POTENTIAL IMPACTS OF CULTURAL CHANGE ON THE NAVY IN THE 1970's

VOLUME 2 PART III

Section 1 PHILOSOPHICAL

Section 2 INTERNATIONAL

WESTINGHOUSE DEFENSE & ELECTRONIC SYSTEMS CENTER

CENTER FOR ADVANCED STUDIES & ANALYSES

1 August 1972

Final Report

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WESTINGHOUSE ELECTRIC CORPORATION
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This research was sponsored by the Organizational Effectiveness Research Programs, Psychological Sciences Division, Office of Naval Research, under Contract No. N00014-71-C-0011, Contract Authority Identification Number NR 177 932 6-15-70 (452).

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Section 1

PHILOSOPHICAL

PHILOSOPHICAL

GENERAL

1. Coming to grips with the future, in any sense, is a formidable undertaking mainly, perhaps, because we cannot be sure of what it is that we are trying to come to grips with. In April 1972, an International Symposium was conducted at the University of Texas on "Problems of the 21st Century." The distinguished and diverse group of thinkers and men of affairs included Daniel Bell, Raymond Aron, Irving Howe, Herman Kahn, Loren Eisley, Alfred Kazin, Aaron Copland, Sol M. Linowitz, and others. At the end of three days, the British anthropologist, H. Max Gluckman, was assigned the task of summing up. He tried, then threw up his hands, saying, "I can't do it— it's really impossible." He proposed a toast to the Queen instead.

(BN426)

There are many reasons for being interested in the future; but none is more compelling than the one enunciated by the famous American inventor-executive, Charles F. Kettering, (partially anticipating an aphorism well known in current youth culture): "My interest is in the future because I am going to spend the rest of my life there."

There are a number of approaches to the future available, such as: What ought the future to be like: How can we see to it that the future we prefer actually arrives? The simplest approach, and perhaps the most difficult of all to answer is: What will the future be like? What is likely to happen?

There has always been a certain amount of interest in utopias, in conceiving what life should be like and how future society should be constituted. In most utopian conceptions, greater emphasis is given to what

ought to happen, rather than to what is likely to happen. In a world increasingly pluralistic, any utopian conception is necessarily subjective, and hence unlikely to achieve widespread consensus. This limitation does not preclude its possession of considerable illuminating power, particularly in highlighting the future condition of various partial trends, some desirable, if they were to be carried out to logical, ultimate, or extreme extensions. The resulting insights may be very instructive.

Nevertheless, the argument that a detailed utopian concept represents a useful blueprint toward which social action should actually be aimed is highly debatable. George Kateb asks:

> Does the idea of a utopian way of life make sense? Should the characteristics of the perfect or near perfect society be specified?... I do not know how to answer these questions with certainty. But I now feel less sympathetic than I did... Every description (not only B.F. Skinner's) and every experiment, soon turns out to be, on close examination, diminishing, confining, stultifying. The world should not be made to yield itself entirely to the imagination or practice of any individual or group. In every set of arrangements, much is lost, though much may be gained. If utopia implies a fairly definite set of arrangements, if it lives on the belief that it is the best possible set, then it necessarily condemns itself to narrowness and exclusion. (BB333)

This caveat is related to another which inevitably emerges in reaction to the enthusiasm with which some modern futurists contemplate the possibilities they see in modern forecasting and planning capabilities.

Robert Theobald, for example, said his book about the future had been written "because we can, for the first time, choose the future we desire." (BB351) We have misgivings about this approach. Assuming that we can shape the future according to our desires (a highly doubtful assumption), do we really know what we desire? We may prefer different solutions to those we currently have in many aspects of society, but how can we know that the alternatives, however attractive they may appear in current circumstances, will

work as well in future circumstances?

Moreover, no matter how assured we feel about future improvements in various aspects of society, what is our overall vision of the entire interrelated social context of the future? To be sure, certain trends are apparently going to continue and must be coped with, such as the march of technology, the decline in available resources, and increasing impacts from intercommunications. Surely, we are obligated to head off disaster wherever it looms. However, comprehensive planning of the future along lines we prefer seems high-handed. Would we enjoy living in a social environment that had been tightly planned by the Victorians, or the Edwardians, according to plans they liked? We suspect not.

Entirely aside from our misgivings about the practical possibilities of shaping composite social futures, we suggest that such planning be left as open-ended as possible, leaving pluralistic redirection of social contexts to the people who will live in them.

As noted, we concentrate then, in this study on what is considered likely to happen, on what specialists who think about these these things predict will develop out of current trends.

First, we examine predictions on a broad comprehensive level, on a philosophical plane. Coverage is divided into five sections, which are not rigidly divided, but which necessarily overlap to some extent:

General

Ethics, Morality, and Religion

Authority and Government

The Individual vs. the Collective

Change, Humanism, and Other Considerations

Only analyses of where we are and where we are going are presented in this section, and few impacts.

Values and Value Change

2. Alfred Korzybski, the founder of the science of semantics, called man "a time-binding animal." By this he meant that man is unique in being able to hold at one and the same moment a view of both the past and the future.

(BB225)

3. The way in which we interpret the social order partially determines the specific social problems we perceive as issues for American or any other culture. It may be that by placing the wrong evaluation or interpretation on society, we create new and more difficult problems for contemporary life by undercutting the possibility for social survival.

(BB225)

4. Survival is an elementary, fundamental objective, more appropriate for crises or emergencies than for endurance. As Erikson observes: "Survival is not a human condition which promises a balanced existence or peace for any length of time. Space must be provided for the great variety of human requirements of land use and ways of living. Research should be done— taking into account all of the varying environmental conditions and physical and psychological human requirements."

(BB374)

5. Carleton Coon reflects on the relative flexibility of social systems. Old established systems which have the advantages of a steady, balanced growth tend to be resilient and flexible. What preserves the serenity of civilizations is a harmony between the duration of the individual life cycle and the rate of cultural change. The rate of change in any social system can be accelerated by two means (or by a combination of both): 1) diffusion of new techniques from one cultural center to other peoples, or 2) over-rapid growth of technology towards the climax of a cumulative cycle, which is, says Coon, what we live in today. Even in the evolution of race and social aspects, we must accept that people are genetically and culturally different. If the world is

to become united, the union must be a loose confederation of very different units, or institutions, or it will not long endure.

(BB374)

6. An "institution" is defined by Coon as a group of people who meet together in isolation often enough, regularly enough, and long enough each time, to do something together intensely enough, so that as a separate entity the groups builds up its own set of rules, its own equilibrium, and its own structure. The complexity of institutions in a society is a function of man's conversion of energy into social structure. It should be noted that the number of institutions in modern times has increased more rapidly than the number of people, because each person comes to participate in an increasing number of institutions. The major means of control of social equilibrium include: 1) ritual, that is, the use of symbols and symbolic procedure (without ritual there would be little discipline even in an army); 2) warfare, particularly in areas where there is an imbalance between "woman's" work, agriculture, and "men's " work, hunting; (games also serve as a substitute); 3) law, the prime arbiter of internal stability of states and nations; and 4) education, the basic source of "socialization."

(BB374)

7. The factor of mutual obligation introduces value premises into social inquiry. Gunnar Myrdal argues that inquiry in the social sciences is impossible without some value premises: premises which are always present are better acknowledged than hidden. They enable the inquirer to define a problem and to determine what data are relevant.

(BB242)

8. There is evidence that many men have been reluctant to examine their own value premises. Princeton philsopher Walter Kaufmann says that man's biggest "cop-out" is decidophobia, a fear of making decisions. To avoid them, man has evolved at least ten strategies, each based on one big choice that reduces the need for future choices. The most popular is marriage. Others include religion, meaningless drifting, commitment (to a movement), allegiance

to a school of thought, exegetic thinking, manicheanism, moral rationalism, pedantry, and faith that one is riding a wave of the future.

(BP228)

9. Professor Magoroh Maruyama, University of Hawaii, feels that the basic epistemology (process of reasoning) of American culture has had distinctive features: essentially Greek-European, that is, based on deductive logic, the assumption of a uni-directional-caused flow and a hierarchical social order, mixed with the American world view of unidimensionally-rankable universe, competition, conquest, technocentrism, and unicultural assimilation.

10. Descrepancies which occur internally between epistemologies include the following:

competition vs. sharing
technocentric transgression vs. harmony of nature
material efficiency vs. peace of mind
hierarchism vs. non-hierarchical mutualism
concept of leadership vs. interactionism
majority rule vs. consensus or separatism
homogenization vs. pluralism

(BM100)

11. These features are related to American values, which we shall discuss at greater length later.

12. A more deterministic approach to man's capacity for decision is contributed by Jacques Monod, a French biochemist and Nobel prize winner, to the effect that a. living beings are chemical machines; and b. the process of life is blind, or by chance, the necessity of chemical reaction, or life is a "principle of uncertainty."

13. Robert Heilbroner takes a less deterministic, or mechanistic, view, insisting on the absorption of evolutionary stages, such as technological development, with an adaptable perspective compatible with a long view of history.

> When we estrange ourselves from history we do not enlarge, we diminish ourselves, even as individuals... We cannot help living in history. We can only fail to be aware of it. If we are to meet, endure, and transcend the trials and defeats of the future—for trials and defeats there are certain to be—it can only be from the point of view which, seeing the future as part of the sweep of history, enables us to establish our place in that immense procession in which is incorporated whatever hope mankind may have.

14. Heilbroner fears that our political attitudes may become so rigid that we fail to adapt to the problems of a technological age.

(BB225)

15. Richard Means distinguishes between man as machine and as person:

> Man understood as machine is more subtle and complex than the metaphor suggests, but primarily the notion is that man is only what he produces. His existence is known by external qualities only, by his movements, by his building and tearing down. The image of man as persona, on the other hand, is always one of mystery. The assumption is that man's external activities, while important, are also a partial exterior presentation of an interior reality that has value. Behind the ever changing mask there is a quality, a process of life, which is valued by others. Life, then, is also a struggle to remove the mask, to penetrate to the value of the person as such. In Ernst Cassirer's terms, "man is that being who is always in search of himself." If man were only a machine, his existence would always be revealed in his actions, and the search would be unnecessary.

(BB225)

16. Means castigates the machine view of man, feeling that it is the very essence of violence to think of man as a machine. The act of violence is made possible by assuming than man is a machine.

(BB225)

17. Another view of man's transition through a long sweep of history is that of the shift in social values from one generation to another, such as is occurring in modern times. There is a shift, for example, from gerontocratic-meritocratic values to the meritocratic side, entailing shifts of power, which the young are impatient to assume and the old are relctant to relinquish. Difficulties affiict both old and young, in finding basic, anchoring concepts and values in a period when, for example, the influence of church and family are declining. (BM34)

18. This pattern recalls the reflections of Aristotle in the Rhetoric:

> Young men have strong passions, and tend to gratify them indiscriminately— They are hot tempered and quick tempered...owing to their love of honor they cannot bear being slighted, and are indignant if they imagine themselves unfairly treated...They love...money...very little, not having yet learnt what it means to be without it...They have exalted notions, because they have not yet been humbled by life or learnt its necessary limitations...They would rather do noble deeds than useful ones: their lives are regulated more by moral feeling than by reasoning...They think they know everything and are always quite sure about it; this, in fact, is why they overdo everything.
>
> (BP144)

19. This ancient passage is to be contrasted with the following passage from the same source, about elders:

> They have lived many years; they have often been taken in, and often made mistakes; and life on the whole is a bad business. The result is that they are sure about nothing and under-do everything. They "think" but they never "know" and perhaps because of their hesitation they always add a "possibly" or a "perhaps..." Further, their experience makes them distrustful and therefore suspicious of evil...They guide their lives too much by considerations of what is useful and too

> little by what is noble— for the useful is what is good for oneself and the noble what is good absolutely...They lack confidence in the future; partly through experience— for most things go wrong, or anyway worse than one expects...
>
> (BP144)

20. Walter Lippman, in his Early Writings tried to reconcile contemporary policy with enduring philosophy. He argued for a foundation of common beliefs which would bind the American people together and give them a philosophic root for their political decisions.

(BP342)

21. We note here briefly a few capsule analyses of American society, to be expanded in detail later. Maruyama, for example, believes that American culture has a fear of heterogeneity, reflected in the attitude that everything that is not standard-American must be Communist-inspired.

(BMI60)

22. Robin Williams indicates his belief that the United States has "several functional elites, performing different major sets of societal tasks." A highly differentiated society, it combines functional inequality with relatively rapid and massive movement toward "...a good measure of economic equality..[in addition]...to the civil and political equality won during the past three centuries." (BMI55)

23. Kurt Lewin diagnosed the American personality as a small core of private self, surrounded by a larger area of public view, not so easily hurt. He contrasted this with (for example) the German personality, in which the public area is much smaller and the private area much larger. He said the American personality needs include greater needs for adjustment, not so much to feed personal integrity and super-ego as to get along socially without friction.

(BB203)

24. This estimate is largely substantiated by David Riesman, who observes that the American need to get along with others is in a superficially

harmonious manner but without deep personal emotional commitments. Karen Horney (BB157) and Robert Lane (BB198) appear to agree.

25. With these initial observations on the social structure behind us, we turn to a series of views of what is happening in society, and later to general views of the future.

26. Charles Reich sees it this way:

> There is a revolution under way. It is not like the revolutions of the past. It has originated with the individual and with culture, and if it succeeds it will change the political structure only as its final act. It will not require violence to succeed, and it cannot be successfully resisted by violence. It is now spreading with amazing rapidity, and already our laws, institutions, and social structure are changing in consequence. Its ultimate creation could be a higher reason, a more human community, and a new liberated individual. This is the revolution of the new generation.
>
> (BB279)

27. On the other hand, Herman Kahn sees many social changes underway but insists that the Greening of America is not imminent. Kahn insists that if the Counterculture ideas represent a Reformation, then the 1970's will be the period of the Counter-Reformation. He points to the rise of fundamental religion as a harbinger of return to traditional values.

(BP222)

28. Irving Kristol describes current "radical chic" as a "pop" revolution which relies on songs, music, drama, film, and fashion to transform its society, stemming from discontent that is wide, deep, and authentic. Asking himself whether this movement is important, Kristol feels that it will certainly be strong enough to prevent any reversion to "normalcy." He sees the dynamism of the movement arising out of widespread yearning for a more intense and transcendent kind of experience than bourgeois society can offer. Ironically, points out Kristol, it is only in the bourgeois society that the radical young most fervently detest that young people possess the freedom to be their discontented

selves.

(BP238)

29. Daniel Bell holds that the most disintegrating force in society is the New Sensibility. Nihilist movements of the past, he points out, were restrained at least by the requirements for form, even in art. Now, form itself is attacked as meaningless. Authority is attacked, on the grounds that no man is better than any other; learning, because the past tells us nothing; discipline and specialization, for they restrict experience. Improvization is alleged to be more important than text, and expression more than idea. Sincerity is praised above quality of judgment. These assumptions, says Bell, have permeated for the first time a large mass which is not itself creative but presumes that its experience is as relevant as all art.

(BP33)

30. Toffler, concurrently, points out that the value we place on the retainability of "things" declines— e.g., Kleenex over handkerchiefs, paper wedding gowns, a trade-in policy for "Barbie dolls", and rental of almost everything. The same broad generalization can be suggested for "places"; e.g., increased travel, longer travel, more moves per lifetime, and increased "rootlessness"; and for people, more limited or specialized relationships, shorter relationships, less involvement, higher job turnover, and similar phenomena.

(BB355)

31. Amitai Etzioni gives credit to Karl Mannheim for identifying in 1949 the two sources of deep crisis in Western civilization:

- erosion of legitimation
- loss of meaning of the purposes of our acts and lives, of what is the "good life"

In any period, one pattern of social and political meaning is more central than all others, although others may exist concurrently as subcultures (like Catholic and Puritan movements in 17th century Anglican England). Western society is in a period of transition— not that one pattern has collapsed and is being replaced; but the old core is weakening, several subcultures are emerging,

and struggle ensues for the core position. The old core is unlikely to disappear; if successfully challenged, it will become a subculture, retaining form but not power. One of today's avant garde (changed in the process) will emerge as the new core. No one has yet emerged, but there are several contenders. The familiar core is waning: the legitimacy of modernity, especially of the capitalist-industrial variety, concern for this world, commitment to increased productivity, emphasis on discipline, achievement, austerity, objectivity, and rationality.

Note the questioning of science by the young, the search for jobs with more self-actualization than higher income, the frequent resort to extralegal means of political expression, questioning of "due process," and freedom of expression. (Note that our own modern capitalist pattern itself underwent a major transformation from early feudal, parochial, and ascriptive legitimacies to an "affluent society," shifting its stress on deferment of pleasure to gratification.)

Secularization cut off the fundamental religious anchor utilized by the early capitalist pattern; the work value changed from pleasing God and Salvation to being the means to affluence, and gradually achieved primacy as a core value, a form of hedonism. To this value for the individual, late-affluence capitalism added a rising collective value: nationalism. Now even nationalism is weakening in legitimation. All "higher demands" are being questioned in favor of individual development. A primary question used to be: Do those who work hard receive their just share of rewards? This still tied consumption to his effort.

The new primary question is: Need one work hard at all to secure rewards? Not just to reduce time spent in work but to also see that work be made pleasurable, or self-actualizing, or automated, or dropped. The deepest challenge is growing to the logic of universalism, impersonality, and rationality. Emphasis is growing on the particular and personal, the self and the emotions. This has far-reaching implications, including attempts to cut the ties between effort and achievement and pleasure and self-actualization.

Hedonism is a very old concept but a very new contender for central core status. It contains few prohibitions, endorses natural inclinations.

It "frees" man from norms but provides no alternatives. One's response to this movement depends on one's view of man's nature. It is regarded as more defensible if one assumes man is inherently good, echoing, among others, Maslow, Eric Fromm, N.W. Brown, Wilhelm Reich, and Charles Reich. One can cite Freud on the costs exacted by civilization; but one should not omit Freud's stress that if civilization is to be sustained, some repression is necessary.

The opposite view is that man's nature is largely beastly. One can cite Hobbes, Ruth Benedict, G.H. Mead, Talcott Parsons, B.F. Skinner, or even others who see man's nature as largely neutral and highly malleable.

Etzioni sees some benefit from some reduction of repression and social controls, but also recognizes the need for some measure of self-repression and societal-harmonization. Freud demanded too much repression, and Marcuse too little; but both recognized the need for some core legitimizing pattern. Etzioni joins them in this view. In this light, hedonism seems appropriate to relieve society, but not as a viable foundation for the future of the whole person or a stable society. Hedonism lacks legitimacy for routine, objectivity, and sustained effort, or the discipline needed to cope with complexity. It fails to recognize the great satisfactions available to the individual in serving others. Contemporary subcultures exhibit hedonistic primacy: for example, "Hefnerism," commercial hedonism of late capitalism, which combines with elements of liberation from sexual taboos; and radical hedonism, which combines liberation from sex taboos and liberation from consumer addiction. However, non-hedonistic elements also deserve attention.

Various subcultures are flourishing. There are three fundamental themes which are, says Etzioni, contending for core status:
literati subculture: a life style of nonpurposive and noninstrumental learning, with focus on self and avoidance of socially useful labor. Basis for a society with less competition, conflict, and tension. It offers no justification for efforts on behalf of justice or any other social cause.

empathetic subculture: Stresses positive relationship with others, on interpersonal and group level; concerned with quality of relationships and personal growth. Stresses individual and small group over society, but provides insufficient basis for future world.

political-activist subculture: Puts primacy on public political life, promotes active society, views public goods (justice, education, etc.) as prime societal source of meaning. Its chief danger is possible neglect of personal growth, quality of interpersonal relations, and aesthetic values.

Hence the third, the legitimating of the primacy of public life, together with strong secondary emphasis on interpersonal relationships, will probably provide the most viable new subculture. Thus, the hedonistic, literate, empathetic, and activist are four subcultures challenging the core status of capitalism, modernity, and nationalism.

(BP35)

32. Roger Shinn identifies population increase, technology, urbanization, the military situation of nuclear weapons, and the human rights revolution as the major elements which are having and will continue to have the greatest effects on values involved with an individual's responsibility in society.

(BB242)

33. Another view (Kalven) which reduces symptoms to a very few: Three changes in national culture that are already visible may bring as by-products dramatic changes in privacy: the decline of the family, the decline of religion, and the decline in the habit of reading.

(BP416)

34. Daniel Bell finds an even more stark priority: "The social and economic map of the United States has been redrawn more in the past twenty years by the influence of defense and defense spending than by any other single factor." (BP266)

35. Francois Duchêne echoes Richard Means on the necessity to analyze the impacts of social change accurately:

> The metamorphosis of the past two centuries has given men the ability to mold their environment almost at will, and transformed the condition humaine without their knowing quite what such power implies. The vacuum is less in the frequently quoted loss of traditional values, which are inapplicable today, than in the need to generate new ones, matching the changed character of society and the greater self-awareness of mankind. In the nature of things, changing all the time, 'solutions,' complete and definitive, do not exist.
>
> (BF6)

> The fragmentation of societies brings with it a diversification of values. We are witnessing the crack-up of consensus. Most previous societies have operated with a broad central core of commonly shared values. This core is now contracting, and there is little reason to anticipate the formation of a new broad consensus within the decades ahead. The pressures are outward toward diversity, not inward toward unity. This accounts for the fantastically discordant propaganda that assails the mind in the techno-societies. Home, school, corporation, church, peer group, mass media—and myriad subcult—all advertise varying sets of values. The result for many is an 'anything goes' attitude—which is, itself, still another value position.
>
> (BB355)

36. It is important, we believe, to retain perspective in that the erosion of unifying values has not occurred overnight. It is pertinent to recall that David Daiches was writing in 1939:

> One of the most outstanding features of western civilization in the twentieth century—and especially after the World War—has been the drying-up of traditional sources of value and the consequent decay of uniform belief... One by one the preconceptions of our fathers have been shattered, and instead of being replaced naturally with new beliefs as they die, they have been replaced by nothing...
>
> (BB82)

Social Systems and Social Controls

37. Harrison Brown:

> With increasing necessity and demand for efficiency, integration and minimizing of waste in the economic world, there will be increasing demand for efficiency, integration, and minimizing of waste in the social world. These changes will have marked effects upon the ways in which men live. It seems clear that the first major penalty man will have to pay for his rapid consumption of the earth's non-renewable resources will be that of having to live in a world where his thoughts and actions are even more strongly limited, where social organization has become all-pervasive, complex, and inflexible, and where the state completely dominates the actions of the individual.
>
> (BB50)

38. Bruce Mazlish ponders: how far can man guide social change?

> The real problem of man's future society consists in man's social relations with his own kind and the consequent unintended and unexpected results that arise from this relationship. We are still left with the fact that, while man can assume almost any shape by unconscious development, humanity is a pretty tough material to push into a foreordained and contrived form of social existence.

39. Some fundamental aspects of man's nature persist as blocks to radical changes in the human condition:

> -Alienation: even though economics and technology will come under control, other social processes will remain unconscious and unintended, dominating man from the "outside."
>
> -The limitations to any science of man: a system has to exist before the science that describes and regulates it can come into being.
>
> -Utopia and the questions of repression; the two would go together. "Man's own humanity is the limit to his conscious social change."
>
> (BMII8)

40. There is an increasing trend toward new power centers (education, armed services, science) in the United States rivaling traditional power centers. (BM43)

41. At the same time there appears to be a decline in acceptance of differentials of power which underwrite control of one person over another— perhaps some lingering acceptance of limited control or temporary control in job or role circumstances, but not total, permanent control (as in class relationships, elites and masses statutory "all-weather" relationships, etc.). There is an increase in the relevance of social-exchange relationships, not of group, or class, but individual, personal exchange of benefits. Social exchange, of course, works best when both sides seek equity for both sides.

42. At an extended symposium on man and his future, Julian Huxley provided an extended analysis of "Future of Man—Evolutionary Aspects."

- Evolution is a natural process of transformation, self-operating and irreversible, which in its course generates novelty, greater variety, more complex organization, and eventually higher levels of mental or psychological activity.
- Reality is, in a perfectly legitimate sense, a single comprehensive process of evolution. Massive deployment of scientific manpower can prevent disaster and ensure evolutionary improvements.

"Let me summarize my theme. First, we biologists have to think of the future of man in the unfamiliar terms of psychological or cultural evolution."

> Looking back, we see that evolving man has lurched from one crises to another. Great empires have collapsed, whole civilizations have been violently destroyed; thought has been muzzled, common people cruelly exploited, habitats ruined. One dominant phase of psychosocial evolution after another has reached a limit and has had to crumble and be remodelled or replaced if human advance was to continue. Yet in the long term there has been advance, and new advance has always sprung from new ideas, new knowledge and its applications.

> The present phase of the process is rapidly becoming self-limiting and self-defeating. If we fail to control our economic system, we over-exploit our resources. If we fail to control our population, we destroy our habitat and our culture. However, our increasing knowledge is indicating how we might remodel our psychosocial organization and escape from the apparent impasse.
>
> The new and central factor in the present situation is that the evolutionary process, in the person of mankind, has for the first time become conscious of itself. We are realizing that we need a global evolutionary policy, to which we shall have to adjust our economic and social and national policies.
>
> To succeed in this we need to reorganize our science—to switch the various branches of science out of their separate channels, and bring them together in a co-operative effort. In particular, we must switch more and more of our scientific efforts from the exploration of outer space to that of inner space—the realm of our own minds, and the psychometabolic processes at work in it. It is here that the greatest discoveries will be made, here that the largest and most fruitful territories await our occupancy. All branches of science and learning, from biophysics to social anthropology, from psychiatry to aesthetics, can join in this great venture of exploration...
>
> ...To me, it is an exciting fact that man, after he appeared to have been dethroned from his supremacy, demoted from his central position in the universe to the status of an insignificant inhabitant of a small outlying planet of one among millions of stars, has now become reinstated in a key position of advance in cosmic evolution.
>
> (BB374)

43. McHale has an extensive roster of recommendations about the future. To him, our highest priority should be placed on social invention, on re-evaluation and re-design of our social forms and possibilities (social organization, modes of individual and cooperative relationships, and decision making).

There are no local problems any more; sustaining the world community must take precedence.

> The scale of our global systems of material production and distribution, and of communication and transportation, has now gone beyond the capacities of any single nation or regional group to sustain or operate wholly. These systems require and are dependent upon the resource range of the entire planet for their material constituents, in which no nation is now self-sufficient. Each system is complexly interlocked with all others. And the whole is increasingly dependent upon the global interchange not only of raw materials and finished products, but also for the knowledge pool, comprising research and development, technical and organizational expertise, and the individuals who sustain and expand this knowledge...
>
> The next fifty years may be the most crucial in all of man's history. We have few guides to follow and almost no usable precedents. Many of the old moralities have suddenly become immoralities of the most devastating character. All our previously local actions have now been magnified to planetary scale. The knowledge with which we might make the correct decisions is barely adequate-- yet our gross errors may be perpetuated for many generations...
>
> The immediate and most necessary task is the exploration and methodical investigation of all avenues and approaches to the future. These range from reevaluation of the past, to the study of human trends and needs in the present, to the projection, forecasting, and imaginative construction of a plurality of individual and social futures...
>
> (BB212)

44, Weber and Durkheim, says McHale, tell us that moden man may find solace only in allegiances to larger solidarities; the way toward individual security lies in collective normalcy, the restoration of norms, and binding customs; and social health lies with emphasis on group, with conformity.

The reduction of individual anxiety and alienation may be inherent in the particular group, community, or society. Their emphasis remains with society today; the social institutions and directions that receive academic interest and official support have been those identified with stability and integration rather than change and creative innovation.

The latent fear of individually fallible reason per se is displaced by an absolute trust in the security and value neutrality of instrumented process or in a systems mystique whose scientific laws are taken as both moral force and infallible truth.

Our ongoing change patterns amount to an ecological revolution; we must move to assume conscious responsibilitity for the overall stewardship of this planet. The tendency within such approaches is that once the whole is viewed as a system, meaning becomes detached from the human action and is imputed to operations of the system; but man and his evolving needs, desires, and expectations must be regarded as superogative to any system.

(BB212)

The Technetronic Society

45. These are said to be the characteristics of the technetronic society:

- industrial employment yields to services, with automation and cybernetics replacing the operation of machines by individuals
- instead of problems of employment and unemployment, questions relating to the obsolescence of skills, security, vacations, leisure, and profit-sharing dominate market relationships
- universal education and availability of advanced techniques
- political elite challenges urban-plutocratic elite
-university as "think tank" for planning
- changeable, disparate views of reality instead of ideological systems
-participatory decision-making
- "mass" society unmediated by groups, but aggregating individuals

(such as television).

- interdependence of government, science, and industrial organizations. Economic power becomes inseparable from political power.

- adaptation of science to human ends and concern with quality of life replace materialistic aims.

(BB54)

46. There follows a series of capsule views on technological or (technetronic) society, technology's effect of values, and technology's effects on social and occupational structures.

47. Toffler: Future shock is physical and psychological distress that arises from an overload on the human organism's physical adaptive system and its decision-making process. This is caused by mobility, transience, and an overabundance of goods and ideas. It extends the "range of freedom and opportunities" for self-realization; but it is this very freedom that creates both social and psychological problems, by challenging all the old integrative mechanisms.

(BM68)

48. Marcuse: Technological society sells itself to the people. It operates through the manipulation of needs by vested interests, so that people recognize themselves in their commodities. They are not alienated. A pattern of one-dimensional thought arises where all oppositional elements are incorporated within the society and where higher culture becomes part of the material culture.

(BM68)

49. McLuhan: The electronic age is a new basis for sound integration. Cybernation and electronics bring a world of autonomy and decentralism. It is also an age of the circuit, an integrating process. This age creates instant involvement with each of us in all people. Today the problem of identity is one of abundance and superfluity.

(BM68)

50. Lifton: A new type of man will emerge, Protean Man, whose life style is characterized by an interminable series of experiments and explorations, each of which may be readily abandoned in favor of still newer psychological quests. This is caused by a breakdown of traditional cultural symbols and the influence of the communication networks. Large organizations become substitutes for traditional institutions, as do intense personal relationships. Man is drawn to change and newness.

(BM68)

Protean Man constantly invents new identities for himself as he flees from the smell of death that emanates from hollow institutions and decaying values.

(BN373)

51. Brzezinski: Technology presents a challenge to democracy, in that adaptation of technology to democracy (and vice-versa) requires effective mobilization of the ablest. Hence, the challenge is to construct a society in which respect for the popular will is combined with an important role for specialists in decision-making.

(BM68)

52. Jaffe and Franklin: Changes in the occupational structure result from unequal rates of growth of different industries, rather than from changing skill of educational requirements. For example, the percentage of professional workers within the educational services industries remains the same, despite the great growth of the number of professionals in the industry. Furthermore, in industries undergoing the most rapid technological change, one-half to three quarters of the workers have less than a high-school education. High unemployment rates among dropouts are due to employer preferences for the better educated rather than the requirements of the jobs themselves.

(BM68)

53. Keniston: The primacy of technology leads to the subordination of the affective side of life and to the failure to provide "objects worthy of

commitment " In the face of chronic change, there is but a limited human capacity to assimilate change. Identi y confusion results. The absence of enduring values results in the lack of a sense of self. Work, cognition, and public life are dissociated from family, feeling, and fun.

(BM68)

54. Change and conflict appear to be the most pervasive themes in the literature on the contemporary effects of technology on values. Albert argues that change and conflict are basic to all value systems and do not lead inevitably to social or personal disorganization. Rather, the result may be a reintegration of values "to suit the realities of changed conditions." While technological and social changes have raised some questions about traditional American values, "readjustment has not yet been made to the modifications in the contents and relations of the values of economic success, progress, self-reliance, and high moral character." Mannheim contends that because of the rapid growth of society, and the transitions from a pre-industrial to a modern world and from primary group relations to large group relations, the social factors upon which "the smooth working of the process of valuation depended" have been displaced. The growing number of contacts between groups also contributes to increased consciousness of values and to the value crisis. Re-education and democratic planning are needed to help overcome these problems.

(BM70)

55. It is predicted that as a result of technological change, and increased availability of goods and of leisure, men will have more freedom from necessity; there will be a decrease in the demands made upon the individual. Continual innovation and disruption and the continued decline of both ideas and expectations concerning American democracy and the influence of traditional religion will characterize the future society. The response will be heightened alienation and aggression against society. But this "affluent, humanistic, leisure-oriented and

> partly alientated 'society' might be quite stable." Rescher attempts to predict which values will be "upgraded" and which will be "downgraded" in response to future economic and technological changes, which will make some values easier and some more difficult to realize. Applying a cost-benefit approach to this question, he concludes that mankin -oriented values, intellectual virtues, rationality, group acceptance, social welfare, social accountability, order, public service, and aesthetic values will be upgraded, while nation-oriented values, economic and personal independence, self-reliance, self-advancement, individualism, economic security, and optimism will be downgraded.
>
> (BM70)

56. Furthermore, some things have happened or are happening that change man's relation to his universe in ways that may be unsettling for many people. For example, the inventions of nuclear weapons and intercontinental delivery systems have probably made human life permanently more precarious, and have introduced into international relations a new level of potential horror that is difficult even to imagine with any precision. At the minimum they provide any who wish for it a good excuse for aimless drifting or horrified resentment; in addition, they are ample reasons for both realistic concern and widespread neurotic anxiety and despair.

(BB170)

57. Bell: Modern culture "is today at the point of breaking up all fixed points of reference." The technological revolution, Bell maintains, has produced not only a revolution in production and communication, but also in "sensibility"; both "physical and psychic interaction" have increased, experience has replaced tradition as the source of understanding and identity, and a desire for change and novelty has emerged. Increasing specialization has given rise to many subcultures and "it is difficult to find common symbols of meaning to relate one experience to another." Slater, too, discusses the ramifications of specialization and mobility. Mobility and change he argues, have led to the development of "temporary systems" in which other-directedness and "interchangeability" be-

tween persons have become the order of the day, and permanent systems of social control are ruled out. Kluckhohn points out that the increased other-directedness is really a surface conformity which appears to be necessary in the face of uncertainty and complexity. In his analysis of changes in American value patterns, he notes that, while the machine has become a model for human behavior, there has also been a rise in concern for psychological well-being and a heightened interest in religion and explicit values. But just what the nature of conformity and other-directedness is, and whether it has been increasing in American society, is a subject about which little can be said with certainty, Williams points out, since the data on value change are not adequate. More effort must be made in value analysis, he argues, because values are today more important in the initiation of and rationale for public policy than had been the case in the past. Because of our scientific and cognitive orientation, values are also more subject to questioning and reformulation than in earlier times.

(BM70)

58. Lone: The new importance of knowledge is of concern. He argues that our political norms and values have been changing because "the political domain is shrinking and the knowledge domain is growing, in terms of criteria for decisions, kinds of counsel sought, evidence adduced, and nature of the 'rationality' employed." There has also been a reduction in ideological and dogmatic thinking. But knowledge is a factor that ultimately produces disequilibrium, since it "creates a pressure for policy change with a force all its own."

> Yet another value problem attached to planning concerns the role of the social scientists who will help to guide policy choices. Two essays by Gouldner explore the problems that surround the objectivity of social scientists. In his first essay, written in 1962, Gouldner attacks the notion of a value-free sociology, by pointing out that this conception has been used by those social scientists who want to escape from the world and by those who to justify the sale of one's talents to the

highest bidder. Scientific objectivity, he asserts, is not the same as moral indifference. Six years later—in 1968— he argues that the acceptance of the myth of a value-free sociology is being replaced by the equally glib rejection of it; the partisan social scientist is replacing the non-partisan. The liberal value system of these partisan social scientists must be examined critically, rather than smugly accepted. Underlying the prevailing professional conception of truth as objectivity, he notes, is an image of wholeness, a longing to overcome the multiplicity of shifting perspectives. But the current partnership of liberal sociologists and welfare bureaucracy cannot transcend the immediacies of narrowly conceived political commitment.

(BM70)

59. It is time to reexamine our entire web of thinking about work, agriculture, and our world's way of life that is based upon them.

The present world game (aimed at maximizing material wealth and power) has been nearly played out. We should replace it with a game whose goal is to maximize the quality of our environment.

(BN224)

60. According to Means, the configuration of the value order of society is itself the moral order. This order will —- indeed, must— change; and the description of the broad general choices we face may aid in that change. But the hopes of an orderly change lie in identifying the true objectivity of the value order emanating out of the reality of society and social choice itself.

(BB225)

61. Work is no longer the central life interest. Many of the hitherto marginal activities of man are those around which the more central social institutions may regroup themselves; e.g., education, previously thought of as preparation for living, is now more pervasively viewed as an ongoing aspect of living itself. More characteristically, a number of co-existent but

exclusive life styles may be enjoyed at the same time.

Autonomism has been somewhat overemphasized; it has been used more as a crutch to avoid responsibility; that is, it has been assumed to be inherent in the system and beyond individual control.

McHale continues: The separation between utility and life style may be seen at its greatest autonomy in military life, where the trappings, practices, and minute differentiation of ranks, styles, and ceremonial observances bear little or no relation to military ends of actual warfare.

(BB212)

62. As each of us comes to believe that he is potent, say Farson, he will demand the right to develop and fulfill his potential. Simply by virture of his humanness, he will demand the right to experiences that have in the past been considered luxuries to be enjoyed by the few. For the high school seniors of 1984, the good life will be focused on experiencing their humanness; their values will be experiential, rather than utilitarian, and the purpose of life will not be to use themselves for ulterior goals, but to experience themselves; not to use others, but to experience others; not to use their environment, but to experience it in the fullness of its possibilities for richness and beauty.

(BF13)

63. Daniel Bell predicts that social ferment will increase because of sheer increase in numbers of people, and confrontation for the first time with the formation of a genuine national society. Pervasive is the effect of increasing education, which provides wider and deeper bases for questioning the prevailing values in any society.

64. Means takes up the role of the middle class:

> I have avoided social prediction in considering the tax structure, but let me say here that I am convinced that, if there is a serious economic and political revolt in the future, it will come not from the poor,

but from the middle class. As middle-class Americans, expecially the professional, educated class, begin to understand the inequities of our tax system, they will rise up in concerted political action. Part of this will be due to the fact that their own self-interest is involved. But I believe there will be other reasons as well. Although to be anti-middle class is now the anti-Semitism of many intellectuals, the fact that in Western Civilization the middle class has been responsible for much of the morality that values the creative man may have its effect in the long run.

(BB225)

65. William Pfaff has a pessimistic view of what is likely to develop over the next thirty-five years. He argues that Fascism is not a deviant case completely outside Western civilization and tradition. Just as pollution is part and parcel of the industrial process, he considers these irrational manic movements part of the process of acculturation, not only as messianic movements but as reactions to increased rationality and technological control. He expects to see many such movements and describes places where they might occur. The argument is persuasive, although the result is not necessarily likely to happen.

(BM138)

66. Herman Kahn argues that we need a moratorium on certain kinds of change in our society if we are ever to reach 2000. The real tough problems of the future involve understanding the interrelatedness of psychology, sociology, economic costs, and long and short-run consequences. The effects of the present rate and direction of change may drastically alter the course of human life on this planet, not necessarily in desirable ways.

(BP266)

67. Many steps have been attempted at coordination. The typical and impressive attempt occurs in mid-1972, when a UN conference on Human Environment took place at Stockholm. The preparatory meetings called for a major reorientation of man's values and redeployment of his energies and resources,

with recommendations for international and national action.

Already this conference has elevated expectations by accelerating negotiations for international conventions, designing a "declaration of principles" constituting the first attempt by the nations of the world to agree on standards of international behavior and responsiblity regarding the environment.

(BN346)

The Work Ethic

68. We narrow our broad scope temporarily at this point to focus on one critical aspect of the interaction between technology and values in a changing society; that aspect is work, and evolving attitudes toward work.

69. For example, the post-industrial society is likely to require an enormous expansion in learning, not necessarily through formal education. In turn, work itself will be organized for its educative value rather than education being organized for its value to work.

(BM94)

70. Farson comments that, "Curiously, we don't ask "Does it work?" of the things that we value most. We never ask that of a sunset, of a symphony, of a love affair. We believe these experiences are in some way enriching, of value in and of themselves. "It is my guess that we will ask this utilitarian question less and less often; for I think we are discarding the value system, derived from the Protestant ethic, in which work is an end in itself."

(BF13)

71. As discussed later, one could easily imagine that many Americans from normal (i.e., not deprived) backgrounds will increasingly adopt the first position, that work is an interruption, while many formerly in the lower and economically depressed classes will increasingly shift to the second or third positions which reflect more work-oriented and achievement-oriented values. On the other hand, the man whose missionary zeal for work takes priority

over all other values will be looked on as an unfortunate, perhaps even a harmful and destructive neurotic. Even those who find in work a vocation are likely to be thought of as selfish, excessively narrow, or compulsive.

