energy; (8) Industrial Development and Natural Resources; (9) Food; (10) Material Disparity between Advanced and Lesser Developed Nations; (11) The World Economy; and (12) the Political Climate. The second part of the document discusses aspects of alternative futures in terms of what we ought to do. (Author/RM)

No. 1 • Open Grants Papers

WORLD TRENDS AND ALTERNATIVE FUTURES

John McHale and Magda Cordell

January 1974

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This paper was prepared in March, 1973, while the authors were Senior Fellows at the East-West Center, on leave from the Center for Integrative Studies, State University of New York at Binghamton. They were invited to the Center to join in a program of research and interaction around the Open Grants theme "Alternative Futures."

THE EAST-WEST CENTER is a national education institution established in Hawaii by the United States Congress in 1960. Formally known as "The Center for Cultural and Technical Interchange Between East and West," the federally funded Center is administered in cooperation with the University of Hawaii. Its mandated goal is "to promote better relations between the United States and the nations of Asia and the Pacific through cooperative study, training, and research."

Each year about 1600 men and women from the United States and some 40 countries and territories of Asia and the Pacific area work and study together with a multinational East-West Center staff in programs dealing with problems of mutual East-West concern. They include students, mainly at the postgraduate level; Senior Fellows and Fellows with expertise in research and/or practical experience in government and business administration; professional study and training participants in non-degree programs at the teaching and management levels; and authorities in various fields meeting in international conferences and seminars.

A fundamental aim of all East-West Center programs is to foster understanding and mutual respect among people from differing cultures working together in seeking solutions to common problems. The Center draws on the resources of U.S. mainland universities and Asian/Pacific educational and governmental institutions, as well as organizations in the multicultural State of Hawaii.

Participants are supported by federal scholarships and grants, supplemented in some fields by contributions from Asian/Pacific governments and private foundations.

Center programs are conducted by the East-West Communication Institute, the East-West Culture Learning Institute, the East-West Food Institute, the East-West Population Institute, and the East-West Technology and Development Institute. Open Grants are awarded to provide scope for educational and research innovation.

OPEN GRANTS. The East-West Center each year offers a small number of invitational fellowships for scholars and authorities whose research interests are not directly related to the problem-oriented programs of the East-West institutes. In awarding these open grants, a key factor is relevancy of the prospective Fellow's research interests to certain broad themes transcending the foci of the institutes. These themes, changed from year to year, are especially selected for their potential contribution to achievement of the overall goals of the Center as well as enhancement of its problem-oriented programs.

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PROLOGUE

In the last third of the twentieth century, two major aspects of change have become increasingly visible. One is the explosive growth in human actual and potential capacities to intervene in larger environmental processes, both physical and social. Global in scale, capable of affecting the physical balance of life on the planet itself, and reaching into every aspect of individual human life and societal institution, our present change patterns now constitute a socio-ecological transformation of evolutionary magnitude. The other is the lag in the conceptual grasp of this transformation and in the cognitive and affective understanding of the psychosocial processes through which we may manage its changes more effectively. In both cases, the conceptual grasp of the rate and magnitude of ongoing changes and their potential longer range consequences has emerged as one of our most critical social imperatives.

This may be phrased more succinctly as the future imperative, i.e., as marking a stage in human global development at which the continuous review and assessment of the long-range future implications of our past and present actions becomes crucially important for the survival of human society. The range, scale, and interpenetration of our activities force us to assess and more deliberately choose which courses of action we might take in terms of their effect on our individual and collective future alternatives. We either consider our future more seriously or we may have no future at all!

A central premise within this imperative is that we live in an increasingly less deterministic world than at any other historical period. Human choice, at both the individual and collective level, now plays a major role in determining trends--rather than being determined by them.

Our present actions and choices not only affect the present in immediate terms, but may increasingly determine the future in irreversible terms. We may not only grossly influence our present space and time, but "colonise" future areas of time.

Although such thinking about the future will necessarily remain an idealistic and utopian enterprise, it acquires its uniquely imperative character in a period when the material means become available, for the first time, on a scale which matches up to the idealism.

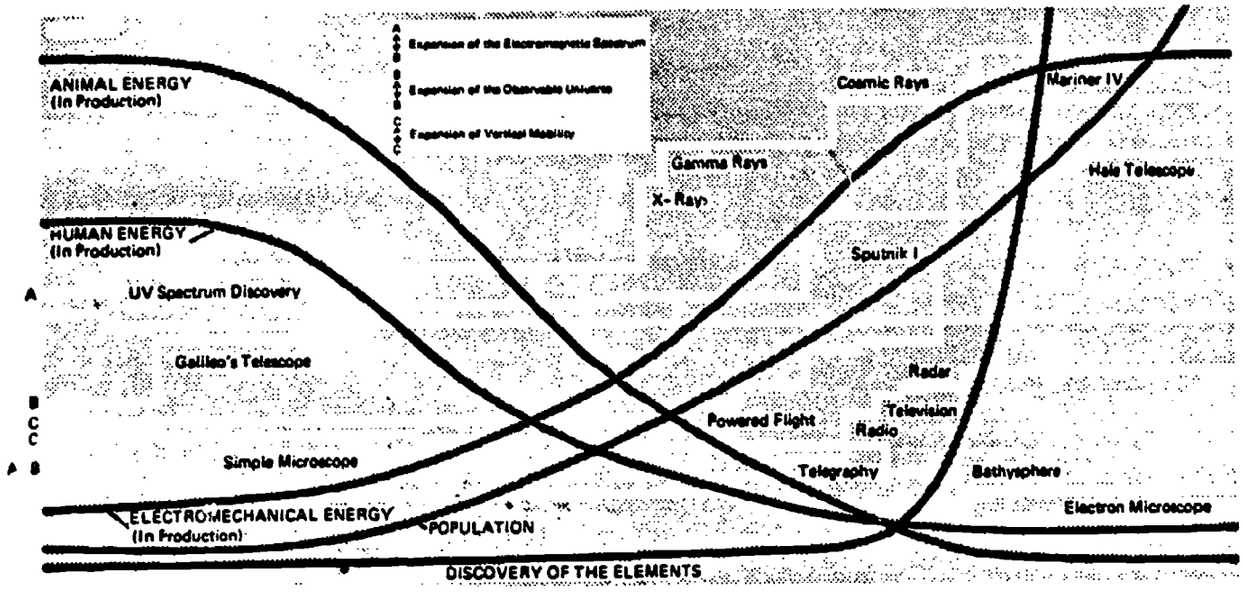
Our present discussion of such changes at the world scale can only be synoptic and indicative. The various trends, and their impacts, though worldwide in their scope, are uneven in their applicability to the developed and lesser developed regions. Some generalised consideration is necessary, however, in order to provide a context within which to gauge current changes, and to serve as a set of perspectives from which to estimate their future connotations.

For convenience, we may categorise such trends into two main groups, namely, the implicit longer range changes and the more explicit and visible short-range changes. This division is somewhat arbitrary as the trends themselves interweave and interpenetrate within a larger systemic context in ways that elude such simple categorisation.

I. Those implicit long-term changes which have been ongoing in human development over historical time.

Many of the present discontinuities are the "cresting" of longer waves of developmental change which have only become apparent recently as our historical perspective has, in itself, become wider and more detailed in its recording. This is not to suggest the inevitability of historicism, nor to assume that we may be guided by historical precedents; it merely concurs with Toynbee's assertion that, in terms of the change rates of overall human development, "All recorded history is contemporary history."

The Watershed



Source: John McHale, "Conceptual Revolution," Center for Integrative Studies, Working Paper No. 2, 1972.

A. Evolutionary Intervention

One of the earliest points of "evolutionary discontinuity" may be viewed as the stage at which we began to employ tools, both physical and psychosocial, to extend our understanding of, and control over, local environmental circumstances. At this point we avoided, or sidestepped, the need to modify our own biological characteristics in order to survive. The discovery of fire; the development of language and other symbol systems; the invention of the wheel, of animal domestication and agriculture, of the complex range of socio-economic and political institutions--all are part of the process of externalising our evolutionary development. The physical aspects of this process have been termed "evolution-by-prosthesis," i.e., the uniquely human process through which we offload certain evolutionary directions onto our artifacts and cause them to evolve for us.

The consciousness of this potential control over our future evolution has only emerged most recently, and has become more widespread only in the second half of the twentieth century.

Importantly enough, this growing awareness occurs precisely at the stage at which our current evolutionary extensions--airlines, telecommunications, the industrial network of extraction, production and distribution of artifacts, materials, etc.--encircle the earth and form a large-scale component in the planetary ecology. It is the point also, at which, having gained unwittingly the power of transforming the earth to human purposes on an unprecedented scale, we now face the prospect of turning this control, via developments in the biological sciences, onto the human organism itself.

B. Physical Extension

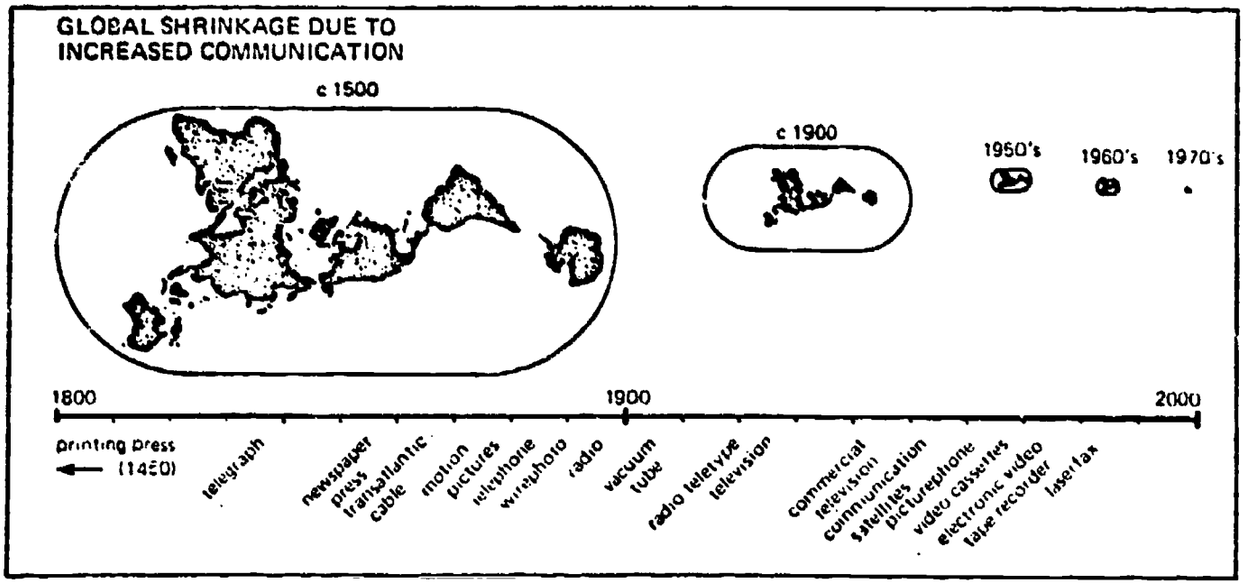
As corollary to the above, the human developmental patterns not only encircle the globe but increasingly penetrate into and beyond the atmosphere, extract more materials from under the earth's surface, and venture beneath the oceans. The increase in horizontal speeds begins to approach physically tolerable limits; the expansion of the capacity to kill-at-a-distance reaches mutually destructive levels via nuclear weapons delivery systems which can hit any point on the earth's surface from any other.

C. Conceptual and Social Expansion

Paralleling the geographical extension of human "life space," our psychosocial life space develops from the family to the tribe, to the city and national state, and thence to a familiarity with the planet as life space.

Conceptual life space expansion develops from localised flat earth to the finite globe, thence to the earth as part of the local solar system. Matching the physical extension are:

1. The temporal expansion in which historical time is opened up and the origin of species placed ever more remotely in a lengthening past.
2. The perceptual expansion into both the micro- and the macro-universe spaces via sophisticated instruments, accompanied by the extension of monitoring and control into the hitherto invisible ranges of the electromagnetic spectrum--into areas of radiation phenomena which have neither been visible nor otherwise apprehendable for most of human historical experience.
3. The conceptual expansion of "world views" from the more cyclical world of polytheism to the more linear development of monotheism with its attendant diminution of magic and shift towards individualised redemption. The rise of science coincides with the spread of a secular world view and the decline of religious institutions as the core value-setting agencies for society. Science itself erodes the older views of a fixed physical universe and replaces them with a model of permeable space and time whose relative indeterminancy and intangibility are infused with relationships which are neither wholly visible nor "logically" apprehendable in earlier traditional models.



Source: John McHale, The Future of the Future (New York, George Braziller, 1969), p. 269.

These latter trends constitute a major paradigm[1] shift not only in the nature of "reality" but in the ways in which we perceive and conceptualise that reality.

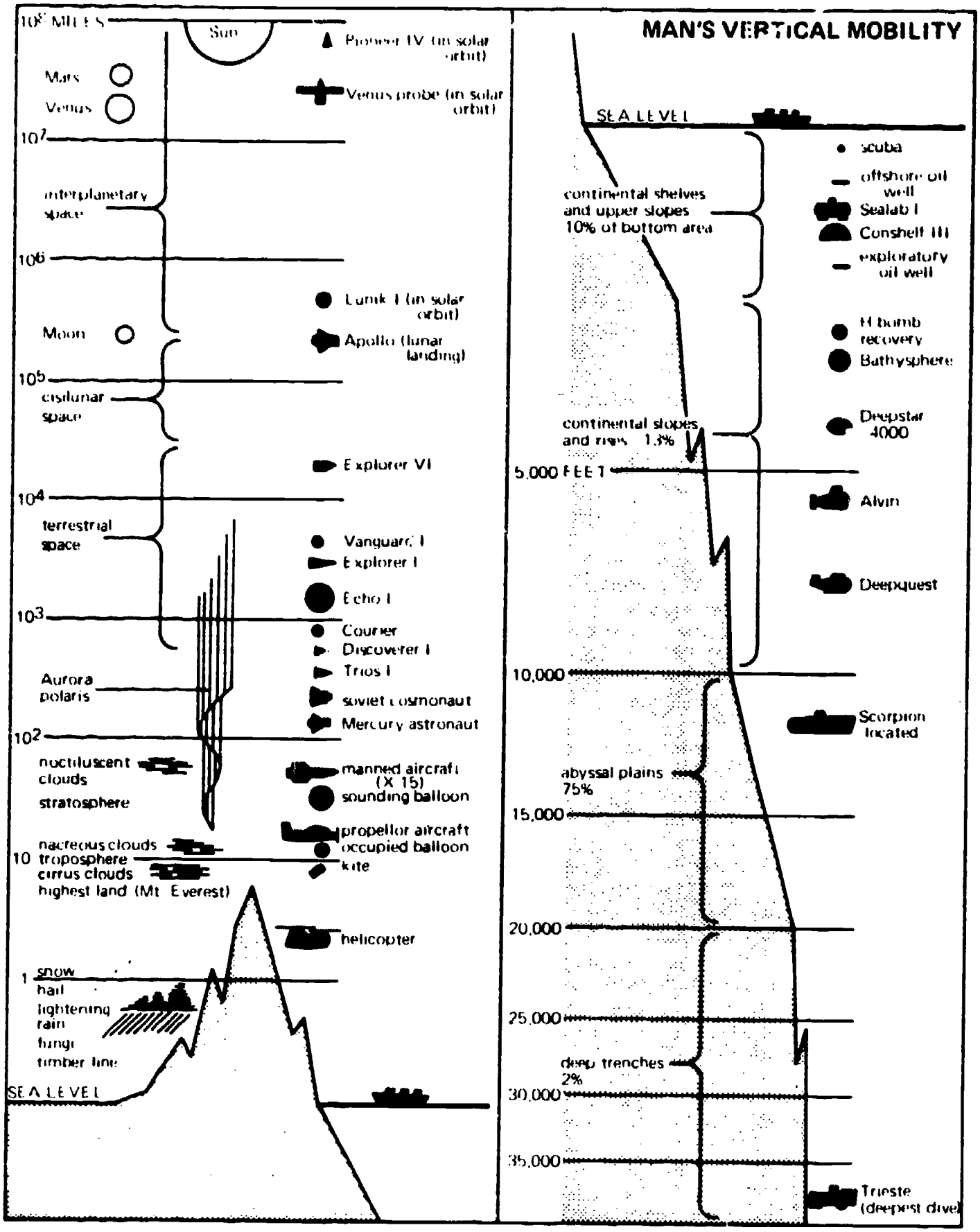
Our current shift of paradigm or "world view" is particularly characterised by its magnitude and by its sweeping interpenetration through whole ranges of human activity. It constitutes a transformative revolution in both our physical condition and our consciousness, involving not only physical changes of unprecedented size and magnitude but also an underlying manifold of transformations in human values, attitudes, perceptions, and relationships.

