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America in the Technetronic Age

New Questions of Our Time

OURS IS NO LONGER the conventional revolutionary era; we are entering a novel metamorphic phase in human history. The world is on the eve of a transformation more dramatic in its historic and human consequences than that wrought either by the French or the Bolshevik revolutions. Viewed from a long perspective, these famous revolutions merely scratched the surface of the human condition. The changes they precipitated involved alterations in the distribution of power and property within society; they did not affect the essence of individual and social existence. Life—personal and organised—continued much as before, even though some of its external forms (primarily political) were substantially altered. Shocking though it may sound to their acolytes, by the year 2000 it will be accepted that Robespierre and Lenin were mild reformers.

Unlike the revolutions of the past, the developing metamorphosis will have no charismatic leaders with strident doctrines, but its impact will be far more profound. Most of the change that has so far taken place in human history has been gradual—with the great “revolutions” being mere punctuation marks to a slow, eludible process. In contrast, the approaching transformation will come more rapidly and will have deeper consequences for the way and even perhaps for the meaning of human life

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than anything experienced by the generations that preceded us.

America is already beginning to experience these changes and in the course of so doing it is becoming a “technetronic” society: a society that is shaped culturally, psychologically, socially and economically by the impact of technology and electronics, particularly computers and communications. The industrial process no longer is the principal determinant of social change, altering the mores, the social structure, and the values of society. This change is separating the United States from the rest of the world, prompting a further fragmentation among an increasingly differentiated mankind, and imposing upon Americans a special obligation to ease the pains of the resulting confrontation.

The Technetronic Society

THE FAR-REACHING innovations we are about to experience will be the result primarily of the impact of science and technology on man and his society, especially in the developed world. Recent years have seen a proliferation of exciting and challenging literature on the future. Much of it is serious, and not mere science-fiction.¹ Moreover, both in the United States and, to a lesser degree, in Western Europe a number of systematic, scholarly efforts have been designed to project, predict, and

¹ Perhaps the most useful single source is to be found in the Summer 1967 issue of *Daedalus*, devoted entirely to “*Toward the Year 2000: Work in Progress*.” The introduction by Professor Daniel Bell, chairman of the American Academy’s Commission on the Year 2000 (of which the present writer is also a member) summarises some of the principal literature on the subject.

possess what the future holds for us. Curiously, very little has been heard on this theme from the Communist World, even though Communist doctrinaires are the first to claim their 19th-century ideology holds a special pass-key to the 21st century.

The work in progress indicates that men living in the developed world will undergo during the next several decades a mutation potentially as basic as that experienced through the slow process of evolution from animal to human experience. The difference, however, is that the process will be telescoped in time—and hence the shock effect of the change may be quite profound. Human conduct will become less spontaneous and less mysterious—more predetermined and subject to deliberate “programming.” Man will increasingly possess the capacity to determine the sex of his children, to affect through drugs the extent of their intelligence and to modify and control their personalities. The human brain will acquire expanded powers, with computers becoming as routine an extension of man’s reasoning as automobiles have been of man’s mobility. The human body will be improved and its durability extended: some estimate that during the next century the average life-span could reach approximately 120 years.

These developments will have major social impact. The prolongation of life will alter our values, our career patterns, and our social relationships. New forms of social control may be needed to limit the indiscriminate exercise by individuals of their new powers. The possibility of extensive chemical mind-control, the danger of loss of individuality inherent in extensive transplantation, and the feasibility of manipulation of the genetic structure will call for a social definition of common criteria of restraint as well as of utilisation. Scientists predict with some confidence that by the end of this century, computers will reason as well as man, and will be able to engage in “creative” thought; wedded to robots or to “laboratory beings,” they could act like humans. The makings of a most complex—and perhaps bitter—philosophical and political dialogue about the nature of man are self-evident in these developments.

Other discoveries and refinements will further

alter society as we now know it. The information revolution, including extensive information storage, instant retrieval, and eventually push-button visual and sound availability of needed data in almost any private home, will transform the character of institutionalised collective education. The same techniques could serve to impose well-nigh total political surveillance on every citizen, putting into much sharper relief than is the case today the question of privacy. Cybernetics and automation will revolutionise working habits, with leisure becoming the practice and active work the exception—and a privilege reserved for the most talented. The achievement-oriented society might give way to the amusement-focused society, with essentially spectator spectacles (mass sports, TV) providing an opiate for increasingly purposeless masses.

BUT WHILE FOR THE MASSES life will grow longer and time will seem to expand, for the activist élite time will become a rare commodity. Indeed, even the élite’s sense of time will alter. Already now speed dictates the pace of our lives—instead of the other way around. As the speed of transportation increases, largely by its own technological momentum, man discovers that he has no choice but to avail himself of that acceleration, either to keep up with others or because he thinks he can thus accomplish more. This will be especially true of the élite, for whom an expansion in leisure time does not seem to be in the cards. Thus as speed expands, time contracts—and the pressures on the élite increase.