(BBI70)

72. This table attempts to correlate attitudes and values concerning work in the Post-Industrial Society.

(BBI70)

Basic Attitude Toward Work As:	Basic Additional Value Fulfilled by Work
1) Interruption	Short-run income
2) Job	Long-term income--some work-oriented values (one works to live)
3) Occupation	Exercise and mastery of gratifying skills--some satisfaction of achievement-oriented values.
4) Career	Participating in an important activity or program. Much satisfaction of work-oriented, achievement-oriented, advancement-oriented values
5) Vocation (calling)	Self-identification and self-fulfillment
6) Mission	Near fanatic or single-minded focus on achievement or advancement (one lives to work)

73. We could think of this phenomenon as a shift to humanistic rather than vocational or advancement-oriented values, and conjecture that this tendency will increase over the next thirty-three years. Indeed, unless there is a surprising interruption in the exponential progress of prosperity, sensate-humanist, and epicurean values almost surely will come to

dominate older bourgeois virtues, and may even return, in some respects, to criteria that antedated the bourgeois element of the multifold trend, which has been a driving force for more than five centuries.

(BB170)

74. Duchêne puts it this way; Anything which seems important enough for some people to concentrate their energies on it, and for society to encourage them, of itself constitutes "work." Work, in fact, is any substantial activity supported by society— for instance, chess.

(BF6)

Ever-Expanding Change

75. It is quite possible that the next great age of science will be dedicated not to the study of the "outer" world of nature, nor to the "inner" world of the psyche, but to an interface between the biological/neutral imprints and the stimuli that constantly bombard them.

This new science— we might call it the third science— may come up with a working field theory of a man/world hyphenation, just as our contemporary physics has expressed the equivalence of mass and energy and space/time and as psychology has come up with the mind/body concept.

We would say that the development of this third science is a foreseeable unforeseeable; that it will ultimately come to pass appears to have high probability; that it will come to pass in the next two decades seems to have a low probability.

(BM51)

76. Research on the structure and function of the brain, the development of pharmacological and physical agents to alter human behavior and states of consciousness, the possibility of the alteration of genes, unforeseen ecological effects of attempts to control specific diseases or environmental problems— all raise new questions about human values and social organization. Until recently it has been possible to regard science as the servant of man and

his values; its main function has been the preservation and enlargement of certain basic and recognized notions of human values. Biomedical engineering, however, raises the possibility of substantial changes, intended and inadvertent, in the source of these values— the mind, the nature of human relationships, and the physiological potential of man. The deliberate or accidental alteration of human behavior or our genetic heritage is a possbility whose consequences cannot be overstated; the human brain is a complex mechanism that cannot be manipulated easily. What may be seen as such a manipulation could affect the public's perception of science, the scientists' view of their role in society and their moral responsibilities, and the structure of the biological and medical professions.

(BP416)

77. We may be able to use drugs to perform localized "chemical surgery" to remove from man's brain life's inevitable painful memories and so release man's present and future from crippling memories of his past.

(BM94)

78. [This would indeed constitute a dubious benefit. Loss of memory of one's past would seem, among other objections, to remove one's consciousness of continuity, perhaps of identity.]

79. Arthur Koestler, in The Roots of Coincidence, contends that one can no longer deny the experimental evidence for telepathy and some ability to foresee the future. There is more than chance in the common coincidences of daily life. "There are other levels of reality that those we see with the eyes of the common man or scientist." Koestler appeals for opening of new lines of investigation— or rather, appeals for pursuing openings that are already there but are blocked by prejudice.

(BP334)

80. Some reject the notion of unrelenting, unceasing change and progress. One is Professor Gunther Stent, a molecular biologist at the University

of California. He says we are approaching the end of progress in all artistic and intellectual disciplines. The solutions of most solvable scientific problems are now envisioned (the others are uninteresting, or are seen to be impossible to solve). If nuclear war is avoided, there will be a universal diminution of the will to power. Life will become a sort of Polynesia, with enough "drivers" to keep the social machinery working and the rest of mankind supplied and contented.

(BB338)

81. Another somewhat bizarre prediction is that what we may actually see, particularly as the result of new educational techniques, is the growth of an ultimately bored society, engaged in intellectual games.

(BM61)

82. We may begin to summarize this general introduction to prediction.

83. McLaren says two problems dwarf all others: the possibility of nuclear war, and the extent of hunger. No one forecasts nuclear war. All the experts conclude that we could feed the world if we tried. Yet little hard thinking has emerged on the basic question of how the world is likely to develop economically. A welfare world can hardly be expected by 1984; but if it ever comes to pass, it will surely be through pressure of economic forces, rather than through such events as a take-over bid by scientists for world government, or through messianic intervention.

84. A comprehensive yet concise summary of general prediction has been provided (BB53) by Nigel Calder, examining general and specific changes, and possible global, social, and individual effects. His summary is provided in a three-part table of major technological revolutions, evolutionary changes, and conflicts and choices.

85. Most of the specific entries in these tables will be considered in detail in later sections of this study report.

86. TABLE A MAJOR TECHNICAL REVOLUTIONS

Character of change	Technical aspects	Possibilities arising	Effects on the individual	Social aspects	Global aspects
1. Revolution in information-vast increase in computing and telecommunications capacity, and wide use of electronic storage and retrieval of information.	Computers a good deal faster and easier to 'converse' with. Computers linked in nation-wide and world-wide networks. Messages by computer network (in digital code). Big increase in communications using millimeter radio, laser beams or communications satellites.	Television-telephones. 'Dialing' for news, books, etc. World-wide weather and disaster warning services using satellites	Ready access to information (a data store in the home?). Close surveillance by government computers? Use of television links instead of business travel.	'Abolition' of libraries, paperwork and typists. Wide use of computers in every field of activity. Increase in local broadcasting. No more newspapers as we know them?	World-wide instantaneous reporting Language translation. Big investment in communications (but increasing nationalism in these services?).
2. Revolutionary consequences of biology.	Understanding of living systems, including the human brains. Manipulation of genetic structure. Development of "bio-engineering." Understanding of aging process.	'Biochemical machines' for food production, energy transformation, chemical manufacture, and information storage. Alteration of cell heredity. New engineering controls modelled on biological systems. Transplantation of organs and wide use of artificial limbs and organs. Modification of the developing brain. Conquest of viruses, heart disease, and cancer?	Longer life. Better treatment of mental disease. Inhibition of aging or 'medicated survival'? Loss of individuality by surgical implantation?	Better understanding of human behaviour. Need for moral criteria in biological manipulations. Danger of a racket in transplantable organs. Danger of 'mind control.'	Understanding of complexity of living systems. Opportunities for enlarging food production.
3. The beginning of the exploitation of the oceans.	Fish-rearing and transplanting. Fish concentrators. Mid-water trawls Working on the seabed at 600 fathoms. Obtaining minerals from sea water and the seabed.	Use of 'new' protein sources (squid, red fish, Antarctic krill). Control of weather and climate by warming and cooling sea water?	New way of life for some. Better coastal resorts and seaports.		UN ownership of ocean floor/ UN surveillance of climate-control experiments?
4. New forms of energy.	Big increase in generating efficiency (including 'MHD' methods). Wide use of fuel cells as small power units and for energy storage. Growth in nuclear (fission) power. Demonstration of power generation by controlled by controlled fusion.	'Footloose' industries. Large-scale desalting of water.	Fuel-cell generators in the home. Fuel-cell batteries for cars.	Decentralization of power generation? Quieter road transport.	Shift of populations to regions where water and conventional energy sources are scarce.

87. TABLE B EVOLUTIONARY CHANGES

Pattern of change	Some factors	Some consequences
1. A continuing race between food and population.	50-60 per cent increase in world population. Conquest of some major diseases leading to 50 per cent increase in expectation of life of children in poorer countries. Food production unlikely to keep pace in poorer countries of Asia. Less land will be required for producing materials that can be synthesized. Farming becoming a 'science-based' industry in the richer countries.	Agrarian reform required in many of the poorer countries. Increase in food exports from richer to poorer nations. People will have to eat unaccustomed foods. Huge investment in water supplies required.
2. General industrial progress including automation.	Extensive use of numerical control in high-speed automatic workshops. Greater use of automatic aids in aircraft, ships, trains, and cars. Use of 'designed' materials in engineering, including very strong steels and biological-like composite materials. Energy use more than doubled Three- to four-fold increase in air travel (?) and a big jump in air freight. Five-fold increase in petrochemical production	Prosperity linked with investment in automation. More 'scientific' management and closer links between science and industry. Opportunities for decentralization with small-scale automated plant. Fewer workers on the land and in factories; more in service, marketing, and research activities. Growth in the middle class. Glorification of 'work' cannot endure.
3. Growth in knowledge.	Mathematical theories of complex systems. More plausible theories of the universe and the fundamental particles. Possible surprise from landings on the moon and from biological exploration of Mars. Understanding of the dynamical processes of the earth's and the sun's weather. Knowledge of the Earth's upper mantle. Emergence of the social sciences. Growth in biological knowledge as in Table A(2).	
4. Life even more oriented towards the family and the home.	New materials and labour-saving devices. Domestic robots 'Ideal climate' in the home. Almost limitless access to information from the living room. Growth in automatic merchandizing.	Higher status of women.
5. A great advancement of education.	Recognition of the economic importance of education. Wide use of teaching machines, programmed instruction, radio, and television. Development of better methods of teaching. Growth in adult education and re-training Emphasis on science and technology in the poorer countries.	Wider literacy (90 per cent of world's children at school compared with 50 per cent today). Teaching better suited to the individual student. Broader-minded education and more humanistic teaching of science. Re-assessment of the role of the teacher.

88. TABLE C CONFLICTS AND CHOICES

Points at issue	Relevant scientific factors	Social and political factors
1. World development: is it going to happen fast enough to make the poor richer?	Technical knowledge could have spectacular effects (e.g. in health and agriculture) if the resources were available to apply it.	Will the gap between rich and poor countries widen or narrow? 'Furious crusade' against poverty needed? Better conditions of trade for poorer nations? Trading groups among poorer countries (federation?). Social revolution needed, e.g. in Latin America?
2. International relations: war, cold war, coexistence or co-operation?	Thermonuclear war would be disastrous. Spread of 'independent nuclear deterrents'? Bigger international scientific effort—in laboratories, weather centres, space exploration, etc. Development of 'peace research'.	Numerous small conflicts. Racial conflict. Rich versus poor nations conflicts? Increasing nationalism and isolationism? Increasing trade. International commercial enterprises. 'Middle path' for less developed countries? Scientists as peacemakers?
3. Government: will it be more or less democratic, more or less rational?	State power increased by big computers Danger of 'mind control'. Computer simulation and operational research in policy-making. Possibility of 'instant' polls of the whole population on current issues. Increased scientific advice for government.	More far-sighted and 'logistic' outlook in government. Increased knowledge of facts narrowing the range of choice. More 'professional' politicians: more critical electors. New political theories?
4. Ecological attitudes: what will become of the natural environment.	Continuing pollution? Wild life doomed except in reserves? Better knowledge of soils and biological interactions.	Wiser planning of land-use and landscapes? More use of land for recreation.
5. Cities: squeeze or sprawl?	Urban studies advancing. Better means of transport of restrictions on traffic? Very cheap buildings leading to impermanence?	Vast growth in cities (Calcutta 30 million?). Turmoil in and around many cities. Cities centered on universities? Or airports?
6. The individual in 1984: will he enjoy life?	Increase in neuroses. More use of behaviour-influencing drugs. Malnutrition from eating the wrong foods? Invention of new gambling games.	Not much shorter working week, but longer holidays. More crime? More generous provision for the old and the sick Disenchantment about economic growth? Need for a secular morality? Need for 'the humanities' to question ends and means.

ETHICS, MORALITY, & RELIGION

Ethics and Morals

1. A major area of philosophical interpretation of past, present, and future is that fundamental area occupied by ethics, morals, and religion. Among other functional areas affected, the military is not least; for sustenance has long been derived from religious and allied ethical sources by military men, as is attested heavily in military literature. Change is relentlessly stalking this fundamental area, as the following citations indicate.

2. Professor Jack Douglas offers this basic observation:

> Man is necessarily a social animal. Without society, man cannot exist; without society, he cannot fulfill himself. Since we must have social order to exist, but cannot achieve it by simply living naturally, it becomes a crucial problem of our existence which we must solve if we are to exist at all... Shared rules are the most crucial social meanings involved in constructing social order... While there are now important changes taking place, more rules have been the most important rules in constructing social order in Western societies. Even governmental and organizational legal rules, which have been growing rapidly in importance in this respect for centuries, have normally been ultimately based on commonly shared moral rules. Ethical rules, which now appear destined for ascendancy in the not distant future, are still dominated by moral rules... (BB90)

3. The premises of Professor Douglas raise immediately the spectre of the dilemma posed by the publication of one of the most controversial books of 1971-1972 B. F. Skinner's Beyond Freedom and Dignity. The scope of Skinner's argument extends over other dilemmas we shall discuss (e.g., the individual vs. the collective), but here we are concerned primarily with the moral issue. Is man wholly, preponderantly, or partially conditioned by his environment? Does scientific and empirical evidence, such as we have, support the deterministic

dogma? Or does man exercise some, much, little, all, or no degree of free choice, free will? On this question hinges the degree of responsibility for his actions that can be ascribed to each man.

4. Skinner's book recalls his earlier work, Walden Two, about a community in which the following conditions prevailed:

communal ownership; egalitarian relationships between men and women; devotion to art, music, literature; liberal rewards for constructive behavior; and freedom from jealousy, from gossip and from the ideal of freedom. Skinner seemed to be saying that man must be conditioned to want what serves the interests of the group. (BP79)

5. Thus, Skinner's technology of behavior is a form of control that aims to change the environment rather than people; to alter actions rather than feelings; and to shift emphasis from the world inside man to that outside him. Rewards are given to encourage the subject to conform to the experimenter's will.

In a world in which ethics still exert force, one eventually confronts an ultimate dilemma: What are the sources of the standards of good and evil in Skinner's ideal society? Perhaps needless to record, Skinner's views have been opposed, in the open-ended argument about free will vs. determinism. For example, Rollo May believes Skinner to be a totalitarian without fully knowing it. Arthur Koestler says behaviorism is "a monumental triviality that has sent psychology into a modern version of the dark ages." Carl Rogers holds that Skinner has never been willing to recognize the inner experience of choice, which exists and is very important. (BP379)

The "Skinner incident" serves to introduce some of the basic ethical dilemmas of modern times.

6. Are most or many men interested in ethical questions? Janowitz says, "on the moral plane most men are members of the larger society by virtue

of identifications which are mediated through the human beings with whom they are in personal relationships." Only a small proportion possessing special training or particular kinds of personalities are capable of giving a preponderant share of their attention and concern to symbols of the larger world. (BP375)

7. Another echoes William James in pressing for a "moral equivalent of war," especially in a nuclear age. The same is true for economic gain, in that it has become increasingly difficult to make a fortune but easier to make a living. Therefore, we will also need a "moral equivalent of the economic game." (BBI27)

8. Boulding takes up the question of whether we can and should "take the social sciences seriously." He concludes that we both can and should, although this might pose a threat to traditional values and institutions. "Science is corrosive of all values which are based exclusively on simpler epistemological processes." The ethic of science and the ethic of other subcultures often conflict. But such incompatibilities can be sustained and may even be creative. (BM70)

9. Means offers these observations:

> More practical and mundane factors, such as man's greed and struggle for power, often lay behind the exploitation of resources. Yet the role of religious ideology was surely central in shaping our national attitudes toward nature. This means that as our economic and technological relationship to nature changes, we will be forced to reconsider our basic value position. I fail to see how any real social progress can be made until this is clearly recognized; and I believe that in some quarters at least the process of re-evaluation is already taking place.
>
> For example, the 'God is dead' movement represents many faces of contemporary intellectual life; however, in its repudiation of the transcendence-of-God idea and its attack on the notion that 'God is out there,' there is also a tendency to

bring spirit, or God, back into nature—that is, to connect religious experience with the natural world of secular and daily experience. In revolt against the anti-nature, miscientific repudiation of the secular world implied in neo-orthodoxy, the 'death-of-God' theologians are belatedly rediscovering the role of physical and biological nature in human affairs. They see this dimly, under a cloud of romantic mysticism, but the direction of their thought is, I think, concerned with a new appreciation of nature in religious thought.

There is also a kind of nature mysticism to be found in the hippie revolt against contemporary society. Although the elements of personal escape, anarchistic self-indulgence, and outright psychosis are present in the contemporary adolescent revolt, there is a primitive religious element as well which at the very least demands understanding. (BB225)

10. Over and over again the popular argot grapples for aesthetic expression. The word 'beautiful' signifies the highest approbation. Much of this may be a reaction to the ugliness of our civilization. The young, who are usually more perceptive than we give them credit for being, find that one way to live in the present situation is to 'tune in, turn on, and drop out.' That this reaction may contain a dim perception that our typical view of nature is at fault is suggested by the liberal and often distorted use of the language of Oriental religion, of Zen, of peyote worship and nature mysticism found in the hippie-LSD cult. These reactions are, I maintain, symptomatic of the fundamental issue of man's relationship to nature. The fact that such movements have arisen in contemporary society indicates that we are confused and uncertain about our contemporary evaluations of nature.

...If American evaluations, commitments to the objects of value, are based on a content that is rigid, archaic, and tied to views that enable us to rationalize destruction, these values may prove unethical. At the very minimum overintellectualization of our understanding of self, along with a simple-minded acceptance of our right to exploit nature continually and to

> treat other human minds as machines, is to create within our national life a substratum of unethical values that, in turn, create and reinforce our social problems. They are potentially unethical because their perpetuation will lead to war and military destruction. Thus history and any sociological constructions claiming to predict the American future are, even if a technical question, also ethical issues par excellence. (BB225)

11. We may not value the complexities of historical truth enough to contrast it with popular historical mythology. This would have great consequences for our actions in the future and any successes we may have, or fail to have, in understanding the two-thirds of the world that is, for better of ill, undergoing the social revolutions of nationalism and industrialization. (BB225)

12. Some authors view the lack of unity and relevance in modern value systems as tied to the need for more planning and a more collective orientation. Thus, Green argues that the current crisis of values is a crisis in the way in which values are experienced. This occurs because the traditional moral rhetoric is no longer relevant. While our values still hinge on individualist assumptions and morality is lodged in the individual, the moral agent today is the public agent. Effectiveness depends upon corporate and social action, and institutional means for holding people accountable must be developed. Hardin argues similarly that individualism and laissez-faire must be abandoned. What was moral a hundred years ago is no longer feasible today. In the densely populated society of today, "mutual coercion mutually agreed upon" is required, and "freedom is the recognition of necessity." Both Ferkiss and Schiller also argue the need for a more collective orientation and for consideration of the longer-term and ecological consequences of social decision. Social planning and greater control over both the environment and the individual are required; and individual fulfillment must take place within a societal context. (BM70)

13. Such value relativism may be further stimulated by the important role of scientific and theoretical knowledge in modern society. Both the scientific worldview and the specific knowledge which it generates have an important impact on values. The scientific ethos seems to be producing a cultural climate in which more and more assertions and beliefs are being subjected to scientific testing. As a result, we may be faced with the irony that although meaning and purpose-oriented explanations of the universe may be more needed today than in the less complex societies of the past, the characteristic attitude of science in 'eschewing the more fundamental, the more "metaphysical" issues' may have become sufficiently pervasive as to render unlikely the acceptance of such explanations. In addition, the growth of knowledge about social phenomena has an effect on how men perceive themselves and their societies. As Robin Williams has noted: 'A society in which the store of knowledge concerning the consequences of action is large and is rapidly increasing is a society in which received norms and their "justifying" values will be increasingly subjected to questioning and reformulation.' (BM70)

14. In this connection, Roger Shinn argues: An ethic requires a scientific awareness of empirical evidence and an equally scientific readiness to project new possibilities and courses of action. The artist and the prophet should be part of this process. (BB242)

15. Thus, there arises a widely accepted criterion for ethical decision-making:

> One (individual, government, organization) is obliged to act in such a way that the fundamental values of freedom, justice, and security/survival are respected. In cases of conflict, one is obliged to act in such a way that any limitation of one or more of the three fundamental values— a making of exceptions to the rules concerning these values— continues to respect the values and can be justified because it promises to increase the balance of good over evil. (BM22)

16. This leads to a series of various capsule views on the ethical priority to be accorded to individuality and individual freedom within modern society.

17. Shubik: Population growth, accumulation of knowledge, speed of technological change, reduced individual potency, and the ability to make rational and informed choices— all affect the reality of freedom as choice. Democratic theory, which rests on a belief in rational man exercising real freedom of choice, is called into question. This calls for new concepts of freedom.

18. Hardin: A new definition of freedom is needed which accords with complex society. Individual freedom's appeal to individual conscience, for example, cannot cope with an exploding population problem. A new definition is suggested: Freedom is the recognition of necessity, and all must accept mutual coercion mutually agreed upon. (BM68)

19. Nisbet: Individuality of ethical decision-making is threatened by technology. Decision-making is being transferred to the machine.

20. Pool: Computer-linked media of information and entertainment will produce individualized media. This will complicate the process of gathering political support behind an issue or candidate, and lead to a more individualized society. There will be a change from a conformist to an atomized society. (BM68)

21. Wilkinson: Technological means have become ends in themselves, and quantity drives out quality. Man is a slave of the machine. Moreover, as decisions or outputs of one computer become the inputs of another, human values are excluded. (BM68)

22. Mumford: The machine is not being used as an instrument. It has become an absolute. Our inner world becomes progressively meager and formless. Automation, standardization, and order are not dangerous. They are necessary for man not to be swamped by modern beings. What is dangerous is the restriction of life that has attended their acceptance. (BP68)

23. Roszak: The assumptions about reality and values that underlie our

technical order have become pervasive. The youth culture rejects the rational-scientific mode of the technical society and urges the return to a reality whose consciousness includes objectivity and subjectivity, or personal involvement. (BP68)

24. John Passmore's book takes up The Perfectibility of Man. This is a discussion of how mankind pursues his quest toward perfection, how man either assumes a purely animal existence or attempts to transcend the limits of what is traditionally called human. The author discusses eight different senses of human "perfection" and "perfectibility" that can be discerned in the contexts of our ordinary ways of using these terms:

1. There is some task in which each and every man can perfect himself technically (Aristotle and Locke)
2. He is capable of wholly subordinating himself to God's will (Augustine and Karl Brath)
3. He can attain to his natural end (Aquinas and Erich Fromm)
4. He can be entirely free of any moral defect (the Stoic sages and the Christian saint)
5. He can make of himself a being who is metaphysically perfect (Plotinus)
6. He can make of himself a being who is harmonious and orderly (Plato and Spinoza)
7. He can live in the manner of an ideally perfect human being (Socrates and Jesus)
8. He can become godlike (Nietzsche and Teilhard de Chardin)
9. A critic of Passmore adds one to the above. He can become like a self-regulating machine (La Mettrie and Skinner)

Passmore is suspicious of any attempt to approach an absolute state. Likewise he is suspicious of what he calls "the big loves of God", Humanity and Nature. "These are the men to be feared above all others- the Robespierres who 'love humanity,' the Inquisitors who 'love God'". In short the book seems to say "let us be as perfect as possible, but let us not lose our humanness while we strive to be perfect." (BP17)

25. Means comments on American moral traditions:

> My assumption is that the American middle class and its ethics are at the center of American moral traditions. The middle and upper classes are in an advantageous power position to express their ethical views through public channels, and since the American intellectual is predominantly middle class, although alienated, it might be a healthy exercise in objectivity to acknowledge the middle-class origin of some of his ethical judgments.
>
> It is considered bad form today even to talk about ethics. This is the true source of middle-class guilt and the reason why social scientists almost invariably use the term "middle class" in a pejorative sense. If the social scientists had more of a sense of history, they would at least acknowledge the middle class's role in keeping alive the ethical traditions of the West. The problem is to relate these traditions to our actual values. (BB225)

Religious Values and Religious Institutions

26. Ethics is the larger sphere; religion the smaller. Nevertheless, religion looms very large in the history of human society.

27. Religion encompasses three separate concepts: first, the theological, that is, man's belief in a higher intelligence, a creative force, an ordering force in the universe; second, religious consciousness, that is, an ecstatic experience, a flash of insight, and understanding such as mystics, prophets, and laymen describe as being close to the infinite; and third, the formal institution of a church and its doctrines and formal activities. (BM63)

28. Peter Berger has suggested that the crisis of theology in the contemporary religious situation is grounded in a crisis of plausibility. ..."The fundamental problem of the religious institutions is how to keep going in a milieu that no longer takes for granted their definitions of reality." (BB55)

29. Both the knowledge-orientation and the future orientation are among the changes that have been presenting challenges to traditional religions. Buchanan notes that science and technology have eroded traditional modes of thinking and traditional authorities; life has become demythologized. The churches must compete with other social institutions for respect, and they must address themselves to the new problems of individual identity and the right use of leisure time, rather than bemoaning the depersonalization of an industrial society. Though industrialization has stimulated the development of democratic institutions, the church remains hierarchical and undemocratic. Churches must now treat their members as responsible and encourage maturity rather than submission to church authority. Cox argues that we have inherited from the Judaeo-Christian tradition three different and contradictory perceptions of the future: the apocalyptic, teleological, and prophetic. The apocalyptic tradition denies goals and rational action; teleology "obscures the fact that history is radically open"; and the prophetic tradition sees the future as open and man as having moral responsibility for it. "...only a recovery of the prophetic perspective will supply the ethos required for the political ethic required today." (BM70)

30. Sociologist Gerhard Lenski produces data to show that church membership is a major influence upon attitudes and behavior, although the influences have not always been those that might be expected from examination of the doctrines and ethical teachings.

Churches perform a number of functions. They are custodians of symbols, rituals, and cultural history of religions. Churches are also welfare agents, educators, acculturators, employers, medical healers, sanctifiers, social directors, instruments of social status, moralizers, hope givers, politicians, social

critics, and contributors to social justice. Above all they are bureaucratic institutions. Necessarily, churches, too, are changing, due to the emergence of many new kinds of social force and to slippage in the mandate previously conceded to the church to dictate moral behavior.

Langdon Gilkey wrote:

> Everything that our empirical analysis of present church life has indicated, however, shows that this religious dimension has in large part dropped out of our denominational life, for much of the laity and the clergy alike. Issues of belief, of doctrine, or of behavior are no longer central or even real for our church life; and few seem to know or experience any religious elements in worship or in sacrament, or in personal life within the community of the church.

How do these statements compare with statistics on church attendence and belief?

31. A Gallup Poll taken on December 26, 1968, found that 98% of Americans profess to believe in God, 73% in life after death, 67% in the devil, and 65% in hell. It is interesting to compare the answers on three questions among respondents in twelve countries.

	Do you believe in God?	Do you believe in life after death?	Do you attend church once per week?
	Yes	Yes	Yes
United States	98%	73%	43%
Greece	96	57	28 (Athens)
Uruguay (cities)	89	42	24
Austria	85	38	38
Switzerland	84	50	30
Finland	83	55	5
West Germany	81	41	27
Netherlands	79	50	42
Great Britain	77	38	-
France	73	35	25
Norway	73	54	14
Sweden	60	38	9

> One might note the striking gap between those who believe in God and those who believe in life after death. The essence of the Christian faith is that the former guarantees the latter. God without belief in life after death is something entirely different from the Christian God.
>
> The poll data, though fragmentary and superficial, nevertheless highlight a program. On the one hand, the poll indicates a crisis of institutionalized belief. On the other hand, however, it suggests that it would be misleading to conclude that low church attendance and disbelief in life after death mean pervasive irreligiosity. On the contrary, it suggests that authentic irreligiosity—that is to say, a deeply felt rejection of a reality beyond the finite—does not exist, or at least not yet. A belief in God to which one cannot give substance may merely be a holdover from a more traditional society in a context that emphasizes immediate life, but it could also reflect the search for a highly personal, inner, and direct relationship between the individual and God. (BB54)

32. The New York Times for March 5, 1970, carried a report on answers of persons in the United States to the same question asked by the Gallop Poll on seven different Januarys from 1957 to 1970: "At the present time, do you think religion as a whole is increasing its influence in American life, or losing its influence?" The percentage who said religion is losing its influence increased from 14% in 1957 to 75% in 1970. The Times stated that the reasons given for believing religion was losing ground included these: the church is outdated; it is not relevant in today's world; morals are breaking down; and people are becoming more materialistic. According to the Gallop organization these findings represent one of the most dramatic opinion reversals in the history of polling.

33. John A. Hutchison, writing on the theme of the unification of personality by way of religious values, insists that the bulging churches in America largely reflect national conformity, custom and insurance against the possibility of a real divinity, rather than enduring primal values. "He (the American) is a decent, moderately public-spirited citizen, a family man, and

a churchman... a hollow man." The contemporary American, therefore, is considered ill-equipped to make the vital political, economic and social decisions. (BM19)

34. Another analysis of what is happening:

> The doubt that Christian belief has any significant future (or even a present) is evidenced not only by its pointed dismissal by outsiders (and by the even more damaging evidence that outsiders just don't consider it significant enough to mention even when talking about value problems) but the failure of religious belief is even asserted by a growing number of insiders. During the past half century an increasing number of clergymen have been quietly neglecting traditional doctrine in favor of a gospel according to Freud and related psychological and secular doctrines of man and his salvation. In the meetings where professionals represent theological doctrines, the discussion flows around the new psychological doctrines. Traditional religious and theological doctrines of the soul and its salvation are seldom heard, unless outspoken fundamentalists happen to be around. The older religiously related tradition is increasingly forgotten, and the new secular psychotherapies are openly advocated by churchmen. (BB55)

35. Robin Williams relates his impressions:

> There has been some decrease in the binding power of such absolute values as honesty, but a probable increase in the ethic in personal relations is perhaps less stern and rigid and possibly more kindly than previously, e.g., the medical-humanitarian approach to mental health as opposed to a punitive-moralistic approach.

36. Some effects on religion include rising membership in organized institutions but not in the number of clergy (in proportion to expanded membership). Nevertheless, it should be noted that evangelical forms of fundamentalistic Protestantism are rising and that religious tolerance and ecumenical interests have grown.

A process of secularization is taking place of certain aspects of religious beliefs, values, and practices: Easter is more commercial; supernatural

topics decline as social and ethical content rise.

Additional impressions, wtih some reservation: religiously connected beliefs and values have moved from personal salvation to social ethics, from concerns with the afterlife to interest in the now. Personal fulfillment in devotion and service is more often emphasized; and asceticism, sacrifice, and impersonal duty are less often stressed. Some churches are becoming more active, (e.g., civil rights) and religious pluralism is gaining acceptance. (BM55)

37. Perhaps we need warnings against becoming too subjective, against swallowing too literally modern assurances and current forms, either as alleged improvements or as likely to endure. Man has sought goodness in different forms over millenia; the point is that he has sought goodness. Dr. Thomas Harris cites the eternal struggle within man:

> That man can aspire to and achieve goodness is evident through all of history, however that goodness may be understood. Moses saw goodness supremely as justice, Plato essentially as wisdom, and Jesus centrally as love; yet they all agreed that virtue, however understood, was consistently undermined by something in human nature which was at war with something else. But what were these somethings? (BB143)

38. Does the world need the "love, love, love" recommended by the youth culture, more than it needs anything else. But what kind of love is meant—unconditional love of others? Self-love? Is it more important than justice? Than wisdom?

39. A very few selected examples of current activism related to ethical and religious activities—

40. A group of prominent religious leaders planned to attend public worship at the Air Force Academy as a protest against the Vietnam War after they were refused permission to address the cadets at a mandatory formation. They wanted to address the cadets on the ethics and morality of the war and to point out their special responsibility as officers in the U.S. Air Force. (BN567)

41. Deans, professors, and students from Tufts University's medical and dental schools voiced their opposition to the Vietnam War to Massachusetts' Governor Sargent. They commented on what was happening to medical education and care in the USA. The group also warned of potential student unrest later if students working for peace candidates felt they were being ignored in the political process. It should be noted that doctors have traditionally avoided controversial social issues, but this is changing among current medical students. (BN176)

42. For the first time in the history of the Jewish people a Rabbinical court addressed itself to a political issue: Can Jews be conscientious objectors?

The Rabbinical court of Justice of the Associated Synagogues of Massachusetts said yes. "The foremost Jewish law is that nothing is greater and more important than the single individual, not the society, its institutions, or one's country," Rabbi Samuel I. Korff said.

The Court or "Bet Din" stated that a man is committing a crime if he engages in a war he does not believe in, and that the Jewish community and synagogues should stand behind such a man. (BN176)

43. In a speech Senator Ted Kennedy pointed out the inconsistency of those who engage in violent acts for peaceful purposes. Kennedy pointed out that if you are opposed to the war, then you cannot use violence as a means to further your peaceful ends. (BN186)

44. Slater attempts to understand the social and psychological forces that are pulling American society apart.

> On returning to America, one begins to feel the severe gap between the fantasies Americans live by and the realities they live in ; the gap leads them to disappointment and embitterment.
>
> Suddenly, Americans seem to be scrutinizing their own society with the doubtful eyes of a foreign traveler. (BB325)

Kastl says that in the age of Aquarius, the military is one institution that is seen as a type of corruption in the American system.

45. Stringer asks whether there is a crisis in morality today. He mentions sex, pornography, and pot, yet simultaneously mentions that 40% or more Americans attend church regularly and some $17 billion was contributed to charitable and religious causes. Ghetto children are tutored, and older people help alcoholics and drug addicts. Also, there is visible a much greater sensitivity to "immorality" of war, poverty, etc.

Simultaneously there is a widespread rebellion against restraints on personal conduct. Some (including the ACLU) suggest that a person may do as he pleases so long as he doesn't hurt others. Yet, with freedoms won, a sense of loneliness of sadness can exist. There is a need for what John Howard of Rockford College calls the "three R's"- respect, restraint, responsibility. Perhaps the dictum of Edmund Burke is relevant: "Society cannot exist unless a controlling power upon will and appetite be placed somewhere, and the less of it there is within, the more there must be without." (BP55)

46. The gloomy view of modern man presented in modern literature is considered by some eminent critics to be heavily one-sided. Back in the late 1940's Howard Mumford Jones asked:

> We learn over and over again the virtues of Donne, of Milton, of Dostoievsky, of Melville, of Kierkegaard, of Henry James, and of Joyce, but we learn nothing of the sunny humanity of Burns, of Dickens, of Miss Austen, of Thackeray, of Turgenieff, of Hugo, of Bjornson, of H. G. Wells. The first group possess, we are told, 'an imaginative vision of evil.' But literature also includes an imaginative vision of good, not to speak of a vision of the truth that human life is neither wholly good nor wholly evil but a mixture...Why is Joyce more illuminating than Job? (B8168)

47. Despite these observations, other predictions are quite positive:

> It is necessary to emphasize that in the current religious reformation the central and very ancient hypothesis or theory of religions will remain and be revitalized: the God concept, the concept that there is a power (or powers) superior to man, that created him and that will in the future as it has in the past determine

> his destiny, a dynamic reality operating in time that shapes us, that sets our values, that decrees what is good and evil, right and wrong, and from whose rulings we can never escape. In fact this concept is central both to theology and to science: the concept of causes outside or transcending ourselves which determine our destinies, causes which we are forced to accept and with which we have to learn to live on their terms. (BB55)

Some Predictions

48. Various predictions by individuals, groups, and panels concerning future developments postulate events which will pose grievous moral dilemmas.

49. One major area of prediction revolves around discovery of extra-terrestrial life, particularly intelligent life, in the universe. Some estimate that from 50,000 to 1 million intelligent civilizations exist, separated by a few hundred to thousands of light years. On one panel, a panelist predicted discoveries by 1985; but a substantial minority said "never." A number forecast exploration and sub-light-speed vehicles out to at least a 24-light-year radius from the solar system, after the turn of the century; the majority said "later" or "never."

Another prediction: that man might create life in the laboratory (primitive, in 10 years or so).

Another prediction concerns what would be perhaps the most important development ever: Genetic manipulation.

Another prediction extension of the vigorous years of life by 50 years, and extension of life itslef by 50 years. (BM63)

50. Manufactured experience may be available to the next generation—on order, of any depth and intensity, including religious experience, using chemical, psychological, or physical stimulants.

Some chemical developments are now well known— tranquilizers, pep pills, alcohol, marijuana, LSD. Some have been used for religious experience for thousands of years; e.g., the "magic mushrooms" of Mayan culture (1000 BC); the Native American Church, 200,000 (mostly Indians) use peyote (mescal

buttons). There are at least three other psychedelic churches in the United States now, utilizing LSD. (BM6[illegible].

51. The location of moral authority is changing and being diffused from the church to groups and individuals. In some instances the determination of what is right and good is being assumed by individuals (e.g., Catholic wives who use contraceptives). New forms may revise the role of marriage; e.g., trial, group, homosexual. Will there be separation of sex and love? Eugenic considerations may become paramount in mating. Life extension will bring new value patterns, as will abandonment of the work ethic, man-machine symbiosis, and realization of extra-sensory perception. (BM63)

52. If information is ever discovered which proves the existence of intelligent beings beyond the earth, the influence on religion will be, of course, that the significance of the meaning of life would be reevaluated, and man could no longer perhimself as a unique creation. But even those who conceive of this development regard it as a very remote possibility. (BM61)

53. Similar considerations attend the possibility of creating life artifically. If artificial life is created, organized religion may have to reconsider life as a supernatural phenomenon. Eventually, it may have to offer a set of ethics and rules for living and modify its scope of "creation." With creation identified as a chemical process, will morality degenerate ? (BB16)

Potential Impact

Obviously, the future of organized, denominational religion is controversial. We raise here the subject of general impact upon the military of potential erosion of moral and ethical values. Even if theistic principles were to atrophy among American values, we would be inclined to predict a period of disturbance and uncertainty among American social institutions, including the military. But not chaos.

On the other hand, erosion seems far less likely among moral and ethical concepts, even if such moral authority eventually comes to rest upon a humanistic foundation. Greater emphasis upon hedonism, self-actualization, and indi-

54. Even disregarding the bizarre extreme possibilities. Burnham Beckwith emphasizes one major social trend: that religious and superstitious belief and behavior have been declining for 500 years in most advanced countries and for shorter periods in all other countries. This trend is largely a result of the progress of science and education. He believes that the trend will continue and that there will be a further decline in faith and ideologies, and that most of the world's adults will, by the beginning of the twenty-sixth century, at least, be nonreligious and amoral. Less than 20% of the world population will attend religious ceremonies or pray at home. All governments and courts will strive to increase measurable welfare, rather than to promote religion, justice, or morality. (BB55)

vidual autonomy and choice seems feasible within clear limits short of atomization of society. Within that range of potential change, it seems likely that the military will be constrained to reassess its own legitimacy as a social institution; its forms and procedures; its priorities within its value systems; and its rationale. It may have to restate its reappraisal in modern terms, in more modern ethical terms.

However, moral authority, even in purely humanistic terms, will probably have ro rest upon some social consensus which is valued highly by society and which is transmitted to succeeding generations. The military has legitimate interests in the preservation and transmission of such moral authority and ethical values in society at large. Should moral authority become so eroded as to evaporate in an atomized society, social cohesion would cease to exist. Social institutions, including the military, would disappear. The alternative would be some sort of regimented society.

55. The great reformation of world religion, which Mr. Ralph Burhoe prophesies for the period when the second millennium turns into the third, will arise, like the recent reformations in the medical arts, from scientific sources. He suggests that religion will follow medicine, perhaps a century or two behind,

in finding the radically new scientific revelations or myths of the nature of man and his world fruitful for its mythology. He suggests that the art of religion, like the art of medicine, will become an applied science. (BB55)

56. Even in a much shorter run, the question arises as to the form in which our religious institutions will survive, for since the Western Semitic religions, Christianity, Judaism, and also Mohammendanism, tend to stress individual responsibility and salvation, one wonders how they will adapt when individualism becomes an anachronism and an object of criticism and derogation. A society in which the group and group functions dominate, where the group ego dominates the individual ego, where the sources of pride, security, and pleasure depend upon the group and where unanimity of ideas are stressed, will require sources and kinds of leadership that will be radically different from that to which we are accustomed today. (BF13)

57. In the decade ahead, the church-going population will increase in proportion to the general rise in population. Many will attend for spiritual unity and shared values, while others will place emphasis on sociability and identity with national aspirations. Church attendance will not provide a system of values applicable to domestic and international problems. At best it will provide a sense of support for the individual—something to depend upon. Religion will try to exert influence in secular life, but will be no more successful that it is today. Church groups will make important contributions to social welfare. In order to exert some kind of force on secular life, the major Christian churches will continue to draw together but their influence on events will be small. (BB232)

58. A somewhat different view of the future role of religion: A survey of the arts and technologies and their trends leads to the prophecy that the one technology with by far the most significance for human values at the end of the second millennium is religion. All the other technologies—including the scientific-miracle technologies of space travel, atomic energy, computers, even medicine—are trivial for human values compared with religion.