D. Major Technological Change Events

Recent changes which usher in the more visibly apparent aspects of this new world reality occur in the period from the end of World War II to the present. Any sizable inventory of the spectrum of accelerated scientific and technological change in this period is beyond our present scope. One may select, however, two major events whose challenges are of the greatest magnitude and longest range consequences--the first use of nuclear weapons and the development of electronic computers. Both events awesomely magnify our capabilities and choices for both negative and positive purposes.

The use of nuclear weapons renders large-scale war, as we have known it, an obsolete mode for the resolution of human conflict. Notwithstanding our accumulation of strike capabilities and arsenals of deterrence, we know that the old adage, "To the victor belong the spoils," is no longer true. Victory in nuclear terms may be synonymous with the spoilage of both victor and vanquished.

The development of the electronic computer and the interlinked technologies of high speed information processing and communications is a sociotechnical revolution which moves society from industrial to postindustrial forms in ways which we have only begun to perceive.



Compiled from various sources.

> ...A preindustrial society is essentially one based upon raw materials, as a game against nature, and in which there is diminishing returns. An industrial society is organized primarily around energy and the use of energy for the productivity of goods. A postindustrial society is organized around information and utilization of information...as a way of guiding the society.[2]

The implications of this latest shift have not yet become apparent. The change towards societal forms based on information and knowledge as key resource poses fundamental questions regarding the nature of material wealth and power. Information/knowledge as a resource has several unique properties which do not apply to other resources:

1. All other resources are dependent upon them for their perception, evaluation, and utilisation.
2. As resources in themselves, they are not reduced or lessened by increased use or wider sharing--rather they tend to gain in the process.

Our core concepts of wealth and power are still tied closely to value systems dependent upon scarcity, in societies in which survival was marginal and competitive. Most of our political, economic, and social systems still operate on this latent model of a zero sum game--the winners only secured advantage if their opponents lost. With information and knowledge as resource base, the survival game is changed. These new wealth generators do not lose in value or amount by more distributive access and sharing--they can only gain. Survival is now more clearly a non-zero sum game--success and gain are predicated on all winning.

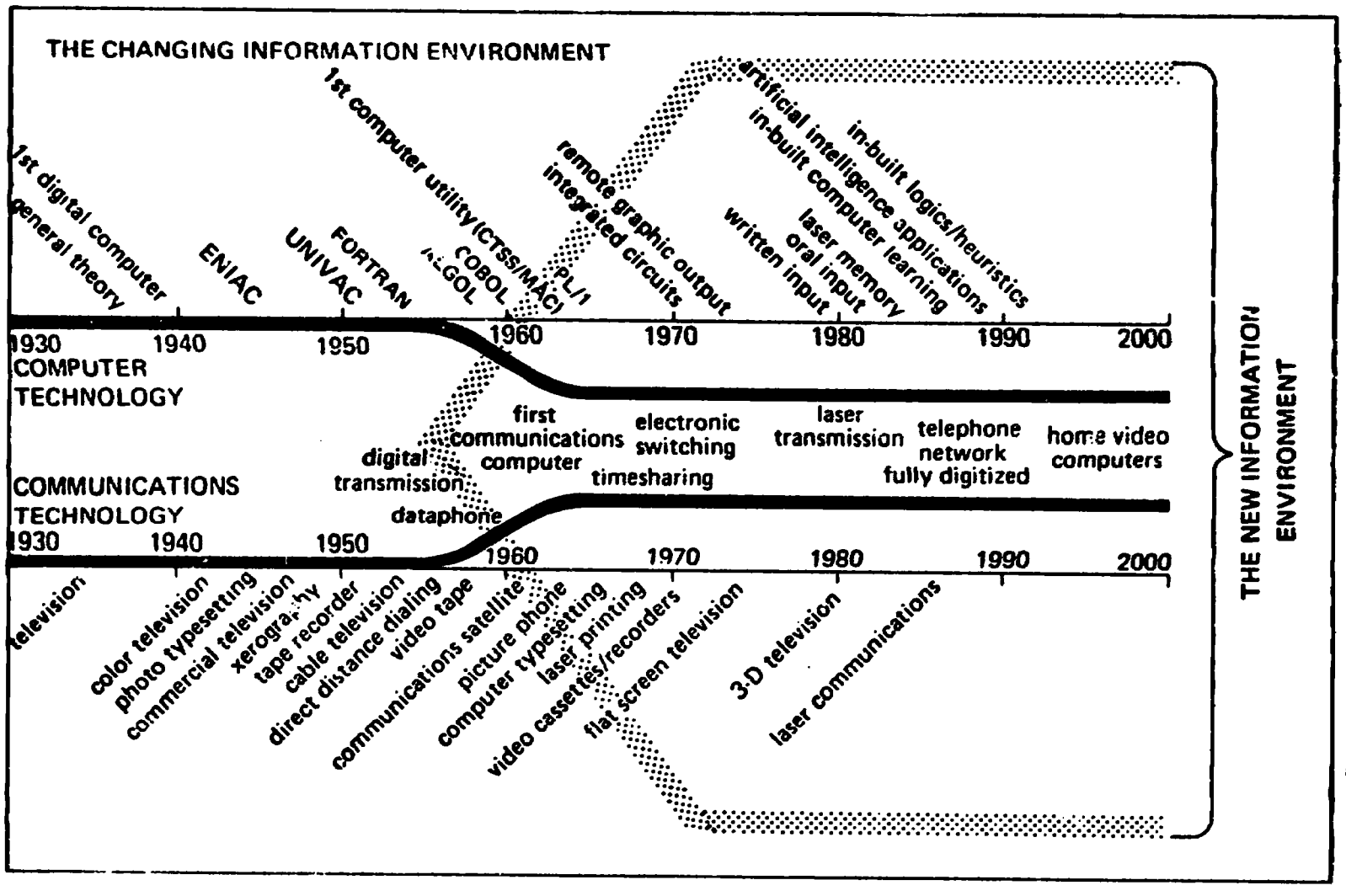
Without explicit reference to the anatomy of this fundamental change, we may note that a tacit understanding of it has begun to permeate many areas of society. It is expressed in the concern with the ecological balance, with the sharing of advantage for the disadvantaged, with the demands for participation in decision making by many more societal groups--even with the increased furore over official secrecy, increased surveillance, threats to privacy and media freedom, in which questions regarding the control, distribution, and access to information and knowledge have become a central issue in society.

In terms of the coincidence of transformational shifts, it is important to note, also, that just at the point when the magnitude and interactive complexity of human activities and their multivariate impacts on the social and physical environment seem to elude human grasp, we have acquired the beginning set of "tools" which may enable us to deal with this degree of complexity at both local and global levels. The moon landings were not only evidence of single-minded technological development but represent a high point in the coordinated and precise control of sociotechnical and organisational skills and their purposeful direction.

Where our earlier examples were those of the human extension of muscular, visual, aural, and other organic capacities into physical tool systems, the new hybrid systems of "man plus" his augmented computer and communications facilities are the extension of the nervous system and of a variety of human cognitive processes into sophisticated network systems which now gird the planet.

When we come to consider other world trends, we need to do so, therefore, within this new information environment. Some of its major characteristics may be noted as follows:

- Exponential increase in volume of information flow.
- Time and distance no longer constraining upon communications.
- Global shrinkage.
- Decrease in the "time cushion" between sociotechnical changes and their impacts and consequences.
- Increase in dependence upon information and communications services.
- Abrupt changes in perception of sociophysical environment.
- Radical conceptual changes induced by increased information and communication.



CHARACTERISTICS

Exponential increase in volume of information flow

Time and distance no longer constraining upon communications

Global shrinkage

Decrease in "time cushion" between sociotechnical changes, their impact and consequences

Increase in dependence upon information and communications services

Growth of complexly linked systems subtending basic societal services

Increased interdependence of previously autonomous institutions and services due to feedback required for common information

Abrupt changes in perception of sociophysical environment

Radical conceptual changes induced by increased information and communications

Source: John McHale, The Changing Information Environment: A Selective Topography (State University of New York at Binghamton, 1971), p. 6.

- Increased interdependence of previously autonomous institutions and services due to feedback required for common information.
- Growth of complexly linked information and communications systems subtending basic societal services.

This emphasis on the increasing role of information and knowledge brings us full circle to the initial point in the prologue. The exercise of human choice in the assessment and control of changes in society is dependent upon the requisite information and communications systems for social navigation.

Some of the implicit discontinuities of change in this more immediate period may be summarised as follows:

1. The break in the transmission of relevant "experience," of norms and mores, from one generation to another, with corresponding changes and conflicts in value. Accompanying this discontinuity is the ambivalence regarding social roles, problems of "identity," authority, and legitimacy. This ambivalence is felt not only in the family as primary role- and value-setting agency; it extends through every level of institutional organisation. Its visible manifestations are the increase in social turbulence and unrest, not new in themselves but unique to our period in their range of diffusion throughout all societies.

There is a reverberative "dissonance" which is both cognitive and affective. Not only have external "realities" changed with uncomfortable speed but understanding and attitudinal and emotional responses to them vary considerably between individual and individual, group to group, and nation to nation. The reduction of this dissonance will require much greater efforts in education, in private and public dialogues, and in the communication and reinforcement of a larger understanding.

2. The change from socio-economic arrangements based on scarcity to those of relative abundance. As direct human labor, in routine and repetitive functions, becomes of decreasing importance, many of our social roles and statuses become detached from their economic and "productive" base and from work itself. Work, as previously defined in terms of direct economic gain, is no longer the lynchpin for a variety of social relations and identity-sustaining roles for participation in the society. One key attitudinal change is from the deferment of gratification and access to social means via production to those attitudes oriented more towards consumption, access to means, and immediate gratification. Exclusive "earned" ownership of means gives way to a use relationship to goods and services based on "rights" or on various other socio-economic relations.

3. Cultural changes via the growth of the mass media and the relatively enormous increase in mass distribution of "entertainment" as well as goods and services lead again to the wide diffusion of rapidly changing models and images of viable human conduct, as well as to discontinuous changes in expectations, life-styles, etc. Similar discontinuities may be observed in the fine arts and in the climate of ideas in which these are produced.

These and other changes point up the "crisis of values" in many socio-economic and sociocultural forms--institutional, psychological, interpretative, aesthetic, etc.

4. Changes in the size, complexity, and magnitude of effect of many of our large-scale systems lead to questions of accountability and legitimacy. The vast increase in the numbers of people who can be directly affected by large systems breakdowns or product malfunctions--e.g., from food and drug poisoning to appliance breakdown or power cut, etc.--gives rise to issues of "ethical" responsibility for economic and other institutional actions upon which millions of persons may depend for their survival or social maintenance. The large-scale development of new technologies--e.g., the SST--is no longer wholly left to the market mechanism but is increasingly

exposed to debate regarding their longer range sociophysical, economic, and environmental consequences.

Many of these discontinuities have brought up questions regarding the quality of life, the stabilisation of growth, and the viability of technology as an agent of change in itself, etc. These questions tend to polarise debate around stability or change, where the quest for order, continuity, and stability is given as the "cure" for change. Our more effective understanding lies with the recognition that change and motion (even a certain measure of disorder and turbulence) are the constants. The accommodation of stability within change is one of the larger challenges of our overall social navigation.

Between the implicit and more explicit trends, we may also note further sets of world patterns which emerge from the former and begin to affect and impact upon the latter. One key example is the emergence of the transnational world, those overarching human activities--social, institutional, economic, and technological--whose effects flow across national boundaries, or the maintenance of whose operations increasingly transcends local national sovereignties.

a. All world regions have become critically interdependent, through improved communications, transportation, and the need for globally available interchange of knowledge, technics,and markets.

b. No developed country is now self-sufficient in the range of globally distributed resources necessary for its social and economic maintenance.

c. Many of our current major problems--environmental, economic, educational, health--have, in many cases, gone beyond wholly national and unilateral solutions. Air, water, and land pollution do not recognise national boundaries; to control drug traffic in the U.S., we pay off the growers in Turkey, Afghanistan, and Southeast Asia; the environmental regulation of large riverine systems such as the Rhine requires common legislative standards in a number of countries.

d. Large economies of technological scale now tend to go beyond local national capabilities--e.g., the generation and transmission of power in extended grid systems--and are increasingly impacted by global implications and concern, as in the development of the American supersonic transport.

5. Access to global services.

a. Few nations manufacture aircraft, telecommunications, computer equipment, etc., or the electronic systems for their maintenance--but all countries share, in varying degree, in access to such services.

b. The adoption of common institutional and organisational forms, regulations, attitudes, and values is required for the use, and development, of many of these embryo world services. The regulations for landing a plane in Calcutta are the same as in London or Moscow; the teletype or transistor does not work differently in Birmingham than in Bangkok.

c. Disruption of such global services--e.g., through sabotage, hijacking, etc.--is no longer considered to be of wholly national concern, only solvable in local terms.

6. The worldwide diffusion of emerging cultural forms. Packaged foods, drinks, movies, television, clothes, music, architecture, and other artifacts affecting individual life-styles and values now flow around the world interpenetrating and changing local cultural forms--and being changed by them. Their ubiquity, range, diversity, and actual impact via increasingly shared images and symbols constitute a new cultural environ.

7. The most swiftly growing areas of the world economy are no longer national undertakings but multinational corporations. Of the hundred largest economic entities in the world, more than half are corporations whose annual budgetary turnovers are much greater than those of many nations. These organisations are unprecedented in their size, their globally diffused operations, and their growing autonomy across national boundaries.

8. The invisible growth of the world service and regulatory agencies—e.g., the Universal Postal Union, which we take for granted as a world public utility; the International Telecommunications Union, allocating and regulating radio, telegraph, telephonic, and other services; WHO, FAO, ILO, etc.

Within this trend one may also include the extraordinary growth in cooperative international projects, conferences, meetings, etc., and even the upsurge in tourism which constitutes a world migratory pattern of considerable magnitude in the growing web of transnational activity.

It is within this context of the overall developmental transformation of human society that we need to gauge the more immediate and explicit world trends. Although our discussion has been too synoptic to document these longer amplitudes of historical change which lead up to the present, it may serve as an outline for a larger understanding of them.

II. More Explicit and Shorter Term Trends

We have had more radical transformations of the human condition in the past century than may have occurred previously in all recorded history. Within three generations a series of scientific, technological, social, and economic changes have impacted one upon another to create a world situation for which there are no reliable historical precedents or guidelines to its assessment and control.

Many of the problems which we face may not be new--other than in their expanded dimensions and the scale of their interactive complexity. Making humanity more secure against hunger and disease has expanded our numbers in the short term; by shrinking the distance between peoples we have increased their critical interdependence; by creating the material possibilities for a better life we have massively increased expectations and demands by all people; and, by the prodigal exploitation of our physical resources, we have begun to produce many grave imbalances in our life-sustaining environment.

More people now require more in quantity, and in greater diversity and material quality, than was ever dreamed of in any previous age. To satisfy these requirements, we have extracted more metals, minerals, and fuels from the earth in the past century than in all previous history.

In any survey of such trends in the past century, there is the recurrent phenomenon of exponential growth in almost all areas of human activity, i.e., of doubling and tripling in relatively short time spans. The tendency is to suggest that our hitherto stable systems are now in a runaway and "out of control" stage.

It may be, however, that what we now view as an explosive increase in human numbers and activities is not, in fact, abnormal--but that the norms which we read as stability for most past history are not now applicable to human condition. What is read as an abrupt discontinuity with the past is, in effect, the emergence of a radically new phase in human evolutionary development. This is not without its dangers of potential catastrophe, but it must also be considered in terms of its unprecedented opportunities for human potential.