By the end of this century the citizens of the more developed countries will live predominantly in cities—hence almost surrounded by man-made environment. Confronting nature could be to them what facing the elements was to our forefathers: meeting the unknown and not necessarily liking it. Enjoying a personal standard of living that (in some countries) may reach almost \$10,000 per head, eating artificial food, speedily commuting from one corner of the country to work in another, in continual visual contact with their employer, government, or family, consulting their annual calendars to establish on which day it will rain or shine, our descendants will be shaped almost entirely by what they themselves create and control.

But even short of these far-reaching changes, the transformation that is now taking place is already creating a society increasingly unlike its industrial predecessor.² In the industrial society,

² See Daniel Bell’s pioneering “Notes on the Post-Industrial Society,” *The Public Interest*, Nos. 6 and 7, 1967.

technical knowledge was applied primarily to one specific end: the acceleration and improvement of production techniques. Social consequences were a later by-product of this paramount concern. In the technetronic society, scientific and technological knowledge, in addition to enhancing productive capabilities, quickly spills over to affect directly almost all aspects of life.

This is particularly evident in the case of the impact of communications and computers. Communications create an extraordinarily interwoven society, in continuous visual, aural, and increasingly close contact among almost all its members—electronically interacting, sharing instantly most intense social experiences, prompting far greater personal involvement, with their consciousnesses shaped in a sporadic manner fundamentally different (as McLuhan has noted) from the literate (or pamphleteering) mode of transmitting information, characteristic of the industrial age. The growing capacity for calculating instantly most complex interactions and the increasing availability of bio-chemical means of human control increase the potential scope of self-conscious direction, and thereby also the pressures to direct, to choose, and to change.

THE CONSEQUENCE is a society that differs from the industrial one in a variety of economic, political and social aspects. The following examples may be briefly cited to summarise some of the contrasts:

1. In an industrial society, the mode of production shifts from agriculture to industry, with the use of muscle and animals supplanted by machine-operation. In the technetronic society, industrial employment yields to services, with automation and cybernetics replacing individual operation of machines.

2. Problems of employment and unemployment—not to speak of the earlier stage of the urban socialisation of the post-rural labour force—dominate the relationship between employers, labour, and the market in the industrial society; assuring minimum welfare to the new industrial masses is a source of major concern. In the emerging new society, questions relating to skill-obsolence, security, vacations, leisure,

and profit-sharing dominate the relationship; the matter of psychic well-being of millions of relatively secure but potentially aimless lower-middle class blue collar workers becomes a growing problem.

3. Breaking down traditional barriers to education, thus creating the basic point of departure for social advancement, is a major goal of social reformers in the industrial society. Education, available for limited and specific periods of time, is initially concerned with overcoming illiteracy, and subsequently with technical training, largely based on written, sequential reasoning. In the technetronic society, not only has education become universal but advanced training is available to almost all who have the basic talents. Quantity-training is reinforced by far greater emphasis on quality-selection. The basic problem is to discover the most effective techniques for the rational exploitation of social talent. Latest communication and calculating techniques are applied to that end. The educational process, relying much more on visual and aural devices, becomes extended in time, while the flow of new knowledge necessitates more and more frequent refresher studies.

4. In the industrial society social leadership shifts from the traditional rural-aristocratic to an urban “plutocratic” élite. Newly acquired wealth is its foundation, and intense competition the outlet—as well as the stimulus—for its energy. In the post-industrial technetronic society plutocratic pre-eminence comes under a sustained challenge from the political leadership which itself is increasingly permeated by individuals possessing special skills and intellectual talents. Knowledge becomes a tool of power, and the effective mobilisation of talent an important way for acquiring power.

5. The university in an industrial society—rather in contrast to the medieval times—is an aloof ivory-tower, the repository of irrelevant, even if respected wisdom, and, for only a brief time, the watering fountain for budding members of the established social élite. In the technetronic society, the university becomes an intensely involved *think-tank*, the source of much sustained political planning and social innovation.

6. The turmoil inherent in the shift from the rigidly traditional rural to urban existence engenders an inclination to seek total answers to social dilemmas, thus causing ideologies to thrive in the industrial society.³ In the techn-

³ The American exception to this rule was due to the absence of the feudal tradition, a point well developed by Louis Hartz in his work *The Liberal Tradition in America* (1955).

tronic society, increasing ability to reduce social conflicts to quantifiable and measurable dimensions reinforces the trend towards a more pragmatic problem-solving approach to social issues.

7. The activation of hitherto passive masses makes for intense political conflicts in the industrial society over such matters as disenfranchisement and the right to vote. The issue of political participation is a crucial one. In the technetronic age, the question increasingly is one of ensuring real participation in decisions that seem too complex and too far-removed from the average citizen. Political alienation becomes a problem. Similarly, the issue of political equality of the sexes gives way to a struggle for the sexual equality of women. In the industrial society, woman—the operator of machines—ceases to be physically inferior to the male, a consideration of some importance in rural life, and she begins to demand her political rights. In the emerging society, automation discriminates equally against males and females; intellectual talent is computable; the pill encourages sexual equality.