> Religion is the very center of man's most advanced evolutionary thrust to find order or organization, governing his overall attitudes and behaviors with respect not only to himself and his fellowmen but also with regard to the ultimate realities of that cosmos in which he lives and moves and has his being. This view of religion would make it the central cultural agency, a key for our understanding of life and its further development. (BB55)

59. The role of the behavioral sciences in establishing ethical beliefs and the operations of conscience are pregnant with potential for both benefits and dangers for mankind. (BB374)

60. Perhaps speculation inevitably arrives at the same question that man has asked since the beginning of time, and will still be asking decades from now. In Herman Kahn's words: "The biggest single problem facing us before 1900 is meaning and purpose. Why do we stay alive? What are we here for?"

AUTHORITY & GOVERNMENT

Authority and Government

1. A widespread symptom of cultural change is the erosion of authority of all kinds—of government, family, school, church, learning, expertise, community, interest group, charismatic leader. Substitutes for authority are arising in other elements of society: self, peer group, "feelings," vague ideals, ethnic groups, and others.

2. Herman Kahn describes a 400-year-old trend of increasing "individuation" (Fromm's term) emerging from a sensate culture emphasizing humanistic, anti-militaristic, anti-nationalistic, intellectual, relativistic, scientific, rationalistic, secular, and hedonistic values. The erosion of authority has been accompanied (or caused by the loosening of ties to family, class, religion, region, political party, status, and occupation.

3. Warner attempts to relate power and prestige to authority: Power may be simply defined for our immediate purposes as the possession of control over other beings, and objects in the social and natural environments, making it possible to act on them to achieve outcomes that would not take place if control were not exerted. Prestige is the kind and amount of value socially attributed to objects, activities, persons, and statuses. The two are usually interrelated; power can derive from prestige and prestige from power. However, man may have power with little prestige or high prestige with little power. The kinds and amount of power and prestige vary from one territorial group to another. They also differ among the several forms of rank and status. The problem of how forms of rank are related to prestige and power, as well as the nature of sources of power and prestige, must be considered.

> The very presence of these adaptive controls demonstrates: (a) that men are dependent on an adequate use of them for survival, each having the power of life and death over them; (b) that the controls exercised

> over the environments to reduce their control over men involve the use of several forms of power by individuals and groups; and (c) that, in exercising control, each adaptive mechanism employs real power. The tools and skills of the technology transform the natural world sufficiently to aid men in acquiring and producing food, shelter, and the other creature needs and comforts which increase the life chances (Weber's term more broadly used) of the adult individual, of the young to grow into maturity, and in a given group of the species to survive. (BB366)

4. Riesman relates power to the type of "direction" among persons, especially in America, where power is largely situational and mercurial: A clear-cut power structure helped to create the clarity of goals of the inner-directed; an amorphous power structure helps to create the consumer orientation of the other-directed.

The concept of "veto groups" is also a concept of power, in this instance of substitutes for leadership; each group has struggled for and finally attained a power to stop things conceivably inimical to its interests and, within far narrower limits, to start things.

> The inner-directed person, if he is political at all, is related to the political scene either by his morality, his well-defined interests, or both. His relationship to his opinions is close, not peripheral. The opinions are means of defending certain principles of politics. They may be highly charged and personal, as in the political discussion in the first pages of Joyce's Portrait of the Artist as a Young Man, or they may be highly charged and impersonal— a means of defending one's proper Bostonianship or other class position. In either case one's own opinions are felt to matter and to have some direct relationship to the objective world in which one lives.
>
> As against this, the other-directed person, if he is political, is related to the political scene as a member of a veto group. He leaves it to the group to defend his interests, cooperating when called on to vote, to apply pressure, and so on.

These pressure tactics seem to make his opinions manifest on the political level, but they actually help make it possible for him to be detached from his opinions. No longer operating as an 'independent voter'— mostly an amiable fiction even in the era dependent on inner-direction— his political opinions, as such, are not felt to be related to his political function. Thus, they can serve him as a social counter in his role as a peer group consumer of the political news-of-the-day. He can be tolerant of other opinions not only because of his characterological tolerance but also because they are 'mere' opinions, interesting or amusing perhaps, but lacking the weight of even a partial, let alone a total, commitment to one's political role or action. They are 'mere' opinions, moreover, because so intractable is the political world of the veto groups that opinion as such is felt to be almost irrelevant.

Intellectuals, for instance, who feel themselves very much out of power and who are frightened of those who they think have the power, prefer to be scared by the power structures they conjure up than to face the possibility that the power structure they believe exists has largely evaporated...

Businessmen, moreover, are not the only people who fail to exploit the power position they are supposed, in the eyes of many observers, to have. Army officers are also astonishingly timid about exercising their leadership. During the war one would have thought that the army would be relatively impervious to criticism. But frequently the generals went to great lengths to refrain from doing something about which a congressman might make an unfriendly speech. They did so even at times when they might have brushed the congressman off like an angry fly. When dealing with businessmen or labor leaders, army officers were, it seemed to me, astonishingly deferential; and this was as true of the West Pointers as of the reservists. Of course, there were exceptions,

> but in many of the situations where the armed services made concessions to propitiate some veto group, they rationalized the concessions in terms of morale or of postwar publice relations or, frequently, simply were not aware of their power. (BB289)

5. Harrison Brown noted the effects of increasing individual specialization, and the resultant need for "integration," "coordination," and "direction of activities in practically all spheres of vocational and leisure activity." It results in the placing of unwarranted trust in "integrators, coordinators, and directors."

Early specialization results in narrowing of broad interest, lessened ability to engage in creative activity during leisure hours, decreased interest in the creative activities of other individuals, and lessened abilities. to interpret events and make sound judgments. All these factors combine politically to pave the way for collectivization, the emergence of strong organization, and with it, the great leader. (BB50)

6. Duchêne concedes that society may be slow-moving, yet the "need" for violence to shake the complacency of government is disquieting. "The fact remains that authority seems entrenched only in countries like the Soviet Union that combine a powerful state tradition with political backwardness in the public." But if the powers-that-be are vulnerable to anything that resists the exercise, as well as the abuse, or authority, this situation alone changes the way government operates. (BF6)

7. The Wall Street Journal commented on attacks on government from left and right, related to the events at Kent State:

> Our conversations with moderate anti-war acquaintances here in New York repeatedly turn on their contempt for what they quite voluntarily concede is a majority supporting the President...Ultimately, it is commonly observed, the effective threat to American democracy will come from the political right. But, as is commonly ignored, this is not because right-wing militants are more sinister than left-wing ones, but merely

> because of the historical truth that any people will pick repression over anarchy. If the American people come to believe these are their only choices, they too will support repression...there is (no) reason to panic, but neither is (there) any longer reason to take for granted that everyone understands that the 175 years of American democracy are man-kind's most splendid achievement of self-government, and that accordingly destroying it would be mankind's most unspeakable destruction.... (BN520)

8. Robert Nisbet published some reflections on the erosion of authority:

> Liberal circles are accepting the concept of 'authority' on campuses. Reasons include: fatigue caused by militant causes, fear that public patience may be running out, and the current state of academic freedom on the campus. Freedom to teach and learn has been the principal casualty of past events. Tyrannies of faculty-student meetings have worn people down.

Nisbet suggests that prior extreme liberalization and democratization of traditional authority led to the campus disorders. There is a high correlation between "participatory democracy" and faculty-student outbursts on a campus. A fatal weakness of the special, unprescribed nature of academic freedom is that, once it is seriously challenged by a militant minority or chipped at through acts of defiance, it cannot stand very long.

9. One price paid by the individual for greater "individuation" is instability, insecurity, or uncertainty. Robert Lane points out that greater independence brings greater isolation, and that most men cannot comfortably accommodate freedom if the amount of isolation exacted is commensurate with the amount of freedom.

10. Konrad Lorenz commented briefly on erosion of the authority of tradition: In our own time, the loss of certain traditions is already producing

asocial monsters. Each year, there are younger and younger criminals. The complete destruction of tradition would cause enormous damage. (BP403)

11. The undermining of authority is seen by Roger Shinn as a threat and an opportunity; it requires the internalization of ethical sensitivity and values, without which ethics degenerates into rigid obedience to increasingly irrelevant authority or into capricious choices. (BB242)

12. Different aspects of individuation are emphasized by the rabbinical court cited in the last section, and by Joseph Fletcher in Situation Ethics: "Every man must decide for himself according to his own estimate of conditions and consequences; and no one can decide for him or impugn the decision to which he comes."

13. On the other side of the argument, individuation is extolled by Brock Chisholm, who holds that the human race owes most of its valuable progress to its heretics, the people who insist on changing belief and behavior patterns to fit new experience and knowledge, independently of ancestral or authoritarian dictates. (BB374)

14. Predictions are not rare to the effect that new forms of "power" are likely to appear, for power is the invariable response in history to conditions of shattered authority. Even on the campus, examples of such kinds of power include repressive laws; increase in campus police forces; intervention by conservative trustees through effective majorities which become involved in heretofore "sacred" areas (appointment; admissions; curriculum); a striking increase in administrative management of all spheres of academic life (i.e., stronger presidencies and presidents); abolition of tenure (an anachronism, anyway). It might be that expensive centers and institutes will disappear.

Nisbet observes that today the university is a mere microcosm of society; as such, it is very expensive and unneeded. It should be an intellectual community. (BN531)

15. When the student's school-focused life is coupled with less parental guidance, youth turns to his peers for discussion and evaluations of a code of conduct. Youth feel that authority need not be recognized if it is not just, according to their judgment. This type of thinking has led to activism of advanced types and degrees. (BM28)

Rationalization

16. Emphasis may grow on intelligence and rationalization. One definition of rationalization: A highly logical approach to applying the most efficient means for determining and realizing ends (it is only a technique; value preferences are always implicit in its application). (BB232) Technicians, scientists, and planners who constitute the elites of the future will slowly incline toward the deliberate application of intelligence to social problems. The role of the state will rise and that of business shrink. (BP324)

17. Positive and Negative Consequences

1. Computer methods will make it easier to measure and understand human behavior, to aid in planning and executing social action programs.
2. Rationalization may be misunderstood. Some will view it is meaning that logical application to problems will cancel out other factors, such as personal preferences and needs.
3. Others will find that the process must include such things as personal preferences and needs. In this process, the role of the behavioral sciences in striking a balance will be crucial.
4. Serious mistakes are likely to occur as rationalization extends. Organizations will be economically tied to computer programs, and will not be able to change long-run programs within a short period. This situation

obtains in government today.

5. Rationalization may encourage modified totalitarianism, if values and behavior are not continual inputs to the system.

6. Toleration of different life styles may be possible if these life styles offer no threat to the direction of the prevailing social processes.

7. Rationalization will put emphasis in programs and not goals, because rationalization can be implemented effectively in programs. The behavior sciences will have to concentrate attention on the fundamental "whys" of the programs.

8. Greater understanding of the factors related to programs could bring more emphasis on the "unknowns" - i.e., the relationship between programs and goals, between values and purposes.

9. Rationalization will enable most people to deal more effectively with their complex surroundings. Others will miss the sense of adventure, excitement, and mystery of a non-rationalized world. Further, to overcome boredom, novelty and sensation will be sought as relief from their routine society.

Consequences of Rationalization

1. Its application may not lead to enlightment and reason. It can lead to an intensive and highly efficient drive for selfish goals as opposed to selfless goals.

2. It can be used unreasonably, foolishly, or sensibly. Its use does not imply one is reasonable or wise.

3. Growing complexities of society in distribution and production of goods and services, in education, in social welfare, will push many institutions to rationalize their operations.

4. This trend toward rationalization will influence the experience, opportunities and viewpoints of youth and the adults guiding them.

5. A scarcity of skilled, high-level manpower will lead to a careful selection of programs and allocation of effort. This will reinforce the rationalization trend.

Role of Government

1. Rationalization will be government's dominant device for social control in the increasing rationalization of society because of complexity of society and the magnitude of the problems encountered. Government is the only agency capable of affecting nationwide scale of change.

2. The growing interdependence of big enterprise and the Federal government and the application of rationalizing methods to this relationship to improve efficiency will blur distinctions between the two. This trend may account for more personalized expression in dress, behavioral habits, sexual customs. The point is whether that is bad or a prelude to a new type of society for which many of us are ill prepared.

3. Government will lead the way because private enterprise will not offer enough voluntary cooperation to meet social needs. The profit motive will not inspire them to move into social action programs in the scale required without significant government pressure.

4. Process of this enlarged government role in social control will move forward unevenly because those elected to office for many years will reflect the thinking of the past, against rationalization. Bureaucrats will be against rationalization it if adversely affects their status and vested interests.
5. Government may have to undergo rationalization before the remainder of society. It will have to show the way for the general public to follow. (BB232)

Meritocracy

18. Young discusses the possible resurgence of authority through meritocracy: There are no revolutions, only slow accretions of ceaseless change that reproduce the past while transforming it. In this sense, an elite may arise in which promotion by merit replaces promotion by seniority, in response to forces which proved too strong for the gerontocracy; namely, pressure from the young, support from the old (everyone has someone above him), or improvement of merit rating. The gulf between classes will widen with the acceptance of meritocracy. Stratification will remain because of lower-class acceptance and emphasis on physical achievement, adult education, displacement of ambitions onto children, and natural stupidity.

Potential Impact

The erosion of authority will have impacts upon the military establishment, as will be discussed in detail later. At this point, conceding some degree of validity to characterizations of the military as authoritarian institutions, we note the rise of anti-authority orientation in American life, as authority is eroded from family, school, church, government, and social institutions in general. If the appropriate social agencies fail to orient the young with an appropriate degree of acceptance of authority, there will be difficulty ahead for those institutions which must rely upon some degree of authority-acceptance among their members in order to perform the functions which society assigns to those institutions.

In sum, the formula IQ + effort = merit may well constitute the basic belief of the ruling class of the next century. (3B224)

Other Predictions

19. Rescher's Delphi panel concluded that omnipresent central planning will have a significant effect on American values by 2000, increasing emphasis on economic security, but decreasing emphasis on self-reliance, on freedom from interference, and on privacy. (BB16)

20. As science and technology give us more and more control over heredity, and over the thoughts and behavior of others, we are becoming alarmed about wiretapping, psychological testing, computerized dossiers, psychologically-coerced confessions, and the like. We must deal with our new power by reducing deception and secrecy. In the long run people will not, without protest, permit unlimited information about themselves to be collected and stored in data banks or in thick personnel folders to which they have no access. Furthermore, people will not submit to psychological tests of any kind unless they are sure that such tests are designed to benefit them. People will resist giving personal information to anyone; they will refuse to subject themselves to unclear procedures as they become more aware of the controls that can be exercised over them. There will soon be sweeping legislation that will radically change our practices of record-keeping, testing, experimentation, investigation, and communication—and these changes will not be in the direction of Orwellian cradle-to-the-grave surveillance, as some writers have suggested, but rather in the opposite direction. Moreover, as the communication network becomes larger and more finely-meshed, it will be harder, not easier, to conceal or distort the 'facts behind the new,' and thus manipulate or control opinion. (BF13)

21. As a result of affluence and other developments, there is a decline in the values of work and national service which may have some destructive effect. Thus there may be a great increase in selfishness, a great decline of interest in government and society as a whole, a rise in the more childish forms

of individualism, and in the more antisocial forms of concern for self and perhaps immediate family. Thus, paradoxically, the technological, highly productive society, by demanding less of the individual, may decrease his economic frustrations but increase his aggressions against the society. Certainly here would be fertile soil for what has come to be known as alienation. (BBI70)

22. Canham finds patriotism a not irrelevant value for the future. Patriotism, love of country, is not an ignoble ideal. It is memory and respect for what is worthy in the past; it is dedication to greater worthiness in the future.

Both the evils and nobility of the past and the opportunity of the future should be included in the data. (BN204)

23. Hoagland puts his emphasis on accountability: in all human behavior, accountability is a necessity. "Empirically, I cannot see how a society can function unless individuals believe that they are free and responsible for their actions, and unless society can hold them responsible." (BB374)

24. Raymond Aron recently expressed an aphorism which we feel, reflects the nub of cultural and social change in our times: "Yesterday's authority is gone, and tomorrow's authority doesn't exist yet." (BP337)

THE INDIVIDUAL VS. THE COLLECTIVE

1. The tension between the individual and the collective (group, organization, society, planned program, structured institution) is one of the central thrusts pressing social forces into numerous manifestations of change. We have already noted this particular tension in previous sections; and it will recur in several others to follow.

Planning and Privacy

2. One of the most prominent manifestations is the need and value implications of social control and planning. Technological change has been responsible, directly or indirectly, for much of the current push towards greater social planning. In a technologically-based affluent society, the increasing share of the economy devoted to goods which are publicly rather than privately produced and distributed has resulted in a need for greater governmental intervention to assure the adequate regulation and control of such goods. The scope of governmental responsibility has also been enlarged as a result of the magnitude and wide ramifications of large-scale technologies, and in response to the need for greater coordination, that are generated by a complex, densely populated, and institutionally interdependent society. The growth in the production and application of knowledge has also been a force leading toward greater planning, because both new intellectual tools (e.g., systems analysis, computer simulations, and planning-programming-and-budgeting systems) and the ideal of deliberate knowledge creation to help solve (or prevent) social problems have begun to take hold. (BM70)

3. Ozbekhan points out that planning, as "informed decision and calculated action," runs counter to basic Western traditions: to the "commitment to detailed molecular disorder," which was "cherished as the stepchild of liberty," and to the "almost superstitious belief in the idea of automatism (as exemplified by Adam Smith's 'hidden hand', or by the extraordinary notion of laissez-faire equilibrium)," which were "viewed as capable of regulating the

disorder." As a result, we came to planning reluctantly and tended to see it as deterministic. The future was to be extrapolated directly from the present. A new theory of planning is needed, Ozbekhan argues, that will be open, rather than deterministic, and that will deal with the question of goals and values. A planning framework of this kind needs "to reveal what ought to be done, what can be done, and what actually will be done." That is, there must be normative, strategic, and operational planning. Because of our political traditions, this is difficult to establish; especially problematic is the question of who is going to plan. Pluralistic, advocate, or expert planning appear to be the alternatives. (BM70)

4. Shubik holds that the influence of the high-speed digital computer upon society must not be underestimated. If we wish to preserve even modified democratic values in a multibillion-person society, then the computer, mass data processing, and communications are absolute necessities. It must be stressed again that they are necessary but not sufficient. The computer and modern data processing provide the refinement of means to treat individuals as individuals, rather than parts of a large aggregate. The treatment of an individual as an individual will not be an unmixed blessing. (BP416)

5. Rogers discusses the need for planning in the context of public health programs. In order to make decisions about such issues as population control, genetic control, and organ transplantation, we have to be able to assess costs and liabilities in a holistic manner. To develop policies for public health, "it is necessary to know why, and in relation to what, health is valued." Bell argues that a System of Social Accounts is needed to clarify policy choices. More planning will lead to more open value conflicts, since the locus of decision will be more visible. (BM70)

6. Nevertheless, there is already strong reaction to the increasing potential for encroachment on individual privacy. Due to urban density and technological capability, demands are increasing for government services. Surveillance and computer information-handling capabilitities increase. A projected

government data bank raised horrified cries in 1967, but post-industrial society services require such facilities (and non-government agencies, as well). (BM60)

7. A Harvard University program on technology and society report suggests that Americans tend to feel that machines have made their lives easier, but that people have become too dependent on them. Subjects with the least education were most likely to feel alienated; in all, 56% of 200 persons were against a computerized data bank on grounds of privacy. (BN421)

8. Kalven points out some possibilities as technology advances. There will be increasing pressure on people to surrender their privacy. Recipients of the government's ever-expanding welfare benefits will not find it easy to resist government claims to a wide range of information about their character, personality, and living habits. With ever-increased emphasis on consumer credit, people will be induced to disclose all sorts of information about personal tastes, income, and habits in handling money. Indeed, privacy about one's financial situation and personal budget, once so deeply entrenched in middle-class mores, will become a forgotten value. Increased insurance coverages, pension plans, and government medical services will bring increased medical scrutiny, lessening any privacy in one's health, weight, digestion, and so forth.

The threats to privacy may come from the commitment to social-science research which may call for methods of inquiry that infringe upon the privacy of the subjects of study. The inquiry itself will cause a shift in the conventions as to what is private, even though the parties involved have given consent. There are also the possible uses of drugs, hypnosis, and personality tests where the subject does not realize how much of himself he is revealing in answering apparently neutral questions. Closely allied are studies that manipulate the subject rather than directly intrude upon his privacy, so that he is deceived about the real consequences of what he is doing in the experiment. By the year 2000 the imperialism of the social sciences may well have claimed a large part of the private domain. (BP416)

9. One prospect that is already receiving alarmed attention arises out of what might be called improvements in the technology of eavesdropping. It is becoming increasingly possible to invade privacy without trespassing—that is, to invade it by remote control. Man can now photograph from afar, conceal microphones in tiepins, observe by closed-circuit television, tap telephone lines, pick up conversations in another room by the use of electronic devices, and determine the content of mail without opening it. There is no reason to doubt that the technology will continue to improve—probably at a geometric rate—and that by the year 2000 it will be possible to place a man under constant surveillance without his ever becoming aware of it. Moreover, since the culture will become cognizant of this advance, men will live with the constant possibility that they are under surveillance without ever being able to be sure whether this is so. (BP416)

10. Not all expectations are negative, concerning the social consequences of the widespread use of electronic and information systems. Many of the issues that have been raised—privacy, centralization, the creation of a mass society of automatons—need to be reconsidered. It is possible that a computerized society may have effects that are quite opposite from those suggested. It may, indeed, protect privacy better than at present; it may promote decentralization as much as centralized control; and, as it replaces much routine activity that now passes for intellectual work, it may create new problems of identity and the use of freedom. (BP416)

11. In July 1971, the Monitor commented on a poll of American values:

> A revolution is under way; people are striving toward a better concept of individuality. They sense a need for a larger awareness of their precious value and worth as individuals. They want assurance that people can intelligently control their own destiny. People yearn for leaders; we are more perceptive about leaders and followers. We want genuineness and integrity in our leaders and businessmen. More responsive, more soundly based views of life and living and man's destiny are appearing. This is a 'greening of America' which has profoundly great promise. (BN231)

12. MacPherson provides a pertinent comment on the "market view" of man. He notes that Western democratic theory has been based on two internally inconsistent assumptions. The first—associated with capitalism and the market—sees man as an infinite desirer and consumer of utilities. The second—which provided the justification for liberal democracy—views man as an exerter of his uniquely human capacities and asserts the equal right of every individual to make the most of himself. The two conflict because, if each man is allowed to consume in accordance with his infinite desires, some men will accumulate more than others and thereby gain power over others, so that the right of every man to make the most of himself will not be realized. The conflict can be resolved by assuming that desires are socially acquired and may change. To retain the values of liberal democracy, the market view of man must be abandoned. (BM70)

13. Some see in the continuing stress on the individual both opp tunities and dangers: The opportunity in current and future years is for a person to choose his identity. The threat is a confusion of values of self-identification that drives some to the edge of, or over the edge of, pathology. (BB242)

14. Duchene makes the same caution about individualism that becomes isolated:

> The erstwhile 'subject' has been released; and now feels himself merely an object. He may at the political level be taught to believe he is a sovereign citizen, but his own imagination reinforces his insignificance in society by an isolation in the mind. Human beings become, on such assumptions, aggressive lonely animals seeking out their own purposes. (BF6)

15. Some scholars are seeking different approaches. Shomei Morita, physician at Likei University, Japan, undertakes psychotherapy (of neurotics, not psychotics) radically different from Western approaches. Based on restoring a love of nature and the abolition of egocentricity, this approach is inspired by two tenets of Zen Buddhism: The importance of life in and with nature, and the immersion of the individual in the family, group, and community. The patient is discouraged

from baring his soul and from dwelling on his emotions or illness. Is this approach adaptable for persons rasied among Westem values? (BP291)

16. Duchêne emphasizes that the mass-educated society is no longer the old familiar, largely-passive society. The mass-educated society is already turning into anachronisms many inherited assumptions about it. (BF6)

17. Concerning certain orientations of individuals within society, Riesman has been highly instructive: In the course of the last century the spread of education, the shortening and easing of working hours, the rise of unions and other more of less formal associations, seem to have increased the ability, if not the desire, of the poorer citizen to maneuver in the political sphere. Nevertheless, these people are, in the main, indifferent to politics, although their indifference is not the classic, quiescent indifference of the tradition-directed. It is to a large degree the indifference of people who know enough about politics to reject it, enough about political information to refuse it, enough about their political responsibilities as citizens to evade them. (BB289)

18. They do not believe that, by virtue of anything they do, know, or believe, they can buy a political package that will substantially improve their lives. Essentially, they view politics as do spectators. In certain circumstances, they can be easily welded into cadres for political action. (BB289)

19. Riesman considers an S-shaped population curve. In the 1st phase, population does not increase, or does so very slowly, for the number of births equals roughly the number of deaths, and both are high. In the 2nd phase, of transitional growth, there is a burst of population growth, which soon follows the death rate in decline. In the 3rd phase, there is an incipient population decline.

Riesman's thesis is that each of these three different phases on the population curve appears to be occupied by a society that enforces conformity and molds social character in a definably different way. He discusses "ideal types."

> The society of high growth potential develops in its typical members a social character whose conformity is insured by their tendency to follow tradition; these I shall term tradition-directed people and the society in which they live a society dependent on tradition-direction.
>
> The society of transitional population growth develops in its typical members a social character whose conformity is insured by their tendency to acquire early in life an internalized set of goals. These I shall term inner-directed people and the society in which they live a society dependent on inner-direction.
>
> Finally, the society of incipient population decline develops in its typical members a social character whose conformity is insured by their tendency to be sensitized to the expectations and preferences of others. These I shall term other-directed people and the society in which they live one dependent on other-direction.

In the tradition-directed, the social order is relatively unchanging, the conformity of the individual tends to be dictated to a large degree by power relations among the various age and sex groups, classes, castes, professions, etc.

By virtue of the individual's "belonging," life goals that are his in terms of conscious choice appear to shape his destiny only to a limited extent, just as only to a limited extent is there any concept of progress for the group. (BB289)

20. Inner-direction: The source of direction is "inner" in the sense that it is implanted early in life by the elders and directed toward generalized but nonetheless inescapably destined goals. The inner-directed man tends to think of work in terms of non-human objects, including an objectified social organization, while the other-directed man tends to think in terms of people—people seen as something more than the sum of their workman-like skills and qualities. It looks as if, an any large and differentiated population, reservoirs of potential

inner-direction exist, only awaiting the onset of a Western-oriented type of industrialization in order to come to the fore. The autonomous person's acceptance of social and political authority is always conditional; he can cooperate with others in action while maintaining the right of private judgment.

In a sense, the popular culture is used as training in group adjustment and consumer orientation. Despite appearances, the other-directed seems often unable to get away from himself or to waste time with any gestures of abundance or abandon. The other-directed person has no clear core of self to escape from; no clear line between production and consumption; between adjusting to the group and serving private interests; between work and play. The other-directed person seeks adjustment. He seeks to have the character he is supposed to have, and the inner experiences as well as other appurtenances that are supposed to go with it. If he fails to attain adjustment, he becomes subject to anomie. At most, the other-directed man occasionally seeks to be autonomous. His opportunity to become autonomous lies precisely in the disparity that exists between the actual, objective pressures for conformity that are inescapable and the ritualistic pressures that spring from the increasingly other-directed character of the American people.

With the rise of other-direction, we see the passing both of the acquisitive consumers and of the escapists of the earlier era. The passion for acquisition diminishes when property no longer has its old stability and objective validity; escape diminishes by the fact that work and pleasure are interlaced.

Extreme forms of the new tendencies are seen in the attitudes toward food and sexual experience prevailing among some upper middle-class groups. A characteristic is the insatiable force of the psychological need for the approval of others. They keep up with the Joneses not so much in external details but in the quality of inner experience. The upper-middle-class in the larger cities tends to be other-directed.

Contemporaries are the source of direction for the individual, either those known to him or those with whom he is indirectly acquainted, through friends and through the mass media "internalized"; dependence on this source

for guidance in life is implanted early. The goals toward which the other-directed person strives shift with that guidance; it is only the process of striving itself and the process of paying close attention to the signals of others that remain unaltered.

The "characterological struggle" taking place within a single country, among groups within a country, is not unrelated to international tensions; the struggle is the realistic admixture of Riesman's "ideal types" as they are evinced in everyday life and occurrences and people.

The characterological struggle that holds center stage today is that between other-direction and inner-direction. One can discern on the horizon a new polarization between those who cling to compulsive adjustment via other-direction and those who will strive to overcome this milieu by autonomy. The struggle is not likely to be ferocious, because other-direction gives men a sensibility and rapidity of movement which, under prevailing American institutions, provide a large opportunity to explore the resources of character.

In political terms, Riesman holds, the inner-directed character expresses himself politically in the style of the "moralizer," while the other-directed character tends to express himself politically in the style of the "inside-dopester." These styles are also linked with a shift in political mood from "indignation" to "tolerance," and a shift in political decision from dominance by a ruling class to power dispersal among many marginally-competing pressure groups. (BB289)

21. Psychologist Philip Slater takes a different approach to analyzing American culture.

"I would like to suggest three human desires that are deeply and uniquely frustrated by American culture:

(1) The desire for community- the wish to live in trust and fraternal cooperation with one's fellows in a total and visible collective entity.

(2) The desire for engagement-the wish to come directly to grips with social and interpersonal problems and to confront on equal terms an environment which is not composed of ego-extensions.

(3) The desire for dependence—the wish to share responsibility for the control of one's impulses and the direction of one's life."

> When I say that these three desires are frustrated by American culture, this need not conjure up romantic images of the individual struggling against society. In every case it is fair to say that we participate eagerly in producing the frustration we endure—it is not something merely done to us. For these desires are in each case subordinate to their opposites in that vague entity called the American Character...

Slater continues with a discussion of these three desires.

Community and Competition: Reisman's term "antagonistic cooperation" fits the American attempt to minimize, circumvent, or deny the interdependence upon which all human societies are based. Our encounters with others tend increasingly to be competitive as a result of the search for privacy; our fellow man is encounted as a traffic jam, supermarket, polluter, etc. Americans tend to confuse uniformity with "conformity," in the sense of compliance with or submission to group demands. Our society gives far more leeway to the individual to pursue his own ends; but since it defines what is worthy and desirable, everyone tends, independently, but monotonously, to pursue the same thing in the same way. The 1st pattern combines cooperation, conformity, and variety; the 2nd, competition, individualism, and uniformity. For example, the flight to the suburbs and do-it-yourself. Both attempt to deny human interdependence and pursue unrealistic fantasies of self-sufficiency.

Engagement and Uninvolvement: Many of these phenomena can be linked to a compulsive American tendency to avoid confrontation of chronic social problems. We try to solve long range social problems with short-run hardware solutions. For example, we can make war on poverty, but shrink from the extensive readjustments required to stop breeding poverty. Evasion creates self-distaste as well as comfort; radical confrontations are exciting as well as disruptive.

Dependence and Independence: American independence training is relative to most of the world, but is consonant with the demands of

Perhaps the major problem for Americans is that of choice; we are

forced into making more choices each day, with fewer "givens," more ambiguous criteria, less environmental stability, and less social structural support, than any people in history. In American society, we are more apt to seek controls that are internalized, and do not depend to so great an extent on control and enforcement by external agents, probably because we are a fluid and changing society. (BB325)

22. But how are internalized controls created? We know that they are closely tied to what are usually called "love-oriented" techniques of discipline in childhood. These techniques avoid physical punishment and deprivation of privileges and stress reasoning and the withdrawal of parental affection. The basic difference between "love-oriented" and "fear-oriented" techniques (such as physical punishment) is that, in the latter case, the child simply learns to avoid punishment, while in the former he tends to incorporate parental values as his own in order to avoid losing parental love and approval...

...Thus while individuals raised with fear-oriented techniques tend to direct anger outward under stress, those raised with love-oriented techniques tend to direct it inward in the form of guilt— a distinction that has important physiological correlates.

Under stable conditions external controls work perfectly well. Everyone knows his own place and his neighbor's, and deviations from expected behavior will be quickly met from all sides. When social conditions fluctuate, social norms change, and people move frequently from one social setting to another and are often among strangers; this will no longer do.

A particular form of privatism, something of a compromise among community, engagement, dependence, and individualism is the private association. Seeking to pass the buck and to escape from bureaucratic red tape may suggest making "contacts" with private associations for the performance of certain public functions. Informality may be gained, but the costs may be disproportionate.

"Many private associations are and have been responses to and against the impulse toward equality that is so ingrained in the American character." (BB242)

23. Individual choice of life-style expands with the proliferation of sub-cultures emerging from occupations, specializations, recreation and hobbies, age-groups, even groups in different marital statuses. Choice is enhanced by mobility from one group to another— from an occupational group, to a recreational group, to some marital-status group (e.g., "the formerly married" or "serial" marriage), by geographical mobility; and by transience of property ownership. (BM60)

24. Such enhancement of choice does not, of course, come without costs, such as in social controls or infringements on privacy. Some forms of restraint are imbedded in population growth, knowledge expansion, and technological growth. Meritocratic trends restrict other than outstanding individuals. For many, psychic costs attend attempts to adjust to increasing changes and choices. (BM60)

25. Certain psychic tensions have been considered by pyschoanalyst Otto Rank, who sees anxiety as growing out of two types of "separation," one symbolized by birth and the other by death. Anxiety about birth (life, going forward) comes from fear of <u>becoming</u> an individual, autonomous, and therefore isolated from institutional sustenance. Anxiety about death (commitment, surrender) comes from the fear of <u>loss</u> of individuality and selfhood. Rank believes most people spend their lives in tension between these two poles.

26. The super-industrial revolution also demands a new conception of freedom— a recognition that freedom, pressed to its ultimate, negates itself. Society's leap to a new level of differentiation necessarily brings with it new opportunities for individuation; and the new technology, the new temporary organizational forms, cry out for a new breed of man. This is why, despite backlash and temporary reversals, the line of social advance carries us toward

a wider tolerance, a more early acceptance of more and more diverse human types. (BB355)

27. Maruyama ventures the opinion that "the uniform imposition of the majority's decision upon minorities is obsolete." People's goals must be recognized as cultural goals; since people are diverse, so, too, will be their goals. Future society must aim for diversity, and heterogeneity, and not merely for "making allowances" for "marginal diversities. (BM100)

28. Means has taken up certain aspects of deviant behavior, including the view that social deprivation, poverty, and lower-class status breed social problems. Means hold that low intelligence is a very inadequate explanation for deviant behavior. There have been some very bright, imaginative, and intelligent crooks; and there is no established evidence to prove that mental deficiency is related to immoral behavior.

A society that stresses material wealth and success puts a great deal of pressure on the individual who does not succeed, who starts out from a position of poverty, and who finds opportunity blocked because of racial prejudice or lack of schooling. Such a person may resort to deviant behavior, not because he is poorly socialized or improperly trained in the values of society, but because he is too well trained. He accepts the values of the dominant society as he sees them expressed symbolically in myth— on the T.V. screen, in the movies. Means does not assume the validity of traditional morality, any variation from which is automatically called a problem of "deviant behavior." (BB225)

The Collective

29. This contention is related to the determinism controversy surrounding the works of such analysts as B.F. Skinner. Arthur Koestler attributes some the malaise of youth, in fact, to demoralization wrought by some scientist's contentions denying free will and purpose to man. (BP334)

30. This recalls Skinner's belief that man has no inner power to

transcend the conditioning of society. One critic believes that Skinner is in search of some way to preserve traditional virtues associated with 19th century individualism in a world where self-reliance is no longer feasible. Skinner speaks about getting people to work hard again because the species is predisposed to it, and about excessive emphasis on sensual pleasure as if all of it led to decadence. Further, Skinner believes the small group is the scale at which behavior conditioning can best operate. In short, Skinner uses science to support his value system, while claiming it is value-free. (BP371)

31. Duchene notes acutely that "all these views more or less struck an equation of conflict between rising curves of collective pressures and individualism."

> The immense diffusion of education and the emancipation from personal subordination to social superiors, made possible and even required by the wealth-producing system, have also given individuals an autonomy of outlook on themselves and the world, a novel inner sense of mastery and rights. (BF6)

32. In approaching a summary at this point, we have recourse to Means: There are a number of theories in American sociology that attempt to come to grips with the various problems of our society. They can be divided into two classes: those that stress social and physical conditions outside the individual, and those that emphasize psychological, subjective, or individual factors. Traditionally, most theories have had a tendency to explain a problem in terms of one specific cause.

Potential Impact

The unfolding tension between the individual and the organization will take many forms and express itself through many channels. In some aspects, society will concede greater latitude to the individual to achieve diversity, self-actualization, and identity, despite the increasing complexity of organized society. In other aspects, personal autonomy and individuality will be forced to give way to the collective demands of effective social

All we are concerned with here is the tendency to split the world between the categories of the collective versus the individual, the objective versus the psychological. It is my contention that the first step in creating a viable understanding of American social problems is to overcome this radical dualism which seems to lie at the roots of so much American thought. (BB225)

organization. Other aspects will doubtless involve compromises. All of these possibilities— individualistic, collective, and compromise— will selectively affect activities of the military establishment. Many will be identified in detail in later sections.

33. Riesman appears to be in reasonable agreement with Means:

> Whether in foreign policy or in personal life, Americans appear today to suffer from an inadequate formulation of their alternatives. It has become extremely common among the well educated to denounce 'blind conformity' and 'mass society,' often symbolized by such minor irritants as tail fins, TV, or grey-flannel suits. But the only alternatives many people see to the organization man is the nostalgic image of the cowboy or the rebellious artist; hard-shelled individualism and a rejection of human solidarity are mistaken as signs of strength and independence. Even the best students in our colleges tend to assume that they must eventually make their peace with 'the system'-which they see as even more monolithic than in fact it is — and they will then often become vicarious fellow travelers of the Beats, whose passive and almost entirely nonprogressive defiance serves to publicize a private helplessness.
>
> If we see only two choices in our personal behavior, such as conformity as against individualism, or adjustment as against neurotic loneliness, then it is likely that a similar dichotomizing tendency will capture our political life. Thus, the American is asked to choose between democracy and communism, when in fact neither system is monolithic, and both have many things— literally things— in common, in contrast with the less industrialized and bureaucratized parts of the world. (BB286)

34. We interject here one of Riesman's definitions, this one of character· "the more or less permanent socially and historically conditioned organization of an individual's drives and satisfactions - the kind of 'set' with which he approaches the world and people." (BB289)

35. Riesman cites Erich Fromm:

> In order that any society may function well, its members must acquire the kind of character which makes them want to act in the way they have to act as members of the society or of a special class within it. They have to desire what is objectively necessary for them to do.

Riesman links his definition and Fromm's point: The link between character and society is to be found in the way in which society ensures some degree of conformity from the individuals who make it up. (BB289)

36. Slater sees individualism as potentially harmful. He says the "new culture" is not an integrated, monolithic pattern, but a composite of conflicting elements, such as activism vs. hippie, and individualism vs. collectivism. The new culture, he says, seeks to create a tolerable society within the context of persistent American strivings for utopias and the pursuit of happiness. But nothing will change until individualism is assigned a subordinate place in the American value system; for individualism lies at the core of the old culture, and a prepotent individualism is not a viable foundation for any society in a nuclear age.

The real problem is that of the "mass state" under modern conditions (e.g., military service for many, college education for most, mass communication, pervasive organization for a high standard of living, central data collection for taxation and other purposes).

As it becomes harder and harder for an individual to go his own way in the things that count, the traditional value of personal independence is increasingly threatened. It may well yield ground to group conformism as a positive value in some guise that will make a pale thing of the "social ad-

justment" of Deweyite memory. The decline of individual values will doubtless be accompanied by a corresponding rise in group values— though the group may well be not the society as a whole but some preferred sub-group of it. (BB16)

37. A central value problem for American society is to disassociate the concept of freedom from laissez-faire conceptions of the free reign of individual interests. Some movement in this direction has been occurring at least since the days of Franklin Roosevelt. A related, but more difficult, problem is to alter American values in the direction of the more collective orientation which appears to be necessary today. This means that consideration of the public or collective welfare would play a larger role in individual decision-making, and greater effort would be expended in collective actions. The issue today is one of public resources and social organization. The moral agent becomes the public agent, and the individual must show his skills in corporate and social action. If an appreciation of these difficulties develops, a new definition of freedom might emerge that is not based on laissez-faire assumptions and the pursuit of self-interest. (BM70)

38. Thus, some see individualism as expanding despite restraints. Others see the reverse. Still others envision some compromise emerging.