A. Population

The increase in human numbers has been considered one of the most critical world trends. Since 1900 we have gone from 1-1/2 billion[3] people on earth to over 3-1/2 billion in 1971. World population has more than doubled in two generations.

In terms of future population growth, however, the latest U.N. projections to 2000, whilst still oriented towards major increase, begin to show a decline in growth beginning in 1980 and continuing through 2000.

	U.N. Median Projection (based on 1968 data)			
Year	1970	1980	1990	2000
Nos. in millions	3,632	4,457	5,438	6,494
% Growth rates	2.0	2.0	1.8-1.7	

Using more recent figures up to 1971, we have recently compiled several variants on this U.N. projection up to the year 2020.

	Variant Projection B[4]					
Year	1970	1980	1990	2000	2010	2020
Nos. in millions	3,632	4,434	5,140	5,937	6,689	7,461
% Growth rates	1.8	1.7	1.5-1.4	1.2	1.1	

Even given the possible decline in the growth rate and stabilisation of world population within the next fifty years, there are obviously still many problems:

1. Major increases will take place in the lesser developed regions least able to cope with greater numbers.
2. The age differential in regional populations may be critical. The poorer countries will have "younger" populations with most increase in the working age range; the richer will have most relative increase in the older age ranges.
3. The gap between the affluent and poor regions will become greatly intensified.

The greatest population pressure will be in those regions of Asia, Africa, and Latin America which already have major social and economic difficulties. Their endemic problems of hunger, disease, lack of education and opportunity could be greatly increased, accompanied by recurrent local instabilities and larger conflict potential.

The generalised picture of world population growth is as follows:

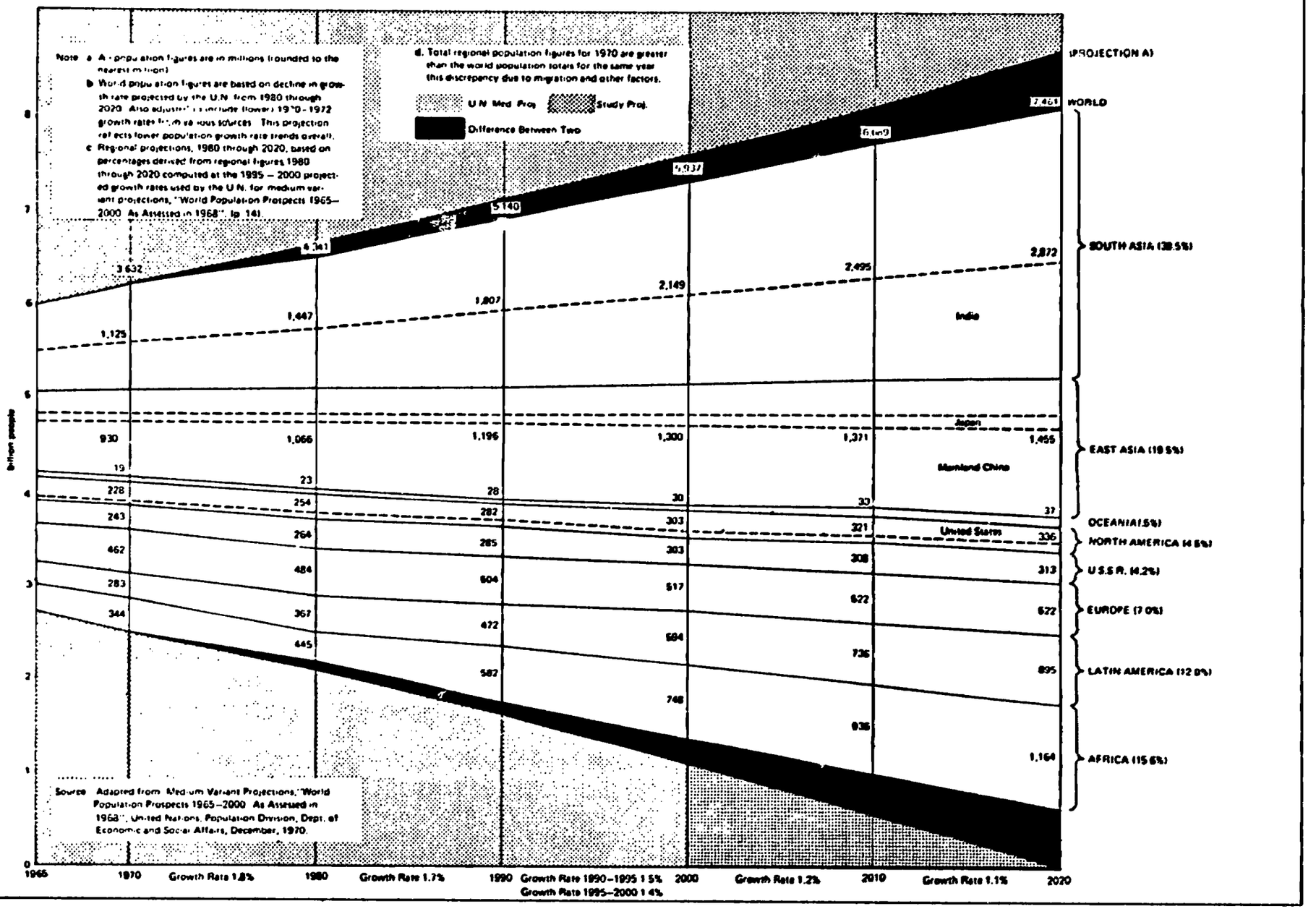
Growth will remain highest in those countries:

a. least advanced in material socio-economic terms;
b. having a high population to usable-resource ratio;
c. with low nutritional, health, and life expectancy;
d. with low individual social expectations and security.

Growth will be lowest (and more stable) in those countries:

a. economically and technologically advanced;
b. with relatively low population to resource ratio;
c. with high nutritional, health, and life expectancy;
d. with high individual social expectations and security.

PROJECTED WORLD AND REGIONAL POPULATION – 1970 to 2020



The Malthusian association of diminishing supplies of energy, food, and material resources with high population growth is clearly untenable. The larger population growth is in those countries which use the least resources, have least food, etc. The more stable and affluent countries with declining populations are those using the major share of the world's energy, food, and material resources.

The only long-term alternative for reduction of population pressure for the poorer countries would still seem to lie with improving their material standards and generalised expectations.

B. Urban Growth

In 1945 there were 41 cities in the world with over one million inhabitants. Today there are 83 such cities and the drift towards larger urban aggregates continues. This is most pronounced, again, in the lesser developed countries. The developed countries, though suffering from similar urban problems, tend to have a continuing out-migration from central city to suburbs to exurbs.

Though presently intensified, urban growth may, however, be a more transient phenomenon than it now appears. The in-migration to the urbs in the lesser developed countries is caused by the lack of facilities, expectations, and overall life advantages in the rural areas. Should this lack be remedied, the trend could be reversed. Present local policies, however, seem at best to be remedial and short range, rather than oriented towards the longer range direction of more equable population distribution of urban-type advantages, i.e., those that are now possible through advanced technologies of communication, transportation, production, etc.

C. Energy

The projected energy needs at various regional and world levels for the next fifty years range from 300 percent to 900 percent. A world per capita rate of energy consumption in 2000 equivalent to current U.S. per capita consumption would be about eleven times the present world consumption.

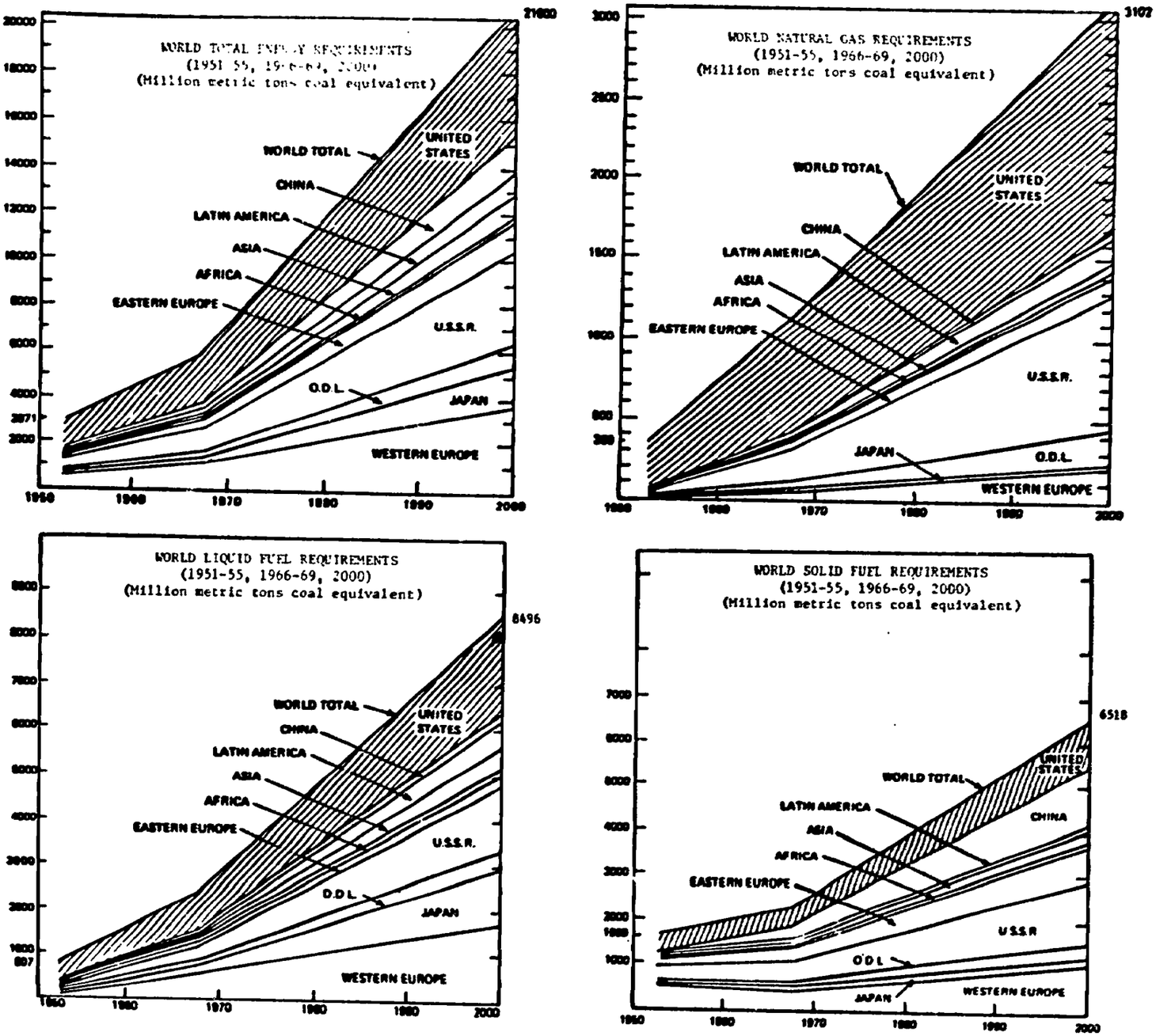
By moderate estimates, at least 80 percent of the world's major energy production for the next thirty years is predicated on fossil fuel use (oil, coal, and natural gas) within conventional energy conversion and use practices. The environmental impact of this practice, even given the required efficiency of pollution regulation, will be enormous if current uses persist.

In world comparative terms, for example, the U.S. with 200 million population uses more energy than the combined usage of four major countries--Britain, U.S.S.R., Japan, and Germany--totalling over 800 million, and its per capita usage is more than six times the world average.

The current "energy crisis" is due: one, to acute dependence on preferred energy sources in terms of economic and market criteria; and two, to ways that energy is used--at what rates, for which purposes, and at what levels of efficiency. Much of its impact could have been reduced by more rational long-range planning and the development of explicit energy policies. In terms of oil alone, 85 percent of its use is in transportation, but whilst the world oil industry has been involved in the growth of the world auto industry it has failed to plan effectively for the present crisis. Uses of coal to generate electricity are of the same order in terms of uncoordinated short-range expediency.

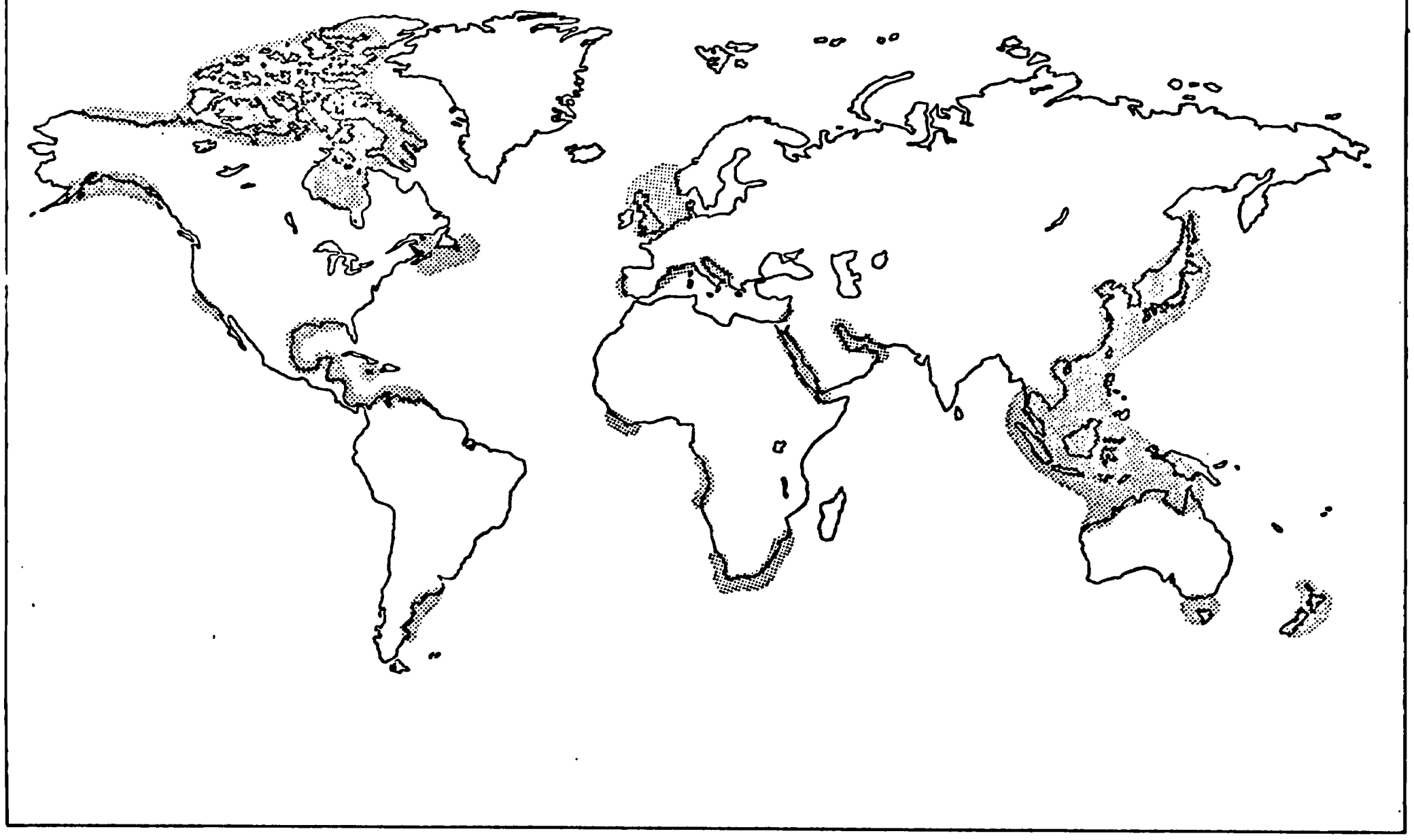
A critical and continuing aspect of the "world energy crisis" will be the increasing dependence of the advanced nations, such as the U.S. or Japan, on imported fuels. By 1980, the U.S. will depend on imports for more than 60 percent of its oil and almost half of its total energy needs.

U.S. AND WORLD REQUIREMENTS FOR ENERGY AND FUELS, 1951-55 TO 2000



Source: "Material Needs and the Environment: Today and Tomorrow," Final Report of the National Commission on Materials Policy, June, 1973.