8. The newly enfranchised masses are coordinated in the industrial society through trade unions and political parties, and integrated by relatively simple and somewhat ideological programmes. Moreover, political attitudes are influenced by appeals to nationalist sentiments, communicated through the massive growth of newspapers, relying, naturally, on native tongues. In the technetronic society, the trend would seem to be towards the aggregation of the individual support of millions of uncoordinated citizens, easily within the reach of magnetic and attractive personalities effectively exploiting the latest communication techniques to manipulate emotions and control reason. Reliance on TV—and hence the tendency to replace language with imagery, with the latter unlimited by national confines (and also including coverage for such matters as hunger in India or war scenes)—tends to create a somewhat more cosmopolitan, though highly impressionistic, involvement in global affairs.

9. Economic power in the industrial society tends to be personalised, either in the shape of great *entrepreneurs* like Henry Ford or bureaucratic industrialisers like Kaganovich in Russia, or Minc in Poland. The tendency towards de-personalisation of economic power is stimulated in the next stage by the appearance of a highly complex interdependence between governmental institutions (including the mili-

tary), scientific establishments, and industrial organisations. As economic power becomes inseparably linked with political power, it becomes more invisible and the sense of individual futility increases.

10. Relaxation and escapism in the industrial society, in its more intense forms, is a carry-over from the rural drinking bout, in which intimate friends and family would join. Bars and saloons—or fraternities—strive to recreate the atmosphere of intimacy. In the technetronic society social life tends to be so atomised, even though communications (especially TV) make for unprecedented immediacy of social experience, that group intimacy cannot be recreated through the artificial stimulation of externally convivial group behaviour. The new interest in drugs seeks to create intimacy through introspection, allegedly by expanding consciousness.

EVENTUALLY, THESE CHANGES and many others, including the ones that affect much more directly the personality and quality of the human being itself, will make the technetronic society as different from the industrial as the industrial became from the agrarian.

The American Transition

AMERICA is today in the midst of a transition. U.S. society is leaving the phase of spontaneity and is entering a more self-conscious stage; ceasing to be an industrial society, it is becoming the first technetronic one. This is at least in part the cause for much of the current tensions and violence.

Spontaneity made for an almost automatic optimism about the future, about the "American miracle," about justice and happiness for all. This myth prompted social blinders to the various aspects of American life that did not fit the optimistic mould, particularly the treatment of the Negro and the persistence of pockets of deprivation. Spontaneity involved a faith in the inherent goodness of the American socio-economic dynamic: as America developed, grew, became richer, problems that persisted or appeared would be solved.

This phase is ending. Today, American society is troubled and some parts of it are even tormented. The social blinders are being ripped off—and a sense of inadequacy is becoming more widespread. The spread of literacy, and particularly the access to college and universi-

ties of about 40% of the youth, has created a new stratum—one which reinforces the formerly isolated urban intellectuals—a stratum not willing to tolerate either social blinders nor sharing the complacent belief in the spontaneous goodness of American social change.

Yet it is easier to know what is wrong than to indicate what ought to be done. The difficulty is not only revealed by the inability of the new social rebels to develop a concrete and meaningful programme. It is magnified by the novelty of America's problem. Turning to 19th-century ideologies is not the answer—and it is symptomatic that the "New Left" has found it most difficult to apply the available, particularly Marxist, doctrines to the new reality. Indeed, its emphasis on human rights, the evils of depersonalisation, the dangers inherent in big government—so responsive to the felt psychological needs—contain strong parallels to more conservative notions about the place and sanctity of the individual in society.

IN SOME WAYS, there is an analogy here between the "New Left" and the searching attitude of various disaffected groups in early 19th-century Europe, reacting to the first strains of the industrial age. Not fully comprehending its meaning, not quite certain where it was heading—yet sensitive to the miseries and opportunities it was bringing—many Europeans strove desperately to adapt earlier, 18th-century doctrines to the new reality. It was finally Marx who achieved what appeared to many millions a meaningful synthesis, combining utopian idealism about the future of the industrial age with a scorching critique of its present.

THE SEARCH for meaning is characteristic of the present American scene. It could portend most divisive and bitter ideological conflicts—especially as intellectual disaffection becomes linked with the increasing bitterness of the deprived Negro masses. If carried to its extreme, this could bring to America a phase of violent, intolerant, and destructive civil strife, combining ideological and racial intolerance.

However, it seems unlikely that a unifying ideology of political action, capable of mobilising large-scale loyalty, can emerge in the manner that Marxism arose in response to the industrial era. Unlike even Western Europe or Japan—not to speak of Soviet Russia—where the consequences and the impact of the indus-

trial process are still re-shaping political, social, and economic life, in America science and technology (particularly as socially applied through communications and increasing computerisation, both offsprings of the industrial age) are already more important in influencing the social behaviour of a society that has moved past its industrial phase. Science and technology are notoriously unsympathetic to simple, absolute formulas. In the technetronic society there may be room for pragmatic, even impatient, idealism, but hardly for doctrinal utopianism.