> The thesis is that in the finite future man should, and can become more fully human; and that in the 21st century he can take giant steps forward toward becoming the so-called new integrated humanity entering the new world. We are moving even now from a world of men toward a world of Man. In this world of Man, men may well conceive and measure their selfhood and dignity in terms not so much of their independence and rugged individualism as of their interdependence and communal mutuality, and in which the individual persons comes into his own only to the extent that he becomes an individual in community, rather than an individual unto himself. (BB55)

39. There is no doubt that our society will become increasingly group oriented and more highly organized.

> Group orientation will evolve gradually, at least in the immediate future, in the form of increasingly big government, business, and labor organization; and as our society becomes more complex, these organizations will tend to become more unified. With complexity and unification, there will also be specialization. Man will incline largely to group goals, while expectations emphasizing personal preferences will be much less appreciated. Indeed, great individual expectations are likely to be looked upon as odd, reactionary, and anti-group. Unanimity of thinking would be seen as the normal pattern. (BF13)

40. This last sentence appears to go farther than the concept of "individual in community" and raises some misgivings. As one mulls over Riesman's ideal types, it is difficult to foresee likely sources for inner-direction among members of communities in which even "interdependence and communal mutuality" are dominant. The development of appropriate compromises between the extreme ideal types will probably be a delicate, frustrating, and long drawn out process. If achievement of "unanimity of thinking" were to become an objective of society, or even to become an expected though undesired feature of future society, the tensions predicted by most thinkers about the future would, perhaps regrettably, not materialize.

CHANGE, HUMANISM, AND OTHER SOURCES OF IMPACT

1. As the preceding sections demonstrate clearly, categorization concerning future change is elusive. We have attempted to remain on the general philsophical level while discussing both abstract and concrete aspects of change categorized as Authority, Government, Ethics, Religion, and the Individual vs. the Collective; but the categories are very loosely bounded, if indeed boudaries exist. In this section, we endeavor to continue discussion on the same plane, concerning Change, Humanism, Technocism, and Social Interrelationships, but the same problem of shifting boundaries still obtrudes. Change is pervasive in every subject; Humanism recalls our discussions of Religion and Individualism. Overlap continues to be patent.

Nevertheless, the attempt of categorization imposes some order on the material. A different approach to an already-introduced subject adds a new perspective and, perhaps, additional illumination. Again, we attempt to thread our "uncharted" way over where we have been, where we are, and where we are going.

Social Systems

2. Kenneth Boulding discusses the prediction of change. The main causes for failures in prediction are sudden changes in the characteristics of the system itself— a "system break," e.g., death, bankruptcy, graduation, a new job, marriage, sudden changes in birth or death rates, or in productivity. System breaks are hard to detect because it is difficult to distinguish between a temporary fluctuation or the beginning of a new trend. (BB242)

3. Boulding compares prediction of four types of systems:

Evolutionary Systems

> There is something fundamental in the nature of an evolutionary system which makes exact foreknowledge about it impossible; and as social systems are in a large measure evolutionary in character, they participate in the property of containing ineradicable surprise.

Mechanical Systems

> Time is not of great importance, and there is a wholly predictable succession of states of the system. Astronomy and physics are subject areas.

Pattern Systems

The biological world is the principal domain of the pattern systems, where partial predictability is possible in greater or less degree.

Equilibrium Systems

The dynamic processes produce a succession of states, all of which are virtually identical." Thus in the short run, people stay much the same from day to day. One expects that a disturbance will be followed by a movement toward equilibrium again— a sick man recovers, a burned city is rebuilt. (BB242)

4. In approaching the analysis of social change, Appelbaum identifies four levels of human action: the individual personality, interactions among individuals, group or social system, and cultural system. Society is defined as "relatively the most self-sufficient type of social system." (BB7)

5. A more complete definition is given by David Aberle:

> A society is a group of human beings sharing a self-sufficient system of action which is capable of existing longer than the life span of an individual, the group being recruited at least in part by the sexual reproduction of its members.

Change can be characterized in various distinctions, such as magnitude, time span, or effect on the changed unit.

6. Maruyama points out that there are several ways in which component groups can interact in a heterogeneous society:

Separatism: groups may co-exist with no or very little interaction between them

Symbioisis: groups benefiting from one another

Parasitism: one group gain is another's loss

Antibiosis: one group may harm another group

Mutual antibiosis: many groups may harm one another

Zero-sum relations are those in which the total gain and total loss cancel out. The ideal is symbiosis.

These interactions can be shown on a chart:

	Gain	Loss	Remark
Separatism	No group	No group	No interaction
Symbiosis	All groups	No group	Nonzero-sum
Parasitism	Some groups	Other groups	Zero-sum
Antibiosis	No group	Some groups	Nonzero-sum
Mutual Antibiosis	No group	All groups	Nonzero-sum (BM100)

7. C.D. Darlington attempts to understand the differences among human societies in terms of biological, genetic, and historical principles. Darlington sees man as a creature caught among many areas of social change but moving forward in areas of his choice, playing many roles in history. Religion has been a factor in his evolution and in the formation of civilization. Man's future is dependent upon genetic diversity. Diverse habits should be preserved, as well as diverse individuals, because through them, society advances with intelligence, insight, and creativity. (BN526)

8. William Glasser divides the history of mankind into four phases:

Primitive survival society: Man's primary goal was survival, and that meant cooperation with others in defending against a hostile environment. (3 1/2 million years)

Primitive identity society: as pleasure and leisure time became part of man's experience, and as the world became a less hostile place in which to live, man had time for rituals, symbols, and religion as ways in which to identify himself.

Civilized Survival Society: survival again became a paramount priority, but civilized men did not revert to the cooperative instincts of their forefathers. With the increase in population, the decrease of available game, and the discovery of agriculture, land became

> extremely valuable, and aggresive men fought one another to obtain and exploit it.

But wars have developed into senseless power struggles. There is good evidence that the lives of 2/3 of the people in the world today are much less gratifying in terms of ease and human satisfaction than were the lives of men who lived during the past 1/2 million years. The stresses and strains to which we have been subject in the civilized survival society have forced our conscious minds to choose behavior that conflicts with the cooperative behavioral tendencies built into the human nervous system during the two primitive societies.

Finally, civilized identity society: that is, society motivated by a respect

> for individual integrity. The cleavage is between cultures, not age groups. The need for defense against the environment had been diminished by affluence, and the affluence made it possible for more peoples to become politically concerned with human pleasure and the right to enjoy that pleasure. People have become free to concern themselves more and more with their identities and how they might express them. (BP158)

9. Using a different approach, Kahn and Wiener list thirteen trends which they feel constitute the basic long-term trends of Western Society, trends which are still in progress:

1) increasingly sensate
2) bourgeois, bureaucratic, meritocratic, democratic
3) accumulation of scientific and technological knowledge
4) institutionalization of change, especially research and development and diffusion.
5) worldwide industrialization and modernization
6) increasing affluence and leisure
7) population growth
8) urbanization and growth of megalopolises
9) decreasing importance of primary and secondary occupations.

10) increasing literacy and education

11) increasing capability for mass destruction

12) increasing tempo of change

13) increasing universality of the multifold trend (BB170)

10. Kenneth Boulding identifies three major periods: pre-civilization, civilization, and post-civilization. We are now in transition between civilization and post-civilization, respresenting an interlude between major periods of man's development. (BB42) He predicts that the characteristics of the post-civilization period, when it arrives, will be as follows:

-war will decline because nations will realize an investment in science will yield more than investment in war

-imperialism will vanish; development of a new science of conflict management will help create a new workable system of disarmament.

-uniformity will be a menace; subcultures may turn out to be extremely useful devices for preserving the diversity of mankind. (BB42)

11. Boulding notes that there exist several potential hazards which might delay transition, such as war; exploding population;lagging economic development; technological imbalance (we may not be able to develop a genuinely stable high-level technology which is independent of exhaustible resources); or the nature of man himself, in that superabundance and elimination of dangers and difficulties may lead to diminished creativity and boredom. Science will be the catalyst in the process of transition. Ideology, of whatever variety, suppresses the clearing process in man; to achieve the most efficient transition, man must develop a pragmatic, social-science strategy. (BB42)

12. Probably 99% of human ability has been wholly wasted. The range and delicacy of our senses could be extended by fairly simple means of training and drug use, to almost unlimited extensions of experience. (BB70)

13. Contemplating the 20th Century, Frank Hopkins discerns three great imbalances:

-Between the man-made world and the earthly environment (What will be the effects of the strain of 7-8 billion people in 2001 on ecology and natural resources?)

-Between the advanced and underdeveloped nations (by 2001, per capita GNP of advanced nations to the rest of the world will be as 18 to 1; but 80% of world population will be in the underdeveloped nations)

-Between advancing technology and lagging social management.

Numerous paradoxes result: the United States puts men on the moon, but American cities harbor great slums; cities decay, while industries expand; poverty persists, while wealth increases in the United States; hunger persists, despite an agricultural surplus; poor medical care is widespread, in an era of miracle drugs. In the world, the advanced nations become richer, while poor nations become poorer; aid from abroad speeds population growth, while the standard of living declines. (BM77)

14. Duchêne brings in the factor of mass society:

> This whole order of magnitude of change makes the old automatic 'participation' of the few as anachronistic as the isolation of the rural masses. Both are replaced by a vast number of people crowding into the middle stations of society where the natural pride of personal self-determination is frustrated and insulted by the mediocrity of one's responsibility and power.
>
> One of the troubles of the mass society is that a crowd of people all seeking the same objectives may, and indeed often do, produce results that more or less frustrate the objectives of each individual in the crowd.
>
> The way of life we lead today makes it impossible for us to be as close to our friends as we would really want to be. The feeling of alienation and the modern sense of the 'meaninglessness' of life are direct expressions of the loss of intimate contact. (BF6)

15. After WWII there was a fascination with hardware and lack of interest in social and spiritual matters. Except for Aldous Huxley, the

articles were optimistic in nature. Comments on what went wrong include: expanded military budget, lack of imaginative leadership, and unforeseeable trends (students, women's lib, the pill). Science and technology were "gods" but now, as Toffler notes, the U.S. has entered a "post-material age." (BN537)

16. Time Magazine analyzed the decade of the 1960's, prior to forecasting what is probable for the 1970's. The 1960's, said Time, were a romantic era, in the sense that there was rebellion against a society that had become over-regulated, oversystematized, overindustrialized. Middle-class youth railed against rationalism for destroying all spontaneity, and they urged, instead, the uninhibited release of emotion. They revived domestic faith in human value and blamed the institutions of society for corrupting it. Youth expressed a profound disillusionment with the values of the older generation. They engaged in a desperate search for identity, demanding Freedom Now, Peace Now, and Utopia Now. Time recalls what Chateaubriand said about the 19th century romantics: "They rig themselves up as comic sketches, as grotesques, as caricatures. Some of them wear frightful mustaches. One would suppose that they are going forth to conquer the world." Preoccupied with themselves, youth made an adventure of exploring their own senses and extending them with the use of sex and drugs.

Romanticism reconfirms the value of the individual. In some ways, the movement expands personal freedom, and the strength of liberal democracy owes much to those who champion civil liberties and extension of the suffrage. (BP143)

Technology and Humanism

17. Although we have already explored some implications of technology, we have no more than introduced the subject, or the debate concerning the good, or ill, or both, that technological advances augur for man's future in political, psychological, and social contents. On the level of humanism, we have only to reflect on the implications of extended space travel to appreciate the dimensions of the erosion of familiar theistic, theological, anthropomorphic

explanations that were offered relative to the universe, the origins of life, and the purpose, responsibilities, and opportunities of each personal life. (BM43)

18. In turning to where we are today, many commentators (as we have already noted) describe and endorse the protection of diversity:

> As specialization continues, as research extends into new fields and probes more deeply into old ones, as the economy continues to create new technologies and services, subcults will continue to multiply. Those social critics who inveigh against 'mass society' in one breath and denounce 'over-specialization' in the next are simply flapping their tongues. Specialization means a movement away from sameness. Despite much loose talk about the need for 'generalists,' there is little evidence that the technology of tomorrow can be run without armies of highly trained specialists. We are rapidly changing the types of expertise needed. We are demanding more 'multi-specialists' (men who know one field deeply, but who can cross over into another as well) rather than rigid 'monospecialists.' But we shall continue to need and breed ever more refined work specialties as the technical base of society increases in complexity. For this reason alone, we must expect the variety and number of subcults in the society to increase. (BB355)

19. The new "counterculture" is based on the assumption that important human needs are easily satisfied, and that the resources for doing so are plentiful. Instead of competition, the cultivation of joy and beauty would be the goal, with brotherhood and cooperation typical. The expression of feeling is no longer a signal to the "enemy," so that reactions to stimuli are often highly intense. ("WOW"). A major difference between the old and the new culture is time-orientation. The "now" is important, rather than planning for the future. To some extent, this is a materialism/humanism controversy. The law of scarcity means that material things can be more important than humans. Materialism leads to structured inequality, whether the goal be goods or a type of power. Ramifications of the counterculture include hippie movements, religious innovations, political activism, and humanistic psychology. (BM149)

20. The teacher-societies, far from being drab and homogenized, are honey-combed with colorful groupings— that is, sub-cults; and today the hammerblows of the superindustrial revolution are literally splintering the society. We are multiplying these social enclaves, tribes, and minicults among us almost as fast as we are multiplying automotive options. The same destandardizing forces that make for greater individual choice with respect to products and cultural wares, are also destandardizing our social structures. This is why, seemingly overnight, new sub-cults like the hippies burst into being. We are, in fact, living through a "subcult explosion." The importance of this cannot be overstated. For we are all deeply influenced, our identities are shaped, by the subcults with which we choose, consciously or unconsciously, to identify ourselves. We search for identity by attaching ourselves to informal cults, tribes, or groups of various kinds. And the more numerous the choices, the more difficult the quest. (BB355)

21. The merchant class had its own preferred life style and the peasantry and gentry still others. These life styles were pieced together out of many different components, ranging from residence, occupation, and dress, to jargon, gesture, and religion. Today we still create our life styles by forming a mosaic of components. But much has changed. Life style is no longer simply a manifestation of class position. Classes themselves are breaking up into smaller units. Economic factors are declining in importance. Thus today it is not so much one's class base as one's ties with a subcult that determine the individual's style of life. The working-class hippie and the hippie who dropped out of Exeter or Eton share a common style of life but no common class. (BB355)

22. The super-industrial revolution, consequently, forces the whole problem of overchoice to a qualitatively new level. It forces us now to make choices, not merely among lamps and lampshades, but among lives; not among life-style components, but among whole life styles. This intensification of the problem of over-choice presses us toward orgies of self-examination, soul-searching and introversion. It confronts us with that most popular of contem-

porary illnesses, the "identity crisis." Never before have masses of men faced a more complex set of choices. The hunt for identity arises not out of the supposed choicelessness of mass society, but precisely from the plentitude and complexity of our choices. (BB355)

23. To Jarrett, it seems clear that some of the current lines of research are truly seminal. Despite our experience with them, we do not have a solution to scarcity problems.

> The new possibilities of surmounting some of the old limits and barriers on resource supplies and use put a new burden on the modern citizen. Until recently man accepted the main characteristics of his environment pretty much as he found them. He survived, and sometimes prospered, by ingenuity, adaptability, and fortitude. These virtues doubtless will remain indispensable, but new possibilities of choice are now being added. As Edward A. Ackerman puts it in his essay, 'Do we know what kind of weather of climate we should like to have if we could change it to order?'...There is need of wisdom in making the choices as they open up. Sometimes the risks may be greater than the possible gains. George Beadle, for example, points out that while modern man already knows enough, he is not yet by any means wise enough to take a hand in consciously shaping his own genetic future. More and more, as technology advances, planners, administrators, and ordinary voters must be aware of the physical and biological possibilities and limitations of their plans and aspirations; and scientists and technologists must recognize the social and economic meaning of the applications of their research. (BB165)

24. Toffler expresses much the same point in this way: It is not simply that we do not know which goals to pursue. The trouble lies deeper. For accelerating change has made obsolete the methods by which we arrive at social goals. The technocrats do not yet understand this; and, reacting to the goals crisis in knee-jerk fashion, they reach for the tried and true methods of the past. Change is not bad; it is necessary, but it must be used constructively

rather than responded to only passively. (BP97)

25. People still strive for goals, but increasingly they are vocational or avocational goals. The goals may or may not lead to economic security, but they do give people verification of themselves as humans.

Not everyone can work at a job he would enjoy or identify with, but now anyone can pursue a recreational goal.

Few people renounce the opportunity to struggle for an independent role, but people can fail; they are unable to find a role. Many retreat into unreality through the use of alcohol, drugs, psychosomatic ailments. Others find independence in growing beards, participating in peace marches, or in voter-registration drives.

The young are struggling for involvement, that is, they believe role takes precedence over goal. They believe that not only each person but also the government has an obligation to work to improve the quality of life for all. This includes limiting births, because overcrowding is the direct path back to the survival society.

The new identity society is a regeneration of intelligent cooperation and involvement, reverting back hundreds of thousands of years to humanity. (BP158)

The Pervasiveness of Change

26. Weise insists that the basic skill needed for today is the ability to adapt to change. (BM149)

27. Toffler specifies three principal agents of rapid change: population increase, shifts in age-group composition of population, and technological advances.

Louis Armand of the French Academy predicts that cybernetics alone will transform society (he points out that three-quarters of all computers in the world are in the United States).

Soviet and East European Academicians have emphasized developments in the production process, pointing out four major quantum-jump

changes:

1) the shift in the source of energy from steam and coal to oil, gas, and nuclear power
2) the automation of production, including computerization
3) industrialization and chemicalization of agriculture, and
4) petrochemistry, which has revolutionized the raw material process. (BP35)

28. Not only are important changes occurring rapidly in almost all fields of human activity, but the rate of change is accelerating. Change on such a scale and at such a pace is difficult for man and his complex society to absorb with equanimity, challenging man's capacity to adapt— to technology, to increasing knowledge, to the condition of transience. Increasingly, the nature of man's relationships take on a proportion of transitoriness— to things, places, people, ideas, and institutions; individual commitment become limited by forces beyond the individual's control— eventually, he limits commitments for self-protection. What the limits of growth and expansion will turn out to be are, of course, unknown; similarly, the limits of man's tolerance of change, transience, and uncertainty are also unknown. (BM60)

29. Kenniston offers general observations:

-The past grows increasingly distant from the present (1950 is much different from 1960)
-The future grows more remote and uncertain
-The present assumes a new significance as the one time in which the environment is relevant, immediate, and knowable.
-The relations between the generations are weakened, as the rate of social innovation increases. (BB99)

30. The United States' almost unqualified acceptance of technological innovation is historically singular. The assumption that the new will be better than the old goes very deep in our culture; and even when we explicitly reject such notions as that of benificent Progress, we often retain the implicit

assumption that change per se is desirable.

The elevation of technological innovation into a profession, Research and Development, is the high point of institutionalized technological change in this country, and probably in the world. Two factors increase the effect of technological change:

The relative absence of traditional institutions or values opposed to change.

Regardless of institutions, unwillingness to control, limit, or guide the directions of industrial and social change.

Because we are unwilling to guide the course of our society, we Americans have no way of knowing where we are headed. (BB99)

31. Perhaps the most dramatic and impressive measure of the scope of change in our time is the concept of the 800th lifetime, described by Toffler:

> It has been observed, for example, that if the last 50,000 years of man's existence were divided into lifetimes of approximately sixty-two years each, there have been about 800 such lifetimes. Of these 800, fully 650 were spent in caves.
>
> Only during the last seventy lifetimes has it been possible to communicate effectively from one lifetime to another— as writing made it possible to do. Only during the last six lifetimes did masses of men ever see a printed word. Only during the last four has it been possible to measure time with any precision. Only in the last two has anyone anywhere used an electric motor. And the overwhelming majority of all the material goods we use in daily life today have been developed within the present, the 800th lifetime. (BB355)

32. There are three types of strategies for change. The first is that called empirical-rational, in which men are assumed to be rational and moved by self-interest; therefore change will be adopted if it can be rationally justified and if it can be shown that the one affected will gain by the change. The second type is the normative-reeducative; in it, change in a pattern of practice or action will occur only as the persons involved are brought to change their

normative orientations to old patterns and develop commitments to new ones. Changes in normative orientations involve changes in attitudes, values, skills, and significant relationships. The third group is based on the application of power. This involves getting authority of law or administrative policy behind the change to be effected; some power strategies, however, may appeal less to the use of authoritative power to effect change than to the massing of coercive power, legitimate or not, in support of the change sought. (BM25)

33. Toffler's famous phrase, "future shock," means the dizzying disorientation brought on by the premature arrival of the future. Future shock is a time phenomenon, a product of the greatly accelerated rate of change in society. It arises from the super-imposition of a new culture on an old one. Culture shock occurs within one's own society. It results in disorientation and progressive incompetence to deal rationally with one's own environment. The malaise, mass neurosis, irrationality, and free-floating violence already apparent in contemporary life are merely a foretaste of what may lie ahead. (BB355)

34. The several possible responses to constant change—e.g., over-stimulation—or the symptoms of future shock are denial, specialization, reversion, and super-simplification. All of these reactions, if intensified, yield erratic behavior, including total withdrawal or indiscriminate violence.

Max Ways remarks that:

> Within a decade or two it will be generally understood that the main challenge to U.S. society will turn not around the production of goods but around the difficulties and opportunities involved in a world of accelerating change and ever-widening choices. Change has always been a part of the human condition. What is different now is the pace of change, and the prospect that it will come faster and faster, affecting every part of life, including personal values, morality, and religions, which seem most remote from technology. So swift is the acceleration that trying to make sense of change will come to be our basic industry. Aesthetic and ethical values

will be evolving along with the choices to which they will be applied. The question about progress will be how good? rather than how much? (BM43)

35. The shape of the central problem of our society is the growing restriction of human freedom; not freedom in terms of constitutional liberties, but the liberation and enrichment of the human spirit, the uncaging of human possibility, the development of man's capacities as man. (BN212)

36. Myron Tribus, of the Department of Commerce, says that:

> People in technology often think that if they perform their technological wizardry, society will adapt to it in one way or another...but anyone who has been at the frontiers of technology knows that we haven't been going as fast as we could, simply because society is not ready for it. The social aspects are even more important than the technological.

Mr. Tribus believes that the engineer should develop himself as interface between society and technology. In the 21st century, technology will grow at an even greater rate, and that rate will be affected by the structures we devise to handle this growth. (BP419)

37. On the question of tension between men and machines:

> Historically, we have always learned to live with our artifacts. It is possible therefore that people will learn in the not too distant future, to ride their personal computers with all the excitement that the motorcycle rider feels when he storms down the long tunnel of the night. (BM7)

38. Technological change itself may contribute to feelings of estrangement from the new physical world and also from a society strongly affected by continual innovation and disruption. There is a long tradition in American letters of hostility to the machine, and, at least since World War II, an increasing perception that the social consequences of science and technology are, at best, mixed blessings. Machines that perform some functions of the human mind far better than humans can are likely to be even more resented, in spite of their economic benefits, than machines that do the same for human muscles. The human place in the world may be most

> seriously disturbed by new medical technology. New drugs will raise sharply the questions, what is a real human feeling, and what is a genuine personality? Plastic replacements for hearts and other vital organs raise in new and more difficult form the old problem of defining life and death, and add a new difficulty to the old question, what is a human being? (BP170)

39. Johnson and Kobler express the fear that the value questions raised by the use of computers in the decisionmaking process will not be given sufficient attention. There is the danger, they argue, that men will abdicate their responsibility in face of the aura of infallibility which attaches to the computer and that human values which cannot be programmed easily will be overlooked. (BM70)

40. On whether technology is destructive of values, Hoggart and Trachtenberg assert the necessity for greater interaction between "the two cultures" of the humanists and the scientists, if technology is not to destroy human values. Trachtenberg argues that great effort must be made to preserve human values if man is to control technology rather than vice-versa. Hoggart explains that both the scientists and the humanists have important roles to play: the scientists must make clear the new possibilities which are offered by the new technologies and the humanists must explain the traditional values. Kranzberg takes the humanists to task for having become "intellectual Luddites" and for failing to assume their responsibility of interpreting nature and society to man. He notes various ways in which technologies have been supportive of humanist values. (BM70)

41. Mumford's position is that man cannot simply impose his will upon machines. Machines have fostered "the technique of cooperative thought and action" as well as a new logic and a new esthetic. The machine process has created a new human value represented by "the concept of a neutral world... indifferent to (man's) activities." It is incumbent upon man first to absorb the lessons of the mechanical realm— objectivity, neutrality, impersonality— and

then to go beyond them to "the more profoundly human." Boulding's conception of the technology/values relationship is that of two processes in interaction. Both technologies (ways of doing things) and values (choice and preference processes) are "created and transmitted by a common learning process" and constantly interact. Both are changed in the course of transmission from one generation to the next. As a result of their complex interaction today, two cultural systems are emerging: the worldwide superculture of airports, throughways, and skyscrapers and the traditional cultures of various national, religious, ethnic, and linguistic groups. The two are interdependent and must learn to adapt to each other. (BM70)

42. Indeed, Bennis and Slater argue, the scientific orientation has been encouraging pluralism and an egalitarian politcal perspective; for science is against dogma and totalitarianism. In a time of widespread technological innovation and chronic change, democracy becomes the most efficient form of organization— in the family as well as in large organizations. Change, growth, and complexity militate against the maintenance of rigid forms. But Goodman argues that technological growth has not been well controlled either by the citizenry or by anyone else. Technological growth has been directed towards increasing the number of goods and services, according to Goodman, "whatever their quality or mutual contradictions." And the complex interlocking system of technologies is not well understood or controlled. Scientists and technologists should reassert their own values and citizens their control. Technology should be judged "directly in terms of the moral criteria appropriate to it as a branch of practical philosophy." Such criteria include: utility, efficiency, flexibility, and relevance. (BM70)

43. But while we are swept up in the onrush of technological change, we don't really know yet how to foresee its effects on society; nor, for that matter, do we really know how to evaluate those effects in any meaningful or objective manner. Lacking standards of social progress and lacking established widely accepted national priorities and goals, we tend to drift from crisis to

crisis in a sea of change. (BP146)

44. Moreover, we have more to consider in relation to the shock to humans which accompanies sharp, rapid, and constant change.

Marshall McLuhan has said that technological changes recast the entire character of the individual and compel him to rediscover himself in depth instead of in detachment and objectivity. Farson agrees that this is already taking place, and that the age of protest springs not only from man's attempt to rediscover himself, but from a radically new view of the human potential. And in the future, people will demand above all the right to fulfill their potentialities. This, not material possessions as such, will be seen as the means to the good life. (BF13)

45. The American "market" society as developed historically from one of subsistence wants to one of luxury wants (for some), and is now becoming a market of "human fulfillment" wants, including fulfillment as to type job or profession. (BM60)

46. Dr. Jonas Salk states that as man is approaching "reasonable limits of population growth," he will move from an epoch of competition and individualism to an epoch of cooperation and interdependence. The new era, he says, is about three generations away. The issue here it to help mankind bridge the epoch gap. (BN288)

47. What is needed is some meaningful measure of social change and some index by which to gauge social well-being. Who is to set goals? Yet, if we do not somehow fashion objectives, are we not condemning our children to all the inadequacies of our present? (BP146)

Intelligence and Humanism

48. In anticipation of the "knowledge society" and "intellectual economy" of the future predicted by Bell and others, Herrnstein concludes that the growing complexity of human society makes acute the shortage of high grade intellect. (BP183)

49. Experts do not agree on the criteria for "genius"—even on the IQ level. Some fudge the term by using the term "potential genius" to include anyone with an IQ of 140 or more, which is attained by about 1 in 250 of the general population. Others insist on a minimum level of 180, which is attained by about 6 in every 1,000,000 of the general population. (BN330)

50. John Rader Platt says that we have been seeing an IQ of 190 (which might describe Archimedes, Newton, and Gauss) about once every 500 years. At the 180 level there might be a dozen living Americans—the level of, say, Darwin, Shaw, Freud, Bertrand Russell, and Linus Pauling. At 170, there are probably some 300 in the United States; at 160, about 5,000; at 150, about 100,000; and at 140, about one million. (BB271)

51. Boulding includes educational systems among institutions that will play a vital role in creating a "moral identity."

> The greatest human tragedy is to feel useless and not wanted, and with the rise in the intelligence of machines, we may face a period in which the human race divides into two parts, those who feel themselves to be more intelligent than machines and those who feel themselves to be less.

The ultimate thing which any society is producing is people, and the educational system is peculiarly sepcialized in the production of people. The ultimate mistake would be to make the educational system a means, not an end, serving purposes other than man himself. (BB242)

52. In a much-discussed essay, Herrnstein explored the influence of heredity on intelligence. He noted the regression toward the mean, that is, the tendency for children to be closer to the general population average (IQ 100) than their parents. Very bright parents have children who tend to be merely bright, while very dull parents tend to have children whose intelligence is less dull. (BP183)

53. Another scientist in his field, Arthur Jensen (a professor at Berkeley), concludes that the single most important environmental influence on IQ is not education or social environment, but something prenatal. If relevant environment is made

more uniform, then a greater proportion of variation in IQ is attributable to genes. The mere fact of heritability in IQ is socially and politically important, the more so the higher the heritability. (BP183)

54. Herrnstein suggests a syllogism:

1) If differences in mental abilities are inherited, and 2) if success requires these abilities, and 3) if earnings and prestige depend on success, then 4) social standing (which reflects earnings, prestige, and success) will be based to some extent on inherited differences. This would have relevance to the future, in that, as many social and legal impediments to social mobility are removed, there still remain other handicaps to the achievement of social mobility.

Herrnstein took note of a Harvard Education Review article by Jensen which was occasioned by the failure of compensatory education to make up for a "deprived" social environment. Jensen asked how much can we boost I.Q. and scholastic achievement? His answer: not very much.

The article had arisen out of the controversy about the validity of IQ tests, which have increasingly become the society's instrument for creating its meritocracy. Critics contend that such tests hold down the disadvantaged, whose interests and talents are not recognized by IQ tests, while the tests advance the interests of the already privileged. (BP183)

55. It can be concluded from the IQ syllogism, that greater health, wealth, freedom, fairness and educational opportunity are not sufficient to give us the equalitarian society of our philosophical heritage; for the removal of such arbitrary barriers still leaves the biological barriers.

Jensen concluded that the genetic factor is responsible for about 80% of IQ and that only the 20% left is dependent on everything else—social, cultural, and physical environments, illness, etc. (BP183)

56. Herrnstein concludes that "setting aside the racial issue,... "intelligence...like other important though not necessarily vital traits... is highly heritable." In the future, the growth of wealth and opportunity will screen out for the upper classes precisely those from the lower classes who have the

edge in native ability. It will also increase the IQ gap between the "upper" and "lower" classes, making the social ladder even steeper for those left at the bottom. (BPI83)

57. Technological unemployment may increase, in that technology of increasing complexity may create jobs beyond the native capacity of large segments of population, old and young. If it turns out that it is the low IQ's who are out of work, unemployment may be ascribed to genes. The possibility exists that social class differences will not only continue, but that the gap between classes will grow, due to inborn differences. (BPI83)

58. What is uncertain in this equation is the degree of importance placed on intelligence in future society.

59. For that matter, what is the real importance of intelligence in current society?

David Cohen, Professor of Education at Harvard, asks: Does IQ matter? He mentions that several highly structured and intensive one-year programs working with disadvantaged children have shown initial gains of phenomenal scope—sometimes on the order of 30 or 40 points in IQ. However, he points out that 3 or 4 years after the end of such experiments, the gains vanish (no one knows what would happen if such programs lasted 9 years instead of 1). Related to college attendance, Cohen finds, ability (IQ) and status explain less than half the variations; for the rest of the explanation, we must turn to other factors, such as motivation, luck, discrimination, change, and family encouragement or lack of it. As such, in America, IQ has only a moderate impact on adult income, status, and power; such impact as IQ has is exerted only through the schools. At the same time, schooling (often incorrectly identified with IQ) is much more important as a determinant of success than is IQ.

Fimally, many factors also lead to being poor and having low-status jobs, but IQ is not an important one. Being stupid is not what is

responsible for being poor in America. (BP71)

60. However, the possibility of actually increasing one's intelligence is considered by some as not closed. Koestler and others speak frequently of extending personal capacity through drugs. Even the possibility of affecting intelligence through training is being pursued by several scientists.

For the "Milwaukee Project" at the University of Wisconsin, Psychologist Rick Heber has studied the role of reinforcement during childhood in "shaping what intelligence tests test." Ghetto children of mothers with IQ scores of 70 or below (low enough to be classed as mentally retarded) get 1-to-1 tutoring shortly after birth. A highly structured program includes intensive attention first at home, then in small classes at the project center. Each child has his own teacher until the age of 2; then he participates in a class with five other children; at 3, he enters a class of eight; at 4, a class of 11. Three teachers supervise each class, each specializing in one area of intellectual development. Tested throughout, the children are regularly compared with a control group with identical backgrounds but without early intervention.

At the end of the 5th year, "astronomical" differences have been registered. At age 4, where the control group children record mean IQ scores of 80, the project children record mean scores of 128-130. By no means discounting genetic differences, Heber finds significance in these results. (BP161)

61. One may offer several comments and questions: Obviously, this is a very expensive procedure in the utilization of highly trained manpower, and in facilities; to what extent can programs of such scope be afforded in a mass-education society? It will be interesting also to follow up Cohen's question in determining how long the effects of the project last after the children leave it. Questions arise about the transmission of social and cultural values, as well as intellectual development. In a leap that is far-fetched at the moment, such procedures may eventually be tied in with genetic control, exclusive selection of parents who may be permitted to have children, and a

possible reluctance of society to leave the bringing up of children to the chance competence or incompetence of parents, particularly during the earliest formative years of life

Predictions about Humanism, Technology, and Change

62. Daniel Bell has proved to be one of the more perceptive interpreters and predictors in relation to the New Sensibility. One of his major predictions is that the centers of power in post-industrial society (the "knowledge society") will be universities, rather than industrial corporations. He predicts that we will switch from the industrial organization, from an industrial economy, to an "intellectual" economy.

Among the major surprises Bell considers possible during the next 10-20 years:

-A major ground swell in our culture is coming as a result of the innovation, introspection, self-awareness, and ability to experiment which are represented in young people.

-We need to know more about the optimum living environment for man.

-We need to examine the psychological significance of work. (BB306)

63. The only way to avoid having knowledge (i.e., power) concentrated in a more and more limited segment of mankind is by doing comprehensive research and development in education, psychology, and sociology. Then we may be able to meet the demand for understanding the very complex forces coming to bear on human development in an increasingly complex world. (BB306)

64. Kenneth Boulding argues that the research resources in social systems "are absurdly small in the light of the practical importance of these systems... whereas a failure of knowledge to advance in the physical and biological sciences for the next twenty-five years would not present mankind with any serious problems, the failure of knowledge to advance in the social sciences could well be fatal." (BB242)

65. Washington now recognizes that we have much greater knowledge in physical sciences than we do in the social sciences. Our failures at domestic social programs and international development projects have demonstrated this. Hence a major requirement of the next 10-20 years will be increasing the amount of new insight into, and information about, behavioral sciences.

For example, we have great need for "experimental cities," representing true cross-sections of population, designed for both living and working, offering a variety of institutions. The whole concept of "city" should begin and end with people. It is a highly complex problem; we cannot experiment with just bits and pieces, because each bit affects all others. And it must be a massive, continuing experiment. (BB306)

66. We present at this point a number of capsule evaluations:

Bertrand de Jouvenel:

> Progress in our mastery of nature has come from progress in inderstanding it; similarly, our progress in the service of men requires progress in our understanding of them. It must be remembered that our purpose is to serve and not to utilize, to favor the diverse blooming of human plants, not to raise men like wheat-ears in Iowa. Let us therefore draw our inspiration from the gentle art of gardening. (BB102,103)

67. John Platt: The most challenging developments of the next few years include:

1) Genetic copying of animals.
2) Contraceptives in food.
3) Regeneration of organs.
4) Automated clinical biochemistry.
5) New channels of personal communication.
6) Solution of conflict games.

This generation marks the time when evolution by natural selection is replaced by evolution by human selection. This makes problem-solving "by anticipation" essential. (BB102,103)

68. R. Siu: In predicting the role of technology in creating the environment 50 years hence, Siu sees"a new age of holistic humanism, in which human needs will be considered in relation to man's total being and environmental context; and man will ultimately be the measure of value." (BBI02,103)

69. Carl Oglesby: Young rebels "are committed to the ideas that man's salvation is, in the first place, important; in the second place, in doubt; and, in the third place, to be achieved only through his free and affectionate union with his fellows, and the exercise of courage to fight for that union against all obstacles and at any risk." (BBI02,103)

70. D. Bazelon: The keystone value is an image of equitable sustenance and expression for all individuals. What is wanted is not more of the old game of morality against power, but rather a new morality of power. Morality will become genuinely pragmatic, not merely a posturing exercise. This is the new factor in American Society. (BBI02, 103)

71. Sir Geoffrey Vickers: In collective society, it is essential that all subcultures should have in common the kind of cultural seedbed in which individuality can grow, essential for development of people and no less essential for their society; for all creative innovation comes from individuals. (BBI02, 103)

72. Ann Schrand: Too much emphasis is being placed on the influence of technology in shaping the future. Hope in the people lies principally in the awareness the people have of themselves, their comprehension of their dignity and responsibility, their capacity to offer themselves, and not merely to react continuously to certain introduced stimuli. (BBI02,103)

73. B. Fuller: Offers an "Operating Manual for Spaceship Earth." He says there are synergetic rules that evolution is employing and trying to make to us. They are not man-made laws. They are infinitely accommodative laws of intellectual integrity governing the universe. (BBI02,103)

74. Planning requires the creation of institutions which conserve human ends. It requires that they set goals reflecting the varying targets of human

> If to the picture of declining durations of human relationships we add the factor of diversity—the recognition that each new human relationship requires a different pattern of behavior from us—one thing becomes starkly clear: to be able to make these increasingly numerous and rapid on-off clicks in our interpersonal lives, we must be able to operate at a level of adaptability never before asked of human beings.

Combine this with the accelerated through-put of places and things, as well as people, and we begin to glimpse the complexity of the coping behavior that we demand of people today. Certainly, the logical end of the direction in which we are now traveling is a society based on a system of temporary encounters, and a distinctly new morality founded on the belief that relationships will of necessity be short. It would be absurd to assume that the future holds nothing more than a straight-line projection of present trends, that we must necessarily reach that ultimate degree of transience in human relations. (BB355)

79. There will be an increasingly vocal body of opinion asserting that man is unique. However, it will not significantly change the approaches of some of those who are anxious to apply economics, behavioral science, systems analyses, and computer methods to social processes.

In many disciplines, man will be regarded as subject to the same manipulation and attention as other dynamic parts of social and physical systems. For example, medical technology may link man with machines. Such techniques may be reinforced by the ability to replace organs with machinery or other organs, and by using drugs that extend capabilities as well as maintain health (there will probably be more overall emphasis on preventive medicine and less on curative medicine). Hence, in engineering, widespread use of chemicals to extend capabilities or control moods (and perhaps the discovery of new life forms) may make man less unique. (BB232)

80. Growth in social complexity will result in priority conflicts between traditional community interests. Questions will arise as to which traditional

institutional positions are to be preserved and which revised or dropped. Values will change, dependent upon changes in the social and political contexts in which they are perceived.

It may be of some importance to note in passing that the role of the arts in the USA is commanding more attention. "It is a sign of growing national maturity when our national leadership advances the creative arts for greater consideration along with education and technical training programs designed for a highly industralized society." (BB99)

81. Several predictors have referred to a role for drugs in the future that may have a great deal of influence in social trends.

82. Gordon and Helmer indicate that the Huxlian view of Soma is perhaps the best example of politically-inspired, government-controlled use of drugs. In this view, the government issues drugs in order to placate the population. Anxiety-removal pills would be available free, everywhere; a happy people are free from revolt. Drugs which distort reality may be developed, too. These may have important political uses, particularly if combined with psychochemicals which open the user's mind to suggestion. Drugs which destroy the will to resist, or remove or enhance courage, may become important weapons. (BB16)

83. The behavioral sciences have lagged behind the natural sciences. Continued work in this field will undoubtedly lead eventually to deeper understanding of the mechanism of behavior. A drug, stimulation of a known point in the brain, a psychological procedure: these will all be used in the future to produce a fine control over behavior. The research leading to this control will provide better understanding of motivations, brain functions, body chemistry, learning processes, and memory.