OFFSHORE OIL EXPLORATION AND LEASE AREAS – WORLD



Source: Compiled from various issues of Ocean Industry, 1969-71.

This phenomenon will vastly amplify the economic and political leverage of the oil rich nations in the next decade--where they may hold the oil hungry nations to ransom at whatever price they demand. It will also lead to intensive competition and conflict over access to new oil and natural gas fields. Major leasing and exploration activity is presently concentrated on the world continental shelves--particularly around Southeast Asia, Indonesia, and down through the islands to North Australia, marking these areas as continuing arenas for possible conflict.

One of the main reasons for the continuing crises in energy use, whether shortage of fuels or environmental impacts of pollution, has been the lack of any coordinate energy policy at most national levels, and certainly at the world level.

The allocation of research efforts and funding has been relatively miniscule compared to the revenues and profits from the continuance of traditional practices or the development of new energy sources such as nuclear generation within the conventional industrial frameworks.

The alternative directions for energy sources are many. Almost all indicate the necessary switch to "income" energies such as fusion, tidal, solar, geothermal and other renewable or "non-capital" sources, and to required reassessment and development of new modes of storage, transmission, and use.

D. Materials

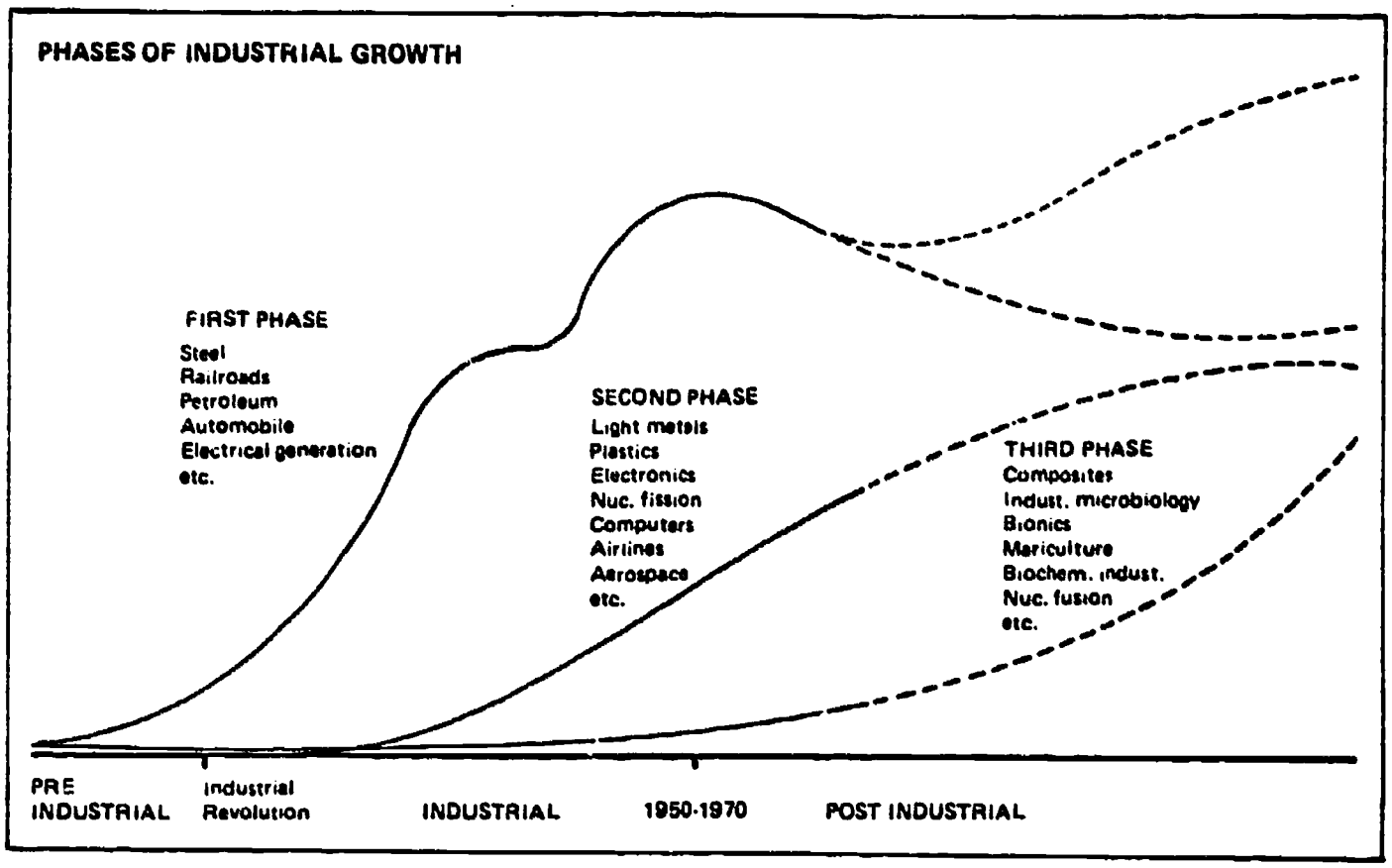
The world production and consumption patterns for materials roughly parallel the world energy flow. Approximately 75 percent of the major consumption of metals and other industrial resources is in the advanced countries; for example, the per capita consumption of copper in the U.S., Europe, and Japan is between 15 and 20 pounds. In Asia and Africa it is less than one-quarter of a pound, with similar ratios of other materials.

No industrially advanced country is now self-sufficient in the range of materials required to maintain its supply of goods and services. This serves to intensify the competition for material resources at the world level and to increase the interdependence of nations by the need for globally distributed materials.

In terms of the phases of industrialisation, however, there are considerable shifts in the pattern of demand for various material resources. In the first phase of heavy industry growth, the typical pattern is the demand for steel, coal, and oil linked to railroad, automobile, centralised electric generation, etc.--linked to the development of the factory system and the concentration of populations in close association with raw materials and energy sources. The second phase of industrial change emerges most clearly after World War II, with the development of atomic energy and electronic technologies. The materials base changes here to an emphasis on the light metals--aluminum, titanium, etc.--the rare earths, and plastics. This phase more typically uses less material and less energy per function or product and has a higher recycling and reuse pattern of materials usage. A third phase of development is already emergent in outline. It appears to move towards the increased fusion of biological and technological capabilities, i.e., bionics, hydroponics, the intensive development of mariculture, applied industrial microbiology, etc. Its range of materials trends towards the metallic and nonmetallic composites, structural polymers and other hybrid types associated with the use of fuel cells, solar power, and other energy sources, and moving towards "fusion" processes in nuclear power generation.

Underlying both the second and third phases are, of course, the basic changes in information and communications technologies already alluded to.

We may note also that the newer patterns of industrial development tend to be relatively less resource depletive, with lower environmental impacts than the older heavy industry forms.



Source: Partially based on "Historical View of Economic Growth", H. Igor Ansoff, "Management on the Threshold of the Post-Industrial Era" Paper for "Management in a Changing World", pub. The Conference Board, New York, 1972.

The current picture of resource exploitation, however, does not as yet reflect much of this transition. All phases are ongoing simultaneously and at varying levels of efficiency and development.

In terms of anticipated threats of depletion of major resource materials, it may be reasonable to state, in summary fashion, that actual depletions and "looming" shortages are more apparent than real. A more central cause for alarm lies with existing socio-economic arrangements influencing production, consumption, and waste--and the disincentives within the present organisation of extractive and production industries to implement more efficient and rational sets of resource management policies.

In relation to future population and increased resource demands, major increases in population will be in the less advanced regions which are a relatively negligible factor in industrial materials consumption. Though they will obviously develop towards a much higher per capita consumption of materials, this will be offset by the fact that, despite the current "demand" projections of the industrially advanced nations, their per capita consumption of metals, for example, has in some cases reached a peak and may decline. This may be hastened (a) by their stabilising population, (b) by their more sophisticated and expanding range of substitutive and synthetic materials, and (c) as they move from older industrial forms into postindustrial forms in which high resource-depletive industries become a decreasing proportion of their overall growth. There is already a considerable shift of production and assembly plants and developmental capital to the lesser developed regions, to take advantage of lower wage costs, local material sources, and less stringent codes of environmental protection.

E. Food

This area always seems most susceptible to Malthusian predictions. We have more people than ever before to feed from the same amount of land, and we will have at least twice as many in the next fifty years.

In terms of actual food supply produced, however, there has been no gross shortage at the world level for some time. For example, world protein production, from both vegetable and animal sources, in the past decade has been estimated at over twice the world requirement. In animal protein alone (excluding fish), the average production per year, in the late 1960s, was around 22 million metric tons, allowing for a possible 18 grams per person--more than twice the recommended daily minimum.

Arable land is not an immediate limiting factor, except in local terms. In terms of maximum yield efficiency, one quarter of the world's arable land could supply the needs of over four times the present world population.

The questions lie more clearly with the imbalance of production and distribution. Fewer than one-third of the world's people consume more than they need; the rest of the world is close to subsistence and perennial shortage. The average person in the advanced regions consumes approximately four pounds of food per day compared with less than one and one-half pounds in the poorer regions. The larger amount is also better balanced in terms of animal and cereal products. The North American diet includes 25 percent of livestock products, the European 17 percent, the Asian only 3 percent.

A singular irony in this imbalance is that much of the animal protein providing the richer diet of the advanced countries is produced via livestock feeds imported from those lesser developed countries most deficient in animal protein.

The answers to the world food problem may not be confined to increased local yields, improved agricultural technologies, new sources of food, etc., but may lie ultimately within the larger socio-economic and political context of overall world development.

When tied to the "population problem," a further irony is that we need more food, not because of more people--but to have fewer people! It has become evident, in the past half century particularly, that the growth rate of population declines with the attainment of higher living standards, as including adequate nutrition.

The more critical and less directly manageable aspects of the food/population problem are related to water supply and artificial fertilizer.

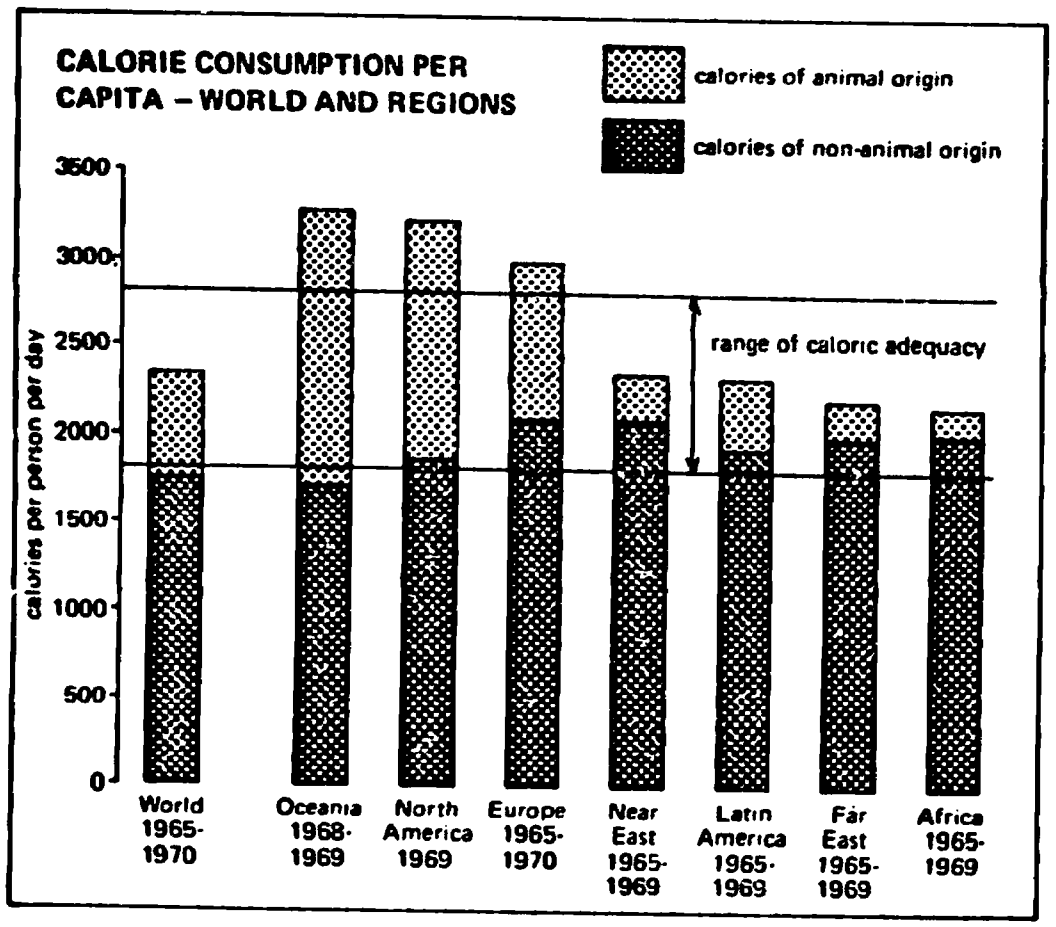
Though most water use is of a multipurpose cycling nature, the sheer increase in water demand begins to strain the natural return and replenishment cycles. Though agriculture still accounts for about half the water used, vastly increased industrial use and urban growth concentration contribute to the overall supply problem.

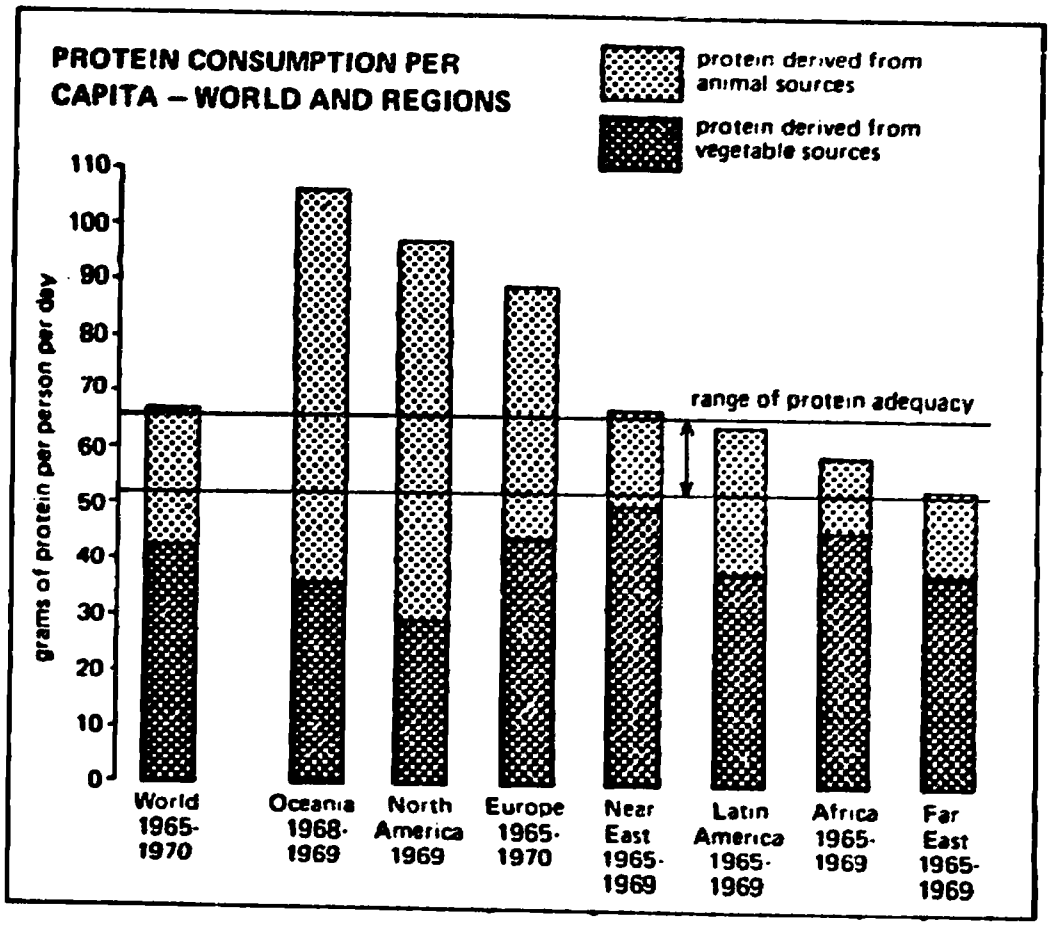
Artificial fertilizer demand, with the spread of mechanised agriculture and the development of higher yield cereal grains and other crops, is also a critical factor which may be limiting on the possibility of increasing food yield through conventional agriculture.