At the same time, it is already evident that a resolution of some of the unfinished business of the industrial era will be rendered more acute. For example, the Negro should have been integrated into U.S. society *during* the American industrial revolution. Yet that revolution came before America, even if not the Negro, was ready for full integration. If the Negro had been only an economic legacy of the pre-industrial age, perhaps he could have integrated more effectively. Today, the more advanced urban-industrial regions of America, precisely because they are moving into a new and more complex phase, requiring even more developed social skills, are finding it very difficult to integrate the Negro, both a racial minority and America's only "feudal legacy." Paradoxically, it can be argued that the American South today stands a better long-range chance of fully integrating the Negro: American consciousness is changing, the Negro has stirred, and the South is beginning to move into the industrial age. The odds are that it may take the Negro along with it.

WHATEVER THE OUTCOME, American society is the one in which the great questions of our time will be first tested through practice. Can the individual and science co-exist, or will the dynamic momentum of the latter fundamentally alter the former? Can man, living in the scientific age, grow in intellectual depth and philosophical meaning, and thus in his personal liberty too? Can the institutions of political democracy be adapted to the new conditions sufficiently quickly to meet the crises, yet without debasing their democratic character?

The challenge in its essence involves the twin-dangers of fragmentation and excessive control. A few examples. Symptoms of alienation and depersonalisation are already easy to find in American society. Many Americans feel "less free"; this feeling seems to be connected with their loss of "purpose"; freedom implies choice

of action, and action requires an awareness of goals. If the present transition of America to the technetronic age achieves no personally satisfying fruits, the next phase may be one of sullen withdrawal from social and political involvement, a flight from social and political responsibility through "inner-emigration." Political frustration could increase the difficulty of absorbing and internalising rapid environmental changes, thereby prompting increasing psychic instability.

At the same time, the capacity to assert social and political control over the individual will vastly increase. As I have already noted, it will soon be possible to assert almost continuous surveillance over every citizen and to maintain up-to-date, complete files, containing even most personal information about the health or personal behaviour of the citizen, in addition to more customary data. These files will be subject to instantaneous retrieval by the authorities.

Moreover, the rapid pace of change will put a premium on anticipating events and planning for them. Power will gravitate into the hands of those who control the information, and can correlate it most rapidly. Our existing *post*-crisis management institutions will probably be increasingly supplanted by *pre*-crisis management institutions, the task of which will be to identify in advance likely social crises and to develop programmes to cope with them. This could encourage tendencies during the next several decades towards a technocratic dictatorship, leaving less and less room for political procedures as we now know them.

FINALLY, LOOKING AHEAD to the end of this century, the possibility of bio-chemical mind-control and genetic tinkering with man, including eventually the creation of beings that will function like men—and reason like them as well—could give rise to the most difficult questions. According to what criteria can such controls be applied? What is the distribution of power between the individual and society with regard to means that can altogether alter man? What is the social and political status of artificial beings, if they begin to approach man in their performance and creative capacities? (One dares not ask, what if they begin to "outstrip man")

⁴It is noteworthy that the U.S. Army has so developed its control-systems that it is not uncommon for sergeants to call in and co-ordinate massive air-strikes and artillery fire—a responsibility of colonels during World War II.

—something not beyond the pale of possibility during the next century?)

YET IT WOULD be highly misleading to construct a one-sided picture, a new Orwellian piece of science-fiction. Many of the changes transforming American society augur well for the future and allow at least some optimism about this society's capacity to adapt to the requirements of the metamorphic age.

Thus, in the political sphere, the increased flow of information and more efficient techniques of co-ordination need not necessarily prompt greater concentration of power within some ominous control agency located at the governmental apex. Paradoxically, these developments also make possible greater devolution of authority and responsibility to the lower levels of government and society. The division of power has traditionally posed the problems of inefficiency, co-ordination, and dispersal of authority; but today the new communications and computer techniques make possible both increased authority at the lower levels and almost instant national co-ordination. It is very likely that state and local government will be strengthened in the next ten years, and many functions currently the responsibility of the Federal government will be assumed by them.⁴

The devolution of financial responsibility to lower echelons may encourage both the flow of better talent and greater local participation in more important local decision-making. National co-ordination and local participation could thus be wedded by the new systems of co-ordination. This has already been tried successfully by some large businesses. This development would also have the desirable effect of undermining the appeal of any new integrating ideologies that may arise; for ideologies thrive only as long as there is an acute need for abstract responses to large and remote problems.

It is also a hopeful sign that improved governmental performance, and its increased sensitivity to social needs is being stimulated by the growing involvement in national affairs of what Kenneth Boulding has called the Educational and Scientific Establishment (EASE). The university at one time, during the Middle Ages, was a key social institution. Political leaders leaned heavily on it for literate confidants and privy counsellors, a rare commodity in those days. Later divorced from reality, academia in recent

years has made a grand re-entry into the world of action.

Today, the university is the creative eye of the massive communications complex, the source of much strategic planning, domestic and international. Its engagement in the world is encouraging the appearance of a new breed of politicians-intellectuals, men who make it a point to mobilise and draw on the most expert, scientific and academic advice in the development of their political programmes. This, in turn, stimulates public awareness of the value of expertise—and, again in turn, greater political competition in exploiting it.