Potential areas of application of opinion control and thought manipulation may occur in combatting crime, rebellious populations in time of civil upheaval, and in wartime. (BB16)

84. Overall, some are pessimistic. Hopkins predicts for 1984 a hard

time, with slow social and political reforms. (BM77)

85. On the other hand, Herman Kahn sees a good era continuing; the GNP in the United States and other nations increasing about 10 times; racism and poverty shrinking. Kahn concedes that increasing disillusionment with progress could provoke part of a technological crisis by 1985. (BN547)

86. Some of the possibilities foreseen by Kahn which could be disastrous by 1985 include: Environmental disaster, such as a world flooded or frozen by climatic changes; technological changes related to the control of man, e.g., perhaps new forms of humanity like "live"computers; nuclear war.

87. Simon Ramo predicts that government and industry will have to cooperate in an increasingly hydrid economy by 1990, in which a social-industrial complex will dwarf any military-industrial complex, and attack health, urban, and other problems. (BN547)

88. Mr. Jo Grimond, former leader of the British Liberal Party, opened an annual convention of the International Humanists and Ethical Union with a notably cold-eyed view of the future.

-Change will occur, he said, when men demand it.

-Democracy has been thwarted to some extent by all industrial societies.

-Objection and protest on a scale necessary to keep governments honest is too limited in today's world.

-Opposition groups and parties should be encouraged, even by the government itself.

-Violence and aggression are endemic.

-The need for an ever-expanding technology

Potential Impact

This section identifies a number of forces of social and cultural change which, even in their broadest manifestations, will achieve substantial impacts upon th Navy. Many detailed aspects of these, as well as of other predicted changes, will be discussed in subsequent sections.

Meanwhile, consider some of the subjects emerging in this section and consequent problems: The distribution of intelligence and whether intelligence can be raised in the individual through training, or breeding, or extended through chemical means, contrasted with the increasing demands for higher levels of competence as technology

is questionable. Mankind should have the right to choose the kind of life man wants. Bureaucracies should not be able to decide people's way of life without their having any say in the decision. (BN175)

89. Herrnstein predicts that a hereditary meritocracy will arise out of the successful realization of contemporary political social goals. (BP183)

90. J. Bugental: Our future will be marked by a greater recognition of the primacy of feelings, with less supression of a whole range on nonhedonistic feelings. Society will need more "divine fools," people who are willing to pose fateful challenges without a high degree of self-consciousness, who recognize that the most fateful challenges are not most gratifying or most promising. Without such people, the hardware merchants may win out. (BB363)

advances; tension between requirements for greater social planning and control and central emphasis upon humanistic autonomy for the individual; the challenge to large institutions to preserve diversity and protect life-styles; coping with rapid and sustained technological and social change while maintaining organizational integrity; and other aspects and challenges. Each of these pervasive movements will probably spawn dozens of impacts upon the Navy.

91. Alan Watts on the "Future of Religion": The Bible has passed down a mythomorphic image of God, modeled on the tyrant-kings of the ancient near-East. We now see a new realization, influenced by Hindu philosophy, of the relation of the individual to the basic energy of the universe. Religion of the future will be influenced by this relationship. The focus of religion will not be on a conceptual God; the word "God" will simply designate reality--the dimension of inconceivable, unutterable, and ineffable energy, which is the only preserve which corresponds to the words "I am." (BB363)

92. It should be noted that each of the immediately foregoing authors asks for a new set of values to direct the technological "monster" we have

created; they repeatedly express the hope that democratic dialogue may evolve such values. However, few indicate that they have thought through the channels through which we might "get from here to there." None seem to have developed an analytic framework of relationships that would achieve balance among the host of factors even if we were to "get there."

Arthur Clarke offers a passage that sums up a number of the major aspects of change we have considered in this section.

"Anything that is theoretically possible will be achieved in practice, no matter what the technical difficulties, if it is desired greatly enough." In this inconceivably enormous universe, we can never run out of energy or matter. But we can all too easily run out of brains.

The time may come when twin problems of production and distribution are solved so completely that every man can almost literally possess anything he pleases. Then perhaps nothing— no "things"—would be as priceless as craftsmanship, personal skills, professional services. One of the charges often made against our culture is that it is materialistic. How ironic it will be, therefore, if science gives us such total and absolute control over the material universe that its products no longer tempt us, because they can be too easily obtained.

It is certainly fortunate that the Replicator, if it can ever be built at all, lies far in the future, at the end of many social revolutions. Confronted by it, our own culture would collapse speedily into sybaritic hedonism, followed immediately by the boredom of absolute satiety. Some cynics may doubt if any society of human beings could adjust itself to unlimited abundance and the lifting of the curse of Adam— a curse which may be a blessing in disguise.

Clarke insists:

> Yet in every age, a few men have known such freedom, and not all of them have been corrupted by it. Indeed, I would define a civilized man as one who can be happily occupied for a lifetime even if he has no need to work for a living. This means that the greatest problem of the future is civilizing the human race; but we know that already. (BB70)

PART III

Section 2

INTERNATIONAL

INTERNATIONAL

GENERAL

1. From the general philsophical level, we turn to limited, though still immense, contexts—first, to the international context. Many aspects of future cultural change will not be peculiar to the United States but will operate in the international arena. Moreover, it is to the fact that they will operate globally that much of their influence must be ascribed; some would not be nearly so important if their influence were confined within the domestic context. Some of the aspects we shall encounter here are already familiar, having been introduced on the broad philosophical level. They are taken up again in order to add greater specificity within an appropriate international context. Many other aspects are in this section, encountered for the first time.

The main subsections into which this International Section is divided are General, Political and Strategic, Technology, Military, Economic, and Broad Cultural.

General

2. A Gallup Poll was conducted among world leaders listed in the International Year Book and Statesmen's Who's Who. In sum, 70% believe that life is getting better for most people. The most urgent problems were agreed to be inflation (in the Free World), crime, labor-management tensions, and air-water pollution. (BN515)

3. In the previous section, we cited several listings of discerned trends, including thirteen long-term trends identified by Kahn and Wiener, which they expect to continue at least until the turn of the century. Stuart Chase lists the following as ten important trends leading toward the Most Probable World:

1. total technology
2. population growth
3. living space pressures

4. megalopolis
5. energy demands
6. mixed economy
7. automation
8. arms race
9. nationalism
10. one world (BB67)

4. In spite of all our problems, technology has made large wars obsolete. If population can be controlled by medical and social science, technology will also make poverty obsolete.

Along the theme that there is "no path but knowledge." Chase lists eight fields in which intensive study would bring the greatest return in providing us with quality backgrounds for leadership.

1. cultural values and aesthetics
2. communications theory
3. biology
4. history
5. history of science and technology
6. social psychology
7. new economics
8. aspects of international law (BB67)

5. Our current international instability, it is said, is derived in part from the level of close interdependence which now obtains, far beyond what states historically have experienced. For one thing, there used to be extensive "peripheral areas" which helped to relieve the pressures of violent international confrontation, but we have come to live in a global city, and the global city has no periphery. For example, it is now integrated not only by a complex and effective communications network, transmitting information almost instantaneously, but also by a set of strategic interaction patterns, made up of a number of factors not confined to intercontinental missiles with nuclear warheads. (BB292)

6. Toffler has not neglected to comment on social uncertainty in America—confusion over sexual values, yes, and over other kinds of values as well; America is tortured by uncertainty with respect to money, property, law and order, race, religion, God, family, and self. Nor is the United States alone in suffering from a kind of value vertigo. All the techno-societies are caught up in the same massive upheaval. This collapse of the values of the past has hardly gone unnoticed; every priest, politician, and parent is reduced to head-shaking anxiety by it. (BB355)

7. In part, a temperate response is provided by J.H. Plumb, a foreigner:

> It seems to me, an Englishman, that America has become too hysterical about protest, too hysterical even about riots and the occasional bomb. Although the country is, by European standards, extremely tolerant of personal violence, including murder, it has experienced little organized violence employed for ideological ends. There was, of course, a little in the struggle for trade-union recognition, and I am aware of both the Revolution and the Civil War. But Europe has lived with bomb-throwers, arsonists, and rioters for decades. It has grown used to the ugly extremes of rabid nationalism and class tension. And it is hard for Americans to grasp that they, too, have a class war as well as racial tension on their hands. Indeed America, with nowhere to expand, heavily urbanized and radically divided, is rapidly acquiring a European type of society, and with it similar problems. (BP321)

8. Rescher foresees one major re-direction of value change: The advance of complex technology—especially military technology—in many lands, the role of nuclear weapons as a great equalizer among nations, and the enormously sharp rise in marginal costs for keeping significantly ahead of the field in military technology over the next decade could result in the focus of national pride thus tending to shift from the economic-military sector to that of science, learning, and the arts. A concomitant of this decline of nation-oriented values is a corresponding upgrading of cultural and mankind-oriented values (internationalism, humanitarianism). (BB16)

9. Even broader conceptions of future value systems are being suggested:

> Among the values indispensable in the tomorrows are those envisioning a proper balance between individual and communal rights, such as adequate living space, size of families, purity of the human genetic stream, new patterns of work and play, together with new ways of supporting endeavors that are not usually regarded as 'work for profit.' I cite these few only as typical of many others. Not least among these are the ones arising from the new mutuality and interdependence relationship that man must achieve with nature regarded as an ecosystem, in which he is himself deeply embedded, for instance: the value of wilderness, the rights of nature and its denizens not to be exploited irresponsibly. The crucial point here is that the new world must be a community not only of people but of all beings—human and non-human—that together make up the whole of the world and are interdependent upon one another. And this calls for values of truly universal brotherhood such as were articulated long ago by Francis, and are being reconceived so sensitively today, in terms of evolutionary kinship, by Loren Eiseley. (BB55)

10. Some, like Salam, are pessimistic on what will be done (for example, for the less-developed world will be as hungry, as relatively undeveloped, as desperately poor, as today, despite our knowing the world has enough resources to eliminate poverty, disease, and early death from the whole human race.

Raising living standards to a decent human level is first and foremost a moral problem, and a collective world responsibility. We have the technological and financial resources; but we need direction. (BB58)

11. Lest this prediction appear too pessimistic, it may be worth recalling Harrison Brown's warning of almost twenty years ago:

> It is clear that the future course of history will be determined by the rates at which non-renewable resources are consumed, by the extent and speed with which agricultural production can be improved, by the rate at which the underdeveloped areas can be industrialized, by the rapidity with which we are

able to develop new resources, as well as by the extent to which we succeed in avoiding future war.

In general, Brown foresaw three possibilities:

1. reversion to agrarian existence.
2. evolution of a completely-controlled, collectivized industrial society, or
3. development of a world-wide, industrial society. (BB50)

12. In 1965, Ithiel Pool extended some predictions well out—one was that there will be no nuclear war within the next fifty years. (BP416)

13. At this point, however, it may serve the interests of this study well to cite one of the most extensive and structured set of projections within our knowledge, those of Burnham Beckwith. We draw extensively from his book, The Next 500 Years. While five hundred years is fifty times the span of a decade ahead in which we are primarily interested, the predictions set some kind of outside limits for trends in motion now and over the last decade. In reality, we doubt the utility or validity of forecasts purporting to reach 500 years into the future. For one thing, no matter how far out the forecasts extend, they can be meaningful to use only if they are firmly rooted in the world we know. For another, with all due deference to Mr. Beckwith, some seem more likely to emerge in 5 years than to wait 500. Some seem very far away, it is true; but some others seem quite close.

Beckwith lists 31 major social trends which will affect social behavior, and he subsequently groups projected changes within fields of social behavior.

1. the growth of population
2. the growth of knowledge
3. the relative growth of scientific research
4. the relative growth of education

5. democratization of education
6. decline of religion and superstition
7. growth of social control over social trends
8. rationalization of all social policies
9. spread of birth control
10. eugenic progress
11. rise in real wage rates
12. growth of leisure
13. urbanization
14. industrialization
15. automation
16. specialization
17. professionalization
18. increase in the scale of production
19. growth of monopoly
20. centralization of control
21. collectivization
22. rise of meritocracy
23. advance of feminism
24. decline in income differences
25. relative growth of free distribution
26. reduction of all personal economic risks
27. increase in paternalism
28. rise of humanitarianism
29. growth of intergroup relations
30. cultural homogenization
31. growth of personal freedom

Individual Fields of Social Behavior

Government:

- increasing centralization of government activities

- more legislative uniformity across government units; appropriation authorizations will be extended to two years.

-integration of judicial systems

- further rise of nationalism limited because of increasing political integration of the world and cultural homogenization.

-world government is almost certain to occur before A. D. 2100. In name, it will be a federal union of independent nations, in practice, most likely, it will operate as a superpower-dominated condominum.

-government will be conducted by experts; they will not be even nominally democratic. Even in an all-nations-equal world, the United States and the USSR would not allow themselves to be put in minor positions.

-public opinion polls will become more accurate than "elections," if possible, in revealing political opinion.

Population:

- the greatest threat to mankind is nuclear war; the 2nd greatest is population growth.

- the creation and indefinite continuance of an effective worldwide qualitative eugenic trend is inevitable, because all parents want superior children, all taxpayers dislike supporting defective people, and an ever-growing proportion of mankind desires social programs. Once inter-nation war has been eliminated, international competition will become largely economic and eugenic.

- governments will adopt more effective measures to cultivate geniuses.

- personnel records kept by government will include comprehensive genetic profiles.

Work and Wage;

- all children will receive adequate and suitable

vocational education and will as assured of suitable employment; this will be achieved by gradually increased government control over economic activities.

- the average hours per person of paid labor will decrease.

- more goods will be distributed free

- real income per person (or economic welfare per person) will increase. We will overcome any threats to this trend by creation of a world government to curb nuclear proliferation and by developing substitute materials to replace natural resources.

- income gaps between advanced and backward countries will grow for another century or two. Regional income differences within countries will decrease and become negligible long before 2500.

- by AD 2300, the average net money wages received per person will be almost equal in all occupations within each country.

- increasing influence and rising membership of labor unions will continue for another century or two. The threat of unemployment will diminish as governments take over control of the economy; then, unions will suffer declining power.

Production Control:

- there will ensue gradual transfer of corporate control from stockholders to managers

- the public share of ownership of real property and firms will increase.

- marginal-cost analysis will replace average-cost procedures as a means of determining prices.

- the rule that prices should balance supply and demand will be widely accepted.

- investment of capital funds will be centralized within each advanced country and within the global context.

Finance·

- payment by check instead of money will increase

- by 2300 there will be no private securities available for private purchase, only redeemable government bonds.

Agriculture:

- improved techniques, utilization of seafood, and growth of synthetic foods will result in decrease of farm labor (now 60% worldwide; down to 30% in 2100)

- animal husbandry will disappear, replaced by cultivation of sea mammals and fish

- reconstruction of the earth's surface will be accomplished through giant projects

- recycling and purification techniques will make water prices and availability uniform.

Industry:

- standardization of goods will occur across all countries

- centralization of production and one-plant cities will increase

- public utilities will tend toward increasing socialization while usage increases. Rates will decline to approach marginal costs. For a long time, public utilities will continue to grow faster than other industries.

Commerce:

- transportation costs will decline; each and all systems will be integrated into larger and more monopolistic systems. Equipment will be standardized; use of trucks for intercity moves will increase.

- the total value of world trade will continue to grow faster than world production of tangible goods.

- prices (even in communist nations) will be manipulated so as to balance supply and demand.

Houses and Cities:

- prefabricated houses will be the rule

- new cities will be planned and built as a single project by the year 2300.

Communications:

- the major languages will be increasingly used, and there will be a synthesis of new phonetic languages.

- libraries will use an increasing range of materials and efficient information-retrieval systems on national and international scales.

- newspapers will decline in local publication, but the public will still demand well-rounded coverage.

- the increasing cost of television programming will mean increase use of reruns. Connoisseurs will appreciate the finest old programs as we now appreciate Beethoven and Bach.

Creative Artists:

- numbers will continue to increase, as we will be able to "afford" such activity.

- government support will increase

Education:

- increasing scope of public education may be the most significant trend

- pre-schools and day care will increase

- religious control over education will decrease, although sects will continue to maintain boarding-schools.

- the scale of secondary education will increase so that 90% of the children in the world receive a complete secondary education, and some higher education. Basic reason: Expanding realization of the political and economic benefits of education.

- curriculum: increasing substitution of vocation courses for largely cultural courses will continue for another century or two. The trend will be toward teaching how to think rather than what to think.

- increasing expenditures on educational R&D; increased channeling or classification of students by ability; increased self-instruction—all will contribute to the trend of increasing individualization of education. Administration will seegradual equalization of average expenditures per child in different areas of each country; increasing centralization of control over local schools; standardization of texts, equipment, etc., professionalization of education administration; increasing scientific evaluation and incentive payment of teachers.

Health Care:

- increased share of income and labor devoted to medical care; long expansion of compulsory medical care. Provision of more and more free medical care; increasing government regulation of private care; growing specialization; replacement of individual by group medical practice; socialization and coordination of private hospitals and clinics; increasing comprehensiveness of medical records; increased spending on medical research; integration of services and facilities into even larger systems.

- increased application of psychiatric care

Family Life:

- "feminism" will bring equal rights

- contraception, voluntary sterlization, abortion will increase

- laws against sexual taboos will be liberalized

- venereal disease will be negligible by 2100

- spread of trial marriage at an early age

- government agencies to supervise parental child care will be created or enlarged so that by 2200 all advanced states will supervise the home care of all children.

-polygamy will disappear by 2100

- planned communities and equalization of incomes will promote social relationships. "Lessons" of friendship will become part of social curriculum.

Crime:

-integration of police systems will enhance effectiveness

- private citizens will increase efforts to aid police

- criminal court proceedings will be standardized and be increasingly private; use of juries will decline; guilt will be established upon statistical probability theory rather than "beyond a reasonable doubt."

- in the long run, crime will decrease because of equalization of income and universal availability of goods and services.

Religion:

The number of religious persons will decrease; differentiation of sects will weaken; church and state will become increasingly separated; superstition will decrease, as will church control over education, charity, etc. All Asiatic and African religions will become Westernized.

- the dogmas of ideologists will be replaced by the conclusions of social scientists. Both capitalist and communist countries will become more similar as a result of increasing social science observation and experimentation. Ideologies will remain influential for another century or two.

Science:

Investment in R&D will increase because such investment has always (non-military) yields equal or greater returns.

- voting in elections will be replaced by scientific testing of alternative policies.

- universal standardization of measurement and data handling will increase, as will analysis of data and statistics.

- brain drains will continue to preserve the relative scientific and economic superiority of advanced nations. (BB23)

Conclusions:

1. Effects of nuclear war: Devastating nuclear war is highly probable and will affect most trends. It would probably speed up more social trends than it would slow down. For example, it would probably hasten world government; application of eugenic trends; government control over private

business; improvement of agricultural methods; optimal employment practices (especially for women); education; city planning; and health care. Hence, government, business, and labor would have to become more productive. And it would probably bring a temporary religious revival.

2. Life in AD 2500

- The average American family will comprise 2 working adults and 2 children, with real income 20 times the 1960 U.S. average, and 2 times the world average for 2500. The family will live in a spacious 6-room apartment, which is part of a planned satellite community, and which is equipped with information and communication systems for shopping and entertainment. Both adults will work full time (3-4 hours per day; 200 days per year). Taxes will take 1/2 of gross income, and pay for health care, education, R&D, and entertainment, as well as current applications.

- schools will be boarding nurseries, operating for 16-22 hours per day. Adults will spend 2-10 hours per week in formal education throughout their lives. Average IQ will be about 140.

- personal incomes will be equalized

- as trivial problems will be eliminated people will be free to focus on significant problems and on necessary risks.

Most of the 31 trends originally noted will continue beyond 2500. (BB23)

14. As noted in advance, some of these predictions appear truly distant in likelihood, but furnish distant "objectives" towards which near-term trends may be moving through intermediate periods. Some of these predictions, nevertheless, appear to us more likely to be realized closer to a decade from now than 500 years from now.

15. In any event, we turn now to predictions of closer events, and particularly to warnings about major events that may occur well before 500 years. Some specialists frankly fear certain kinds of disaster within the next 25 years unless very drastic steps are taken.

16. Two of the most eminent American political scientists, Princeton's Harold and Margaret Sprout, have for some years been drawing attention to

increasingly irreconcilable conflict between increasing demands and dwindling resources on earth. Recently, the Sprouts again (BP390) identified five critical elements of "the Stateman's Dilemma," a universal dilemma, which may transform the organization and politics of the planet:

- Widespread expectation of endlessly expanding affluence. One result is mortgaging the future to long-term financial commitments (immobility in budgets is now over 50% and climbing); e.g., highway building, military procurement, veterans' benefits, social security, medicare, and "income maintenance" commitments.

- Growing leverage on government and economy wielded by performers of essential services in public and private life (truck drivers, trash collectors, air controllers, power station tenders, teachers, firemen, police, miners, farmers, railway signalmen, etc.). This leverage derives from the increasing vulnerability of complex social organization to disruptive breakdown.

- Spreading awareness of deep social malaise— poverty, urban decay, suburban sprawl, school disorders, crime in streets, discrimination, etc.

- Recent awakening to concern over the advanced stage of environmental pollution, a transnational problem of immense scope.

- Inflexibility of government budgets at all levels, deriving from advance commitments. The structural features of the American political system contribute to this situation, as well as certain other conditions: namely, the fading of chauvinistic nationalism; the progressive merging of domestic and external politics; and the staggering cost of any "global mission."

The Sprouts insist that a viable domestic society and a livable physical habitat are requisites of international stature for any nation. They see only two main alternatives. higher taxes or major changes in allocations. Politicians are reluctant to impose the former; hence, the military budget is one prime target among potential reallocations. (BB390)

17. In this connection, on January 21, 1972, the New York Times reported Secretary of the Treasury Connally's estimate of the dimensions of the current fiscal year's budget deficit, viz., another $40 billion.

18. A related incident occurred in England, in late 1971, when 33 scientists signed a 22-page warning, "Blueprint for Survival," appearing in The Ecologist. The article said:

> If current trends are allowed to persist, the breakdown of society and the irreversible disruption of the life-support systems on this planet—possibly by the end of this century, certainly within the lifetimes of our children—are inevitable.

The article gave a detailed blueprint for counteraction. Instead of industrialization and growth, man's aim should be toward a stable society with a steady or declining population, decentralized living, and strict limits on the use of resources. The scientists said that the trend toward increased capitalization (more capital must be raised for each new job) leads to unemployment. (It now costs they said, $30,000 for the machinery and chemicals to support one farm worker's job in America). The group proposed a 100% tax on any item that lasts 1 year; but no tax on an item lasting 100 years. They said the British population, (now 55 million) should aim at the 30 million level over the next 150-200 years. (BN381)

19. A debate ensued in the United Kingdom. Some 187 other British scientists criticized the "Blueprint" for containing "scientifically questionable statements of fact and highly debatable short and long-term policy proposals."

> Nevertheless, the 187 welcomed the Blueprint as a major contributor, a turning point in several matters of urgency: to stabilize world population; to recycle resources; and to use agricultural and industrial techniques that do not threaten the stability of the environment. (BN382)

20. Other major participants had been preparing for a long time to enter this debate, among them Professor Jay Forrester, of M.I.T. Having worked out an urban-simulation model in Urban Dynamics, he followed with a global-simulation model described in World Dynamics. (BB118) An admittedly simplified model of world interactions, Forrester noted that manifestations of stress in the world system include excessive population, rising pollution, and

disparity in standards of living. He constructed a dynamic model of world scope, interrelating the variables of population, capital investment, geographical space, natural resources, pollution, and food production. He observed that the human mind is best to construct a system, but is useless for anticipating behavior resulting from the system; for the latter purpose, the computer is ideal. To improve his model, he said his next frontier is pioneer understanding of our social system, accomplishable, perhaps, within the next thirty years. (BB118)

21. Meanwhile, an analytical treatment of World Dynamics appeared, noting that Professor Forrester is one of the distinguished scientists working with the Club of Rome, a private group of 75 reputable social scientists from all over the world, concerned over the central problem of Forrester's work.

The analysis highlighted Forrester's two stark findings:

1. We are only 40-50 years from crisis levels.

2. There are few options open.

Growth has been exponential since the beginning of recorded history; eventually and suddenly, crisis threatens. This occurs when too many people are taking up too much land that ought to be producing food, demanding too many manufactured objects, using up too many raw materials and polluting too much of our land, air, and water. When this happens, growth stops because people starve, or raw materials give out, or pollution passes survival limits, or overcrowding provokes war.

This vicious circle can be broken only by changes in two elements in the computer's equation: Planned declines in industrialization and in agricultural investment, bringing population growth to a halt.

Here are Forrester's insights:

1. Ours may be the golden age, with the quality of life declining in the future.

2. A 4-sided dilemma may occur within the next century: suppression of industrial society by the shortage of natural resources; decline of population because of pollution; limits on population because of food

shortage; or population collapse from war, disease, and social stress from overcrowding.

3. Birth control may be self-defeating, by temporarily bringing improvement in the food supply and a temporary resurgence in population growth.

4. The natural resource load per person in rich countries is 20-50 times that per person in poor countries; since four times as many people live in poor countries, their attainment of rich countries' standards would increase the impact on the planet ten-fold. Hence, since the resources do not exist on the planet to support such a condition, poor countries can have no realistic expectation of matching the living standards in rich countries. Such near-equalization as may be attained will probably have to involve a decline in the standards of the rich, as well as increase in the poor.

5. Rich industrial societies may be "self-extinguishing," eventually pulling world average down to what it was 100 years ago.

6. Poor countries may be unwise to persist in an all-out drive toward industrialization. They may find an intermediate stage closer to equilibrium with their environment, and be probably less vulnerable to disruption.

Nevertheless, Forrester frankly admits that in a world of dramatic technology, such policies may seem to some poor countries "politically insane."

(BBII8, BN600)

22. Dr. Dennis Meadows, a colleague of Forrester at M.I.T., and head of a Club of Rome project, produced a related report, "The Limits of Growth," which has been termed in some quarters "sensational." This report added certain predictions to those of Forrester:

1. the limits to material growth will be reached in 50-100 years.

2. there will be a sudden and uncontrollable decline in both industrial goods and in population (by starvation or illness).

3. to change course and establish a "global equilibrium" will require a massive fundamental shift in government policies.

4. to postpone the necessary basic decisions past 1990 may be disastrous.

In sum, these will be the costs worldwide of the necessary decisions: fewer goods and more services; universal access to birth control; equality in food distribution; design of goods for longer life. An additional cost for the United States: a lower standard of living. (BN546)

23. In addition to the details already given, it was noted that applications of technological solutions alone prolong the period of population and industrial growth, but have not removed the ultimate limits to that growth. Our faith in technology diverts our attention from the fundamental problem: growth is occurring in a system with finite limits.

The report suggests the application of measures to achieve the following conditions:

- population change rates become stabilized, so that birth rate equals death rate by 1975.
- industrial capital become stabilized, so that investment rate equals depreciation rate by 1990
- industry's use of resources is cut to 1/4 present levels by 1975
- the same for pollution
- society shifts its economic preferences from factory-made material goods to education, health, and similar services.
- capital is diverted to food production, even at a loss, to help equalize world social conditions
- high priority is given to soil enrichment and conservation
- industrial goods are designed to last longer and be more easily repaired.

The global result said to be likely will include stable population only slightly larger than it is now. Everyone would have twice as much to eat.

People would live an average of 70 years. Industrial output would be appreciably higher. Services per person would triple. Average income would equal $1800 per year, or three times today's world average. Resources would still be depleted, but so slowly that technology and industry would be able to adapt.

Meanwhile, not to decide on a course is to decide. (BN601,BN457)

24. One critic noted that there is no guarantee that the new society would be much better or much different from today's. It seems possible, however, that a society released from struggling with problems of growth may have more energy and ingenuity for solving other problems. Only the conviction that there is no other avenue to survival can liberate the moral, intellectual, and creative forces to initiate the transition. (BN409)

25. A number of thoughtful critics have studied this report carefully. Hodson discounts the objection that "to stop growing now would be to commit suicide for fear of remote death." Rather, argues Hodson, the foretaste of death is already upon us. Economically-advanced countries like the United States are already close to their peak of average real welfare; growth has brought consequences which counterbalance its positive effects. For example, shifting toward a service economy would provide far fewer opportunities for economies of scale and mechanization; hence the potential for increasing productivity in such an economy is almost non-existent. As incomes grow, so does the cost of services on which most of those incomes are spent.

He also counters the claim that "growth is the main source from which growth must be financed." Pointing out that production=consumption + investment, he says, "if we abandoned our mad pursuit of growth, we could make out with greatly reduced investment." Moreover, we have a vast potential for raising consumer satisfaction just by raising the durability of goods. He suggests that the United States try to bring growth rate down from 4% to 2% in 5 years time. (BN347)

26. In reviewing the report, Time Magazine said that scientists are urging these steps: encouraging a steady or declining population; imposing new taxes on raw materials; taxes should penalize industries that consume amounts of

non-renewable natural resources; taxes should favor labor-intensive industry; short-lived industrial products should be taxed. (BP123)

27. Some reviews agreed with the seriousness of the problems about which the report was centrally concerned, but found too many deficiencies in the report. The New York Times reviewer questioned the validity of projecting data too far into the future; he pointed out that econometricians have misgivings about their computer analyses of current data projected one or two years ahead, whereas the report projected such data out a hundred years or more. He said that the crucial variables are interrelated too simplistically, in the sense that, as British editor Norman Macrae pointed out, an extrapolation of the trends of the 1880's would predict today's cities as being buried under horse manure.

He pointed out that the authors postulated growth in population, resource usage, and pollution at exponential rates; but they projected at only modest rates the capabilities of society to cope with these problems. Hence, the projection of resulting chaos was inevitable. The "machine was stacked."

The report fails, for example, to project technological competence (to deal with pollution, for example) at exponential rates, which is the rate at which technology continues to advance, without sign of let-up. Perhaps the most crucial omission in the report was the price mechansim, which is society's primary lever of adjustment to a growing scarcity of resources.

The critic points out that a world (and a national government) able to "halt growth," as recommended in the report, would also be able to impose the preferable lesser measures first (such as drastically reducing pollution) which are feasible within current states of technology. (BP317)

28. Leonard Silk raises some of the same objections, such as objecting to omission of the price mechanism. Silk says the fundamental issue raised by the report is whether disaster can be averted by a pattern of over-all world economic expansion, or by bringing economic growth to a halt as rapidly as possible. He insists that the case for continuing growth for a while longer is

strong. World population is certain to go on growing for many years to come and economic growth will be essential to prevent worsening, misery, starvation, chaos, and war. In a world of no-economic-growth, one nation's advance would necessarily mean another's decline, and conflicts would proliferate.

Nevertheless, Silk agrees, we do need to shift from quantity to quality as our dominant social purpose. (BN465)

29. Crawford notes that there are a number of reputable dissenters, to "The Limits of Growth," such as M. Shubik, F. Singer, H. Wallich, A. Dnuse and R. Rioker, although they all accept the report as a valuable stimulant to thought and future study of genuinely critical problems. At a related Smithsonian Symposium, Secretary Richardson of HEW summed up the government view by expressing "the hope that some middle ground might be discovered between the human tendency to procrastinate and the Luddite implications of a decision against growth."

Crawford commented:

> Zero economic growth challenges the major premise of modern governments. The rate of growth in terms of GNP has become a measure of national success.
>
> It is counted upon to satisfy the rising expectations of the less fortunate and to keep the more fortunate in the manner to which they are accustomed. It is depended upon to minimize the burden of a huge national debt piled up by past policies. The habit of growth will not be easy to break, even if more persuasive evidence is advanced. (BN550)

30. In an attempt to highlight contrasting views on the issues brought into prominence in the debate over "The Limits of Growth," The Futurist prepared a summary which juxtaposed Dennis Meadows' more pessimistic views with those of Burnham Beckwith. The Futurist editor concedes that the summary does not do justice to either viewpoint, but "hopefully is equally unjust to both."

What will happen in the next few decades:

Meadows: There will likely be a marked decline in

standards of living. The world's population may experience a "dieback" to more supportable levels, as a consequence of starvation, pollution, and other factors.

Beckwith: Despite the critical problems posed by population growth and pollution, there will be continued gradual economic progress.

What does history show?

Meadows: Famine, plague, and resource depletion have been evident in the fall of many empires. We should not assume that some as-yet-undiscovered factor will release our society from the life cycle which has characterized all societies in the past.

Beckwith: History shows us 10,000 years of social progress. This progress may be expected to continue.

Will the developed countries suffer more than the undeveloped, if there is a traumatic population crisis?

Meadows: Yes, partly because the undeveloped countries use much less scarce natural resources per capita, and partly because the developed countries have highly organized, integrated, and specialized economies that are highly vulnerable to disruption.

Beckwith: No, because the organization, integration, and specialization of the advanced countries will enable them in the future—as in the past—to solve their economic and social problems. Furthermore, their relatively high per capita resource use will permit them to reduce such use sharply without any famine or serious hardship.

How useful are computer simulations?

Beckwith: A computer can only trace out the implications of the assumptions that are fed into it. "Garbage in, garbage out."

Meadows: The computer's ability to trace out the implications of the assumptions fed into it is a big advantage, for it forces

Potential Impact

As an important American social institution, the military depends upon resources allocated to it which are commensurate with the scope and commitments of the nation and the missions assigned by the nation to the military. Many trends point to continuing or increasing American international responsibilities and, hence, Navy missions. The spectre of encroaching upon clearly—discerned limits of resource availability, however, will enforce new

scientists to be very precise about the assumptions upon which their statements are based. If the computer is given correct assumptions, it can trace out their implications—a feat that may be difficult or impossible for the human mind.

Will we have enough raw materials in the years ahead?

Meadows: No, because more and more of the world's irreplaceable resources are being used up and population is rising steeply.

Beckwith: Yes, because:

1. The steady advance of technology enables man to use ever poorer deposits. (For this reason, material costs have not increased even though the richest material deposits have been used up).

2. There is no good reason to assume that technological progress will fail to develop new and cheaper substitutes for nearly all scarce natural materials.

3. Where necessary, we can radically reduce demand for most scarce minerals by redesigning consumers' goods and changing social habits.

Will we have enough food?

Meadows: No, because population growth will eventually outstrip man's ability to grow sufficient food.

Beckwith: Yes, because scientific research in food production will continue. Within a generation or two, it may yield methods of producing cheap synthetic foods which will solve man's basic food problem for all time. (BP78)

31. We have devoted a good deal of space to this alarming report and others which echo its major theme. We have quoted a number of views, pro and con, in order to specify certain objections and to modify one-sided alarm. Nevertheless, even its critics tend to agree that unlimited growth is not possible

evaluations and perspectives of national missions and capabilities. One contingency, the end of the ever-upward spiral, would generate radical revision of strategic concepts— indeed, of the nation-state system itself. A lesser contingency, selective drying-up of some resources but not others, would probably heighten international competition and tensions. Some very difficult problems would ensue in attempting to forecast whether military budgets would be more likely to rise or fall.

forever in a world whose resources are subject to finite limits which are being more clearly discerned.

We have been at pains to cite a wide range of prediction concerning cultural and social changes which different forecasters expect to occur. Much of this prediction is concerned with adjustments to affluence, as the fundamental needs of man are satisfied in advanced societies, and as man turns to higher levels of self-actualization. Nevertheless, this planet is increasingly seen to have finite limits of space and resources. Tensions arising out of developments rooted in physical limitations of time, space, and resources may well escalate rapidly in the roster of priority problems. If economic affluence declines, for example, such "luxuries" as the New Sensibility may well go back into man's hope chest.

We shall return to this subject later.

POLITICAL AND STRATEGIC

1. This sub-section presents a brief look at several broad aspects of change that appear to be in motion in the political and strategic areas of the international context. This account is highly selective, and overlaps with the other International sub-sections.

2. To underwrite the hazards of predicting political futures even at short range, we present here a few predictions made in 1965 concerning the 1965-1970 period. The purpose is certainly not to embarrass Professor Pool, who enjoys our great respect, but to encourage retention of a modicum of skepticism toward all political prediction, especially on the international plane. Some of these predictions, in fact, while faulty in detail, have held up moderately well in general thrust.

> In the period 1965-1970, Mao Tse-tung and De Gaulle will die. Within two years after De Gaulle's death, presidential power in France, while not abolished, will largely have atrophied, giving way to a wide coalition government strongly committed to European economic cooperation and integration, but just as noncooperative with NATO as De Gaulle was. The noncooperation will be on economic and pacifist grounds, rather than on nationalistic ones...
>
> Throughout the world, The Communist movement will seem to be a declining force, but miscellaneous forms of anarchy and disorder will be just as strong as ever. (BP416)

3. Major fighting in Vietnam will peter out about 1967; and most objective observers will regard it as a substantial American victory. Sporadic terrorism will, however, remain endemic not only in Vietnam, but throughout former Indochina and Thailand as the Communists try to prove that this is only a defeat in a particular battle within a widening combat. The result of continuing instability will be economic distress in the area. There may be several reversals of government

so that, for example, by 1970 a pro-American military dictatorship might exist in Cambodia, while a reformist coalition might have overthrown the regime in Thailand. These are not specific predictions. The prediction is that there will be a pattern of varied, nationalist, religious, reformist, and military regimes in the area changing fairly continuously. (BP416)

4. One event of the summer of 1970 contained unique implications for the prediction of international futures, particularly in relation to that school which holds for example, that the Cold War, was a device of American governments in power, that Communist hostility to the West has subsided, and that the youth of the world, if given a chance will resolve political differences. The event was the United Nations World Youth Assembly. Of the more than 600 participants, well over 30 percent were women, indicating youth's greater acceptance of the intellectual, social, and political equality of women (less than one-tenth of the regular General Assembly members are women). After the opening, a Yugoslav delegate promptly challenged an earlier Assembly ruling that all but a few plenary sessions would be closed to the public and the press; youth opposes secrecy, he said. Next, Communist delegates collectively denounced an earlier conference ruling that each youth attending the conference was to be considered as an individual, not as a representative of his country or government. Most participants had been chosen by youth groups, though six or seven governments had dictated choices. (BN217)

5. Thirty delegates walked out after the delegates from South Vietnam and Nationalist China were not allowed to speak, even though by an earlier resolution it had been decided to allow all who were there to be heard. Those who left did so by invitation of an American from Brooklyn, who asked those who believed in democracy to follow him out. The thirty came from nineteen countries, most of them West European. (BN486)

6. Before long, the Assembly had to overcome delaying tactics by leftists which held up the group for three days; agreement was forced on a

compromise measure expelling South Vietnam, South Korea, Taiwan, Spain, and Greece (all allied in someway with the United States).

7. A New York Times story of July, 1970:

> A denunciation of the United States for its role in Vietnam and what was termed its 'rapacious' policy in Latin America was rammed through the UN World Youth Assembly panel today. But at least 50 youthful participants, incensed about the tactics used by anti-American groups, mounted a protest against the action in the assembly's peace commission. As usual, the quarreling overshadowed other events. Three participants from the U.S. and five from the USSR group took an amiable midday walk in the sun along 2nd Ave. (BN484)

8. Eventually, the Boston Globe reported:

> The World Youth Assembly has degenerated to the level of any one of the major forums of the world organization. For more than a week the 650 delegates from 110 countries have clawed at each other with as much malicious zest and venom as their adults have for generations. Observers have been stunned by the degree of parochialism and the lack of willingness to accommodate that has been exuded so far by the new generation. One could almost conclude, albeit non-scientifically, that political behavior is a hereditary characteristic of man. (BN174)

9. So much for optimistic expectations of ready agreement to political solutions at any age level. As has occurred before, some American young representatives were critized for political naivete when confronted by professionals (some delegates from Communist countries were well into their 30's). It is sometimes asserted that young Americans frequently fail to understand the motivation of all political action: power.

10. We turn to comments on the current status of ferment in the United

States, and its international significance. Brzezinski identifies technology and electronics as the principal impulses of change in our time, characterizing this transition era through which America, alone of the world's nations, is passing at this time. This transition appears to be fostering the role of science, in freeing man to ponder the universal questions, such as life's purpose, and to supply answers for the problems immediately confronting society: ecology, survival, pollution, nutrition, peace, etc. (Incidentally Brzezinski deprecates the New Left, as "opting out" and not providing any answers). (BN419)

11. Robert Osgood is one of many who agree that this is a period of transition; the United States has gone through a number of years of Cold War, in which its primary role seemed to be to establish its military power and the credibility of its deterrent vs. the threatened expansion of communist control and influence.