F. <u>The most critical and generalised world trend is the continued material disparity between the advanced and lesser developed nations</u>.

Though the Gross National Product comparison has come under fire as a measure of social and qualitative growth, it is still a primary indicator of economic development. In round figures, 85 percent of the world's GNP is concentrated in the industrial regions--U.S., Europe, U.S.S.R.,and Japan; 15 percent is shared between Africa, Latin America, and the larger part of Asia.

1. <u>Aid</u>. Notwithstanding the rhetoric of developmental aid from the richer countries, much of this has been used as an instrument of national foreign policies--more to secure strategic advantage for the donors than to encourage the free and autonomous development of the recipients.





Source: United Nations Statistical Yearbook, 1970; United Nations FAO Production Yearbook, 1970.

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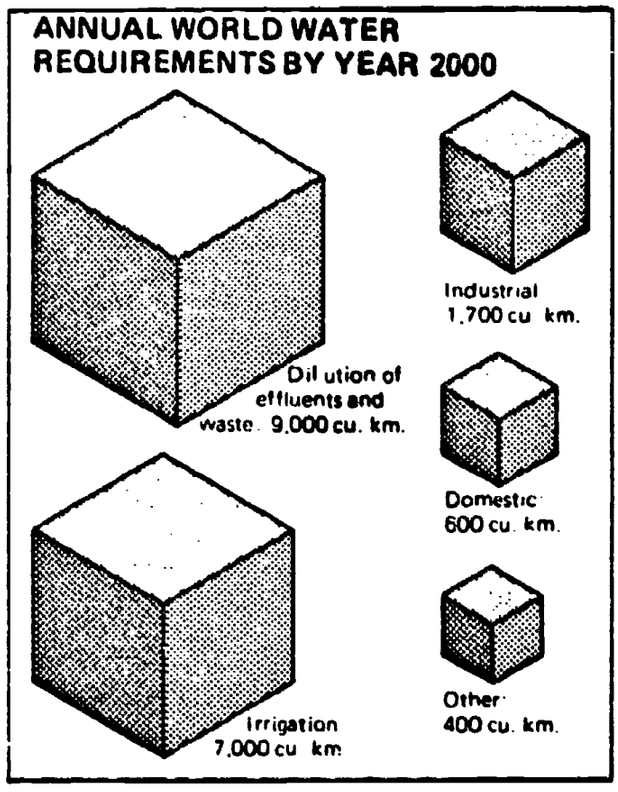

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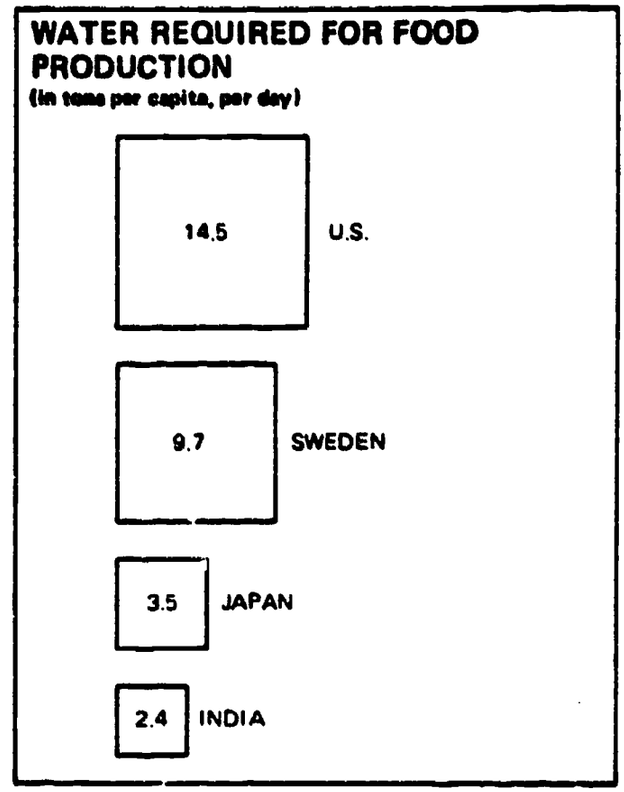

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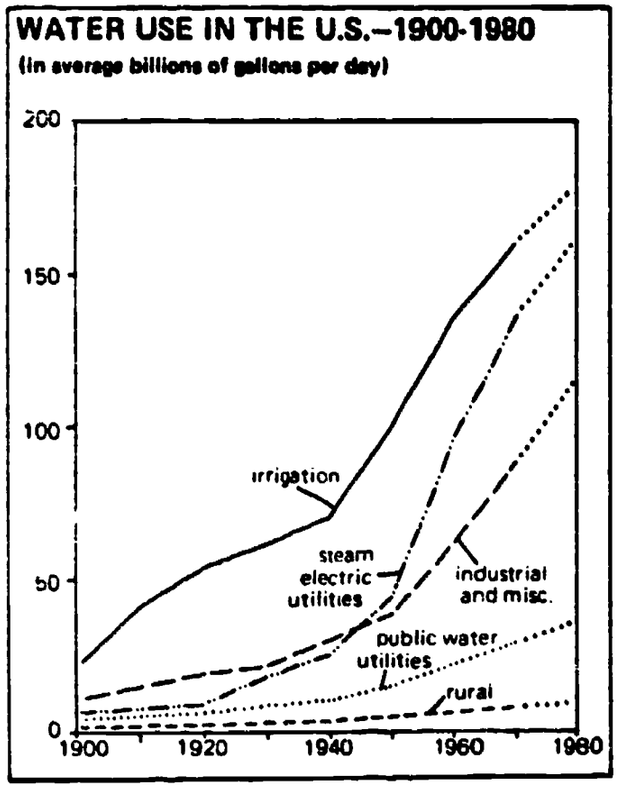

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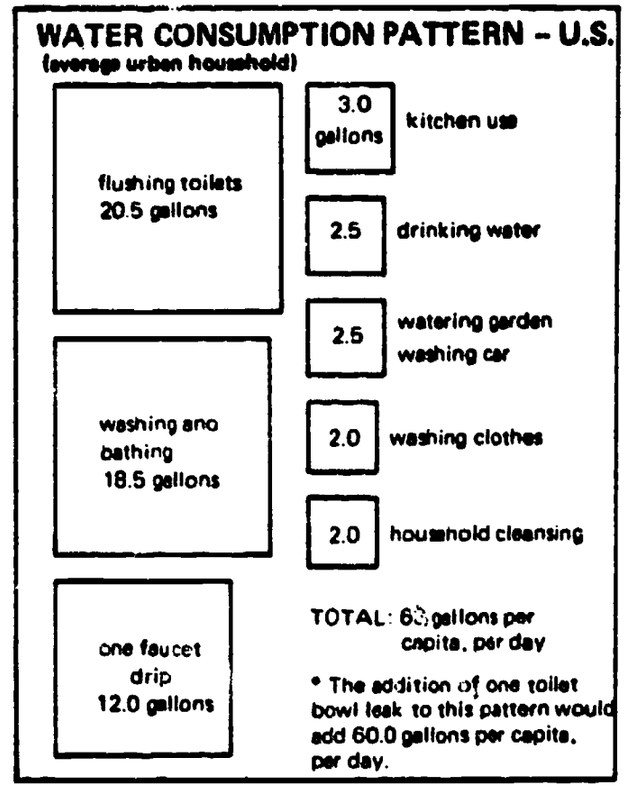


Source:

a. G. P. Kalinin and V. D. Bykov, "The World's Water Resources, Present and Future," Impact of Science on Society 19, no. 2 (April-June, 1969):143.

b. Georg Borgstrom, Too Many: A Study of Earth's Biological Limitations (New York: Macmillan, 1969), p. 153.

c. Statistical Abstracts of the U.S., U.S. Department of Commerce, Bureau of the Census, 86th edition, 1965, p. 173.

d. Gordon Fair, et al., Water and Wastewater Engineering (New York: John Wiley and Sons, 1966), 1:5-13, 14.

Trade balances, in themselves, in recent years have actually increased more between the developed nations. Despite the demands for their raw materials, etc., the poorer countries have received less in trade from the developed.

Exports from developed to developed in the period since 1968 have accounted for approximately two-thirds of world trade.

Exports from developed to lesser developed were approximately one-third for the same period.

From lesser developed to developed gives the same picture. Of the lesser developed countries' export trading, 68.4 percent went to the developed countries--only 31.6 percent to other lesser developed regions.

2. The relationship between military expenditures and developmental aid is another key aspect of global imbalance. Figures on world military expenditures in the latter part of the First Development Decade reflect the inability of the world nations to shift public expenditures from military to more constructive channels.

In 1971, 120 nations spent 216 billion dollars on military expenditures, an increase of 82 percent since 1960.[5] Global economic aid overall was only 4 percent of this amount.

The comparative world budget ranges from:

216 billion for military purposes, to
125 billion for public education, and
60 billion for public health and other services.

Where we referred to trade balances above, we should note that a large proportion of trade between the developed and lesser developed is in arms.

In 1972, the total sales of the Big Four arms suppliers were:

U.S.A. -- 2.8 billion	Britain -- 700 million
U.S.S.R. -- 2.2 billion	France -- 700 million

When we talk piously about the need for the poorer nations to help themselves, and the economic difficulties of increasing aid for development, we may note that, from 1950 onwards, the U.S.A. alone has given away 36.2 billion dollars in arms, apart from its sales of 17.5 billion.[6]

Overall we use globally, for military purposes, from 12 to 15 percent of the world's output of goods and services and more than 50 million people, excluding the 23 million actually under arms.

G. The World Economy

The main structural shifts in the world economy may be characterised as follows.

The increasing interdependence of nations has several facets. One is occasioned through the mobility and larger economies of scale of technologies. We have mentioned the SST-type problem earlier; others might be cited in terms of other scales of required technical development which go beyond local capacities.

> Large economies of scale require enormous costs and resources for utilisation.... Most European companies are incapable of producing the huge transformers necessary for the increasing voltage demands in their networks...forcing even such giants as Siemens and Telefunken to join forces in the heavy electrical field. In the U.S. five producers supply the entire market, while in Europe there are as many as thirty.[7]

COMPOSITION OF INDUSTRIAL OUTPUT

PERCENT

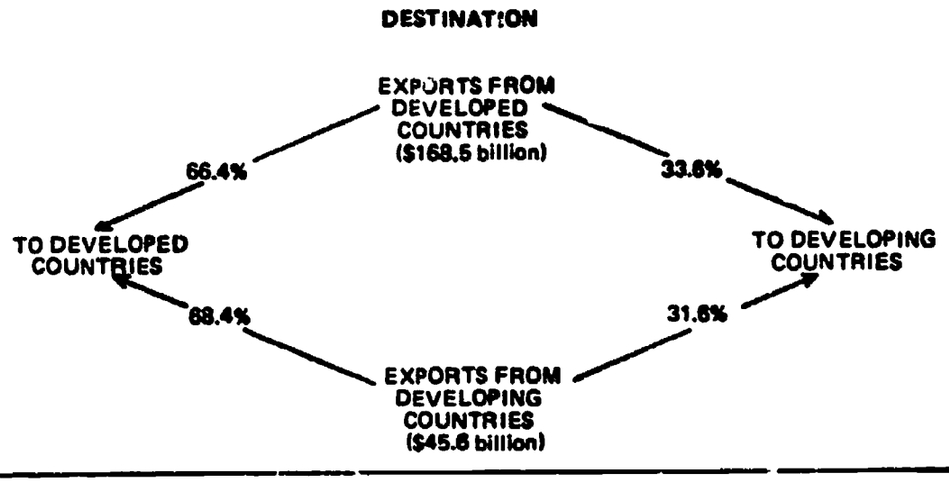
	DEVELOPED COUNTRIES	DEVELOPING COUNTRIES
HEAVY MANUFACTURING	58.0%	33.3%
LIGHT MANUFACTURING	30.0%	39.6%
ELECTRICITY AND GAS	6.2%	6.3%
EXTRACTIVE INDUSTRIES	5.8%	20.8%
TOTAL	100 %	100 %

WORLD EXPORTS BY ORIGIN AND DESTINATION

ORIGIN

DEVELOPING COUNTRIES	NORTH AMERICA	WESTERN EUROPE	OTHER DEVELOPED COUNTRIES
21.3%	19.5%	40.7%	18.4%

100%=$214.1 billion



Source: National Industrial Conference Board, World Economic Growth: Tasks for the 1970s, 1969, p. 33.

Major product planning has moved to the world scale. For example, IBM comments on the planning of a new computer:

> Final specifications reflect input from at least twenty countries...so that it may meet the needs of virtually every market...print output not only in Indian or Japanese Katakana--but in type faces for any of 22 different languages.

To such planning may be added the standardisation of operating and maintenance procedures, international exchange of personnel, and dispersal over several countries of the manufacture and assembly of components.

A further aspect of this overall development is that major economic decisions within one nation affect others more immediately and in more ways than before. Previously internal domestic policies--e.g., relating to levels of employment, inflation, tariff,and tax balances--now reverberate internationally and are exposed to demands for international regulation to avoid undue economic conflict. Current monetary adjustments are only the most visible aspects of this trend. The <u>increased aggregation and interpenetration of national economies</u> is another common element.

Many national units have now merged into membership in various trading and political blocs, e.g., EEC, COMECON, LAFTA, etc. This shifts the economic balance considerably. In 1950 the U.S. GNP was about 40 percent of the gross world output. Today it is 30 percent and declining in the face of increased "bloc" competition.

> Our relative trade position has been declining.... The European Community became the largest trading area in the world. As for Japan, its share of world output and exports have risen in 20 years from about one to six percent, and its domestic economy has grown at over 10 percent per year in real terms.[8]

Such decline in relative trade positions of given nations, however, masks the degree of interpenetration brought about by their participation in multinational corporate undertakings.

The most swiftly growing areas of the world economy are no longer national entities but multinational corporations. Of the 100 largest economic entities in the world in 1972, 44 were corporations and 56 were nation-states such as the United States, the Soviet Union, and France.[9]

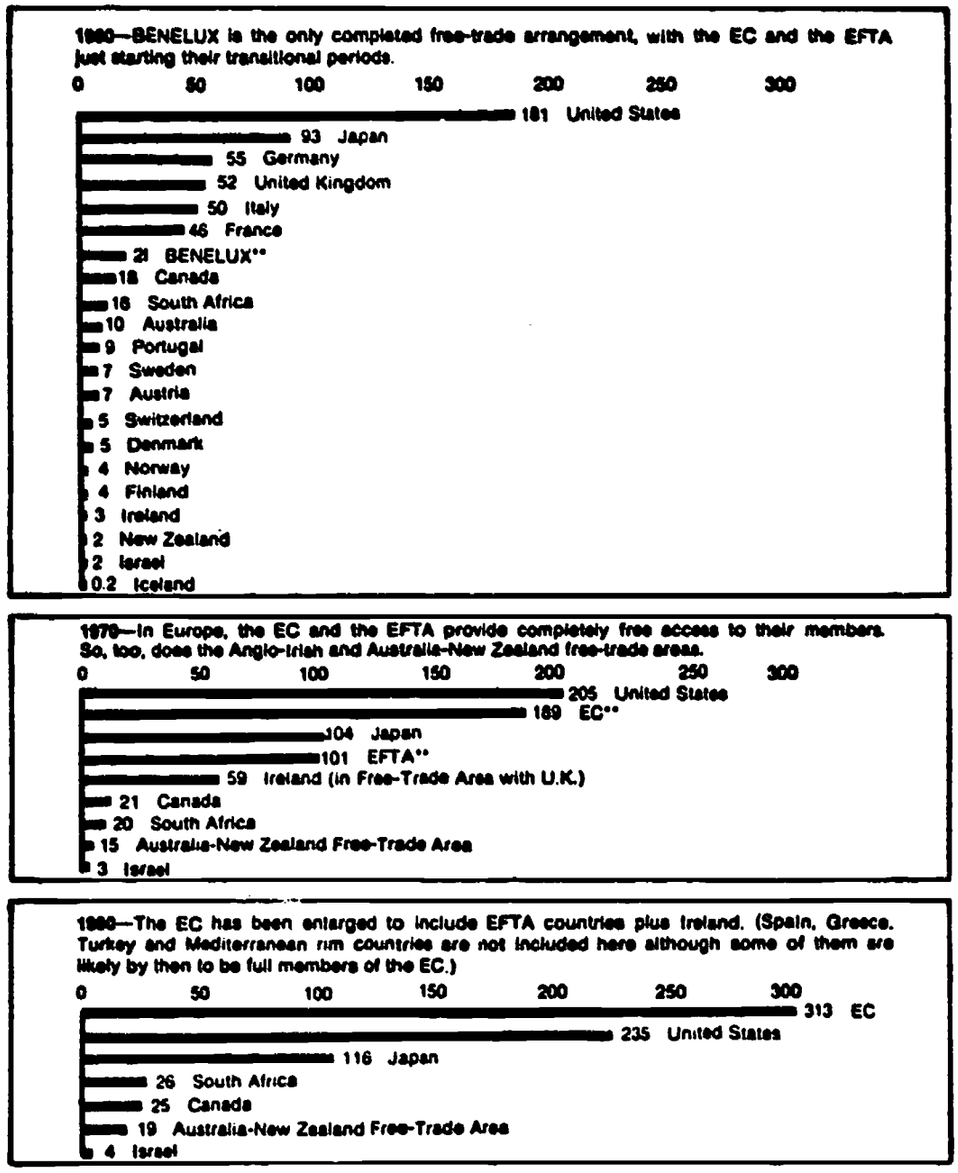
With the proliferation of multinational corporations, the concept of the nation-state is being subtly altered in a manner not yet fully apparent.