A profound change in the intellectual community itself is inherent in this development. The largely humanist-oriented, occasionally ideologically-minded intellectual-dissenter, who saw his role largely in terms of proffering social critiques, is rapidly being displaced either by experts and specialists, who become involved in special governmental undertakings, or by the generalists-integrators, who become in effect house-ideologues for those in power, providing overall intellectual integration for disparate actions. A community of organisation-oriented, application-minded intellectuals, relating itself more effectively to the political system than their predecessors, serves to introduce into the political system concerns broader than those likely to be generated by that system itself and perhaps more relevant than those articulated by outside critics.⁵

The expansion of knowledge, and the entry into socio-political life of the intellectual community, has the further effect of making education an almost continuous process. By 1980, not only will approximately two-thirds of U.S. urban dwellers be college-trained, but it is almost certain that systematic "élite-retraining" will be standard in the political system. It will be normal for every high official both to be engaged in almost continuous absorption of new techniques and knowledge, and to take periodic

⁵ However, there is a danger in all this that ought not to be neglected. Intense involvement in applied knowledge could gradually prompt a waning of the tradition of learning for the sake of learning. The intellectual community, including the university, could become another "industry," meeting social needs as the market dictates, with the intellectuals reaching for the highest material and political rewards. Concern with power, prestige, and the good life could mean an end to the aristocratic ideal of intellectual detachment and the disinterested search for truth.

retraining. The adoption of compulsory elementary education was a revolution brought on by the industrial age. In the new technetronic society, it will be equally necessary to require everyone at a sufficiently responsible post to take, say, two years of retraining every ten years. (Perhaps there will even be a constitutional amendment, requiring a President-elect to spend at least a year getting himself educationally up-to-date.) Otherwise, it will not be possible either to keep up with, or absorb, the new knowledge.

GIVEN DIVERSE NEEDS, it is likely that the educational system will undergo a fundamental change in structure. Television-computer consoles, capable of bringing most advanced education to the home, will permit extensive and continuous adult re-education. On the more advanced levels, it is likely that government agencies and corporations will develop—and some have already begun to do so—their own advanced educational systems, shaped to their special needs. As education becomes both a continuum, and even more application-oriented, its organisational framework will be re-designed to tie it directly to social and political action.

It is quite possible that a society increasingly geared to learning will be able to absorb more resiliently the expected changes in social and individual life. Mechanisation of labour and the introduction of robots will reduce the chores that keep millions busy doing things that they dislike doing. The increasing GNP (which could reach approximately \$10,000 per capita per year), linked with educational advance, could prompt among those less involved in social management and less interested in scientific development a wave of interest in the cultural and humanistic aspects of life, in addition to purely hedonistic preoccupations. But even the latter would serve as a social valve, reducing tensions and political frustration. Greater control over external environment could make for easier, less uncertain existence.

BUT THE KEY to successful adaptation to the new conditions is in the effective selection, distribution and utilisation of social talent. If the industrial society can be said to have developed through a struggle for survival of the fittest, the technetronic society—in order to prosper—requires the effective mobilisation of the ablest. Objective and systematic criteria for the selec-

tion of those with the greatest gifts will have to be developed, and the maximum opportunity for their training and advancement provided. The new society will require enormous talents—as well as a measure of philosophical wisdom—to manage and integrate effectively the expected changes. Otherwise, the dynamic of change could chaotically dictate the patterns of social change.

FORTUNATELY, American society is becoming more conscious not only of the principle of equal opportunity for all but of special opportunity for the singularly talented few. Never truly an aristocratic state (except for some pockets such as the South and New England), never really subject to ideological or charismatic leadership, gradually ceasing to be a plutocratic-oligarchic society, the U.S.A. is becoming something which may be labelled the “meritocratic democracy.” It combines continued respect for the popular will with an increasing role in the key decision-making institutions of individuals with special intellectual and scientific attainments. The educational and social systems are making it increasingly attractive and easy for those meritocratic few to develop to the fullest their special potential. The recruitment and advancement of social talent is yet to extend to the poorest and the most underprivileged, but that too is coming. No one can tell whether this will suffice to meet the unfolding challenge, but the increasingly cultivated and programmed American society, led by a meritocratic democracy, may stand a better chance.

The Trauma of Confrontation

FOR the world at large, the appearance of the new technetronic society could have the paradoxical effect of creating more distinct worlds on a planet that is continuously shrinking because of the communications revolution. While the scientific-technological change will inevitably have some spill-over, not only will the gap between the developed and the underdeveloped worlds probably become wider—especially in the more measurable terms of economic indices—but a *new one* may be developing *within* the industrialised and urban world.

The fact is that America, having left the industrial phase, is today entering a distinct his-

torical era: and one different from that of Western Europe and Japan. This is prompting subtle and still indefinable changes in the American psyche, providing the psycho-cultural bases for the more evident political disagreements between the two sides of the Atlantic. To be sure, there are pockets of innovation or retardation on both sides. Sweden shares with America the problems of leisure, psychic well-being, purposelessness; while Mississippi is experiencing the confrontation with the industrial age in a way not unlike some parts of South-Western Europe. But I believe the broad generalisation still holds true: Europe and America are no longer in the same historical era.