In a number of ways, that period has passed; e.g., witness Eastern Europe and the general disarray of international communism. We are moving into an era of the diffusion of power and proliferation of political activity in the world (BM117)

Osgood cites the Vietnam War as a unique circumstance, a combination of vulnerability to internal war in one country adjacent to another vulnerable country and the existence of an impressive military force under strong national control which was linked to nationalist appeals in the target country. (BM117)

12. Similarly, says Osgood, some expected aspects do not obtain in the Mediterranean. The game in the Mediterranean, is, on the face of it at least, primarily a competition of a very complicated sort for access and influence related to ports, rather than for control of governments. It is not even primarily a game of subversion, so far as the Soviet Union is concerned. (BM117)

13. Jean-Francois Revel, in order to smite French intellectuals, finds in the current American "revolution" much hope for the rest of the world. If

only partly true, his thesis argues for considerable American influence and leadership in relation to the rest of the world for some time to come--not only in technology and economics, but also in culture and social justice. The current American Revolution, says Revel, is without a doubt the first Revolution in history in which disagreement on values and goals is more pronounced than disagreement over the means of existence. Americans do not merely want to cut the cake into equal pieces; they want a whole new cake. (BP343)

14. This spirit of criticism of values, which is still more emotional than intellectual, is made possible by a freedom of information such as no civilization has ever tolerated before—not even within and for the benefit of the governing class, let alone at the level of the mass media. This accessibility of information has resulted in widespread and strong feelings of guilt, and a passion for self-accusation that, on occasion, tends to go to extremes...and the moral, cultural, and political revolutions are but a single revolution.

...American dissent is distinguished from European dissent by the fact that the former is involved in problems that are part of reality. Since the dissenters are certain that they will be able to solve those problems, they do not ignore them. They fight against military service in Vietnam, against racial discrimination, against the destruction of the environment, against the relations of the universities with the military-industrial complex, against governmental indifference toward the American Indian, against the lack of funds necessary to save the cities. For American youth, dissent does not mean the imaginary transference into its society of irrelevant political scenarios, such as Maoism or Castroism; or, if it does introduce such elements, it does so only in small measure and without using them as an excuse for ignoring real situations. (BP343)

15. If we draw up a list of all the things that ail mankind today, we will have formulated a program for the revolution that mankind needs: the abolition of war and of imperialist relations by abolishing states and also the notion of national sovereignty;

the elimination of the possibility of internal dictatorship (a concomitant condition of the abolition of war); worldwide economic and educational equality; birth control on a planetary scale; complete ideological, cultural, and moral freedom, in order to ensure both individual happiness through independence and a plurality of choice, and in order to make use of the totality of human creative resources.

Obviously, this is a utopic program, and it has nothing in its favor, except that it is absolutely necessary if mankind is to survive. The exchange of one political civilization for another, which that program implies, seems to me to be going on right now in the United States. And, as in all the great revolutions of the past, this exchange can become worldwide only if it spreads, by a sort of political osmosis, from the prototype-nation to all the others. (BP343)

16. The United States is the country most eligible for the role of protoptype-nation for the following reasons: it enjoys continuing economic prosperity and rate of growth, without which no revolutionary project can succeed; it has technological competence and a high level of basic research; culturally it is oriented toward the future rather than toward the past, and it is undergoing a revolution in behavioral standards and in the affirmation of individual freedom and equality; it rejects authoritarian control and multiplies creative initiative in all domains—especially in art, life-style, and sense experience—and allows the coexistence of a diversity of mutually complementary alternative subcultures.

It is evident from the above that the various aspects of a revolution are interrelated—so much so that, if one aspect is missing, the others are incomplete. There are five revolutions that must take place either simultaneously or not at all: a political revolution; a social revolution; a technological and scientific revolution; a revolution in culture, values, and standards; and a revolution in international and interracial relations. The United States is the only country, so far as I can see, where these five revolutions are simultaneously in progress and are organically linked in such a way as to constitute a single revolution. (BP343)

17. Thus, one widely circulated view from abroad concerning America's foreseen international role.

18. One 1957 analysis of American attitudes towards foreign policy may still be relevant here: Every foreign policy orientation, whatever its degree of rationality and constructiveness, has, to an appreciable extent, a psychological foundation in the personalities of its adherents. In analyzing foreign policy attitudes, one should develop a socio-psychological approach, recognizing individual and modal personalities, while taking account of broader social forces. (BP250)

19. In the "consumption of foreign policy," there are various ways in which individuals selectively assimilate the diverse viewpoints with which they are constantly bombarded. One seeks to identify various foreign policy orientations along a continuum from nationalsim to internationalsim, and to discover the socio-psychological differences between those who stand at opposite ends of the continuum.

Concerning Americans, for example, it is said that, although nationalists glorify America as a symbol, they are inclined to regard most of the American population as an alien out-group. They are activated less by love of Americans and their heritage than by a sense of hostility and anxiety regarding other nations and "outsiders" generally.

Internationalists are under less compulsion either to glorify their own nation or to condemn others, and show a more genuine attachment to their cultural traditions.

Nationalists and internationalists show characteristic differences in ideology spheres apparently far removed from foreign policy and intergroup relations. Nationalism is associated, for example, with an autocratic orientation toward child-rearing, husband-wife relations, and other aspects of family life. Family is conceived in hierarchical terms. (BP250)

20. Nationalism is also associated with certain patterns of religious ideology, notably those that may be characterized as fundamentalistic or conventionalistic. There is evidence that one's foreign-policy orientation is part of a broader ideological context, such as a general autocratic approach to the

social world. (BP250)

21. The individual's approach to the external social world will in significant degree reflect his approach to himself—his self-conceptions, character traits, modes of dealing with inner conflict, etc. A corollary is that an autocratic approach to problems of social organization will most often be found within an authoritarian personality structure. Such characteristics as punitiveness, stereotypy, fear of moral contamination, submission to powerful authority, exaggerated fear of weakness, in their extreme form, are features of the authoritarian personality and make recurrent appearance in nationalistic thought. (BP250)

22. These comments have implications for linkages between future socialization in America, especially of youth; social change which contains transnational aspects; and specific foreign-policy problems facing the United States in the future.

23. It should be noted that one of the longest-lasting of widespread stereotypes is that which associates the authoritarian approach and the military mind. For example, John McHale wrote in 1969: "The Malthusian and utilitarian feeling that the future was limited to those most able to prove their material strength and mastery is a viewpoint which, in its more negative and large-scale aspects, is increasingly confined to our military establishment." (BM43,95)

24. One might have thought that analysts in these fields would be more familiar with informed literature in the field, which discounts the authoritarian-military linkage as a stereotype.

25. Riesman comments on American-Russian psychological interaction:

> Certainly, totalitarianism does make an effort to politicize all of life (just as both antifascism and anti-communism do when pushed to fanatical extremes); but it is a mistake to assume that such a movement, no matter how terrible its aims or clever its methods, can step outside of history entirely and cut all con-

nections with social structures of an ordinarily inefficient sort.

The Soviet regime could not completely cut the bonds of human solidarity, extirpate weakness, and restructure human personality—yet.

It is still common in Europe and elsewhere to regard Americans as inherently innocent, unable to grasp what communism is really like (and increasingly, what poverty is really like). The charge has often been accurate. But with respect to communism, an overreaction may have occurred, so that Americans often show a greater and less controlled fear (and perhaps concealed admiration) of communism than do people who have lived more closely under its shadow. (BB286)

26. Turning to specific US-USSR interactions in the future, one notes deprecatory views of the USSR. One article noted the 100th anniversary of Lenin's birth by comparing what he said that Communism would do with what it has actually done. The consensus of respondents to the article is that Communism, in terms of accomplishing the aims Lenin enunciated, has failed miserably. (BN208)

27. A dramatically different perspective towards the future emerges in Admiral Zumwalt's comparison of self-sufficiency in strategic materials: The USSR is deficient in only two strategic materials: tin, for which there are new substitutes for most uses, and rubber, which can be produced artificially. On the other hand, Admiral Zumwalt predicted, by the late 1970's, one-half or more of each of the sixty strategic materials needed by the United States will have to be imported. (BN260)

28. Other predictions about the US and USSR: The 1970's and the 1980's are likely to see increasingly diversified communisms merging with specific local conditions, while fading as part of an international movement and a universal ideology. (BB54)

In the international system, changing trends will result in:

1. Development of a global international society
2. Creation of a transitional nature in the contemporary international system
3. Continual erosion of outmoded institutions; fragmentation and integration of society occurring in different places and institutions simultaneously will generate conflicting interpretations of 20th century history.
4. Lag between perceptions (based on past experience) and reality may produce policies or decisions which are counter-productive and potentially capable of resulting in violence.
5. Growth of transnational activities
6. Revolution in the geographic conceptualization of international politics. Calculations will be made on time or cost abstractions, rather than traditional estimates based on physical distance.
7. Merging of political and economic phenomena, in the sense that both

Potential Impact

Some indicators (increasing transnational collaboration, expansion of functional organizations such as EEC, etc.) give promise of increased international cooperation. Other factors (rising nationalism in some areas, economic competition, etc.) discourage predictions of imminent improvement in international cohesion. Technological change (e.g., in communications, effects of pollution, increase in world trade) will probably force greater interaction and more cooperative enterprises among nations, possibly in selected regions, possibly along functional lines. In the functional area of military cooperation, the American armed forces have been extensively involved for a quarter-century in military assistance, training, advisory roles, transfer of equipment, overseas basing, combined military operations, and participation in a number of international military planning and supervisory bodies. With changing strategic concepts, the large scale of American participation will probably be reduced. Nevertheless, the Navy will be involved internationally in specific naval and general military collaboration indefinitely. Doubtless, many of the roles and relationships in-

domestic and international politics occur primarily in terms of the allocation of economic resources. There will be an increase in politization of economic affairs and creation of economic "value" for political "goods." (which have been previously compartmentalized conceptualizations). (BP292)

volved will change in nature and degree; but the Navy's role as participant, mentor, occasional leader, and developer of new methods will continue to be substantial.

29. More specifically, close cooperation between the United States and the Soviet Union seems a very unlikely prospect in the coming decade, only partially due to ideology and politics. Rivalry between nations is inherent in an international system that functions without global consensus, the result of centuries of the conditioning of man's outlook by competitive nations that insisted on their individual superiority, and particular values. Such rivalry is not likely to be terminated by anything short of a fundamental reconstruction in the nature of relations between nations and hence in the character of national sovereignty itself. (BB54)

30. The more probable pattern for the Soviet Union in the 1980's is a marginal shift toward a combination of pluralist evolution and technological adaptation: limited economic-political pluralism and internal emphasis on technological competence, within the context of a still-authoritarian government representing a coalition of the upper echelons of the principal interest groups.

The element of rivalry with the United States, reflecting the vestigial legacy of ideology and reinforced by middle-class urban nationalism is likely to continue, tempered by 'survival collaboration.' (BB54)

Francois Duchêne (joined by Stanley Hoffman) does not believe that:

> we will get a return to the pure bipolarity of conflict or to a condominium of the superpowers—it's hard to see how it could be established or maintained. Our range of alternatives is narrower. Either the present international system will be perpetuated, in which case, unfortunately, since there is very little to choose between partly impotent superpowers and largely impotent smaller states, there will be recurrent crises and overstraining of the superpowers, or there will be an attempt to establish a more structured international milieu with more middle powers, more hierarchies responding to different kinds of power—military, economic, technological, monetary—more regional decentralization, a world in which competition will continue, but within limits and restraints. (BF6)

32. Melman suggests US-USSR collaboration in peacekeeping in curtailing small war: Despite the divergent political assessments, the United States and the USSR have been developing areas of common interest, as yet unformulated, against the incidence of small wars, and favoring agreement on ways of avoiding such military confrontations. The factors generating such common Soviet-American interest include the following: small wars are economically costly and militarily hazardous even to the great nuclear powers; small wars contain a significant potential for developing into big-power confrontations; the American-Soviet in avoiding nuclear wars and nuclear confrontations necessarily extends to a common interest in avoidance of small wars.

Durable peace settlements in the Middle East, Vietnam, and elsewhere can follow a US-USSR understanding that small wars must henceforth be curtailed in the common interest. (BF13)

33. Some proposals have recommended the maintenance of international peacekeeping forces powerful enough to restrain even the superpowers from engaging in war. It seems indispensable that such forces must include certain elements.

1. They would have to include nuclear forces. Question: What nuclear nations are likely to turn over nuclear weapons to any other force, or to provide nuclear forces which might be used to restrain their own nation?

2. The forces would have to be so powerful that only superpowers could afford the major elements. Question: If the most powerful elements were to come from the superpowers, what changes in power status might other nations expect?

3. Question: If force contributions were limited principally to large and medium powers, would the power "pecking order" become relatively frozen?

34. Among a limited number of hopeful developments, on April 10, 1972, over 70 nations, including the U.S., the U.S.S.R., and the U.K. (but not France or the PRC), signed a convention outlawing biological weapons and requiring states to destroy their stock of such weapons. The convention will go into force as soon as 22 nations, including the three nuclear powers, deposit instruments of ratification. (BN467)

35. Turning to the third world, we note predictions of increasing potential for international destabilization resulting from turmoil among developing nations cought between the rising demands of their populations and their own inability to increase GNP and income significantly. (BM43,95)

36. E. V. Rostow wrote in December 1965 that the Third World is gradually and reluctantly accepting several facts: (1) that the long and slow path to economic growth requires a great deal of work and can be organized effectively only by large numbers of entrepreneurs, private or public as the case may be, who are in extremely short supply; (2) that the economic and social revolution of the West in the postwar period has outstripped that of the Communist countries in every respect, despite deeply established convictions to the contrary; (3) that the Communist movement is by no means necessarily the Wave of the Future, politically or otherwise. It has been contained in Europe, where it is dissolving into a series of uncoordinated fragments. It is not fantastic to imagine the Eastern European countries, and even Russia, becoming part of Europe again. The containment of Communism in Asia is not yet so obvious,

but it is difficult to imagine China waging a great war of expansion, with or without nuclear weapons, while it depends on the West for food. (BP416)

37. Nevertheless, it cannot escape attention that fully half of the nations in existence today are of questionable viability, often lacking "a people," effective governmental control, internal stability, or economic strength. (BM43,95)

38. McHale offers one interesting observation concerning economic aid and the "facts of life":

- nations like people, do not tend to aid or assist those in the economic class nearest to them, but are wiiling to help those at least two levels away. Nations are continually measuring themselves against the next weaker or the next stronger." (BM43,95)

39. One of the potentially most significant developments on the international scene is the multinational enterprise, particularly the multinational corporation. Herman Kahn feels that such organizations, rather than knowledge institutions, are likely to become the dominant institutions in the post-industrial society.

Specifically, the multinational corporations are emerging as sources of new external forces on the behavior of states. (BM43,95)

40. Some foresee an intermixture:

> Thus the business of business would appear no longer merely to be productive— but to improve the very nature of the market itself. So, within the last few years, the overall objectives of industry and politics have become one. A new role of business is to create a kind of society that can participate in and enjoy the new technological world which science and industry helped create. This is going to be particularly difficult because all of our institutions have been created to deal with the problems of a world in which there was never enough of anything to go around. The business of industry was to produce as much as possible, and the function

> of government was to oversee the distribution of what was produced, for the greatest social and economic benefit commensurate with giving industry enough incentive to produce at all. We have reached the beginning of an 'economy of abundance.' (BM43,95)

41. Turning to specific predictions of the future, we note that some predictions are stark.

42. One states bluntly that the most urgent world problem in 2000 will be the conflict between expanding population and food production. (BG2)

43. Others are less stark:

1. As we grow aware of the dependency of our goals on those of other nations, peace and war will be issues that change the viewpoints of youth.

2. The threat of possible nuclear war will still be with us for the next 10 to 20 years. Political unrest affecting the interests of the major powers will bring explanations of the consequences of using nuclear weapons. More nations may have nuclear weapons, thus the powers may become entangled in ventures not of their choosing. Highly important, there will continue to be deep differences of opinion as to how threatening the world situation is and how devastating the existing weapons are. (BB232)

44. Osgood stresses the interconnections of the world of the 1970's. Conflict and events in one part of the world, especially where they concern the credibility of American power, will have serious repercussions upon conflicts and events in other parts of the world— particularly within regional grouping of inter-dependent states. (BMII7)

45. Ithiel Pool and Daniel Bell predict that instability in Africa will lead to an outbreak in the late 1970's, with large-scale UN intervention, and protracted occupation. (BM43,95)

46. Gordon (BN561) suggests that conflict may remain a perennial problem of man until psychology becomes an exact science.

47. Wallia (BN437) cites Robert North, inter alia, as predicting that, as population densities increase, interactions will intensify into conflict.

There may be 3-5 major powers by 2000, from among the United States, USSR, Japan, various combination of European nations, and China. The major threats to stability will be:

. the arms race;

. disparities between developed and underdeveloped nations;

. insurgency and rebellion; and

. ineffectiveness of institutional mechanism for conflict resolution

Rostow predicts the integration of a vast industrial area in Asia, pooling Chinese and Japanese skills.

Huntington predicts American decline by 2000 — with rise of China on mainland Asia, Indonesia in Southeast Asia, Brazil in Latin America, and powers yet unidentified in Africa and the Middle East. (BM43,95)

Other predictions:

48. The Communist government of China will recover more effective central authority and comparative economic prosperity and thus feel encouraged to push more forcefully into southeastern Asia and India and possibly to thrust against the fringes of Asiatic Russia. This trend will increase in the early 1980s. (BM94)

49. Japan will emerge as the third major power. (BM94)

50. Polarization of main world tension will occur on a North-South ("haves" vs. "have nots") axis rather than an East-West (communist vs. capitalist) axis. (BM94)

51. There will be a tendency toward a "Pax-USA-USSR" in order to control nuclear proliferation and the dangers of biological warfare caused by irrational actions of small powers. (BM94)

There will be an increasing number of nations with the capabilities of manufacturing nuclear weapons. (BM43,95)

52. On the other hand, Pool predicts that during 1970-2000:

> During this period, there will have been some, but relatively little, nuclear proliferation. Several states will have acquired token nuclear capability: India in 1975; Pakistan in 1980; Egypt and Israel simultaneously in 1983; Germany with some sharing of controls in 1985; Japan in 1990; and Algeria in 1995. Much more important than the proliferation of these token capabilities will be the emergence around 1990 of a new family of even more dangerous weapons. It will be generally recognized that means exist for a sneak attack by a poor country upon any nation in the world with results verging on total destruction. No country will, however, have built the system yet. The decade 1990 to 2000 will see massive increases in expenditures by the major powers for reconnaissance, intelligence, and covert influence in places where such weapons might secretly be developed. (BP416)

53. A different source:

> Over the next ten to twenty years the problematic issues are likely to be the roles of France and West Germany, and not, for example, the decline of England. At the time of the American Civil War, British productivity had been growing very slowly in comparison with the rest of the world's rate. British productivity does not go up fast, and the managers of British businesses have certain characteristics, tendencies, habits, traditions, or styles that make it highly unlikely that growth rates will be much over 2 or 3 per cent.
>
> I do not think that people who talk about China as the looming central power in Asia have examined the situation. Japan will play a larger role than China in the next ten or twenty years particularly if the Japanese are assertive and maybe even if they are passive. In almost every way you care to name, Japan is a bigger power than China. The most interesting new powers are in Latin

America; Brazil and maybe Mexico will be among the great powers by the year 2000. (BP416)

54. Pool predicts for 1970-2000:

A European parliament will be established including most, but not all of the present European countries from England to Rumania. The nations will not be abolished, but will enter into a loose confederation. Some patchwork of East and Southeast Asian states will also enter into a confederation including most of Indonesia, which will have broken up in 1980. Around the year 2000 the Soviet Union will be forced to loosen its grip on Manchuria, turning it into some semi-independent state with ad hoc relations with both China and Russia. (BP416)

55. Predictions for the years 1970-2000:

Around 1980, there will be a major political crisis in the Sovier Union, marked by large-scale strikes, the publication of dissident periodicals, a temporary disruption of central control over some regions, and an open clash between the major sectors of the bureaucracy over questions of military policy and consumer goods.

This will stop just short of revolution, though it will result in the effectual abolition of the Communist Party or its splitting up into more than one organization, the abolition of the kolkhoz, and so forth. During these events, the Soviet hold over Eastern Europe will be completely broken. An unconsummated attempt at East German-West German unification will occur. This will stop the revolution in the Soviet Union from going full course...

At the same time, the widening gap between the developed and underdeveloped countries will be softened by the extraordinary growth of a few of the latter... In response to this situation, the decade 1990-2000 will see the beginning of the breakdown of the nation-state system... (BP416)

56. Some views are apocalyptical, vide Barnet:

> The most obvious danger is nuclear war, or, if this is avoided, an international class war, or ecocide... One miscalculation, one accident, one paranoid decision by a demagogue, one crisis that puts in jeopardy the supreme interests of one country, and the game is over. (BP28)

57. Roger Shinn predicts that even though political and other forms of power will continue to be diffused, the "have" nations will continue as long as possible to substitute largesse instead of real diffusion, i.e., real sharing of power.

58. Nicholas Rescher conducted a Delphi survey (BB16) on the potential effects on American values if certain events were to take place by 2000.

The following were predicted to have some effect:

. A worldwide armaments agreement (increasing emphasis on peace and internationalism; de-emphasis on power and patriotism)

. A collapse of the United Nations (no increasing emphasis but a de-emphasis on peace and internationalism) (BB16)

Potential Impact

Some of these political predictions are contested by others. Some are not. Some are supported by considerable consensus. Collectively, they provide sufficient room for the possibility of future conflict as to preclude any prudent national planner, whatever his desires, from assuming that the Millenium is about to arrive. A number of potential conflicts may involve the United States (whether the United States wants to become involved or not). Without going into an extended rationale here, it appears essential for the United States to maintain a substantial Navy for potential conflict purposes (including deterrence) for many years into the future. To perform such missions in the interests of American society, the Navy will continue to require American men and women to serve in it, with the requisite qualities of body, mind, and spirit.

59. One particularly notable prediction is that, despite spectacular advances in space technology, the most immediate frontier (1970-2000) will be the undersea (seas below the surface, plus ocean beds). (BP191)

60. The potential scope of interaction is indicated by a number of developments:

- Water natural resources increase in importance as land resources are depleted: oil from undersea constituted 8% of world consumption in 1960; 15% in 1965; and will be 25% in 1990. The United States has for years extracted most of its bromine and magnesium from the sea. There are 160 million tons of solids in each cubic mile of sea water; it is increasingly necessary to mine sulfur, antimony, bauxite, manganese, cobalt nickel, and others from the sea.

No longer is the sea a mere barrier of water several hundred feet thick, associated inseparably with the surface. The undersea has certain major aspects which may make it the context of war (all aspects are 2-edged):

1. It is an area of importance in itself--with greater size and resource potential than earlier resources, such as food from fish and water crops. There are three naturally available and inexhaustible sources of power: on is the sun; the second comes from thermal differentials at varying depths of the sea; and the third resides in the tidal action of the oceans.

2. Some utilizations of undersea may become deniable to an enemy.

3. Generally, there is the same relationship to control of the surface as to control of the air above the surface.

4. The Undersea offers operational areas and avenues for approach for warfare superior in concealment to air, space, land, or surface. (BP191)

61. A heavy proportion of military supply is in petroleum, oils, and lubricants; but liquids in flexible containers, such as would be used in undersea supply activities, are not endangered by pressure. Standardized, mobile modules are foreseen.

For defense, against air-, surface-, and undersea-to-undersea missiles, nations may use marine life, e.g., dolphins or whales fitted with detection devices.

The USSR is reported to be building supply submarines, submarines to act as power stations, and submarine repair facilities.

The United States contemplates or is building an undersea aircraft carrier, fleet tankers, cargo transports, troop transports, and submarines to carry, launch, and recover minisubs.

62. Political conflicts are possible. It has been proposed by President Nixon and international oceanographers that the undersea be developed for the benefit of underdeveloped and landlocked nations. There may be attempts to establish "spheres of influence" by establishing research stations.

Two factors may produce requirements to occupy permanently some portions of Undersea:

. to retrieve resources from the ocean bed, physical activity (more than mere physical presence or machine activity) on the bed is necessary.

. certain portions of the undersea possess intelligence advantages (e.g., the mid-Atlantic range).

There may be economic competition and economic warfare. Resources (minerals) in solution vary greatly in quality according to location, e.g., nickel is ten times as plentiful in the waters of the Central Pacific as in the Gulf of Mexico. Attempts to profit must be physically located in various specific areas of the oceans, and hence some specific attempts may be vulnerable to a number of obstacles.

Certain hostile actions are conceivable. For example, an enemy might alter migratory routes of fish, by advances in marine biology (food culture); this would be an especially effective tactic against islands (e.g., against Japan, which gets 74% of its consumable protein from fish). An enemy might seed fish predators in enemy fishing areas.

An enemy could increase underwater radioactivity by nuclear detonation. By 2000, submarines will operate to a depth of 20,000 ft. (sub-

marine technology is now about where air technology was in 1914). The Trieste has already dived to 35,000 ft. Trained personnel will operate to a depth of 6000 feet with SCUBA-type equipment, although operating depth should be around 3000 feet. There will be no development of any persons capable of living in the sea, through some exchange of oxygen-carbon dioxide. If these predictions are accurate, free divers will reach 15%, and submarines 98%, of the ocean bottoms. (BP191)

63. A military force for controlling an area of undersea will control the surface of that area; every detection device against submarines works as well or better against surface ships. The bulk of overseas logistical support is always provided by surface ships in any large-scale operation. Even with increased pressure for air movement, 99% of world's intercontinental movement by weight is still done by ship.

It is moot whether international law will cover undersea activities. One likely alternative: first come, first served. In peace, the United States continues to espouse an undersea version of freedom of seas (note Nixon proposal that all nations waive claims beyond their continental shelves and below 660 ft.)

A permanent colony can be established below 600 feet during the 1970's. General Electric plans a colony on the mid-Atlantic ridge at 12,000 feet within 10-15 years. Power can be obtained from SNAP (Systems for Nuclear Auxillary Power).

The Westinghouse Electric Corporation has led in exploring a range of developments, from the submersible DEEPSTAR, to offshore nuclear power plants, to underwater oil fields, to the depradations of the starfish Acanthaster planci on Pacific coral reefs of economic or scientific value.

Much knowledge is still required about the undersea: water analysis, relationships to surface weather, tides, differences in speed of sound underwater; undersea currents (which can provide quiet propulsion, e.g., the Cromwell current at 650' moves at 5 m.p.h.) Oceanographic maps, including continental shelves, increase in importance. (BP191)

64. In another Delphi survey, the following implications were cited of producing at least 20% of the world's food by ocean farming:

> The cowboy of the future may ride a submarine; the farmer, a barge. Cetaceans may be trained to herd fish much as sheep dogs presently herd their flocks.
>
> New ocean farmings jobs will diminish unemployment.
>
> Increasing conflict between private and national ocean farming interests may lead to the modern equivalent of piracy. (BB16)

65. The following were considered potential impacts from the invention of devices which permit economically useful exploitation of the ocean bottom through mining (not offshore drilling):

. Extension of national sovereignties and "claim staking" of the ocean bottom by major powers

. Economic disadvantage to countries which have unique mineral resources on land

. Major revisions to international law, particularly to altruistic attitudes concerning ownership of oceans

. Decreasing emphasis on mining and development of terrestrial minerals and research into mineral substitutes

. Colonization of the continental shelf

. Ecological imbalances resulting from intrusion into the ocean (BM61)

66. Politically and strategically, the world will not remain unaffected by the implications of the concern cited previously in such studies as "The Limits of Growth," which was undertaken under the aegis of an international group; that study warned that the dimensions of the planet and its resources are finite and the planet is rapidly reaching its capacity to support human life and unrestricted industrial growth. (BN428)

67. Harrison Brown stated almost two decades ago: Population stabilization and independent national strategies are incompatible. What is needed is a world authority with jurisdiction. (BB50)

68. Hudson Hoagland, among many, makes the same appeal:

> Man has to learn to live in a world governed by enforceable supranational law against war. This means a form of world government, with the sovereignty of nations—in regard to their warmaking potential—subordinated in a way similar to that of our states in relation to our federal government and of the Swiss cantons in relation to the government of Switzerland. This means an armed international police force powerful enough to prevent war. (BM118)

69. The requirements for an enduring stable world order are reasonably well known: international institutions empowered to enact the necessary rules, judicial institutions capable of rendering decisions for specific applications of the general rules, and methods for enforcing the rules and the decisions made. (BM43,95)

Potential Impact

Predictions about the increasing importance of the undersea obviously concern a spectrum of potential future activities for the Navy. Some of these activities will be peculiar to conflict situations, but many will expand in number and importance under conditions of peace. Highly competent manpower and womanpower will be required for many of these functions. Many related aspects of research, development, training, and operations, will be pioneered by the Navy. Among the personal qualities traditionally sought and heightened by the Navy in its people, the quality of being challenged by high adventure and new frontiers will achieve new prominence. Doubtless, a number of new work specialities and professions will emerge in relation to exploitation of the undersea.

70. Occasionally, some formidable step is taken in coping worldwide with an important problem through international cooperation. Such a one took place in 1970 at MIT on the worldwide problem of pollution. The conference met on Critical Environmental Problems, identified the two major offenders: oil and carbon dioxide, and developed an international plan to cope with them. (BM137)

71. Any discussion of international cooperation immediately confronts the value of sovereignty or national independence:

The increasingly close interlinkage of nations has already created pressures upon this traditional value. But perhaps the key factor is the clash between national sovereignty and public safety in the era of conveniently deliverable multi-megaton weapons. The obstacles that lie in the way of national independence in the sense of go-it-alone noninterdependence will be such that one can confidently look for a depreciation of this value. (BB16)

72. Baret goes well beyond the aspect of sovereignty:

Any global political community which succeeds the obsolete nation-state system must be sustained by a world culture, a system of values and outlooks which transcend geographical limits and historical traditions. (BP28)

73. Harrison Brown suggested an interim objective:

From the point of view of long-range world stability, regional self-sufficiency would appear to be a goal toward which all major areas of the world should move as rapidly as possible. If the world as a whole were to have a common government and a political and economic structure that would permit India to produce food and Iraq to produce oil for the great world industrial centers, much as Iowa produces food and Texas produces oil for the industrial centers of the United States, stability might be achieved. But in the absence of such structures and in view of the fact that surpluses of any description are becoming rarities on the world scene, regional self-sufficiency appears to be a highly desirable goal. (BB50)

TECHNOLOGY

1. In the introductory section on philosophical aspects of change, we have already introduced and discussed a number of aspects of technological change. We are here resuming discussion of technology in its international aspects. This entire International Section will be followed by an entire Section on Technology, discussing a number of categories of technological change. The recurrence of this theme and subject should surprise no one, for it would be difficult to contend that any other aspect of future change will have greater significance for life and society in general, to include military institutions.

2. In his analysis of change, Between Two Ages, Brzezinski contends that the impact of science and technology on man and his society is becoming the major source of contemporary change, especially computers and communications. (BPI26)

3. Computer growth even during the ten years up to 1966 was almost incredible. In just ten years the typical electronic data processor became ten times smaller, 100 times faster, and 1,000 times less expensive to operate. These trends will continue; and our national computing power, which is doubling every year, will soon be sufficient to make the computer a genuinely universal tool. In 1956 there were fewer than 1,000 computers in the United States; in 1967 there were 30,000, or more than $11 billion worth; and by 1976, the machine population may reach 100,000. And these figures will, or course, be greatly increased through the growth of data processing in other nations.

In 1957, our machines were capable of 12 billion computations per hour; in 1967, their capability exceeded 20 trillion per hour; and by 1976, they will attain 400 trillion, or about 2 billion computations per hour for every man, woman, and child. (BM7)

4. The statistics on computer distribution within the next few years are even more impressive. (Brzezinski notes that steel used to be an index of power comparison between nations; now computers serve the same purpose). This

was the worldwide distribution at the end of 1969:

United States	70,000	
Japan	5,800	
West Germany	5,750	
Britain	5,600	
France	5,010	
USSR	3,500	
Italy	2,500	
Canada	2,400	
Australia	900	
Netherlands	850	
Switzerland	800	
Eastern Europe	750	
Africa	750	(BP56)

5. Some significant predictions are related:

-With increasing development, more decision functions are being based on computers.

- Financial success may depend upon the brillance and imagination of the humans who program the computer. In a sense that knowledge is power, and communications means access to power, some claim that in 2000 the richest man in the world will be a computer programmer. (BM9)

6. We proceed to record selected predictions of other technological advances and, in some instances, their possible impacts. Gordon and Rescher have pondered, for example, the implications of the feasibility of limited weather control in the sense of substantially affecting regional weather at acceptable cast.

They suggest these possibilities:

Weather control obviously can be an important weapon. Accurate control can deprive nations of water or create floods, without identification of the aggressor nation.

Within the government we have already seen a struggle for the funds associated with this new research. If weapons of weather are produced, which agency will control them. The Strategic Air Command?

An orbiting mirror, brought to focus on a point on the earth could be a frightening weapon.

Since weather modification will have global consequences, international agreements may be required to foster this work, and these agreements may promote international cooperation between nations and world law. (BBI6)

7. We have already noted in the preceding subsection predictions concerning increasing capabilities to manage and utilize ocean depths. An increasing number of nations will develop such capabilities, for both exploration and industrial exploitation. Gradually, such capabilities will embrace sub-bottom mining, open-sea aquaculture, and toward the end of the century, deep-water mining. (BM43,95)

8. Intense current interest is demonstrated in the submission by the United States of a draft on the United Nations Convention on the International Sea Bed. In addition a new Law of the Sea Conference will convene in 1973. (BM43,95)

9. We turn to the implications of one of the most dramatic areas of technological advancement: Space. This vast complex of technology will undertake new directions and developments, some not now foreseeable, but affecting man on earth. Space advances raise expectations for similar impressive progress in political and social problems ("reaching for the moon" is no longer a symbol of utter fruitlessness). To some extent, success in space complicates understanding and raises impatience with slow progress in solving mundane problems: urban, poverty, disease, war. Still, space performance is a powerful element of national prestige in technological advancement; it is too expensive to support, except by a great power. Simultaneously, technological advantage accrues in related activities, such as surveillance and survey of other nations, and in general accumulation of knowledge. (BM43,95)

10. Concurrently, some impetus is provided for international cooperation. Some major developments are possible only on a global scale, with certain uses available to all nations. Some projects are beyond even the capabilities of superpowers and require some parts to be played by many other nations.

-National privacy as traditionally conceived will be greatly diminished. Security has already been eroded by ICBM's and nuclear warheads, and will be further eroded by communications and other forms of space satellites.

(BM43,95)

11. Shklovskii and Sagan contend that there are several billion planetary systems in our galaxy. Of them, about a billion worlds are populated with their own varieties of living organisms. On some planets, life may have existed for such a long period of time that there may have evolved intelligent forms which, in turn, may have produced technologically advanced civilizations.

(BB317)

12. Gordon and Helmer consider the following implications of continued space exploration, such as budgeting of the civilian space program at levels exceeding 1% of GNP:

Space may prove an alternative to war. It provides heroic goals which are nondestructive.

The use of space for military purposes excludes the underdeveloped nations and thus tends to preserve the bipolar status quo world.

Space provides an internal national goal which, at least in the case of the Apollo program, has proved unifying.

Space missions may continue to provide a visible demonstration of technological preeminence.

Our space programs provide a means for drawing other nations into our political orbit by permitting their participation in the national programs.

(BB16)

13. Another set of implications are foreseen relative to a prediction

concerning the launch of a continuously-manned, scientific, earth-orbited space station, with a 10-man crew rotated every 90 days:

-detailed mapping of all countries

-advances in meteorology

-great advances in astronomy

-improvements in geophysics

-chemistry, physics, and biological research benefiting from low-gravity and low-friction states

-commercial manufacture of exotic items, such as hollow ball-bearings, composite metals (cooled in a neutrally buoyant state for use in orbit and beyond).

-a prototype for commercial space stations which would perform useful services in orbit, such as those described above; and be a hospital for certain cardiac patients. (BM61)

14. One "prediction," to which many evaluators give the probability "later or never" is "the discovery of information which proves the existence of intelligent beings beyond the earth." (BM61)

15. Wernher van Braun has expressed a number of predictions relative to space: - man will land on (or closely approach) Mars by 1984.

- The lunar surface will become a permanent base of operation.

- Private industry will enter earth-orbital operations on a large scale, especially in communication satellites.

- Meterological surveys will be enhanced.

- New fuel systems (nuclear heat propulsion and electric systems) will push unmanned probes to the outermost planets of the solar system.

- Origins of the solar system will become more clear after investigation of life on Mars.

- Long-term manned activities will be sustained in orbiting labs.

- Improved communications will be based on light signalling with lasers.

- Astronomical observations will be possible in the previously untested electromagnetic spectrum, for which the earth's atmosphere is opaque.

- Recovery and reuse of rocket boosters will become common.

- It is clear that man himself, and not just instruments, must explore the planets.

> Exploration of the planets, and later of the stars, may not be the one and only peaceful force to pull man and his culture forward. But it is the only one I know (in 1964) in which all men can enjoy both the excitement of conquest and the technological, economic, and spiritual benefits. If mankind in 1984 is freer in thought and spirit, as well as politically and economically freer of the shackles of the environment, I firmly believe it will, in large measure, be thanks to the benefits of space exploration. Until recently, huge defense programmes had provided much of the stimulus for research and development work without which industrial progress comes to a halt. In 1984, the limitless scientific and technological challenges of the space-exploration programme will have taken over this vital, invigorating role. The 'spin-off' products of the space programme, direct or indirect, will be visible everywhere. (BB58)

16. Massey predicts the pursuit of scientific purposes in space: Solar radiation must be studied with instruments aboard space vehicles on "solar patrols." The importance of such systematic information is immense, both for our understanding of the behavior of the sun and of the way in which it influences our atmosphere.

Worldwide meterological monitoring will be conducted from satellites. Reliable regular data will enhance forecasting success in astronomy; space instrument stations will be able to make observations at other frequencies free of terrestial interference and will make possible observations of ultraviolet x-rays from stars and other celestial objects.

In biology, detection of living organisms will be facilitated by moon and Mars installations.

Re-gravitation, theories will be checked by comparing the time recorded by atomic clocks aboard satellites with those on the ground.

General experimental techniques will include high speed computation and analysis, micro-miniaturization and electronics generally, and communication through the use of maser and laser devices. Space vehicles may come into use as labs for automatic research under high-vacuum conditions. (BB58)

17. Hoyle's long-range prediction is that astronomy will some day introduce a major revolution into physics. His prediction is based on the suspicion that long-range couplings (interaction of particles) do exist and that many of the quantities we normally think of as constants are subject to a slow variation with time (slow compared with the rate at which existing galaxies are moving apart). On this basis, the precise values of some of the key constants of physics would have no absolute significance. (BB58)

18. Wiener also offers predictions concerning systems in physics and biology. In physics, work on the multiplicity of fundamental particles is bound to be replaced by a more unified physics, in which both quantum theory and relativity are to be recast, and in which the origin and disintegration of fundamental particles will be of the nature of quantum jumps. In biology, the main problems will also have to do with systems and their organization in time and space.

Self-organization is bound to play a great role—the role of nucleic acids in organization of biological information (memory) and process (cancer). Understanding biological information systems will be applied to artificial memory systems (computers), artificial limbs, artificial homeostasis (pacemakers)—hence, such developments will add powerful tools to the development of a new medicine (BB58)

19. Sir John Cockcroft focuses on fundamental science. Fundamental problems involve understanding of the relations between the four main forces of the universe: gravitational, electromagnetic, strong and weak nuclear interactions. Since such investigations involve nuclear physics, cosmology, classical physics, origins of life, magneto-hydrodynamics, solid state physics and biochemistry, obviously these will

be key activities in fundamental sciences. (BB58)

20. We must consider not only technology itself, but what people's attitudes are towards it.

> Technology and science are increasingly being viewed as areas where the impact of innovations must be assessed carefully in advance, rather than being embraced without reservation. These fields have given us comfort, affluence, and freedom from pain, but also have brought nuclear proliferation, loss of privacy and individuality, biological weapons, the population explosion, and pollution. There will be new institutions created to review and assess technology before it is 'imposed' on society...For corporations that deal in technology, this social invention can have enormous consequences; yet it is only a first step. Once society is aware of the costs as well as the benefits of new technologies, it must face and deal with the problem of whether the costs are acceptable, and if so, who will bear them. (BM94)

21. There is the obvious need for greater conscious regulation of the system of ideas and machines at our disposal. The object is to produce a form of organization that can develop sensible plans for the regulation of our technological energy. The plans must be designed to insure the delivery of a wide variety of satisfactions appropriate to individuals, groups, or nations in varying stages of development and need. The planning should be based on evidence produced by preliminary extensive experiments to demonstrate the direct or side effects of technical solutions upon human beings. And finally, the regulating plans should be determined not so much upon the recognized potential within the mechanical system as upon the ascertainable potential of human beings. (BP290)

22. A sharp growth of the demands on qualification, which will lead to a rise of the educational level of the working people to the level of the contemporary intelligentsia will be called forth in the future—and to a considerable degree already

> today, because qualification has to be prepared many years ahead. The industrial revolution required as a basic education the knowledge of reading, writing, and arithmetic gained by once-and-for-all, ten-year school attendance. The technological revolution has rather a tendency to create an educational basis which would mean for everyone a complete polytechnical education, primarily on a high school level and to a considerable degree also on a university basis and which would change the once-and-for-all 'learning for a lifetime' into a running life-long educational process. Such a system would be able to secure all the possibilities for the cultivation of creative talent, which is a condition for the universal development of production forces. (BFI3)

23. Barnet again takes a rather apocalyptic view. Loss of freedom through the hierarchical control of technology, he says, threatens the survival of man, his "dignity as a spiritual being."