> Many decisions once considered the province of the nation-state are now being made by externally based MNC's.... These decisions may affect the employment level, the rate of economic growth, the balance of payments, or whether a given natural resource is developed.[10]

Another analyst has suggested that within thirty years such corporate rather than sovereign entities will own about two-thirds of the world's fixed assets.

> As early as 1963...American firms in France controlled 40 per cent of the petroleum market, 65 per cent of the production of films and photographic paper, 65 per cent of farm machinery, 65 per cent of telecommunications equipment and 45 per cent of synthetic rubber.... [Today] American corporations in Europe control: 15 per cent of

The Free-Access Markets of Industrialized Countries,*
1960, 1970 and 1980
(Population to nearest million)



*Industrialized countries mean countries with a per capita GNP in 1970 of $1,000 or more, or — in the case of Portugal — free access to a wider market of at least this level. Oil-exporting countries with per capita GNP of over $1,000 whose economies are dominated by this activity are excluded.

**BENELUX—Belgium, the Netherlands, Luxembourg
EC—Benelux, France, Germany, Italy
EFTA—Austria, Denmark, Finland, Iceland, Norway, Portugal, Sweden, Switzerland, and the United Kingdom

Source: U.S. Foreign Economic Policy for the 1970s: A New Approach to New Realities, A Policy Report by an NPA Advisory Committee, Planning Pamphlet No. 130 (Washington, D.C.: National Planning Association, 1971), p. 75.

> the production of consumer goods--radio and TV, recording devices, etc.; 50 per cent of semiconductors...; 80 per cent of computers...; 95 per cent of the new market for integrated circuits....[11]

> Over 50% of Canadian corporations with assets greater than $25 million are foreign-owned, primarily by U.S. companies. U.S. citizens control about half of the assets in Canadian manufacturing, oil and gas, and mining and smelting industries.[12]

Though the Japanese example of close government/industry cooperation is usually cited as evidence for its world market strength, the American electronics industry does 63 percent of its business in the form of government contracting as compared to 12 percent for European industry.

This type of interpenetration is not confined to identifiable multinational operations but also proceeds through specific stock acquisition. Takahiro Yamauchi of Daiwa Securities predicts that Japanese investors will own nearly $5 billion in U.S. stocks by 1975.[13] The increased earnings of the oil-rich Middle East countries in the next decade will undoubtedly flow into stock acquisition of this type, not only in the U.S. but in other countries.

Despite such mutual interpenetrations of other economies, the trend would seem to be set for increased and intensive economic competition at the world level. As resources and markets become more restricted in the West, we may note the increased pattern of investment, leasing, and exploration of Latin American and Asian countries.

China is a special case here, as presently closed to major foreign investment but already opening to discussions of renewed commerce with the other Pacific Rim nations.

The area of Southeast Asia and the Pacific is already a major focus for many activities. We may note only a few of the trends here.

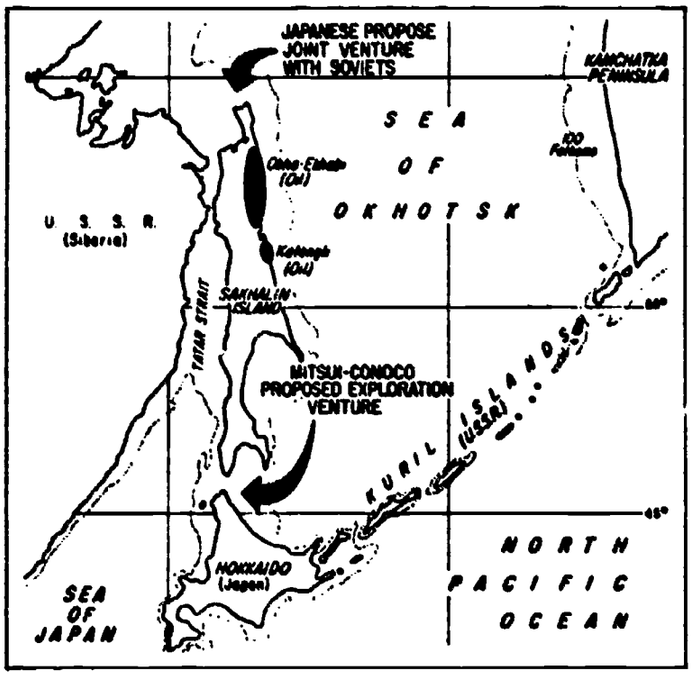
In East Asia we would include South Korea, the Philippines, Indonesia, Singapore, Malaysia, Thailand, Cambodia, Laos, and South Vietnam. The combined population of 245 million is about 7 percent of the world's population, concentrated on 3 percent of the world's land area. Though this is currently one of the lesser developed areas of the world, with an average per capita GNP level of approximately $130, it is potentially one of the richest in terms of physical resources.

One specific and critical resource area is its shallow offshore continental shelf, potentially rich in oil and minerals. The whole of the Java Sea area has already been taken up by offshore oil prospectors, and major oil fields are being developed on the mainland islands. Companies represented here include Esso, Shell, Gulf, Conoco, Agip, Mobil, Amoco, Union Carbide, Japex, Teiseki, Gulf and Western--again representative of multinational corporate penetration.

Reports currently place Indonesia as likely to become one of the world's major producers of oil and natural gas. Three major sources for tin and other metals have been located offshore in Malaysia, Thailand, and Indonesia. Various inland operations for copper, etc., are already under way.

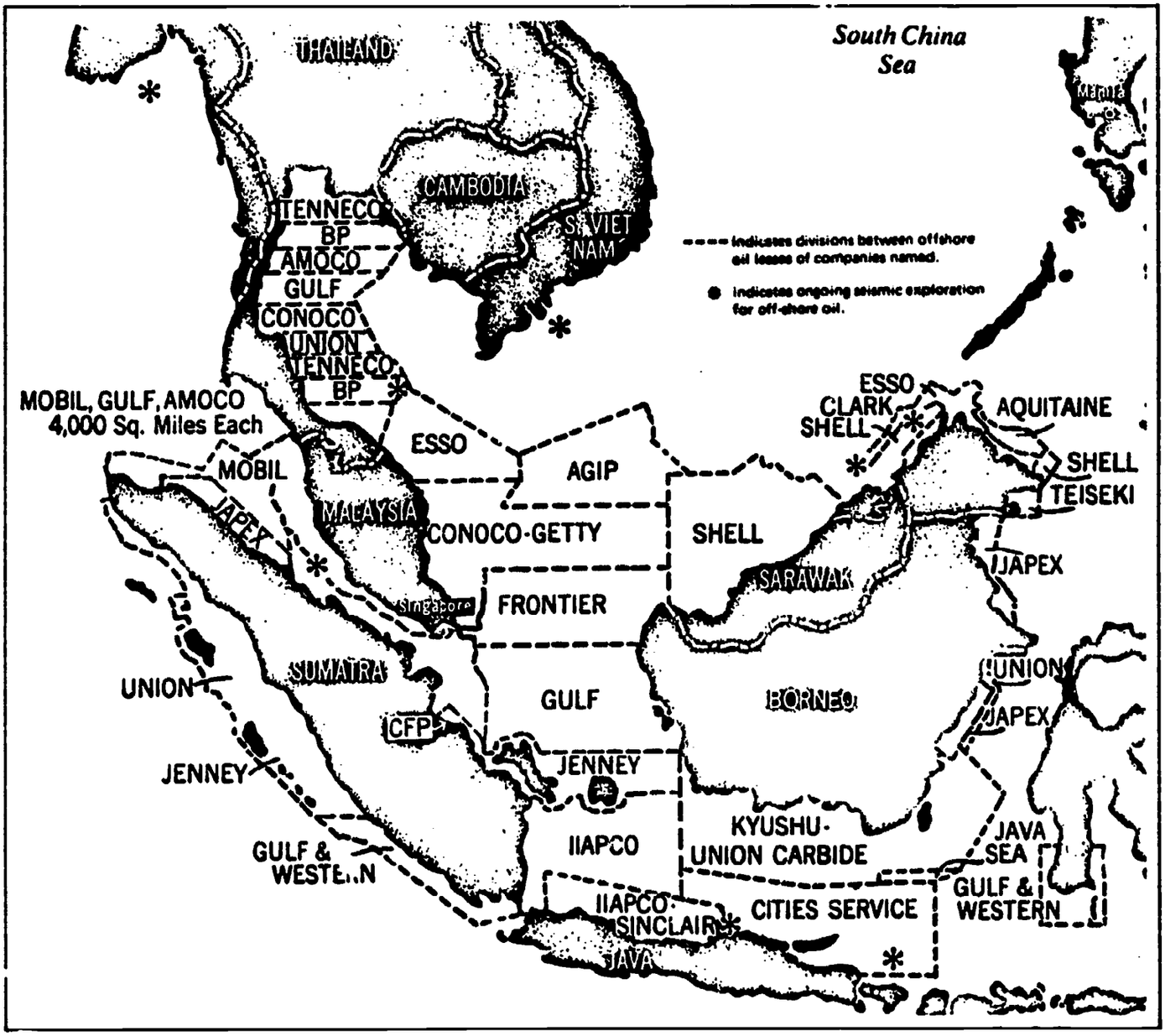
A somewhat similar pattern of resource development is also proceeding in the South Pacific--though the continental shelf and island land areas are smaller. The emphasis here shifts, in part, to metallic nodule deposits on the ocean floor.

> These have been found in the deep and abyssal plains of all the oceans, although the most well known and highest grade,



Offshore oil exploration areas — Sakhalin Island
Source: Ocean Industry, March 1970, p. 32.

Offshore oil exploration and lease areas — Southeast Asia
Source: Ramparts, May 1971, p. 8; see also Ocean Industry, August 1969, p. 22 and July 1971, p. 37.



> as far as we know, occur in the Central and North Pacific in the vicinity of Hawaii. The interest in these [nodules] is not so much in the manganese and the iron which together make up about 40 per cent of the nodule but in the trace elements of copper, nickel and cobalt.[14]

Given the importance of these new resource areas and the currently swift penetration by corporate exploration and leasing, the Sea Bed Committee of the U.N. has already suggested that quite wide areas of the Pacific Ocean become part of an international zone and not be under the jurisdiction of any particular country.

On the Pacific Islands themselves there are a variety of growing enterprises, e.g., mining explorations in Papua, New Guinea, and the Solomons by Kennecot Copper, and British and Australian interests in what is reportedly one of the world's largest copper mines on Bougainville.

The tourist and real estate "industries" are moving rapidly into Fiji, Samoa, and other islands, matched closely by the large construction combines of Dillingham and Utah enterprises. The New Hebrides, offering unique tax shelter advantages for international business, have already become a headquarters centre for major investment and banking companies from the U.S., Europe,and Japan: e.g., the Bank of America, Crocker National Bank; the U.K. Hill Samuel Group and Barclays Bank International; the Australian and New Zealand Banking Group Ltd.; Sumitomo Bank of Japan; and many others.

The overall sociopolitical consequences of these land, coastal,and ocean developments for East Asia and the Pacific are far from clear. Several groups representing the indigenous peoples of the Islands have already begun to press for greater participation and control over the various developmental patterns. Their efforts would appear to have had little success owing to division into various trust territory administrations and their own lack of economic and political organisation.

It may be noteworthy in terms of the relationships of other world trends to political developments that, even with the conclusion of the Indochina conflict, East Asia and the Pacific Basin have become one of the key power areas in the world.

H. The Political Climate

To consider this area of world trending in any detail is far beyond the intent of this paper. We can only suggest some tentative outlines of emerging changes.

The first would be that in many of the other trends we have discussed, the role of national politics and political leadership has not been in leading the trends but increasingly has been to act in emergency fashion to deal with situations which have already emerged through other activities. In the area of the world economy, we have noted that many of the larger decisions affecting economic stability already pass over into multinational entities or economic blocs such as the EEC, in which local national political differences are more restricted to domestic policies.

Though we often refer to "modernisation" as the developmental problem facing the lesser developed nations, even the most advanced of our societies may be viewed as undergoing a painful "three generation" transition into modern societies. Many of our so-called advanced nations are also faced with severe dislocation, deterioration, and obsolescence in critical areas of their political and socio-economic structures.

Though we are almost three-quarters of the way into the twentieth century, most of the institutionalised ways of conducting our social, political, and economic affairs are still those of the pre-industrial era, when all human societies endured on a basis of competitive marginal survival.

Though the ideological viewpoints may differ considerably, the kinds of social pressures which are building up as part of the world transformation in values, attitudes, and perceptions tend to exhibit similar features. Though they may be locally cloaked in different ideological terms, the changes in individual and group perceptions of social roles, responsibilities, authority, and legitimacy hinge around the redefinition of social, civil, and political rights. The various political and institutional structures have reacted in different ways towards accommodating to pressures for social change--most responses have been directed towards avoidance, exclusion, or repression of dissident groups. This may be noted particularly in the shift towards more rigid and authoritarian political structures around the world, not only in the newly "liberated" colonial nations but in those whose political ideologies have been avowedly democratic in form.

Internal fragmentation and disorder have not been confined to the newer nations but are also in the most established, as the basis for national consensus on various issues begins to elude traditional political systems. Attempts to shore up local national divisiveness through inadequacy of institutional responses to change are usually sought by channelling the frustration and insecurities of society into ideological outlets. Unfortunately, the socio-economic and political bases for many of our current ideological postures have been long overtaken by scientific and technological change. We are faced with two associated phenomena in the political arena. One is a kind of power vacuum in which those who have the power no longer know how to use it other than to maintain a precarious status quo, i.e., their perspectives are too closely oriented towards the retention of power and apparent control. Two, political and socio-economic leadership exhibits a "hesitation" syndrome. Possessed of more demonstrable capabilities and resources to effect major societal changes than at any time in human history, most seem to hesitate on the threshold of an era in which the traditional patterns of national political leadership, within society, may not survive the transition.

Politics as core institution may even have begun to lose its centrality as a societal force in the same way that organised religion has lost its centrality as the dominant social institution in many societies during the past century. The historical parallel may also hold true, unfortunately, in that as the direct power of the religious institutions waned, this was accompanied by intensive local conflicts over religious differences which continued for many years.