WHAT MAKES AMERICA UNIQUE in our time is that it is the first society to experience the future. The confrontation with the new—which will soon include much of what I have outlined—is part of the daily American experience. For better or for worse, the rest of the world learns what is in store for it by observing what happens in the U.S.A.: in the latest scientific discoveries in space, in medicine, or the electric toothbrush in the bathroom; in pop art or LSD, air conditioning or air pollution, old-age problems or juvenile delinquency. The evidence is more elusive in such matters as music, style, values, social mores; but there, too, the term “Americanisation” obviously defines the source. Today, America is *the* creative society; the others, consciously and unconsciously, are emulative.

American scientific leadership is particularly strong in the so-called “frontier” industries, involving the most advanced fields of science. It has been estimated that approximately 80% of all scientific and technical discoveries made during the last few decades originated in the United States. About 75% of the world’s computers operate in the United States; the American lead in lasers is even more marked; examples of American scientific lead are abundant.

There is reason to assume that this leadership will continue. America has four times as many scientists and research workers as the countries of the European Economic Community combined; three-and-a-half times as many as the Soviet Union. The brain-drain is almost entirely one-way. The United States is also spending more on research: seven times as much as the E.E.C. countries, three-and-a-half times as much as the Soviet Union. Given the fact that scien-

tific development is a dynamic process, it is likely that the gap will widen.⁶

On the social level, American innovation is most strikingly seen in the manner in which the new meritocratic élite is taking over American life, utilising the universities, exploiting the latest techniques of communications, harnessing as rapidly as possible the most recent technological devices. Technetronics dominate American life, but so far nobody else's. This is bound to have social and political—and therefore also psychological—consequences, stimulating a psycho-cultural gap in the developed world.

AT THE SAME TIME, the backward regions of the world are becoming more, rather than less, poor in relation to the developed world. It can be roughly estimated that the per capita income of the underdeveloped world is approximately ten times lower than of America and Europe (and twenty-five times of America itself). By the end of the century, the ratio may be about fifteen-to-one (or possibly thirty-to-one in the case of the U.S.), with the backward nations *at best* approaching the present standard of the very poor European nations but in many cases (*e.g.*, India) probably not even attaining that modest level.

The social élites of these regions, however, will quite naturally tend to assimilate and emulate, as much as their means and power permit, the life-styles of the most advanced world, with which they are, and increasingly will be, in close vicarious contact through global television, movies, travel, education, and international magazines. The international gap will thus have a domestic reflection, with the masses, given the availability even in most backward regions of transistorised radios (and soon television), becoming more and more intensely aware of their deprivation.

IT IS DIFFICULT to conceive how in that context democratic institutions (derived largely from Western experience—but typical only of the more stable and wealthy Western nations) will endure in a country like India, or

⁶In the Soviet case, rigid compartmentalisation between secret military research and industrial research has had a particularly sterile effect of inhibiting spill-over from weapons research into industrial application.

⁷See Barrington Moore's documentation of this in his pioneering study *Social Origins of Dictatorship and Democracy* (1967).

develop elsewhere. The foreseeable future is more likely to see a turn towards personal dictatorships and some unifying doctrines, in the hope that the combination of the two may preserve the minimum stability necessary for social-economic development. The problem, however, is that whereas in the past ideologies of change gravitated from the developed world to the less, in a way stimulating imitation of the developed world (as was the case with Communism), today the differences between the two worlds are so pronounced that it is difficult to conceive a new ideological wave originating from the developed world, where the tradition of utopian thinking is generally declining.

With the widening gap dooming any hope of imitation, the more likely development is an ideology of rejection of the developed world. Racial hatred could provide the necessary emotional force, exploited by xenophobic and romantic leaders. The writings of Frantz Fanon—violent and racist—are a good example. Such ideologies of rejection, combining racialism with nationalism, would further reduce the chances of meaningful regional co-operation, so essential if technology and science are to be effectively applied. They would certainly widen the existing psychological and emotional gaps. Indeed, one might ask at that point: who is the truer repository of that indefinable quality we call human? The technologically dominant and conditioned technetron, increasingly trained to adjust to leisure, or the more “natural” and backward agrarian, more and more dominated by racial passions and continuously exhorted to work harder, even as his goal of the good life becomes more elusive?

The result could be a modern version on a global scale of the old rural-urban dichotomy. In the past, the strains produced by the shift from an essentially agricultural economy to a more urban one contributed much of the impetus for revolutionary violence.⁷ Applied on a global scale, this division could give substance to Lin Piao's bold thesis that:

Taking the entire globe, if North America and Western Europe can be called “the cities of the world,” then Asia, Africa and Latin America constitute “the rural areas of the world.”... In a sense, the contemporary world revolution also presents a picture of the encirclement of cities by the rural areas.