24. Others see less apocalyptically, yet retain anxiety about the course of technology, acknowledging that, to some, technology seems to have too much momentum.

> We are accustomed to calling on technology to solve wartime problems, whether it be war on poverty, population explosion, or disease. Now we realize that massive applications of technology are ineffective, even counter-productive, in the absence of effective social and popular commitment to well-defined goals.

Potential Impact

The vulnerability of every social institution to the impacts of scientific and technological advances is now well established. The probability that either the advances or the impacts will decline are not very high. The nature of the Navy is such that its direct interdependence with technology is highly intimate; and the problem of dwindling resources, technological obsolescence, and spiraling costs for naval weapons and equipment will continue to be formidable ones for decades. The expanding challenges of space and the undersea will complicate these problems. But we are more immediately concerned here with cultural and social impacts, many of which are deeply rooted in tech-

25. Professor Ithiel Pool has commented that a number of technological innovations may make a difference in international relations in the next thirty-five years. Desalination, which may be thought of as a special case of the effects of cheap power, may have significant effects. Improved fertilizers and similar developments could change the food-population balance by affecting agricultural productivity. Weather control would obviously create needs for international cooperation.

nological change. Thus, for example, attitudes towards technological change across the spectrum of society are important to personnel systems and organizations of the future. The spectre of "over-organization" made possible by automation influences attitudes from enthusiasm to alienation. Communications advances make cultural exchange feasible on an unprecedented scale. Technology is rapidly revising educational systems, work patterns, and political structures. Even more fundamental is the erosion effected towards values of authority, faith, equity, and social cohesion by scientific advances. These types of impacts, too, will have to be coped with by the Navy and the other institutions of society.

> We talked a bit about biological warfare or cheap and easy equalizing weapons. Finally, among the technological innovations, we considered cheap communication and transportation. Large aircraft carrying five hundred passengers would make massive tourism a reality over large areas of the world. There might be cheap long-distance telephone calling, direct satellite broadcasting that could break into the reception systems of all countries of the world, and so on. We concluded that this kind of contact, which has complicated effects, does make a profound difference. (BP416)

26. Advancing technology, in fact, can serve as a source of international cooperation, but also as a source of international tension itself. At the World Council of Churches Conference on Technology, it was asserted that the

Third World tends to see Western Technology as menacing it and causing resentment, and as exploiter and aggressor. (BN207).

MILITARY

1. In our introduction, we cited several fields of military interest which would not be explored in this report, because the military establishment explores them continuously to depths of refinement that are well beyond the objectives of this study. More military fields are in that category than the few cited; and of other military fields, we mention here only certain selected highlights.

Aside from technological advances in weaponry and equipment, and aside from changes in the techniques of war imposed by nuclear warheads and related developments, and even aside from the evolution of political and economic forces that bring pressures toward war, there are psychological and cultural forces coursing through the international environment that will impact significantly upon the military.

One such force is the revulsion against war that extends into the moral dimension, applying influence against the military establishment. It operates on certain international wavelengths and is strongest in advanced, open societies most vulnerable to the New Sensibility. The steady growth of this form of alienation has been perhaps most marked in the two countries that have fought longest in Southeast Asia: France and the United States.

2. In 1969, General Beaufre wrote an article, "Unease in the Army," in Figaro. Lamenting the fact that the army is now without a properly defined purpose in France, General Beaufre wrote:

> But what is hardest for the soldiers, is the feeling that the country is turning away from them... It is esteem that the military need above all.
>
> On the contrary, they see themselves calumniated by young men who have no idea of what the national duty represents...What is serious is that the country has become alien, on the whole, to the idea that the survival of a people may depend on its ability to defend itself, arms in hand...We still celebrate the anniversaries of the last war, but the virile tradition is being lost if we do not take care.

> Yes, the Army is undergoing a period of unease, but beyond contingent causes, this unease is that of our country, dazed by prosperity, disorientated by propoganda, misled by an easy present even if it is filled with tasks, and willingly forgetful of the recent lessons of History. (BB294)

3. For centuries, thoughtful men, including thoughtful military men, have sought to devise what William James suggested could become "The Moral Equivalent of War." None has yet been found. One candidate, which receives increasing interest in America and, in fact, internationally, is some concept of national service embodying numerous alternatives to military service. (BP370)

4. As Harrison Brown pointed out, industrial society as a whole is extremely vulnerable to disruption by war, and the vulnerability is increasing rapidly as weapons become more effective, as the range of warfare increases, as the people become more dependent upon the smooth functioning of the industrial network, and as the reservoir of easily obtainable resources decreases. (BB50)

5. Much has been made of the deterrent nature of modern military forces, but deterrence is not a new military mission, although there is more emphasis now than ever before on deterring war, in contrast to fighting it. Deterrence requires attention to a broader range of political, economic, and social considerations.

-As the nature and destructiveness of weapons become more fearful, the risk of war becomes more equal for combatants and non-combatants. In addition, distinctions are blurring between military and civilian technology. There is general overlap in political, strategic, and military policy; and the military is becoming "civilianized" in many respects, e.g., there is lessening difference between the occupational skills of military and civilian spheres, officer recruitment has shifted away from elite groups; and career patterns have shifted, largely though not completely, from the heroic leader to the "manager." (BB207)

6. The role of the professional soldier is changing in light of

changing conditions in international relations. The professional officer must be concerned with the social and political implications of military acts, and he must guide his acts accordingly. The concept of the proper use of force has changed since W WII. The military have experienced changing organizational patterns, similar to those affecting other organizations, with shifting applications of hierarchy, missions, projects, boards, directorates, and flexible task forces. (BM82)

7. The traditional experience of the professional officer has fostered a mechanistic conception of society. Few professional officers participate in social action which has been generated by social events. Tasks assigned to the military usually imply that the political process has been exhausted, and the officer is only aware of the political process after there is evidence that it has failed. Hence, he is prone to believe that the politcal process can be eliminated, or that the same result can be achieved by a more direct method. (BM82)

8. While the foregoing is itself something of a "mechanistic view" of the professional military officer, (and possibly a half-century out of date), it does focus on a point which requires increasing sensitiveness from modern military professionals.

Perhaps the most difficult change for all concerned to grasp is the changing role of force in international relations, from which emerges the proper role of the military institution in society. To achieve understanding, alternatives will have to be studied by both military and civilian.

> Given the present state of sociological theory, one feasible approach to a more systematic understanding of the role of force in social change is the comparative sociological study of military organization; that is, all types of military organization, including paramilitary forces, guerrilla units, and resistance movements. (BB164)

9. One of the most interesting establishments attracting world study is that of Israel, for a number of reasons. S.L.A. Marshall and others have suggested that even a great power such as the United States can learn a good

deal from certain procedures refined by the Israelis. Hugh Hanning reviewed in Survival Yigal Allon's book, The Making of Israel's Army, and made these points:

> ...the wider lessons of Israel's experience have been compulsory reading for staff colleges and planners throughout the developed world. For in an age of people's wars, Israel has evolved a doctrine which might be called 'defence of the people, for the people, by the people.'
>
> 'Of the people' is conventional defence; it is the other two which are causing headaches in the West, and they are connected. If the defence policy is not popularly accepted, as in Vietnam, the recruits will not come forward. In reconciling defence with democracy, Israel is a generation ahead of the rest of us... the fact is that Israel has an unbeaten record in all three main types of warfare; conventional, guerrilla and counter-guerrilla.
>
> The secret of this success lies in the development of initiative down to the lowest levels. This is a 'must' for any modern army. The old cannon-fodder type of conscript is today being finally rendered obsolete by two factors. One is the onrush of technology; the other is the advent of the subaltern's war, in which the brigadier's main function is to see that the men are getting their beer. Not all wars are like that; but people's wars are, and so would nuclear war be. in such situations blind obedience must be tempered by the highest possible motivation and initiative at even the lowest level. This above all, as this book repeatedly reminds us, is the quality of the Israeli Army, forged in guerrilla warfare conducted in not very good guerrilla country.
>
> How are these high standards achieved? This is perhaps the most crucial defence question of the 1970s, especially as more and more countries are using only conscription. The Israeli approach is to treat the serviceman as an adult. As General Allon says of the early days: 'particular care was taken to develop his personality and special

> gifts. This in fact amounted to a reversal of the old-fashioned sergeant-major's principle that it was necessary to 'break the civilian' in order to make the soldier. The view held in the Israeli Army was rather that to break the civilian recruit was to break the frame of the good soldier. The PALMACH, forerunner of the NAHAL, in order to be able to expand when general mobilization took place, but any promising member through a commander's course, 'even when there was no immediate prospect of giving him a unit of his own and he had to go on serving as a private for a while.' (BF2)

10. From Israel's procedures, we turn to other aspects— the sheer range of weapon availability poses dilemmas to modern forces, as Janowitz observes:

> Both in the deployment and use of conventional weapons by the major powers and in the evolution of nuclear weapons systems, the current period may well be a period of basic transformation comparable to the period of 1945 and after.
>
> The crucial issue facing the military profession is its ability to recognize the paradox that nuclear weapons and contemporary nationalist movements raise; namely, that the growth in the destructive capacity of both conventional and unconventional weapons has been paralleled by an extension in the limitation of the political effectiveness of force.
>
> The outbreak of general war is no longer inevitable in the calculus of political leadership. (BM81)

11. Despite widespread anti-military bias in the academic disciplines, especially in America, a limited core of interested social scientists continue to explor military problems, such as a working group of the 7th World Sociological Congress. Prior to the actual meeting of the Congress, the working group met in London in September 1967, and agreed to consider a wide range of new material on the social recruitment and social mobility of the military profession, including these topics: (1) prestige of nations' military organizations; (2) change

in composition of the military from working-class background to middle-class background; (3) new policy problems emerging from changes in recruitment; (4) and decline in the intellectual quality of the military profession.

- Discussion of emerging forms of military organization, including the transformating military authority, and emerging patterns of professional socialization of the military man.

- Discussing military establishments of the developing nations. Several papers theorized that the military effected social change in certain developing areas. These views were challenged by demands for more persuasive evidence.

- Analysis of the role of the United Nations in peace keeping and arms control. A related discussion involved the type of training needed by military officers in the international operations; "training that emphasizes the minimum use of force and enables the officer to understand the pressures of uncertainty is essential."

- Discussion of values related to social science research in military professional responsibilities. Every member of the working group appeared committed to the proposition that scholarly analysis of war, revolution, and military institutions is a worthy intellectual enterprise. (BM80)

Military expenditures are rising faster in poor countries than in the rich countries, according to a recent report published by the Stockholm International Peace Research Institute. Arms trade with LDC's has risen 9 percent a year since 1950, while the GNP of these countries grew only 5 percent. All the wars which have taken place over the last 20 years have been fought in the poorer parts of the world, but the weapons used in these wars have come about entirely from the industrialized nations of the northern hemisphere.

Four countries—the United States, the Soviet Union, Britain, and France—supply nearly 90 percent of the weapons. The Soviet Union entered the market as an arms supplier to the developing countries relatively late: At the end of the 1950's, it had entered into arms deals with six countries; by the end of the 1960's there were 20 more. Today the Soviet Union is the world's second arms supplier, following closely behind the United States. (BP415)

12. Some futurists develop highly imaginative projections for usage of military forces in the future. The following passage is by Arthur Waskow:

13. National governments would be carrying on their foreign policy with 'unarmed forces.' The Peace Corps and the Space Agency (or the Space Race, looking at it from both the Soviet and American sides) are the precursors of the unarmed forces. The Peace Corps seems to me to be the disarmed Marine Corps, and the Space Race seems to me to be the disarmed Air Force. In the first you encourage the kinds of change you like or at least can live with in the underdeveloped world, without conquering it; in the second you have a disarmed Strategic Missile Command in which you may use the same rockets but put them on the moon instead of on Moscow or Washington. One would expect the proliferation of teacher corps, farmer corps, engineer corps, the use of revolutionary agents by revolutionary powers and of more establishment-orientated managers and manipulators of change by more established powers, etc. Some of these unarmed forces would be small, closely attached to a given constituency in the country. And in addition to that perhaps, there might be a redirection of the existing armed forces. Navies might be used as Overseas Electric Power Companies (their battleships' generators are enormously powerful, destroyers would make good hospital ships, etc.) Perhaps the various national infantries would be turned into competing Conservation Corps, and so on. (BF13)

14. We turn to what might be considered more conventional projections of international conditions related to military forces. These views are projected by Professor Pool, applicable to the 1970-2000 period:

> In about 1977, a major war will break out in Africa among the nations there. When it has continued for some months, there will be a massive U.N. military intervention requiring the continuing stationing of troops there for a protracted period. In China, a protracted famine in one portion of the country will lead to the outbreak of guerrilla warfare around 1985. There will be a seesaw struggle for about

five years during which the Soviet Union will seize certain border areas, particularly Manchuria. (BP456)

15. A so-called moderate regime will ultimately come in whose line will be that the attempt to establish Communism in China was premature, and that what China needs is massive foreign aid, regardless of ideology. It will continue to be a one-party military dictatorship, asserting itself to be Communist. (BP416)

16. Some predictions note that Israel, India, Canada, Germany, and Japan are working on nuclear capability and flatly predict that nations possessing nuclear armaments will proliferate in the 1980's. (BM94)

17. It is also predicted that new and more powerful non-nuclear weapons will be developed so that the present distinction between nuclear and sub-nuclear conflict will no longer be clearly defined. (BM94)

18. Among predictions of possible military applications from rapid scientific and technological development by 2000 are death rays, 100-knot ships, and battles fought under the sea.

Some feel that if disarmament fails, we will need to opt for a space arsenal; for they consider war in space to be a possibility. (BN18)

19. Meanwhile, space exploration in general is considered essential, because, for good or ill, international prestige will depend at least partly upon participation. (BM61)

20. Inevitably, the technology involved in continuing the exploration of space is convertible into military technology. As skills in designing vehicles and transporting personnel develop, commercial rocket transport vehicles may become possible which can reach any point on earth within 30 minutes. A base on the moon could serve as a point of departure for a manned Mars mission, particularly if propellant production on the moon proves possible.

> Some manufacturing process may be well suited to function in orbit or on the lunar surface. For example, processes that require low gravity or are enhanced by vacuum enivronment may occupy part of the lunar station. Telescopes in orbit or on the moon would escape the obscuring atmosphere of the earth; radio telescopes on the lunar surface could be very large and would be isolated from the man-made radio noise of earth. (BB16)

21. It is even predicted that the discovery of information which proves the existence of intelligent beings beyond the earth (which most experts predict as occurring "late or never") would possibly result in political and military exploitation of the "contact" to increase defense spending, cement new alliances, and form new international power structures. (BM61)

22. Meanwhile, more effective military intelligence is foreseen to result from the successful launch of continuously-manned, scientific, earth-orbited space station, manned by about ten men, with crew rotation every 90 days. (BM61)

23. The following possibilities are foreseen as resulting from the establishment of a permanent base on the moon—perhaps 10 men at a time, for indefinite stays:

- Establishment of the earth's most important astronomical observatory.

- An international space establishment, possibly modeled after Antarctica.

- The establishment of a radio observatory designed primarily to search for signs of intelligent beings in the universe.

- Increased emphasis on further planetary exploration. (BM61)

24. Concerning the nature of war in the year 2000: There seems to be fair agreement that nuclear military action, if any occurred, would be a graduated response, not a spasm response. Nuclear warfare was not thought t

be the most likely eventuality in this period. On the other hand, it was expected that large scale turmoil at various points throughout the world would occur. (BP416)

25. Another Delphi response concerned itself with implications of the use of incapacitating weapons to form a decisive portion of the arsenals of major nations.

> On Politics: The advent of incapacitating weapons, combined with their possible surreptitious use might change the character of warfare. These weapons might find particular use in crowd control or brush fire wars. Efficient covert methods of delivery might permit war in a situation in which only the aggressor knew that war was underway. The vanquished nation might awake one morning to discover that while it had slept, over the past week, an invasion had occurred. Furthermore, they might feel nothing but honor, euphoria, and contentment (chemically induced) about their situation. In a world where such wars are possible, what will status-quo mean? (BB16)

26. On Social Aspects: Elimination of killing in war might result in a socially acceptable form of conflict. These devices could provide means for completely effective crowd and riot control and eliminate mobs and civil insurrections. (BB16)

27. On Technology: Incapacitation suggests the control of behavior, and advanced systems may grow out of the present research into the mechanisms of behavior. For example, the RAND study suggested that mass hypnotic recruitment of forces from the enemy population may be possible by the year 2020. (BB16)

Potential Impact

This very restricted projection of change in the military field appears to be concerned mostly with more or less conventional military development— with the further sophistication of systems which are already generally known. It appears that there will be sufficient probability of future conflict to warrant the refinement of deterrent and combat systems. Some less familiar aspects of the future military establishment may be more difficult to cope with; for example, the eroded image and status of the military establishment,

28. Another Delphi response of Gordon and Helmer explored the implications of controlled thermonuclear reactions.

> On Politics: Widespread use of these power systems would suggest proliferation of sophisticated thermonuclear technology, convertible, perhaps, into weapons technology.

The possibility of atmospheric contamination may become an international political issue.

> Supplying TN power systems to underdeveloped nations might become a form of foreign aid and result in another form of competition between the U.S. and USSR. (BB16)

29. A continuing international technological problem involves the safeguarding of nuclear material, especially as the use of it for peaceful purposes grows. There are two aspects:

1. All nations want to ensure that no other country secretly siphons off fissile material intended for peaceful (or any other) use in order to make nuclear weapons for itself.

2. On the national and individual-facility level, the problem will increase of preventing criminal elements from obtaining any such material.

Proposed safeguards include larger and well qualified inspection teams, availability of each nation's records and stocks

Potential Impact

There will be an increasingly sharpened focus, in advanced countries particularly, on development of new concepts of military establishments, designed to address such questions as these: decline in the proportion of actual fighting men in military establishments; the need to reduce the size, manpower costs, financial costs, and perhaps the visibility (in some circumstances) of military establishments; the rising costs of special militarized equipment; the changing contexts related to such concepts as forces in being, mobilization, conscription, and reserve structures; and roles and relationships of military establishments in modern societies.

for examination, use of "black boxes" to monitor nuclear materials continuously at checkpoints in individual installations. (BN205)

30. The next round of the arms race may well produce weaponry that is so intractable and provocative that the only possible outcome is catastrophe. The aim in a control system is not to provide absolute certainty that all military activities will be detected, but to make detection so probable that no country will risk the political ignominy of being caught.

Two additional safeguards are needed: (1) Contact between scientists and technical bonds between the states; (2) Financial payment and political asylum for reporting violations of weapons security agreements.

Military technology is a hydra, represented by the spiral of weapon technology and tightening rivalries between nations. (BE286)

31. Even in the immediate future, the technological development of communications media will have unprecedented impacts upon future warfare, military operations, and international relations. The following are instances:

-Communications capabilities are not uniformly distributed, there will grow a further gap between the haves and the have nots. Undeveloped countries will find themselves further behind the capabilities of developed countries.

-Difficulty of undertaking a future war that must be fought in a goldfish bowl.

-End of effective military secrecy (will this mean the end of "diabolizing the enemy"?)

-Communications signals are now fair game for satellite antennas anywhere in the world

-Mass media access to wide diversity of viewpoints makes secrecy almost impossible. National laws and military procedures have yet to acknowledge this development. (BM9)

ECONOMIC

1. In the previous subsection, we cited projected technological implications from launching a continuously-manned scientific earth-orbital space station. Such an activity would also have economic implications, namely, the capability to survey almost all the earth's resources and to achieve improvements in resource management. (BM61) This is cited as an illustration of continuous overlap in these categories of prediction. Subjects approached in this subsection include the World, the United States, Mineral Resources, Occupations, Population, Food, and Energy.

2. In any event, the ability of the superpowers to exercise their full military might is progressively diminishing, and the basis for international power and influence is becoming economic strength. (BM94)

3. At the same time, economic interdependence is increasing among many countries. (BM43,94)

The World

4. Several economic trends are evident in the world:

. The wide economic and technological gap between the United States and other countries is not closing. The alternatives for small countries include these: (1) accept their own gains, even if the gap is not closing; (2) resist by temporary economic upheavals, (3) band together against leading industrial nation, and join the socialist bloc, or (4) institute armed aggression to "get a fair share."

. Economic interdependence and economic stability of the world: There are several alternatives available for the world community: (1) world cooperation in money and trade, (2) limited cooperation, with recurrent crises, (3) continued predominence of national interests, accompanied by breakdown of international trade, monetary chaos, and depression.

. Relations between East and West have evolved to a stage of economic competition for trading partners and raw materials; this situation

contains seeds of potential conflict.

. Population growth and economic development: There are several alternatives available to the world community: (1) A big increase in technology and monetary aid, rise in education level, acceleration of economic growth, but controlled population growth, (2) technological breakthroughs in either land utilization and food production, or population control for development, or (3) famine, disease, loss of natural resources, or conflict. (BM43,95)

5. The Futurist extracted pertinent data from a White House source at the end of 1971:

During the 1950-1970 period, the world GNP climbed from $700 billion in 1950 to $3.2 trillion in 1970 (current prices). The American share of the world GNP slipped from 39.3 percent in 1950 to 30.2 percent in 1970. Britain's share also delinced from 5.0 percent to 3.6 percent.

Gaining a larger share in the world GNP were the European Community, which went from 11.1 percent to 14.8 percent; Japan, up from 1.5 percent to 6.2 percent; and the Soviet Union, which rose from 13.5 percent to 16.5 percent.

Holding approximately the same percentage of the world GNP in 1970 as in 1950 were: "other developed countries," 9.7 percent in 1970, "less developed countries," 10 percent; China, 4.0 percent, and other communist countries (not including USSR), 5.0 percent.

White House economic aide Peter G. Peterson made these points:

1. "Discriminatory arrangements in the Common Market threaten to split the world into rival 'blocs of influence,' leaving as 'outcasts' the Asian and Latin American countries. The United States cannot for long be expected to adhere to the principle of non-discrimination when so large a breach in that principle has been made."

The agricultural policies of the Common Market satisfy "the political needs of their agri-sectors at the expense of its own consumers and outsiders." He said this is forcing more efficient farmers in other countries to bear the costs which the Common Market countries ought to pay for internally.

2. In order to become self-sustaining, the less developed countries need markets for their exports, but the goods produced by the LDC's encounter increasing political resistance in all developed countries because they threaten the jobs of workers in the developed countries.

3. Multi-national corporations may not be "job exporters" as is widely believed. The multi-national corporations may be actually increasing exports from the United States, because some exports would not have been possible without factories outside the country. (BP414)

6. Several other straightforward predictions concern international economics:

. There will be increasing impact on national economies from nongovernmental organization, such as international banks, transnational corporations, and international money markets. (BM43,95)

7. . International trade and investment will increase considerably. (BM94)

. Eventually, currency will be denationalized. (BM94)

8. . There will be an increasing appearance of transnational companies performing tasks on a global basis. (BM43,95)

Some futurists expect that the most influential institutions in future society will be knowledge institutions. Others, including Herman Kahn, disagree, considering it more likely that multi-national corporations will assume the leading role. Professor H.V. Perlmutter predicted in 1965 that by 1988 the bulk of the world's noncommunist trade will be dominated by 300 large companies, 200 of which will be American.

Perhaps U Thant, Secretary General of the United Nations, came closest to summarizing the meaning of the shift to super-industrialism when he declared that:

> the central stupendous truth about developed economies today is that they can have—in anything but the shortest run—the kind and scale of resources they decide to

> have...It is now longer resources that limit decisions. It is the decision that makes the resources. This is the fundamental revolutionary change—perhaps the most revolutionary man has even known.

This monumental reversal has taken place in the 800th lifetime. (BB355)

9. A sense of "passing through prediction" can be achieved by noting these predictions for 1965-7 and continuing trends, expressed by Professor Pool:

> In Latin America, there will begin to be much greater differences between rich countries and poor countries with a few countries experiencing economic booms.
>
> In Africa, there will have been sporadic famines, general chaos, and predominantly military dictatorships.
>
> In the Soviet Union, though economic growth will have continued, there will be even greater discontent with the functioning of the economic system than there is now. There will be much Aesopian discussion of such possibilities as the abolition of the kolkhoz and the Party, of firms' investing independently, and so forth. There will be noticeable problems of unemployment. The major changes will, however, not have occurred by 1970. In Eastern Europe at least one country will have experimented with the abolition of central planning in everything but name. Within Europe, East-West travel will have risen to flood levels. Communism will be pretty much of a dead issue in some East European countries, though none will have overtly rejected it. (BP416)

10. Several related predictions:

. Mass-consumption societies in the Soviet Union and Eastern Europe will emerge further. (BM43,95)

11. . Popular demands on government will increase in both developed and developing countries to produce goods and to provide services. (BM43,95)

12. At the same time, there will emerge a world-wide trend toward increased government ownership of the means of production and distribution in most countries.

In the year 2000, world population will exceed 6 billion, twice the present world population. This will affect all nations, with the greatest effects in developed countries. Population growth will outstrip major developments in new and higher-yield food, especially in less developed countries. Some 85 percent of the world may be struggling to survive. At worst, famine will spread; at least, mass malnutrition will affect many areas. (BG2)

13. We shall return shortly to the problems of population, food, mineral resources, and energy.

14. Tinbergen is one who advocates a worldwide development plan:

> The existing nature of most countries, characterized by a large private sector, only permits us to think of an indicative plan. Since the socialist countries themselves are in a process towards more decentralized decisions, the chances are that even their plans will become more of an indicative nature. The world indicative plan should contain several quantitative indications about the most important economic variables, such as the rate of growth for various parts of the world, the total amount of financial transfers needed from prosperious to poor countries, the total increase in foreign exchange receipts by the latter, the amount of technical assistance in man-years needed, and so on. The plan should also indicate new tasks of existing agencies, and possibly the new institutions needed. (BF13)

15. Nevertheless, some predictions do not minimize the possibility of economic competition:

> . There will be continuing economic competition between East and West over trading partners and raw materials. (BM43,95)

16. On the interaction between ideology and economics, Riesman comments:

> It would seem that national ideology is less important in organizing production as such than in helping to shape the pre-industrial world, especially the educational and cultural background for the moral and intellectual disciplines that propel economic advance and make it seem worthwhile. (BB286)

17. Brzezinski contends that communist societies have fallen almost hopelessly behind in economic competition with the West. In the future, they will develop into a combination of a technocratic East Germany, and an ossified Stalin-period bureaucracy.

America's future will include participatory pluralism under the American business community, with widening social perspective blurring the distinctions between public and private sectors, and utilizing profit sharing. (BP126,35)

18. The developing world occupies much of the attention of economic futurists. In general, with certain exceptions, it is agreed that there will be accelerating economic growth in the developing countries. (BM43,95)

19. Harrison Brown, speaking of "transitional" countries, between agricultural and industrial stages: "In some...there is evidence that productivity will increase faster than population, thus resulting in gradually improved standards of living." (BB50)

20. Despite progress in the LDC's, the economic gap between the United States and the developing countries will not significantly close. (BM43,95)

21. Harrison Brown contended some time ago:

> It seems clear that industrialization of the underdeveloped areas cannot be accomplished overnight, nor can it be accomplished without considerable further increase of population. In view of this, it is likely that the situation will get considerably worse before it gets better. (BB50)

22. Some, such as Barnet, are blunt in pessimism: "In the 21st Century, there will be an economy of scarcity everywhere." (BP28)

23. Some studies conclude that in 2000, the economic strength of the world will be basically the same, except that, despite vigorous expansion of efforts in LDC's, food production in the latter will set a lower GNP than in 1970, especially in Latin America. (BG2)

24. The economic gap will increase between Have and Have Not nations. For 2000, predictions are (1960 dollars):

	GNP	GNP per capita
North America (35 hr. work wk.	$2790 billion	$8026.
Europe	$2300 b.	$4182.
Latin America	$ 370 b.	$ 529.
Mid E.-North Africa	$ 180 b.	$ 500.
Sub-Saharan Africa	$ 84 b.	$ 147.
USSR	$1120 b.	$3294.
Asia	$1860 b.	$ 564.
Oceania	$ 93 b.	$3100.
Chinia	$ 190 b.	$ 173.
Japan	$ 930 b.	$7154.

(BG2)

25. Osgood points out that the whole prospect of economic development and the relationship of economic development to any internal or external political results is now seen in a much more complicated fashion than in the '50s or '60s.

> Even some of the weakest and most unstable and least economically promising of the less developed countries are remarkably invulnerable to control (as opposed to access or influence) by any outside power, except under those very peculiar conditions where there is an important military force adjacent to this vulnerable country which can be used indirectly or directly to support an internal revolution. (BM17)

26. Prospects for economic growth, as seen from the perspective of an LDC, are not particularly promising, as was made clear by Chilean Professor Herrara in a speech in Ottawa:

> However flourishing a quantitative economic growth pattern may be, however well-inspired the leadership responsible for it, in the last analysis it will

> have no real historical significance unless it brings with it the effective participation of the great national majorities.
>
> In other countries of Latin America,
>
> development has not brought justice in its train, but concentration of economic power, aggravation of the inequity of income distribution, and lack of balance between the developing of internal regions in the continent or in individual countries.
>
> ...No young person at any level of culture can consider 'just' a state of affairs which denies him the possibility of doing productive work and the accompanying spiritual satisfaction of fulfilling a humanly and socially constructive mission.
>
> Today, in the right for progress, justice, and world peace, there can be neither victors nor vanquished... (BM76)

27. In these perspectives, the future can develop ominous outlines. A loose organization called "Group of 77" (actually there are 95 countries now in the Group) was founded in Algiers in 1967. In 1972, at Lima, Peru, delegates from 80 countries in Asia, Africa, and Latin America agreed on a "Declaration of Lima." They pointed out that during the 1960's the average per capita income increased by $650 in developed nations, but by $40 in developing nations. They noted that the participation of developing nations in world exports has decreased from 21.3% in 1960 to 17.6% in 1970. The Declaration warned the rich nations that "indefinite coexistence between poverty and affluence is no longer possible." (BN308)

28. On April 20, 1972, at the UN Conference on Trade and Development, meeting in Santiago, Chile, the Peking representative announced China's alignment with the "Group of 77," although formal entry into the Group was not mentioned.

The United States

29. The following are said to be the most important economic concerns for the future, in the United States:

- . Impediments to economic growth: subsidies, tariffs, unions.
- . Control of the business cycle.
- . Rise of multi-national corporations.
- . Insuring the participation of all citizens in the benefits of economic growth.
- . Conservation of resources.
- . Population growth.
- . Achieving higher rates of saving to enhance investment.
- . International balance of payments. (BM43,95)

30. The following are projections of United States GNP, deliberately chosen from different sources in different years:

31. Landsberg predicted in 1963, U.S. GNP in 1980 to be $1060 billion.

32. Kahn and Wiener predicted in 1967 United States GNP in 2000 to be $2200 billion.

33. Some projections of possible levels of defense spending:

1980			2000		
low	medium	high	low	medium	high
3%	10%	15%			
$29 billion	$106 b.	$18 b.	$50 b.	$220 b.	$494 b.

In the year 2000, the United States economy will be twice the size of that of the USSR and three times Japan's. There will be no limits on the flexibility and strength of the American economy to accomplish whatever requirements it considers important. (BG2)

34. Most nations will continue to strengthen their industrial power; this will be less so for the United States, which will strengthen the service sectors. Hence, there will be a tendency toward equalization of industrial

power; but the United States will be in the "post-industrial" phase. The United States will still be the most powerful nation, but no one nation will be dominant. (BG2)

35. Farm families in the traditional sense will be fewer in the decade ahead. At the same time, farm production will be going up, due to the continuing "industrialization" of farming. One impact is that the individualistic farmer's way of life is gradually declining, and the political influence of these farmers will wane. (BBI8)

36. ...if agriculture is the first stage of economic development and industrialism the second, we can now see that still another stage—the third—has suddenly been reached. In about 1956 the United States became the first major power in which more than 50 percent of the non-farm labor force ceased to wear the blue collar of factory or manual labor. Blue collar workers were outnumbered by those in the so-called white-collar occupations—in retail trade, administration, communications, research, education, and other service categories. Within the same lifetime a society for the first time in human history not only threw off the yoke of agriculture, but managed within a few brief decades to throw off the yoke of manual labor as well. The world's first service economy had been born. (BB355)

37. We can thus sketch the dim outlines of the super-industrial economy, the post-service economy of the future. Agriculture and the manufacture of goods will have become economic backwaters, employing fewer and fewer people. Highly automated, the making and growing of goods will be relatively simple. The design of new goods and the process of coating them with stronger, brighter, more emotion-packed psychological connotations, however, will challenge the ingenuity of tomorrow's best and most resourceful entrepreneurs. (BB355)

38. In post-industrial society the service sector, as defined today,

will be vastly enlarged, and once more the design of psychological rewards will occupy a growing percentage of corporate time, energy, and money. Services, in short, will be greatly elaborated. Attention will be paid to the psychological overtones of every step or component of the product. (BB355)

39. Within the next 20 years, if present trends continue, about three fourths of all the world's people will live in urban areas. In discussing cities today, it is necessary to include their fast-growing suburbs. The important population figure has become not that for the inner city but for the entire metropolitan area. By 1985, half of all Americans will live in three metropolitan areas. (BM43,95)

Mineral Resources

40. Although domestic sources of a sizable number of minerals will be exhausted before 2000, the situation is considered critical by some, but by others considered not critical because of increasing ability to generate or obtain substitutes. (BM43,95)

41. We have already cited forecasts which do not agree with each other.

42. Harrison Brown claimed that the basic raw materials for industries will be seawater, air, ordinary rock, sedimentary deposits of limestone and phosphate rock and sunlight. All the ingredients essential to a highly industrialized society are present in the combination of these substances. (BB50)

43. Laffitte says world reserves and demand for mineral ores do not present serious problems (now to 1984, but they are unequally distributed. It may be optimistic to believe that small and overcrowded Europe can develop her mineral resources to such an extent that she will be able to face the increasing difficulties of supply. But it is not impossible. (BB58)

44. Europe still imports her raw materials from two main areas: North America and the Soviet bloc. The foreign trade of the United States

and Russia was characterized by bulk exports of raw materials during the nineteenth century and part of the present century, but they then became importers from the remainder of the world. Two tendencies have developed in the underdeveloped countries: opposition to the exportation of crude ores, as this is (erroneously) considered an indirect form of the flight of national wealth, and a trend towards the creation, on the spot, of a first-conversion industry, or even the production of semi-manufactured goods. (BB58)

45. Considering the speed with which world affairs change and develop through the centuries, the trading structure in the underdeveloped countries may alter very rapidly, and, by 1984, it will no doubt be difficult to import raw materials. The present situation of prosperity for the European consumer industries and of lean times for the mining industries will not last for long.

At the present time, producers and consumers throughout the world are engaged in competition of the fiercest kind. The violent fluctuations resulting from this state of affairs, the psychological and political repercussions (industrial and governmental stockpiling or dumping), the multiform aid of the governments to their respective mining industries, the uncertain attitudes of the USSR and China make any medium-term forecasts hazardous, even if the long-term tendencies are known. Despite the hazard, it is predicted that a large proportion of the new resources which European industry will have to utilize in 1984 will be found in Europe, in submerged deposits, non-outcropping deposits, and those of low content. To make use of these resources, the government of Europe will have to support considerable scientific research. (BB58)

Occupations

46. The importance of primary occupations will decline (fishing, forestry, agriculture, hunting and mining) as will secondary occupations (processing of products of primary occupations) in the developed world. The importance of service industries will increase. (BM43,95)

47. Harrison Brown predicted some time ago:

As time goes on and automation is expanded, the character of the labor forces in industrial societies will change considerably. The proportion of unskilled labor will dwindle to a negligible percentage, that of semi-skilled labor will rise and then fall, and that of highly skilled workers, professional personnel, and clerks will continue to rise steadily. These changes will have profound effects upon the social structure of our society. (BB50)

48. Kahn and Wiener also offer predictions on the work force:

Closely related to current trends toward very large urban agglomerations are the declining importance of primary and secondary occupations, and the growing importance of tertiary and quaternary occupations. (The primary occupations are fishing, mining, forestry, hunting, and agriculture. Secondary occupations are concerned with processing the products of a primary occupation. A tertiary occupation is a service rendered mostly to primary and secondary occupations. Quaternary occupations render services mostly to tertiary occupations or to one another). There will undoubtedly be a large shift to quaternary occupations. Since these occupations are heavily concentrated in the government, the professions, the nonprofit private groups, and the like, this implies a shift from the private business enterprise as the major source of innovation, attention, and prominence in society. The lessening emphasis on primary occupations will be accompanied by a lessened dependence on access to inexpensive or convenient raw materials (rather than a situation of desperate shortages of usable or available raw materials). This, in turn, will make many factors of geography and location less crucial for the nation as a whole. (BP416)

49. Gabor says:

Prevention of unemployment by increased volume of production is, of course, the favourite of statesmen and of economists, but it appears that this remedy is now failing. The conclusion is that at this stage nothing can help us but Parkinson's Law—

or a radical revision of our present-day belief in continued exponential growth. In other words, a radical break with the 'whirling dervish' economy and a bold step towards an economy of maturity. (BFI3)

Population

50. Lewis gives one prediction of world population:

In 1830 world population was 1 billion

In 1930 world population was 2 billion (one century later)

In 1960 world population was 3 billion (one generation later)

By 1975 world population will be 4 billion (15 years later)

By 2000 world population is estimated to be 7 billion. (BBI6)

51. Philip Hauser also predicts a population in 2000 of 7-7 1/2 billion. (BM43,95)

52. It can be expected that high population growth rates will continue in most of Asia, Africa, and South America. Most developing nations seek larger populations as sources of power. The role of large families in many cultures is highly important and will not be readily changed. (BM43,95)

53. At the May 1970 meeting of the National Academy of Engineering, it was asserted that if net reproduction rate (2 children per couple) were achieved in the year indicated in the first column below, world population would stabilize in the corresponding year in the second column and at the figure corresponding in the third column.

Net Rate Achieved this year	World pop. would Stabilize in year	And would stabilize at about this total
1980	2050	5.6 billion
2000	2070	7.4
2020	2090	9.7
2040	2110	13.0
2050	2120	14.5

54. Various predictions refer to attempts to limit population.

. The adoption of birth control will be very widespread, with large-scale development and use of more efficient plans specific to each local region. This trend will show a sharp increase in the 1980s. (BM94)

55. . The world population growth rate will begin to slow down in 10 to 20 years. (BM94)

56. . There will be serious changes in birth control patterns and the development of a "politics of population." (BM94)

57. . The possibility of major transfers of people to less populated areas such as Africa, Canada, Australia, and Alaska may have to be considered. This trend will increase moderately in the 1980s. (BM94)

58. The greater the population density of an industrial society becomes, the more elaborate will be its organizational structure, and the more regimented will be its people. (BB50)

59. One set of dire predictions, processed by Gordon and Helmer, apply to the overcrowded world of the future:

a. Highways are one constant traffic jam.

b. The government has rigid control over the number of cars produced; a new one can be produced only when an old car is taken out of circulation. There is no more room for roads.

c. A birth certificate is the government's permit for birth; one cannot be issued until a death is recorded.

d. A maximum age bill is enacted; when this age is reached, a man may no longer be dependent on society for food or shelter.

e. The world's political factions are the "juniors and "seniors." The juniors believe the world belongs to the young; the seniors advocate eugenics, sterilization, and abortion. The final world war may occur between these factions.

f. Cannibalism breaks out.

The estimated population of North America in 2000 is 340 million. Other projections are as follows:

Latin America:	700 million	Middle East, North and	
Europe:	550 million	Sub-Sahara Africa:	930 million
United States:	301 million	Asia:	3,300 million
USSR:	340 million	China:	1,100 million
Germany:	70 million	India	1,000 million

(BG2)

60. Implications include:

Extension of the practice of birth control among the minority races in the United States might decrease the social dependence of these groups and tend to reduce discrimination.