ASPECTS OF ALTERNATIVE FUTURES

Any consideration of alternative future directions for the next few decades should be cast in normative form--what ought we to do, rather than what is most likely to happen. We have suggested in our prologue that our actual physical survival on earth at preferred qualitative levels of living may be, in itself, the kind of "future imperative" which implies the purposive choosing of longer range alternative directions, rather than the emergency avoidance of unanticipated problems and crises.

In the kind of world which is emerging, however, there are no expert recipes to offer as to which alternative directions should be taken. Even the role of the expert is in question as we are in a position to begin to accommodate the shared desires and preferences of many people, and the possibilities of many co-existent alternatives.

This does not mean that human conflict, turbulence and uncertainty would vanish in some stable stressless and tensionless utopia but that they may be accommodated within the learning process of society.

Discussion parameters

In exploring alternative future directions we may, for present purposes, discount the range of new possibilities which might occur through major scientific and technological "breakthroughs."

Though this may seem to be unrealistic, it will assist in limiting discussion within the framework of currently available scientific and technological knowledge, many of whose breakthroughs have not yet been fully assimilated by society. In this area, also, there will be a growing preoccupation with technology assessment, at both national and international levels, which may serve to dampen the more disruptive effects of large-scale technological changes.

As part of the approach, we should also assume that the next few decades will still be characterised by varying levels of local conflict, by continued social and political turbulence, and by lack of clarity and agreement as to more cooperative goal setting and common purpose between nations. This does not void the possibility of considering alternative futures in which these conditions may be dramatically reduced but keeps our discussion within somewhat pragmatic limits.

Similarly, we may exclude the polar extremes of both planetary catastrophe (due to natural disaster, environmental pollution, population explosion, nuclear or chemico-bacteriological warfare, etc.) or the onset of a utopian world order (in which peace, harmony and stability would go hand in hand with enhanced material and qualitatively superior living for all people). The former extremes have been explored rather thoroughly by other commentators, e.g., J. R. Platt,[15] The Club of Rome, Limits to Growth,[16] etc.; the latter extreme is expressed in many different forms by others too numerous to mention.

The aspects of alternative futures which follow are based on our review of world trends. The diverse multivariate possibilities of the systemic interrelationships of these trends suggest that any selection of hypothetical prospects is bound to be highly personal and idiosyncratic.

I. World Problem Alternatives

In terms of priority, the continued disparity between the lesser developed and developed nations may be one of the most critical and central issues of the next period. It is also one of growing "ecological" imbalance in which the hyperactive advanced economies extract, produce, and consume more, and with more waste, than the lesser developed.

A. One might assume that this imbalanced relationship will continue to be managed in conventional piecemeal terms, and that the gap between the "haves" and "have nots" will grow within the next decade.

One possible consequence could be the relatively massive socio-economic breakdown of one or another of the larger developing nations. The subcontinent of India, for example, has many internal problems of food supply adequacy, population increase, housing, urban growth, health services, etc., which are in critically marginal conditions. The repercussions of major breakdown of an area of this size could considerably affect the world community in direct ways: local warring, dislocation of world communications and trade, health service disruption with possibilities of world epidemic disease, and other large-scale consequences.

The result of such an emergency would probably force a cooperative crash program of aid, but this would remain a matter of "Band-Aid" expediency. It might, however, sharpen the perception of mutual interdependence sufficiently to provide an impetus towards more massive developmental assistance to the poorer nations, i.e., not at the present fractional percentage of GNP but on the order of a quarter or half of present world military expenditures.

B. Barring such massive breakdown but assuming that present aid policies are continued, and that the resource needs of the advanced nations force more investment in the poorer countries for access to materials, cheap labor, and land, several alternative consequences become apparent. The growing conflict over access to strategic resources, the protection of spheres of economic and political interest, would seem to commit us to a long period of continuing instability. There would be the prospect of more Vietnams, more Israeli-Arab situations, in which, though local ideological and other issues appear to provide the basic conflict, the strategic maneuverings of the major powers intensify, prolong, and widen it.

C. The third prospect lies with the swifter development and interpenetration of the lesser developed countries by the multinational corporate entities. Many of these, as described in our review of the East Asia/Pacific development, already have large-scale extractive operations in the lesser developed countries and have moved many assembly and productive facilities to these areas. On the whole this looks more promising, but its disadvantages lie with the re-emergence of economic neocolonialism. To protect their investments, such enterprises tend to prefer the type of political structure which affords the most order and stability, i.e., the authoritarian, and--as in the case of Chile, Greece, and other countries--will move to exert overt or covert pressures upon the internal affairs of the area in which they operate, if conditions become unfavorable to them. In general, though the rapid growth and world diffusion of the multinational corporations indicates a necessary internationalisation of basic economic activities, their current postures of responsibility on larger issues leave them somewhat suspect as a wholly positive force in world development.

D. A fourth prospect may lie somewhat further ahead. As the advanced economies develop more sophisticated technologies and stabilise their economies and populations, their resource requirements from the lesser developed countries may diminish. They may need neither the raw materials on the same scale nor the labor and land--nor even the markets. In which case, their involvement in, and trade with, the lesser developed countries could be much lessened, to the detriment of the latter who could grow poorer still--returning us to the "breakdown" scenario above.

E. The more positive alternatives may lie both with increased aid and with self-help. Though China is a unique case in terms of its size, internal resources, and relative homogeneity of population, etc., it will obviously influence the developing nations in the next period. Another influence will be the bargaining posture of the Middle East oil countries.

Given the emergent multifocal realignment of the world economy into various blocs (e.g., COMECON, EEC), with U.S., Japan, and China as the larger national entities, we might then envisage three Third World blocs of the Latin American countries, Africa, and Southeast Asia/Pacific, or, at various negotiating levels in which they might function as such, a single bloc. Just as the emergence of the EEC has given new strength to the European Parliament representing 700 million people, so it is possible that the Pacific community, as an extreme example, might revivify the idea of a Pacific Parliament to coordinate its own development.

In the next two decades, with the increased demand for their fuels and other raw materials, the lesser developed regions will be in a prime bargaining position to assert their economic independence and self-development as well as gain a larger voice in the conduct of world affairs. This may well be their most viable alternative—and represent the most direct approach to the solution of their problems in concert with the international nongovernmental agencies.

II. The Transition to Postindustrialism

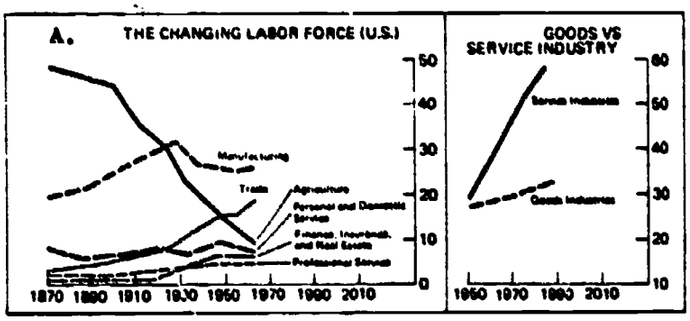
We have referred to the concept of modernisation as also applicable to the advanced nations in their current transition from industrial to postindustrial forms.

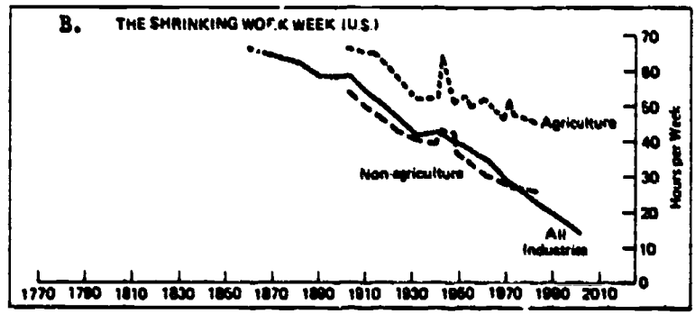
This does not mean that society becomes less "technological" or less "industrial," but that the older types of production industry decline as the major wealth-generating and "pacesetting" sectors of society. A useful analogy is with agriculture in the U.S. where this sector remains a dynamic part of the economy but where its relative importance has declined as a "motive" force in society. It absorbs only 5 percent of the population whilst continuing to maintain and increase its productivity--but it no longer plays a prime role in shaping the values, goals, and ways of life in the society.

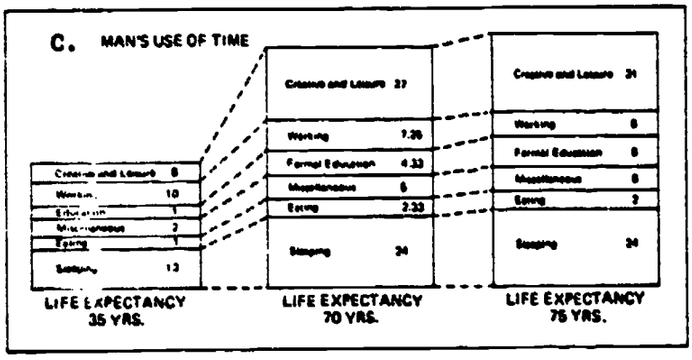
Typically, the profile of postindustrialism becomes apparent when industrial manufacturing productivity may be sustained and even increased with less and less manpower. The major labor force shifts into the service sector, into managerial functions, into the knowledge industry--research and development, education, welfare, recreation, etc. Work roles become more diversified and tied less directly to economic productivity.

The import of postindustrial development for the lesser developed regions of the world is not the supposed "laborsaving" aspects of this shift. Certainly in the next few decades they will still have more labor than they can find work for. It lies rather in the choice of developmental patterns. In pursuing certain phases of essential industrial development, they may "take off" higher in the technological scale with a much faster integration and growth rate than in the Western historical development. Japan is a unique example.

In many of the lesser developed and developing regions the prevailing philosophical and ethical value attitudes may also be more appropriate to postindustrialism than in the Western nations. Though still "pre-industrial" in many aspects of their local "value" emphases--i.e., on mutual cooperative aid rather than competition, on the retention of local community and individually oriented services, etc.--this may give them a more specific orientation to the possibilities of the multichannel type of decentralised postindustrial forms of organisation. Their problems of social and ethical adjustment to postindustrialisation may be much less difficult that those experienced by some of the so-called advanced nations.







Source:

A. Delbert C. Miller and William H. Form, Industrial Sociology: The Sociology of Work Organizations, 2nd ed. (New York: Harper & Row, 1964), p. 51.

B. National Goals Research Staff, "Toward Balanced Growth: Quantity with Quality," Washington, D.C., July 4, 1970.

C. World Resources Inventory, Doc. I, Inventory of World Resources, Human Trends and Needs, by R. Buckminster Fuller and John McHale (Carbondale, Ill.: Southern Illinois University, 1963), p. 16.

The technologies of the postindustrial phase electronics, telecommunications, computers, and the emergent bio- and microbiological technologies, etc., may also be more suitable to their self-development.

As India, Mainland Asia, and Japan contain about 40 percent of the world's population, the results of their choosing some such alternative postindustrial directions towards more advanced technical and societal objectives could have a considerable effect on the overall development of the world community.

In general, longer range terms, the shift towards postindustrialism under way in many of the advanced societies opens up a large range of collective and individual alternative futures.

Evolving patterns of prolonged education, extended vacations, "staggered" and diminishing work weeks, earlier retirement, etc., indicate the degree to which many are no longer in "economic work" centered cultures. Though the threat of excessive leisure comes in at this point, there is a more subtle transformation going on. Obviously "work" does not vanish, only many more of the routine functions are offloaded into machine processes or are augmented by increased man/machine interfaces. The need for increased human "labor" in many other areas actually becomes greater. An example may be cited from the telephone industry. As this has become increasingly automated, its work personnel has also increased because of the expanding and more diversified demand for telephone services. In the longer range, many of the hitherto marginal human activities may become the core elements around which society regroups itself. Education and learning (both cognitive and experiential), previously the "preparation for living," are now more pervasively viewed as ongoing and key aspects of life itself. Human services, in the broadest and most inclusive sense, will absorb many more persons. Occupational mobility and serial career patterns will become

SOCIAL PATTERNS: WORLD AND U.S.

SOCIAL STRUCTURE

INDUSTRIAL	POSTINDUSTRIAL
Rising life expectancy	Life expectancy above 75
Much more education	"Learning force" surpasses total employment
Specialization of labor force with declining agricultural component	Professionalization of labor force, with at least 70% in services
Power-driven machinery in large aggregations	Cybernation and computerization
Natural resources more developed, depleted, and wasted	Resources more protected and conserved
Expansion of "built environment," with vast urban slums	More rapid and concentrated growth of "built environment"
Nuclear family	Highly capitalized family
Larger and more differentiated organizations, including factory system	Complex, mixed organizational constellations
Growth of associations and "pressure groups"	New kinds of associational networks
Urban and metropolitan areas	Megalopoli and metropoli
Clearer differentiation of government sector	Blurred line between government and non-government
From empire to bloc or commonwealth	Polynuclear world society
Informal penetration and infusive diplomacy	Extensive transnational, intersecting, and interpenetrating relations
More integration, with growth of nationalism	Decline of both sectionalism and nationalism
Vast communication and transportation networks	The mobiletic revolution
Class and group conflict	New forms of intense conflict
Cosmopolitanism and nationalism	Megalopolitanism and transnationalism
Constitutional, statutory, judicial, and administrative law	More organizational and professional codes
Activism and secularism	Decline of scarcity values Secular humanism
Multiple elites	Dispersed elites, greater circulation
National planning systems	Transnational planning system

Source: Bertram M. Gross, "Space-Time and Postindustrial Society," in Spatial Dimensions of Development Administration, ed. James Heaphey (Durham, N.C.: Duke University Press, 1971), p. 226.

more widespread. "Research and development" are already recast into forms of individual and collective exploration in which scientific research is only one type. Art and other more individually creative pursuits are being transformed into quite different modes of participative experience.

We might hypothesise three highly generalised models of overall tendencies for our present purpose:

1. Centralised Tendency Model

Established institutions are unable to adapt to change impacts of the new environment. Governmental and other institutional elites perceive "threats" in growth of information dissemination via technological changes in media giving wider public access and participation.

Media are increasingly perceived as social control agents in the interest of order, stability, and national security. Control is more centralised and used to "manage" information flow more directly. The "legitimacy of power" is replaced by criteria of social efficiency, the maintenance of public harmony, decrease of social dissonance, etc.

Increased public apathy and loss of credibility in the traditional political process slow down required changes in society. Frustrated "out" groups resort more to violence and splinter into opposing warring factions which are dealt with by equally repressive violence.

The state form moves towards a more monolithic and bureaucratised mode with increased concentration of power in few hands; opposition movements and groups become atomised and increasingly powerless.

2. Modal Tendency

Changes in the nature of power effected by the new information environment tend to offset the conventional economic and material basis of "older" power sources. Institutions unable to adapt are bypassed by others with more flexibility and capacity to change in positive ways. There is a relative decline of the centralised political process as prime problem-solving arena. Many issues/problems move across traditional party lines, which become blurred as groups organise around issue priorities rather than party loyalties. New multimodal communications allow new forms of regulative governance to emerge, e.g., along the lines of environmental quality control agencies, etc., with more direct participation by constituency interests.

Increased information flow in society and wider access to communication channels maintain an alert populace with more common bases of understanding regarding main issues and priorities--even though the populace moves towards more divergent group and individual opinions, life-styles, and social interests. Society continues to exhibit "apparent" divergence and instability, in comparison with older forms, as it seeks to accommodate to, and use its capacities for, change in more creative ways. Swifter social feedback "institutionalises" the admission of error and failure in policies and programs as an essential component to increase the effectiveness of social navigation.

The state form is based on new systems of institutional and group representatior with fluid multiparty structure oriented around changing issues and priority. This is accompanied by an enhanced capacity for integrative planning on the national and international scale through more reactive information and communications systems. Institutional forms become more diverse and participative, and individual rights and privileges are more coequal with institutional ones.

3. Decentralised Tendency Model

This would assume the more rapid decentralisation of political and economic power, as change is more swiftly acceded to by traditional institutions whose power becomes shared via more pluralistic and widely distributed control.

There is a general broadening and diversification of access channels to such participation in social and political affairs, accompanied by an increase in groups seeking to participate and able to do so because of the availability of more directly reactive communication modes. Access to and increased flow of information and communication, via such modes, develops an overarching set of common values, goals, and priorities more widely shared by the populace.