In any case, even without envisaging such a dichotomic confrontation, it is fair to say that the underdeveloped regions will be facing in-

creasingly grave problems of political stability and social survival. Indeed (to use a capsule formula), in the developed world, the nature of man as man is threatened; in the underdeveloped, society is. The interaction of the two could produce chaos.

To be sure, the most advanced states will possess ever more deadly means of destruction, possibly even capable of nullifying the consequences of the nuclear proliferation that appears increasingly inevitable. Chemical and biological weapons, death rays, neutron bombs, nerve gases, and a host of other devices, possessed in all their sophisticated variety (as seems likely) only by the two super-states, may impose on the world a measure of stability. Nonetheless, it seems unlikely, given the rivalry between the two principal powers, that a full-proof system against international violence can be established. Some local wars between the weaker, nationalistically more aroused, poorer nations may occasionally erupt—resulting perhaps even in the total nuclear extinction of one or several smaller nations?—before greater international control is imposed in the wake of the universal moral shock thereby generated.

THE UNDERLYING problem, however, will be to find a way of avoiding somehow the widening of the cultural and psycho-social gap inherent in the growing differentiation of the world. Even with gradual differentiation throughout human history, it was not until the industrial revolution that sharp differences between societies began to appear. Today, some nations still live in conditions not unlike pre-Christian times; many no different than in the medieval age. Yet soon a few will live in ways so new that it is now difficult to imagine their social and individual ramifications. If the developed world takes a leap—as seems inescapably the case—into a reality that is even more different from ours today than ours is from an Indian village, the gap and its accompanying strains will not narrow.

On the contrary, the instantaneous electronic intermeshing of mankind will make for an intense confrontation, straining social and international peace. In the past, differences were “livable” because of time and distance that separated them. Today, these differences are

actually widening while technetronics are eliminating the two insulants of time and distance. The resulting trauma could create almost entirely different perspectives on life, with insecurity, envy, and hostility becoming the dominant emotions for increasingly large numbers of people. A three-way split into rural-backward, urban-industrial, and technetronic ways of life can only further divide man, intensify the existing difficulties to global understanding, and give added vitality to latent or existing conflicts.

The pace of American development both widens the split within mankind and contains the seeds for a constructive response. However, neither military power nor material wealth, both of which America possesses in abundance, can be used directly in responding to the onrushing division in man’s thinking, norms, and character. Power, at best, can assure only a relatively stable external environment: the tempering or containing of the potential global civil war; wealth can grease points of socio-economic friction, thereby facilitating development. But as man—especially in the most advanced societies—moves increasingly into the phase of controlling and even creating his environment, increasing attention will have to be given to giving man meaningful content—to improving the quality of life for man *as man*.

Man has never really tried to use science in the realm of his value systems. Ethical thinking is hard to change, but history demonstrates that it does change. . . . Man does, in limited ways, direct his very important and much more rapid psycho-social education. The evolution of such things as automobiles, airplanes, weapons, legal institutions, corporations, universities, and democratic governments are examples of progressive evolution in the course of time. We have, however, never really tried deliberately to create a better society for man *qua man*. . . .⁸

The urgent need to do just that may compel America to redefine its global posture. During the remainder of this century, given the perspective on the future I have outlined here, America is likely to become less concerned with “fighting communism” or creating “a world safe for diversity” than with helping to develop a common response with the rest of mankind to the implications of a truly new era. This will mean making the massive diffusion of scientific-technological knowledge a principal focus of American involvement in world affairs.

TO SOME EXTENT, the U.S. performs that role already—simply by being what it is. The impact

⁸ Hudson Hoagland, “Biology, Brains, and Insight,” *Columbia University Forum*, Summer 1967.

of its reality and its global involvement prompts emulation. The emergence of vast international corporations, mostly originating in the United States, makes for easier transfer of skills, management techniques, marketing procedures, and scientific-technological innovations. The appearance of these corporations in the European market has done much to stimulate Europeans to consider more urgently the need to integrate their resources and to accelerate the pace of their own research and development.

Similarly, returning graduates from American universities have prompted an organisational and intellectual revolution in the academic life of their countries. Changes in the academic life of Britain, Germany, Japan, more recently France, and (to even a greater extent) in the less developed countries, can be traced to the influence of U.S. educational institutions. Indeed, the leading technological institute in Turkey conducts its lectures in "American" and is deliberately imitating, not only in approach but in student-professor relationships, U.S. patterns. Given developments in modern communications, is it not only a matter of time before students at Columbia University and, say, the University of Teheran will be watching, *simultaneously*, the same lecturer?

THE APPEARANCE of a universal intellectual élite, one that shares certain common values and aspirations, will somewhat compensate for the widening differentiation among men and societies. But it will not resolve the problem posed by that differentiation. In many backward nations tension between what is and what can be will be intensified. Moreover, as Kenneth Boulding observed:

The network of electronic communication is inevitably producing a world super-culture, and the relations between this super-culture and the more traditional national and regional cultures of the past remains the great question mark of the next fifty years.⁹

That "super-culture," strongly influenced by American life, with its own universal electronic-computer language, will find it difficult to relate itself to "the more traditional and regional cultures," especially if the basic gap continues to widen.

⁹ Kenneth Boulding, "Expecting the Unexpected," *Prospective Changes in Society by 1980* (1960).

To cope with that gap, a gradual change in diplomatic style and emphasis may have to follow the redefined emphasis of America's involvement in world affairs. Professional diplomacy will have to yield to intellectual leadership. With government negotiating directly—or quickly dispatching the negotiators—there will be less need for ambassadors who are resident diplomats and more for ambassadors who are capable of serving as creative interpreters of the new age, willing to engage in a meaningful dialogue with the host intellectual community and concerned with promoting the widest possible dissemination of available knowledge. Theirs will be the task to stimulate and to develop scientific-technological programmes of co-operation.

International co-operation will be necessary in almost every facet of life: to reform and to develop more modern educational systems, to promote new sources of food supply, to accelerate economic development, to stimulate technological growth, to control climate, to disseminate new medical knowledge. However, because the new élites have a vested interest in their new nation-states and because of the growing xenophobia among the masses in the third world, the nation-state will remain for a long time the primary focus of loyalty, especially for newly liberated and economically backward peoples. To predict loudly its death, and to act often as if it were dead, could prompt (as it did partially in Europe) an adverse reaction from those whom one would wish to influence. Hence, regionalism will have to be promoted with due deference to the symbolic meaning of national sovereignty—and preferably also by encouraging those concerned themselves to advocate regional approaches.

EVEN MORE IMPORTANT will be the stimulation, for the first time in history on a global scale, of the much needed dialogue on what it is about man's life that we wish to safeguard or to promote, and on the relevance of existing moral systems to an age that cannot be fitted into the narrow confines of fading doctrines. The search for new directions—going beyond the tangibles of economic development—could be an appropriate subject for a special world congress, devoted to the technetronic and philosophical problems of the coming age. To these issues no one society, however advanced, is in a position to provide an answer.

Dennis Silk

Lives of the Magicians

A Puppet play in 10 Scenes

THE board says: THE CHRISTENING.

(Gurdjieff with several disciples, including Ouspensky. He writes his name on a blackboard.)

GURDJIEFF: George Ivanovitch Gurdjieff—that not my real name. Before that the Black Greek—that not my real name. And when I was the nephew of Prince Mukransky? I no longer remember my real name. Sometimes I go into the chalk of this name, to be here. What you think sound of your real name? Heavy, light? How many syllables to your real name? Don't tell me. Later.

Now I experiment, you watch, maybe learn something, a little. You now, Piotr Ivanovitch, you sit in that chair, and you, Piotr Dimitrovitch, in that chair. Now I put you both to sleep. When you wake up, tell me who you are.

(He makes a little cloud, perhaps with incense. When it clears, the two Piotrs sit with eyes shut. Gurdjieff shakes Piotr Ivanovitch, who opens his eyes and sits up.)

What you want, Piotr Ivanovitch, you tell me true now.

PIOTR IVANOVITCH: I think I should like some raspberry jam.

GURDJIEFF: Here you are, Piotr Ivanovitch, you good boy, lick, maybe get another. You, Piotr Dimitrovitch, what you want? Who are you?

OUSPENSKY: I don't want to say anything, just to watch.

GURDJIEFF *(addressing other disciples)*: He now woke up, more himself, his real twin, than I. He teach Mr. Gurdjieff, now. Tomorrow not remember this, but he inside remember.

And you, and you? Who remember, who want

to be himself, not dirty hand in raspberry jam? Who willing pay to be man, wipe sleep from eyelids just once? Who keep me company?

THE board says: THE CHRISTENING.

*Mr. Ouspensky throws his dart
At Price-Taylor's frightened heart.*

(Ouspensky and several other disciples, among them Price-Taylor. The disciples all wear masks; Price-Taylor's has the shape of a blank dartboard whose inner and outer circles are gradually chalked in by Ouspensky during the course of the scene.)

OUSPENSKY: The place, Mr. Price-Taylor, the place. Very difficult to aim at.

PRICE-TAYLOR: It's all a swirl of circles to me, Mr. Ouspensky. Perhaps you could start again.

OUSPENSKY: A piece of chalk, Mr. Price-Taylor.
PRICE-TAYLOR: Here you are. I do hope it won't break like the last piece. We seemed to have arrived at essence.

OUSPENSKY: Here is the place, Mr. Price-Taylor, the dry place. It is before baptism. Before you were christened, and baffled, you had no name. You were called essence. Here is the place of essence. It is this dot. You had your eyes shut in those days, were holding hard to yourself. Your mother carried you to your baptism.

PRICE-TAYLOR: You make it sound like a blood-letting, Mr. Ouspensky, not a name-giving.

OUSPENSKY: In the water your enemy waited—that strong swimmer, your name. It smiled reasonably, it pulled you down. Wet, and in the world, you became the one your mother knew. She plumpened you, plumpened your name. But there was a dry one, a thin one, she never