A highly decentralised state form emerges and is able to retain social coherence and common directions through use of more sophisticated information and communications technologies. Party structures are wholly replaced with social movement/institutional representation placing emphasis on major society-wide or international issues and priorities--as the central governance function declines other than for standard setting and regulatory agency aspects. Individual rights are preeminent and social obligations and responsibilities become increasingly internalised or "contractual" rather than externally imposed and coercively enforced.

III. Global Alternatives

It is obvious that the nation-state, with varying degrees of attendant sovereign rights, will be an enduring feature of the world community for the next period, i.e., from thirty to fifty years. It is also evident that:

1. The complexity of the world economy and the growing interdependence of the world's sociotechnological networks will require increased international cooperation and regulation.
2. The emergence of both multinational corporate entities and the accompanying role of nongovernmental regulatory and other agencies will call for a redefinition of sovereign rights.
3. The growing need for both national and international planning to combat untoward instability in international affairs has become frustrated by the multiplicity and counter directions of uncoordinated decision-making by various national and even regional bodies.

> Because of the high degree of autonomy, more than 140 governments follow their own economic policy and do their planning with inadequate means at the level of the nation-state or even some lower level. This leads to unadjusted imbalances which grow much faster than the means and capacity to stabilize them.[17]

The requisite diminution in sovereign power, in certain areas, will not mean that the nation-state and "nationalism" will disappear. The nation-state is of relatively recent origin and the wider movement towards "national identity" even newer. Both have had most growth in a period which is also characterized by increasing "internationalism." We might therefore conclude that the two trends are not incompatible, but that the sovereign state will continue to cede certain of its powers to international arbitration and regulatory bodies.

In the longer range we could then envisage a more definable transnational form of world community co-existent with a patchwork of single nations and larger multination blocs such as the EEC, COMECON, a South Asia Community, Pacific Community, an African Federation, etc. Within this varied community many trading functions would be operated on a global basis by multinational entities, some corporate, others of the above "bloc" composition, but all under various forms of transnational regulation and control in the interest of the larger world community.

In exploring such a longer range model we would need to confront the clearer delineation of goals and priorities at different levels—individual, national, regional, and transnational. We can do no more than comment briefly upon some aspects of these at this point.

At the individual level, we already have the U.N. Declaration of Human Rights. This is a noble document but one whose implementation has lagged far behind its intent; it is more honored in its breach than by compliance. Some of the goals one might like to see implemented for the individual would draw upon this declaration but go beyond it.

We would need to have some global and systemic approach to the rights and obligations of the individual vis-a-vis the collectivity which takes cognizance of new realities and values.

1. Each individual has the right "to a guaranteed decent share of the world's goods and services, irrespective of his occupation or contribution to society. This must ensure his food and shelter and opportunities for health, education, and cultural development."[18]

In a sense this statement recognizes that we are all heirs to the fruits of the human enterprise and its wealth, as this rests upon the collective accumulated knowledge of all humankind. We are as indebted today to the obscure Indian inventor of the zero in mathematics as we are to the later contributors who invented the computer. This suggests that the human's birth certificate becomes his or her access credit card--to certain basic material and psychosocial needs.

2. There would follow upon this other "inalienable rights"—to liberty, for example. At a time when personal freedoms are in some danger of erosion, any world order model must contain suitable provision for transnational authority to protect the individual from political, economic, and other forms of coercion which abrogate his or her human rights.

With current national and nationalistic postures this might be expedited via the establishment of a U.N. passport to be held dually where desired by the individual with ordinary national identification. Such a passport might be initially experimented with for internationally operative scientists and other professionals, for multinational corporate employees, etc.—i.e., it would be somewhat like the traditional diplomatic passport. Included within it would be the right to well-defined sanctuary under certain conditions; most models of "world government" omit the necessity for somewhere to go if you happen to disagree with the world government!

At the global level one could envisage such individuals more freely associating to develop transnational initiatives to offset local national postures where these may endanger the world community. For example, if the ban on chemical and biological warfare were broken by any nation, or if it decided to close all its universities and lock up its dissident scholars, then the appropriate scientific, technological, and "trade union" associations could simply withdraw their support of the nation's access to the global service networks—i.e., to telecommunications, transportation, research information, etc. This might be rather more effective than passing a resolution of condemnation!

We could also envisage the transitional step of setting up a number of extra-territorial cities as specialized world service facilities. There are many local examples of such forms, e.g., the scientific and technical city of Novosibirsk, the Antarctic International Scientific Community. Historical examples may be noted in the Vatican City, the "free ports," etc.

An initial example of the new form might be the first extraterritorial floating city specializing in oceanographic research and development, etc.--with a sideline

in tourism and duty free perfume and liquor! Such cities would function both as essential research, educational, and developmental centers for world society and--in their design and implementation--as the kinds of relatively small-scale experimental urban forms which we need to explore in many alternative models, in both physical and social forms. They would also provide the legal bases for individual sanctuary referred to earlier.

Moving from the individual to the collective global level may seem too great a jump, but we can reflect that many of our transnational systems are now more efficiently and highly organized than our national systems. It may therefore be easier to solve many problems at local community, regional, or transnational levels than at the national level.

Before outlining additional forms of transnational world goals and their requisite institutional forms, it may be in order to deal with the local national political questions.

To a considerable extent one must view these, if not as of possible irrelevance, then at least as marginal to future global development.

Political governance and action of the nation-state posture, at the international level, have lagged behind reality for a long time. Political leadership has not been in real control of international or transnational events for some time but, rather, has been in a position of emergency "crisis management"--capable only of outdated responses to obsolete situations.

We possibly cannot rely on the "political posture," as currently construed, to engage with the necessary long-range policy formulation and implementation which will be critically necessary in the next few decades. Just as war has become too important to leave to the generals, perhaps the new global polity is already too important to be left to the politicians.

Achievement of the collective goals and policies which one would hope to include may be beyond the capacity of our present international political organisation as presently constituted:

1. World equity and economic balance between the various regions and groups.
2. The establishment and maintenance of world peace--or the rapid reduction and resolution of local conflicts through means other than armed warfare.
3. The organization of new forms of collectively representative agencies to:
   a. Establish goals for the utilization and rational use of world assets--material resources, energies, global production, distribution, transportation of material requirements.
   b. Institute and implement world revenue policies and a common monetary system to secure the more rapid and equitable flow of global trade.
   c. Establish a coordinate system of world environmental monitoring services, extending from the preservation of the basic biospheric resource to policies regarding outer space and extraterrestrial communication.
   d. Establish a global agency for long-range technology assessment--not limited as at present to physical technologies but expanded to include the increasingly important areas of psychosocial technology and biotechnology.

One could certainly elaborate these kinds of individual and institutional goals much further--e.g., the ratification of world law, the resolution of the conflict between world and local norms, etc.

We should, however, enter some caveats at this point, regarding the implications of these directions.

One would not envisage simply the mapping over of a number of our present international agencies into larger scale centralized world bureaucracies. Bureaucracies

many of them may have to be--but, taking gainful advantage of current capabilities in information and communications, they can be swift acting, streamlined, and decentralized facilities capable of operating either as coordinate systems of small organizations or as larger aggregates where temporally necessary.

Again, such institutions will have to operate in terms of different decision processes than we are presently accustomed to in organizations. They will have to be attuned to the adjustment of their courses of policy and action in terms of the feedback of preferences, aspirations, and desires of the world community as a whole, with many of its present internal diversities and attitudes still existent.

This latter requirement probably calls for the recruitment and training of a new kind of transnational civil servant whose prime allegiance is to the global community--as including (not excluding) his or her local national or other cultural identity. We have in the existing nongovernmental world bodies many people in whom such commitment and sense of purpose has already been formed.

Achievement of any kind of real global organization will obviously require radical change in existing political structures and institutions, which represent the claims and aspirations of autonomous sovereignties even in matters more patently pertaining to the world community. A global organization may not be achieved other than through a long and continuously interactive process of exploration and communication with the world's publics, and adjustment in the light of their needs, preferences, and aspirations.

Finally, one should underline again that this kind of world order model should not be construed as being of a monolithic world governmental nature nor as being likely to emerge within the next twenty years. The best alternative that could, and perhaps should, be aimed for is the acceptance of a rather piecemeal pluralistic model at that stage, with a diverse variety of organizations--some functionally and instrumentally oriented, such as global regulatory, economic, or environmental units; others regionally organized in different economic, and even political, forms such as the EEC or the COMECON bloc.

Rather than attempt to draw up some stable and consistent alternative blueprint for a "new world order" in the longer range, we would settle for the development of a relatively inconsistent, uneven, and even to an extent overlapping, set of globally oriented institutions which might ease us through the next period of critical world transition. Above all, their claim to any continued legitimacy would be that they provide a minimal and open global framework within which we might hope to find time to develop the capacities to organise a truly world community along more equitable and humane lines.

IV. Individual Alternatives

For many in the developed countries, and for increasing numbers in the lesser developed, whatever problems and crises the past quarter century has brought, it has been characterised by the widening of choice for the individual. In many cases, this may be minimally phrased in terms of greater freedom from the threat of hunger, more material economic security, more educational opportunity, variable increases in civil rights, etc.

Potentially, and in the longer range, we can expect that the underlying waves of social transformation will lead to a further widening of life advantages and the availability of more diverse "living" patterns for more people.

In the more advanced countries, life-styles have lost many of their previous "mandatory" restrictions in becoming detached from class, work, and occupational role. Ways of earning a living, family status, economic and geographic location are not so constraining upon the choice of individual life-styles. Occupation,

location, and social milieu may be changed many times in a lifetime. Even, more characteristically, a number of co-existent and hitherto exclusive life-styles may be enjoyed at the same time. The overlapping of work, vacation, and weekend living is already accompanied in many cases by the flexible adoption of appropriate "styling" for the different social roles that the individual may occupy.

Increased physical and social mobility requires differential use of a wide range of physical facilities and social services. Ownership of means, in the sense of "earned" exclusive possession, is no longer the prime access relationship to the use of many such services. The rise of rental, extended lease, and deferred credit arrangements shows ownership being supplanted by temporary use relations to facilities and services.

The so-called "mass" societies brought into being by industrialisation are, in their advanced stages, actually more "individualised" and differentiated than pre-industrial or early industrial societies. They are certainly less homogeneous and uniform than the peasant village and less constraining in terms of variety of social roles and available life-styles. The supposed acquisitive materialism of "the technological society" has an oddly contradictory flavor when the trend seems to be towards less material attachment, ownership, and domination by the "value" of physical possesion in itself.

In terms of <u>socio-economic alternatives</u>:

1. It would seem that the value placed on material goods in terms of their pursuit and exclusive ownership may actually <u>decline</u> as they become more freely available. Some of these features are already marked in the younger generation of the more privileged classes in the advanced countries--a lack of material attachment, decline in wholly economic pursuits, diversity of life-style, etc., all of which may arise from their routine exposure to relatively unprecedented material plenty and economic security on an extended scale.

2. The diversity of life-styles and alternative or "serial" life pursuits made possible suggests a more fluid and shifting society with multiple group allegiances and memberships of individuals. The older class, socio-economic, and other status stratifications may be further eroded, and a more multichannel, multipath society may emerge.

3. Linking these two aspects to cultural development, we may note that what is usually phrased as a bipolar differentiation between the established cultural tradition and the so-called counterculture may be more accurately described as a kind of "cultural collage." Individuals and groups may enjoy access to a variety of cultural sources and milieux in a nonexclusive manner--to enjoy the one does not cancel out participation in the other. The vertically oriented ladder of "taste" becomes a mesh of horizontally interlinked networks. The standard-setting function of single elites diffusing downwards is already superseded by upward and lateral influences on style setting.

It should be noted that the possible diversification of values, life-styles, sociocultural groupings and movements may present "problems" of social cohesion. Diversification represents a challenge to our core social institutions whose principal roles in the past have been to optimise conformity and stability--or at least to restrain heterogeneous diversity within socially acceptable bounds. <u>Their</u> alternative role may now lie with the optimisation of diversity and the maintenance of contact and cohesion in a more flexibly organised and changing society.

Much of our prescribed conformity to consensual norms, which provided the "social glue" of society, was possibly dictated by earlier needs of group survival under pre-industrial "marginal survival" conditions. With potential material abundance and socio-economic security, social cohesion may be less dependent on the longer term

stability of socially prescribed roles. It may be determined more by the individually shifting (and idiosyncratic) needs and desires at various stages in the life cycle. The problems of this kind of loss of social homogeneity are already marked politically, in some of the advanced societies, in difficulties of obtaining broad consensual agreement on various policies as various interest groups coalesce and dissolve according to the temporal importance of various issues.

4. Alternative patterns of "rural" or "urban" living are also evident in these kinds of shifts. In terms of urban vs. rural, our thinking is still oriented to an either/or relation--to the city as center in an agricultural society or in one in transition through industrialism. Refined electronic means of communication and rapid transportation now available displace the fixed relation between central and de-central living as based on previous time, energy, and space relationships. One may have the attractions of both urban and rural living rather than either/or. The city is only one of a number of preferred locations in possible patterns of living which may be enjoyed in many other ways.

5. Increase of physical and psychic mobility induced by faster transportation and communication is also viewable in terms of the large seasonal migration of tourism and the emergence of many common features of world cultural forms. This increased mobility has often suggested a false dichotomy between the loss of local identities and heritages and the use of these widening alternative experiences. Rather, we find that psychophysical mobility and interest in the "local heritage" and identity seem to be mutually reinforcing. There is a perceptible renewed interest in local cultural heritages, languages, customs, and environs. The large-scale restoration of historical sites, of whole towns, etc., and the drive towards conservation of "primitive" environs are aspects of the emergence of history and nature as major resources. This trend is paralleled by our dual expanding interest in both our past and our emerging futures. The human "life space" is not only expanded in physical terms to the global level but in psychic terms reaches out to encompass larger areas of historical time and even to the exploration and "colonising" of future time.

END NOTE

We may conclude this synoptic view of world trends and aspects of alternative futures by returning to our earlier theme regarding human purpose. Given that the environmental, social, and psychological costs and benefits of solving the world's housekeeping problems--of resource adequacy, of decreasing material and social disparity, etc., and of those essentially qualitative base factors which require quantitative solutions--may be surmounted within the next thirty to fifty years, we could not only pursue many alternative futures but could turn such pursuit into a major social purpose in itself.

Viewing this from another angle, we may suggest that as we have recently devoted relatively massive energies to physical technological invention, we now need to turn our priorities towards equally massive and diverse sociocultural exploration and invention. Many of our technical means are now given. What we lack are the requisite sets of socio-economic and political institutional arrangements through which those means may be used to more human, and humane, advantage.

For most of our history only a tiny fraction of human society, those fortunate to have the leisure, could afford to speculate upon and explore the human condition. Most people were too preoccupied with basic physical survival throughout their lives to engage more closely and intensively with such wider considerations. We are now potentially on the threshold of a period in which, freed from survival preoccupations, we could afford to weave many of the hitherto marginal and individual pursuits of humankind into the more central purposes of our societies. This does not mean that all people may become contemplative philosophers! It merely suggests that we could begin, on a larger and wider scale, to engage with the process of learning to be human, of exploring in a myriad different ways the diverse modalities and potentials of the human condition.

NOTES

1. In the sense used by T. S. Kuhn in The Structure of Scientific Revolutions (University of Chicago Press, 1962).

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3. 1,571 million world population in 1900.

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5. U.S. Disarmament and Arms Control Agency Report, 1972.

6. U.S. News and World Report, Jan. 22, 1973.

7. Victor Basink, "The Impact of Technology in the Next Decades," Orbis 14, no. 1, 1970.

8. Peter G. Peterson, The United States in the Changing World Economy, vol. 1: A Foreign Economic Perspective (U.S. Govt. Printing Office #4000-0271, 1972), p. 8.

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10. Ibid., p. 223.

11. J.-J. Servan-Schreiber, "The Changing World Economy: The American Challenge to Europe," Current, Dec. 1968, p. 58.

12. Peterson, op. cit., p. 28.

13. Forbes magazine, November 15, 1972, p. 79.

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