In the age of fertility control, sexual enjoyment may be separated from reproduction. Reproduction will be the result of choice rather than chance.

Diminishing of crowding might remove lack of food "lebensraum" as a cause of war. (BB16)

Food

61. In 1900, two-thirds of the world population was in less developed countries (LDC's); in 1965, three-quarters of the world population; by 2000, the proportion will reach four-fifths.

World food production in AD 2000 is predicted to be 9.9 trillion calories daily; with 6.2 billion people alive, that provides 1600 calories per person. The trend could be directed upward, via seeds, fertilizer, irrigation, insecticides, and food from the seas (one government researcher estimates that the oceans could feed ten times the current world population). In 1964, the ocean "harvest" was 54 million metric tons; we could reach a steady state of 500 million to 2 billion metric tons annually without depleting the oceans. We would also need capital investment, scientific education for farmers, and sufficient technical competence to maintain equipment.

Note that Stockwell and Ehrlich predict major famines by 1985, because the average annual rate of population growth is 3%, while the rate of expansion of food production is 2%.

62. Boade stresses the trend of food production:

> The material resources for nutrition of mankind are tremendous, but in spite of that, hunger has still been increasing in the world. In 1965 there was no growth in world food production, while the population increased by 65 million. Only in part of the countries is food production increasing faster than the population, and these are the countries with an already heavy application of fertilizer and other inputs. In the developing countries the growth of food production is lagging far behind the growth of population. The main reason of this big paradox lies in the fact thar the mobilization of material resources is not possible without the mobilization of human resources, especially of better education and a more effective extension service among the farmers. This is one of the most crucial problems for the future of mankind. (BFI3)

63. With a world population of 6.5 billion (doubled from today) by the year 2000, food production would have to be increased two times merely in order to provide as much food per person as is available today. But a large part of mankind is at present undernourished (less than 25% of the world's population receives the minimum protein requirements, while over 1/3 of the population is continuously hungry), and hunger can be done away with only by tripling the world's food supply. In order to triple the world food supply, we must mobilize all the food production reserves. Such reserves must be sought mainly in four groups:

1. Expanding the arable surface
2. Additional irrigation
3. Exploiting the food reserves in the world's oceans
4. Increasing the yield per hectare of of the already cultivated areas (BFI3)

64. FAO's Third World Food Survey has formulated targets based on nutritional needs. These targets imply that there should be an increase of about one-third in the total food supply of the less-developed regions of the world in order to satisfy current needs.

> Taking into account both population changes and the need to improve existing diets, the total food supplies of the less-developed regions of the world need to be two and a quarter times their existing level by 1984. This increase is in total food supply. The supply of foods of animal origin in the less-developed regions of the world would need to be increased to three times their existing level. For the world as a whole by 1984, total food supplies would need to be one and three quarter times the existing level, and animal foods nearly doubled.
>
> There is little doubt that technically, on a worldwide scale, these increases can be achieved. It has been estimated that, without any expansion of the world's cultivated area, production of crops could be doubled and that of livestock products increased fivefold. Only 10 per cent of the world's land surface is cultivated at present. Much of the remainder is either too dry, too mountainous, or too cold for normal cultivation. But some expansion of the cultivated land is possible. Agricultural resources can also be supplemented by a very great increase in the production of fish. (BB58)

65. But the increase of food availability will not automatically ensure good nutrition. By 1984, it is probable that we shall have enough information about the factors which determine food choice to ensure that we know how to bridge the gap between wide food availability and appropriate consumption.

> In the presently impoverished countries of the world, we shall have to solve two dietary problems: how to persuade people to eat what is good for them, and how to prevent them from eating what is bad for them. In other words, the first problem is to persuade people accustomed to eating a narrow range of nutritionally poor foods to widen their choice so as to include the nutritionally more

desirable foods, especially those rich in protein. We will need, for this purpose, information about what determines food habits and how people can be influenced to eat unaccustomed food— information which, at present, we have hardly begun to seek.

The second problem is to prevent the malnutrition of poverty from slipping directly into the malnutrition of affluence. The latter will probably require some form of legislation, since it is difficult to see how any form of persuasion can overcome our inbred seeking after palatability in our food. (BB58)

66. The following table estimates the attainable food production, applying existing techniques to current areas and to additions of as follows:

Millions of Metric Tons

	Present World Production	Northern Lands	Tropics	Total New Production	Per Cent of Increase
Cereals	300	36	358	394	130
Roots and Tubers	150	66	240	306	200
Sugar	30	0.6	143	144	480
Fats and Oils	15	1.4	52	53	350
Pulses and Nuts	35	0.8	12	13	37
Fruits and Vegetables	155	0.0	259	259	170
Meat	65	7.5	11	19	29
Milk	150	134	9	143	95

*Total cereal production is actually greater than this, but a substantial fraction is used for animal feed.

(BB50)

67. In general, a 12% increase in food production appears to be obtainable with existing techniques. (BB50)

68. Land use, however, is rapidly becoming a public issue because of the pressure of increased population; higher standards of living and increased mobility; and the dubious gift of our technology to make bigger mistakes oftener. The stakes involved compel us to acquire greater technological knowledge and to

devise more sophisticated methods for analyzing long-range implications of land uses—particularly in cases of intended multiple uses. This would aid in predicting and guarding against the adverse impact of having different types of human users on the land. Out of this analysis will emerge new economic, legal, and aesthetic relations between land and people.

> With respect to projected water supplies, the demand for domestic use will increase proportionally to the population increase-that is, by at least 50 per cent. However, it will also increase with the raising of standards of living, so that a doubling by 1984 of worldwide domestic requirements for water seems a conservative estimate.
>
> A very sharp increase in the water demand for industrial purposes is clearly to be anticipated everywhere during the coming years. The larger part of this water will be required for condensers and for cooling; and, as little pollution results, reuse of the water is possible. But the main problem lies with the many and rapidly expanding industries such as chemicals, rubber, petroleum refining, etc., which not only use large quantities of water but also produce heavy pollution. The uncertainty of changing economic factors, which may lead to important changes in industrial uses of water, makes it difficult to foresee clearly the future requirements in this field. But, again, it seems that a doubling of the total world requirement would constitute a very conservative estimate. (BB58)

69. The situation with respect to agriculture, essentially irrigation, shows conflicting trends. On the one hand, with an increasing scarcity of water leading to higher prices in certain areas, such a highly consumptive use as irrigation may become less favoured. On the other hand, however, the pressing need for food in the underdeveloped world, together with the high yields obtained in areas of intense solar radiation, should lead to a great increase in irrigated areas. And even in humid temperate countries like Britain, the practice of supplementary irrigation will be introduced. Here again, judging from the trends in recent years, an increase of as much as 100 per cent in world demands for agriculture does not seem unrealistic. (BB58)

70. While there is enough natural water, it is not properly distributed in time or in location. Solutions to potential future shortages might be the re-use of water, and "mining" groundwater. The only significant "new" source will come from desalting of sea water (by distillation or freezing) or of brackish water (thru electrodialysis). Such endeavors would necessitate large scale, long-term, regional planning, as did the Mekong system. (BB58)

71. Brown suggests as possible approaches to increased food production:

1. Cultivation of lands which at the present time are either forest, uncultivated grassland, or waterless desert.

2. Increasing the amount of food produced from each acre of land by careful breeding and selection of plants, and proper cultivation, application of fertilizers, insecticides, and other chemicals, such as plant hormone.

3. Exploitation of ocean resources

4. Development of new, non-agricultural production of food. (BM55)

72. Harrison Brown has advanced these calculations:

If we designate existing world food production by unity (1.0), we can summarize the foreseeable potentiality on the earth's surface as follows:

Existing food production	1.0
Production possible from existing land, using known conventional agricultural techniques	1.1
Production possible from existing cultivated and plus 1.3 billion new acres of tropic and northern soils	2.0
Production possible from existing land, using supplemental irrigation of 1 billion acres now under cultivation and complete irrigation of 200 million acres of desert and near-desert land	2.0
Production possible from all above sources	3.0
Production possible from above sources plus increased yields due to improved plant-breeding and selection and foreseeable improvements in agricultural techniques	6.0

Production possible from 100 million acres of algae farms	2.0
Production possible from all sources, including 1 billion acres of algae farms	25.0

(BB50)

73. Brown appends certain caveats:

> Thus we see that when we consider population limitation solely on the basis of potential food supply, enormous increases of numbers of human beings are possible in principle. Given adequate raw materials for the production of plant nutrients, the necessary capital with which to undertake major irrigation, and-reclamation, and soil-conservation projects, and capital to construct algae farms and yeast-food plants, a population of several billion persons could clearly be supported at adequate nutritional levels. Indeed, if food habits were to change sufficiently so that the people of the world were content to derive their main nourishment from the products of algae farms and yeast factories, a world population of 50 billion persons could eventually be supported comfortably from the point of view of nutritional requirements. (BB50)

74. However, it must be emphasized that an enormous food-production potential is no guarantee against starvation. Throughout most of human history a substantial fraction of the population has existed on a near-starvation diet, and there appears to be little likelihood that starvation can be eliminated in the world for many decades to come. Development of new lands, irrigation, increase of productivity of old land, soil conservation, and the construction of new facilities such as algae farms and yeast factories require enormous expenditures of labor and of manufactured goods. (BB50)

75. Other possibilities have been suggested for the direct production of food in the next twenty years.

Synthetic foods, textured and flavored so as to be indistinguishable from foods we now know, may be used to feed a world population that will have

doubled by the end of this century. The vital nutrients for these foods may be then be obtainable economically by direct synthesis, completely bypassing the need for livestock and plants as their source. Research has shown that proteins can be synthesized from such substances as petroleum, coal, and even waste-material. Hydrocarbons in these materials nourish protein-producing microorganisms, and the result is a yeast in the form of powder or white flakes that is odorless and tasteless, yet rich in the amino acids vital for nutrition. Direct photo-syntheses of sugars also needed for body growth is now in research stages and may attain practical status. (BM55)

76. In addition, new methods of modifying the environment in general will result in improved agricultural production. (BM61)

77. With respect to ocean exploitation as a food source, Hardy predicts that many maraculture "factories" will develop along the coasts, and fisheries will be revolutionized by undersea men with tractor-trawlers and other devices on the seabed. New kinds of fast mid-water trawlers for capture of oceanic fish at various depths will also be developed. Red fish and squid are expected to become great sources of food.

The most important development will be new exploitation of the vast circumpolar Southern Ocean—once rich in whales, now important for harvesting krill (planktonic shrimp); and by 1984 it may be making the greatest addition to men's food supply of the century. (BB58)

78. Another author feels, however, that increasing the world-wide harvest from the sea will not significantly increase world food production by 2000. (BM43,95)

79. The oceans will be covered by networks of observation equipment from automatic recorders well below the surface by commercial ships to devices for tracking the changes in sea weather, fish distribution, etc. (BB58)

80. To achieve the desired exploitation of ocean resources, advanced fishing gear will be required. This may include electronic fish detectors similar

to sonar, electrical trawls and traps, underwater sensors, and telemetry buoys. New food-processing techniques may be required to convert sea-borne protein into more palatable forms. These processing units may be floating factories.

Forecasts also indicate that competitive synthetic foods and beverages (carbohydrates, fats, proteins, enzymes, vitamins, coffee, tea, cocoa, and alcoholic liquor) will be developed.(BM94)

81. Also developed will be special foods for the young, the ailing, the elderly, and the overweight will increase in variety and effectiveness. The effect will be to improve health and prolong life. (BB18)

82. There will be widespread use of superconductors in the 20° K to 30° K range, allowing liquid oxygen to be used as a coolant, leading to new techniques for refrigeration in transportation and in preparation and preservation of food products.

> In the Far East and Near East the increase in agricultural production will demand a drastic change in techniques and major intensification. But even in Latin America and Africa, which have greater margins of developing new land resources, dramatic efforts must be made towards reorganizing agricultural production, shifting from tradition subsistence to more effective agriculture, planning better land use, and relating nutritional policies to developmental efforts. Furthermore, the extent to which the best use is made of available resources will depend very much on the measures taken to improve the conditions of trade for the developing countries. In this respect, while the developing countries can improve their relative position somewhat by greater coordination in planning, real improvement will depend on the policies adopted by the developed countries.
>
> Thus FAO, as well as other specialized agencies and groups interested in the problem, including the governments and peoples of the developing countries themselves, are faced with a most difficult dual task. (There is not only the problem of increasing the productivity of agriculture in the developing nations through the

> spread and application of technical knowledge but also an equally pressing need for attention to problems of world trade in agricultural products). In fact, the actual situation with respect to food and agriculture in 1984 will depend in large part on whether we can create and maintain a sufficient awareness of the problem of world hunger to see that the necessary attention is given to these two tasks. They must be accomplished if large portions of mankind are not to face famine and starvation by 1984. (BB58)

83. Altogether, Brown estimates, a "capital investment of approximately 100 billion dollars would be required to double world food production. (BB50)

84. Brown asserts that the undernourished half of the world lacks the necessary financial capability.

> At present, only the United States could provide sufficient capital, without lowering its own standard of living, to permit the underdeveloped areas to industrialize and increase food production at a rate sufficient to eliminate starvation in about 50 years. (BB50)

85. Several Delphi evaluations have been made available. One is a set of responses to the question: "What are the implications of new food producing techniques in general?"

. A reprieve, for a time, in the onset of world starvation.

. Population shifts to new areas.

. Technical and industrial growth of new areas.

. Further misery, eventually, since these advances remove some incentives to the limiting of family size. (BM61)

86. One set of Delphi predictions relates to implications from the possible demonstration of large-scale desalination plants capable of economically producing useful water for agricultural purposes (20¢ per 1000 gallons). Responses predicted widespread political ramifications, such as:

. Establishment of an economic basis for an Israel-Arab

peace in the Middle East.

. Competitive use by superpowers to draw new nations into their orbits.

. Greater independence of smaller countries with technical ability, such as Israel.

. Continuation of the trend toward overpopulation in the Arab countries.

. Increased bellicosity of small nations as their economic outlook improves.

. Transformation of desert coastal areas of the world to agricultural productivity, with the effect of increasing world agricultural output by 25%.

. Unimportant applications until the price falls below 10¢ per 10,000 gallons.

. Extinction of certain arid-land species of plants and animals.

. Establishment of ocean mining industry which produces minerals as by-products of the desalination process. (BM61)

87. Another set of predictions concerns the implications of the availability of techniques which permit useful exploitation of the ocean through agriculture farming (including expanded fishing and ocean fish cultivation) with the effect of producing at least 20% of the world's calories.

. National boundaries being extended into the oceans well beyond the twelve-mile limit.

. Changes in the dietary habits of many people.

. Farm land being released for recreational or urbanizing purposes.

. Development of new systems of food distribution.

. Expansion of governmentally-controlled fishing fleets, particularly in presently underdeveloped countries.

. Depopulation of the ocean's fish supply.

. Political conflict over ownership of ocean resources. (BM61)

88. Finally, two predictions concern the implications of producing 20% of the world's food by ocean farming. Implications for <u>health</u>.

> Ocean food may be necessary to avoid widespread starvation as the world population mounts. If conventional means are relied upon to meet the needs

of the increasing numbers of people, formidable problems will be encountered in the provision of farm land and in the production and distribution of fresh water and fertilizer. (BB16)

89. Implications for politics:

Serious legal disputes have already occurred between countries, states, and commercial enterprises. These legal problems may ultimately require that nations act to bring portions of the ocean under their direct national sovereignty.

International agreements may be made to farm the ocean cooperatively.

Availability of food from the ocean may diminish the probability of war. (BB16)

90. Meier has an important point to make on (food) technology transfer:

The key to the conservation of resources for the predominant share of the poor populations which are poorly endowed with resources lies in the control of consumption. The person engaged in technology transfer will find that many Western techniques already being adopted are much too wasteful. New findings reported in the past few years suggest that sub-systems for water, food, transport, housing, and central city organization can be proposed which promise to be far more economical in resource use than anything in existence today. The basic principle to be used in their design is to seek out means of substituting human resources for natural resources. This strategy puts much stronger emphasis upon the transfer of social technology and urban planning than has been evident until now. (BF13)

Energy

91. There are conflicting predictions about the future availability of energy, an indispensable element of civilization. Estimates change every few years. "The Limits of Growth" has been cited as expressing alarm, as other experts have done. It is interesting to recall Brown's prediction in 1954, that

an agrarian pattern was the probable future of mankind because depletion of energy could lead to collapse of machine civilization. (BB50)

92. In 1954, Brown estimated the total potential power available by continents in millions of horsepower:

Africa	274	North America	84
Asia	151	Oceania	20
Europe	68	South America	67
		Total: 664	(BB50)

93. Long before the world as a whole becomes highly industrialized, those iron ore resources which can be easily mined and easily processed will have disappeared. From that point on, low-grade ores will have to be processed, with techniques of increasing complexity, which will necessitate the expenditure of ever greater quantities of energy. (BB50)

94. Brown predicted:

> The future of the world's chemical industry depends almost entirely upon the development of the world's energy resources. With the exception of energy, basic raw materials are widely distributed of practically infinite extent. (BB50)

95. Kenneth Boulding calculates that half of all the energy consumed by man in the past two thousand years has been consumed within the last one hundred. For many statistical series of quantities of metal or other materials extracted, the dividing line is about 1910. That is, man took about as much out of the earth before 1910 as he has taken out after 1910. (BN43,95)

96. Slotbloom stated in 1965 that more than 90% of crude oil production is processed into products which provide roughly 1/2 of the world's total energy. In the next 20 years the over-all position of petroleum will not be affected other than marginally. Petroleum (because of cheapness and reliability of supply) is becoming a more and more versatile material for chemical products. (BB58)

97. Certain Delphi predictions relate to the likely effects of wide-

spread installation of agro-industrial complexes based on the use of breeder reactors in technologically advanced and less-developed countries (50 such complexes spread throughout the world) (generally agreed not likely till past the year 2000):

. Greatly increased fertilizer and agricultural production.

. Economic competition with older sources of power.

. Power and agricultural independence of large sections of countries possessing these complexes, leading to regional autocracies.

. Ecological disturbances in the land and sea around the large breeder reactors.

. Further separation between developed and less developed countries.

. Political regroupings, each one of the "super-powers" being a unique source of agro-industrial technology. (BM61)

98. The Federal Power Commission predicted on April 15, 1972, that the nation's demand for electric power will quadruple by 1990. In a large six-year study, "the 1970 National Power Survey," it was also stated that growth depends upon the successful introduction of nuclear power plants and will be accompanied by substantial rises in consumer costs. It will cost $400 billion to build the necessary generating capacity.

Capacity was 340,000 megawatts in 1970; by 1980, estimated need is for 665,000 megawatts; by 1990, 1,260,000 megawatts. Coal supplied 54% of thermal power generation in 1970, will slip to 30% in 1990; natural gas from 29% to 8%; oil from 15% to 8%, and hydroelectric power from 16% to 12%. The cost to consumer per kilowatt hour between 1926 and 1968 declined from 2.7 cents to 1.53 cents; by 1990, the cost will be 3.51 cents. One example of expanding usage is expected growth of all-electric homes from 4.2 million in 1970 to 24 million in 1990, with about 15% increase in electricity consumption per home unit. (BN594)

99. Dr. Ralph E. Lapp testified at energy hearings on April 12, 1972 before the House Committee on Interior and Insular Affairs that "we are using

up our energy at a fantastic rate." He said we must construct more nuclear power plants but that we must make them safer than they now are.

At the same hearings, Dr. John J. McKetta, Professor of Chemical Engineering at the University of Texas, predicted that annual discoveries of natural gas in the United States would never again exceed or equal annual production "throughout the rest of our lives." (BN303)

100. Hartley asserts that economic growth is dependent on energy, and that sources are distributed very unequally.

Location of 90 per cent of proved and estimated resources:

Coal	U.S.A., U.S.S.R., and China
Oil	U.S.A., U.S.S.R., and Middle East
Natural gas	N. America, Middle East, U.S.S.R., N. Africa, Netherlands

> Comprehensive estimates of water-power potentials are lacking; they appear to be more equally distributed, though here again the U.S.S.R. and U.S.A. have the major resources.

Much thought is being given today to the problem of the emergent countries and to technical aid. How do they fare as regards energy? They have a low level of consumption per capita; and even where the gross consumption is increasing, their rapid growth of population tends to nullify this advantage. With the exception of a few countries with large oil resources, notably in the Middle East and Africa, these developing countries lack indigenous resources of energy...

> A considerable effort has been directed to the development of the so-called 'new' sources of energy for use by the emergent countries-

Potential Impact

The future international economic situation holds implications for the Navy and the rest of the American military establishment, although many of the impacts will be indirect. On the one hand, the future world is predictable as being well supplied with advances in communications, technological developments and channels for transnational cooperation. On the other hand, it is predicted that the economic and technological gaps will widen, that 85% of the world will be struggling to survive, that food production may fall further behind population growth, that resources

geothermal heat, wind power, and solar radiation. Geothermal heat is available in only a few localities; wind power is intermittent and storage of energy is expensive, unless it is used to pump water into a tank for storage; solar radiation, on the other hand, has considerable possibilities for domestic use by means of simple appliances and will undoubtedly help by 1984. The emergent countries with their dense populations living in small towns and villages need energy badly for light, for village industries, for the irrigation of crops and drainage, and for the local processing of their harvest of sugar, cotton, and jute. Energy for transport is also essential for their development. The solution of their problems should therefore be one of the first objectives of technical aid if the gap between the developed and emergent countries is to be narrowed by 1984. (BB58)

are dwindling and may be difficult to import, and that the LDC's are already warning the advanced countries that they will not remain indefinitely in states of technological and economic inferiority. Some experts are confident that substitute resources for minerals and energy will be forthcoming, but they are not in existence yet. In addition to representing opportunities for cooperation, these situations harbor opportunities for international conflict. Despite optimistic forecasts in American and other Western instruments, it is not at all clear that comparable devotion to conflict avoidance is endemic throughout the rest of the world. It is suggested that both sides of these contingent situations— risks and benefits— have implications for the Navy in the future.

101. Gueron predicts that the developing countries, "if they can be spared complete chaos in the close race between equipment and population,... will, in their applications of energy, follow the same path which the Western countries and the Soviet Union have taken in succession over the last century."

In this classical expansion of energy uses, the main questions (apart from natural resources) will be those of: energy transport, ratio of peak to baseload, and of price.

Movement of oil, gas, and coal by pipeline will increase. Provision of cheap power will be vital in developing countries. The industrialized world needs a reduction of cost of energy also as it engages in

very large scale development (nuclear energy may be the answer).

Solar heat—could be efficient if a cheap, compact accumulator is quickly developed.

> Direct - that is, non-mechanical-conversion of heat to electricity, especially by magneto-hydrodynamic processes, looks more hopeful, if the proper refractory materials can be developed...
>
> We thus foresee, in 1984, an increased energy production and consumption on lines roughly similar to those of today...
>
> (1) Nuclear fusion may well have been demostrated in protoptypes by 1984...
>
> (2) Very big nuclear vessels (ships or submarines) could become economic in the years ahead. But they could not be extensively used without a radical reconstruction of harbours...
>
> (3) Water conservation and management assume increasing importance. Huge power- and heat-producing nuclear plants might provide a partial solution to the problem of converting salt water to fresh water...
>
> Nuclear explosives have an energy density at least one million times greater. It is now very likely that underground nuclear explosions can be managed so as to produce surface excavation with nearly complete containment of undesirable radioactivity. The road seems thus open to 'geographical engineering' which, on a grand scale, could afford increased access to conventional fuel and ore reserves, and climate modification, at least locally...
>
> ...All these possibilities could and should be elaborated and discussed in more detail, and others considered. But it remains clear that, in 1984, the bulk of power production and consumption will be very traditional with a number of radical explorations in many directions. By the end of the century the picture might well be signif antly different. (BB58)

BROAD CULTURAL

1. Scientific, technological, and cultural developments have set in motion global tensions among values, as the values of one society impinge on those of others. As Toffler observes, the effects are diffused rapidly.

2. Value turnover is now faster than ever before in history. While in the past a man growing up in a society could expect that its public value system would remain largely unchanged in his lifetime, no such assumption is warranted today, except perhaps in the most isolated of pre-technological communities. This implies temporariness in the structure of both public and personal value systems, and it suggests that whatever the content of values that arise to replace those of the industrial age, they will be shorter-lived, more ephemeral than the values of the past. There is no evidence whatsoever that the value systems of the techno-societies are likely to return to a steady state condition. For the foreseeable future, we must anticipate still more rapid value change." (BB355)

3. White contends that the very canons of our culture have been changing. From viewing Western civilization as the ultimate in civilization, we are moving to a canon of the globe, the primacy of logic and language have been giving way to the primacy of symbols, and that of reason to the unconscious. From conceptions of a hierarchy of values, we have been been moving towards a spectrum of values in which all are equal. The absence of any dominancy values is discussed by Remmling as well. But, unlike White, he sees fragmentation and warring universes of discourse. Value-oriented images have become a poor guide to behavior because they are easily corroded by the rapid spread of scientific information. Rieff's argument is the most extreme. He sees contemporary culture as characterized by a release from all cultural and moral demands. There is an extreme plasticity and absorptive capacity. Science, which is supra-cultural and non-moral, embodies the moral revolution of our time. And it cannot supply a creed to the non-scientists. (BM70)

4. The factors responsible for the current value crises include the ethos of a scientific age and the technological and social changes that have produced a highly mobile and complex society. Population growth, urbanization, and the developments in communication, transportation, and the mass media all serve to increase contact and interaction between diverse peoples and groups. Under conditions in which social groups maintaining differing values are relatively insulated from one another, it is easy to maintain the group identity or value system, with perhaps only minimal consciousness thereof. However, as contact with representatives of other value patterns becomes more frequent and routine, a greater consciousness of values emerges which may bring with it a degree of value relativism. (BB70)

5. Harrison Brown notes that:

> Adults have difficulty in changing their patterns of life under any circumstances, with the result that changes usually arise through the exposure of the young to new concepts. As the first generation of young is still strongly influenced by parental conditioning, the new way of life frequently does not become truly widespread until the second generation reaches maturity. (BB50)

6. We see evidence of intergenerational change in "post-industrial society" in America and Europe. Consider Maslow's goals in hierachical order. When humans satisfy goals at lower levels, those goals are no longer motivating -- only higher-level goals. Important groups in Western socities have passed beyond imperatives for economic goals in society, in a generation span of "post-bourgeois" values. Instead, young groups now emphasize self-actualizing values rather than "acquisitive" values. The trend has been tested and corroborated in the United Kingdom, France, Germany, Belgium, Netherlands, and Italy.

Distinctive value priorities imply distinctive political behavior linked with preferences for specified political issues and parties. If respective age cohorts retain present priorities, it augurs a long-term shift in political goals

and patterns of political partisanship in these societies. (BP204)

7. Kenneth Boulding comments:

> The network of electronic communication is inevitably producing a world superculture, and the relations between this superculture and the more traditional national and regional cultures of the past remains the great question mark of the next fifty years. (BB242)

8. Even the Vatican has announced that it was considering setting up a new central department on cultural changes in the world, which should work "in the light of the human sciences, such as psychology, sociology, pedagogy and economics". For change, predicted the Vatican, will be with us for many decades. (BN495)

9. Thompson in The Foreseeable Future holds that, despite the trend toward a unified world culture, differences in language and nationalism will persist. But if politics allows, one may expect large seasonal movements of people, following climate and work. The biggest unsatisfied demand will continue to be adventure. Space travel may fill the gap and channel our energies away from war-making. (BB353)

10. The need is foreseen to transcend political levels in intercourse with foreign nations and peoples; even among diplomats, the perspectives of sociology and anthropology can add valuable insights into such intercourse.

If one searches for the source of previous failures in understanding social change, the answer may lie in our dim comprehension of the "intangible social nets" that make up a society; for it is from this source that we get, in the phrase of Robert K. Merton, "the unanticipated consequences of purposive actions". In our formulations of problems and of policies for solutions, all our efforts are directed to the manifest aspects of change; we ignore, or do not understand, the latent elements that may be the more significant features. To take an example: When, in an Indian village, we substitute water faucets in each house for the older, more tedious process of drawing water from a well,

on the manifest level we have achieved progress. Yet, at the same time, the common well served latent functions. It was not only a source of water, but a center for gossip for women, a "natural" meeting place for young women and young men, a focus for sociability and the informal, casual encounters that every small community requires. To make a manifest change without being aware of the latent disruptions is to invite strains that the community itself does not understand. Much of the disorientation that individuals feel about the effects of change in contemporary society may arise from the disruptions of underlying ties and latent functions whose existence is never wholly perceived. (BP416)

11. Maruyama suggests that the method of trans-spection is effective when attempting to learn another's point of view. "Transspection" is an effort to put oneself in the head of another person. One tries to believe what the other person believes, and assume what the other person assumes. This is different from "empathy", which is a projection of feelings between two persons with one epistemology. (BM100)

12. Note: One informative study of the comprehensive range of impacts occurring between host nations and American forces stationed abroad is available in Westinghouse's "Impact of United States Forces Abroad", compiled for the Air Force (AD502306L - 310L and AD502338L. The latter volume contains an extensive bibliography on this subject).

13. In reference to stereotypes of national character, a British psychologist recently completed the first analysis of national characters using methods of contemporary psychology. In the 18 countries with the highest per-capita income, he studied their rates of suicide, alcholism, vehicle accidents, psychosis, and calorie intake. He concluded that the single most distinguishing factor is level of anxiety (climate is also a significant factor). He found high-anxiety countries to be Japan, Germany, Austria, Italy, France, and Belgium; the moderate-anxiety countries to be the Netherlands, Norway, Finland, Denmark, Switzerland, and Sweden, and the low-anxiety countries to be Australia, Canada,

the United States, New Zealand, the United Kingdom, and Ireland. (BN500)

14. Is there significance in that all these are English speaking?

15. The core grip of "tribal" allegiance shows few signs of abating. Despite all the international and intercultural structures, initiatives, and activities, there appears to be more and more fragmentation along "tribal" lines, from east St. Louis to East Pakistan. There have been hundreds of collisions since 1945 and 7.5 million deaths on tribal, regional, linguistic, religious and racial grounds. "The evidence of current human affairs suggests that the House of Murumbi is where man really lives." (In Kenya, the tribal oath of adherence to the Kikuyu Murumbi is still taken.) Group identity has two ingredients in the makeup of every individual personality: the sense of belongingness, and the quality of self-esteem. (BP208)

16. The quality of cultural interchange has some bearing. A recent analysis of European television (in one instance, Dutch) found marked emphasis on news coverage derogatory to the United States. However, American programs which provide 18% of Dutch television time (e.g., "Peyton Place," "Lucy," "Brady Bunch," "Mission Impossible," "Bonanza") get a higher rating than current-events programs portraying a negative view of the United States. It appears that the Dutch people have a much more positive attitude toward America than their television presents, perhaps because the sponsorship of each program is known, and the Dutch accordingly discount the views of America presented.

Various political, religious, and social associations in Holland get television sponsorship time based upon size of membership. "Swing" members are generally young and leftist. The associations compete for their attention with programs critizing the United States; for example: A program claiming that Angela Davis could not get a fair trial in the United States; another depicting racism in the United States; and another describing chemical warfare in Vietnam. On the other hand, the U.S.S.R. has also been described as "indigestible." (BP314)

17. This is an example of strains among close allies -- not only strains on international understanding due to cultural differences or even social or

cultural changes, but contrived strains distorted to suit the purposes of different groups within one open society critical of aspects of another open society.

> "In our lifetime the boundaries have burst. Today the network of social ties is so tightly woven that the consequences of contemporary events radiate instantaneously around the world. A war in Vietnam alters basic political alignments in Peking, Moscow, and Washington, touches off protests in Stockholm, affect financial transactions in Zurich, triggers secret diplomatic moves in Algiers." (BB355)

18. As an example of cross-cultural criticism, here is a critical Time analysis of the school system in France:

(1) Schools are rundown, with inadequate equipment, and much of that rundown.

(2) Students are bored with French schools. Emphasis is still on classical learning, students see little connection between their schools and the skills needed to succeed in the modern world.

(3) Teachers are unapproachable and never wrong.

(4) The fundamental problem is that educators and French officials do not know how schools can compete for the respect of today's students. One professor says that 50 years ago, 4/5 of what a Lycée student knew he had learned in school; today 4/5 of what he knows has come from sources outside the school: television, movies, newspapers, magazines. Raymond Aron offers an observation which goes to the heart of all current social change: "Yesterday's authority is gone, and tomorrow's authority doesn't exist yet". (BP337)

19. Nevertheless, even the French school system is undergoing change. As the result of the 1968 student riots and their aftermath, including transnational ferment, a number of revolutionary changes are underway in the French University structure, e.g., creation of multi-disciplinary faculties. (BN617)

20. One multinational educational innovation in Europe is the New International Baccalaureate, developed by an office in Geneva, Switzerland, a UNESCO project supported by the Twentieth Century Fund, the Ford

Foundation, and various European associations. This will be the equivalent of an international high school diploma, based on examinations, and can be used for entry to colleges outside one's own country. It is hoped that this Baccalaureate will eventually supersede the French baccalaureate, the Swiss maturité, the German Abitur, the British General Certificate of Education, and others. (BN340)

Population

21. Not only population growth, but also population concentration, constitutes a major problem of the future. In 1961, there were only 29 cities in the world with one million or more people; in 1971, there 133 such cities.

Lewis notes that from 1800 to 1950 the proportion of world population living in cities of 200,000 or more rose from 2.4% to 21%. The aggregate growth of cities is not only much more rapid than world population growth, but is accelerating. In the United States alone it is estimated that 160 million people will be added to the population during the next generation, of whom well over 90% will be urban.

Over long centuries, unified settlements attracted, in general, the most vigorous, articulate, and ambitious citizens, and provided a diversified range of opportunities not available in rural areas. Despite cultural differences, they emerged gradually as cities in similar stages. However, Lewis predicts that such patterns will not be repeated, that the Western mode of life in the technological city will become the dominant pattern, due primarily to the forms of modern communications and modern distribution to consumers. (BB16)

22. Some, such as Morris (1967) and King-Hele (1970) have foreseen foreboding aspects in the potential impact of over-crowding, in placing strains on the family, and leading to violence and emergence of Hitlers. Linton (1970) postulates that overcrowding, when carried to extreme conditions, leads to the possible breakdown of society under intense population pressure, including sex deviation, dissolution of the family group, high infant mortality, and even canabalism.

Michaelis raises the problem of educating exploding populations:

> The problem of population explosion can now be restated in the following terms: How can education, and hence a rising standard of living, be brought in a short period, of say 10 years, to the illiterate millions of our planet, so that they will voluntarily and with full understanding of the consequences to themselves, make use of the pill and the ring (intra-uterine device)? Only the most modern technique of mass communication, television, can hope to make an impact on hundreds of millions in such a short time. Similarly, conventional television techniques which can only reach an area of about 20,000 square kilometers are out of date. The only hope left is to use satellites in space to spread television lessons over whole continents. (BF13)

23. Existing growth rates tell us little about the equilibrium population levels which might be reached eventually. Except for the relatively brief periods of transition from one cultural level to another, the size of the world population at a given time will be determined primarily by such factors as agricultural developments, general technological development, and the wants and needs of the people. A study of rates of growth tells us only how rapidly equilibrium levels might be reached. (BB50)

24. A Delphi survey explored implications of the development of economical mass-administered population control agents, for use by LDC's in such technologies as seeding of water. It was concluded that some effects might include:

- Possible creation of new forms of warfare (the ultimate weapon), placing great power in political leaders.

- Societal objections relative to pressure on individual choice; religious implications. (BM6I)

25. Implications were also explored of world wide acceptance and use of oral contraceptives or other simple and inexpensive means of fertility control.

Political Implications: The world's population will not accept contraceptive practices in unison. Rather, there will be regional and geographic differences in rates of acceptance. This imbalance may well have political consequences, if, for example, our population stabilizes while that of Africa and China continues to increase. The span between the haves and have-nots would widen; population pressures would be greatest where they could be least afforded.

Tax structures may be modified to favor smaller families.

Direct government intervention is a possibility.

Technology Implications: As demand for fertility control increases, available devices will become more efficient.

A seriously over-saturated population level may result in greater pressure for space colonization of habitable planets.

Motivational research will identify the basic factors driving the population to saturation. (BBI6)

26. Despite the persuasiveness of population-control arguments, there are thoughtful arguments available to the other side, some presented by Sir Charles Galton Darwin in his highly provocative book entitled The Next Million Years.

1. Any nation which limits its population becomes less numerous than nations which do not limit their populations. The former will then sooner or later be crowded out of existence by the latter.

2. A nation which limits its population forfeits the selection effects of natural biological competition and as a result must gradually degenerate.

3. The tendency of civilization to sterilize its ablest citizens

accelerates this process of degeneration.

4. The possibility that statesmen, perceiving these dangers, might agree upon a world-wide policy of limitation appears remote. How can they be expected to agree among themselves in this area when they have failed to solve the far easier problem of military disarmament?

5. Even if agreements among nations could be obtained, there would be great difficulty in establishing limits to the numbers admissable for the various populations.

6. The problem of enforcement of population-limitation agreements would be extremely difficult.

7. The probabilities of fanatical opposition to population limitation would be enormous. Although existing opposition is not, in the main, strongly emotional, it is likely that once population growth is forbidden by law, new creeds will emerge which will regard the practice as sinful.

8. The creedists, by multiplying more rapidly then the others, will make up an increasingly large fraction of the population, thus making enforcement increasingly difficult.

9. Natural selection will operate in favor of parental, as distinct from sexual, instincts. Those persons who want large families will in general have more children than others, and to the extent that this characteristic can be inherited, it would spread throughout the population. (BB50)

27. The arguments presented by Darwin are important to underdeveloped countries. As background for the international population problem, we present here some more general projections applicable to LDC's over the next 10-20 years.

1. There will be shortages of capital, skilled labor, professional personnel, and the attitudes and values needed to encourage their accumulation. (In this connection, many foreign students training in the United States stay here after completing their training, and fail to return to their native lands. This represents a critical loss of skilled and desperately needed manpower. No foreigners can substitute for many of them, only trained natives can build and

evolve a new group of leaders. It is vital that they return to their own countries to aid in their own development.)

2. Population growth will wipe out any small economic growth the underdeveloped nations achieve unless social-religious inhibitions concerning the use of contraceptives can be overcome.

3. The gap between the "have" nations and "have-not" nations will continue to increase.

4. Realization that a slow rate of growth is the only feasible path of development without coercive government may cause social unrest rooted in impatience.

5. Moral issues will be a problem because the vast majority of the underdeveloped nations are non-Christian and non-white; yet certain aspects of their performance will be judged by white nations.

6. Whether American youth will be able to assist and serve in these nations successfully will depend partly upon the attitudes of the governments of the underdeveloped nations, and the attitudes of American youth concerned, as well as of public and private American agencies.

7. Our support for the underdeveloped nations must emphasize long-range commitments, based on the application of complex economic, political, social, and technological considerations.

8. The United States may seek to form its own Common Market as a counter to the European Common Market and the U.S.S.R. economic Bloc.

9. Long-range weather forecasting affecting harvest size and yield will become matters of international concern.

10. Especially important for international viewpoints and values will be the evolution of government intervention and overall coordinating in relation to programs for underdeveloped countries, to meet the interests of domestic labor, education, and leisure over the next two decades. (BB232)

28. We must take note of growing concern in the developed nations, and eventually in the developing nations, for environmental quality. It is

conceivable that in the future there will arise a demand that all large organizations, including the military, utilize a staff ecologist, somewhat like a legal counsel. In this connection, United States Food and Drug Administration sources estimate that we are now exposing ourselves to over a half million chemicals, while adding 400-500 new ones each year.

Both Boulding (1970) and Anshen (1970) insist that the "social contract" is changing with respect to American business enterprises. Social progress and the quality of life will weigh equally in balance with economic progress. This idea strikes at the heart of the concept that the job of private management is to maximize profit. Most critics in this area (e.g., Spilhaus, 1967) agree that some form of recycling will become essential. (BM43,95)

29. Solving environmental problems will strain the world's resources, and may require major changes in the relations between industrial and developing nations.

In the United States and other industrial nations, some solutions would require a major reorientation of technology and a massive reconstruction of productive enterprises. The strain on capital and human resources would be great This reconstruction might involve gradual dependence of the industrial nations on the developing nations by shifting reliance from synthetic materials and power to natural materials and labor. (BN599)

30. Harrison Brown contends that technological advance is will nigh irresistible:

> That which can be imagined by man becomes possible, provided the achievement of what is imagined does not require violation of fundamental physical or biological laws. Time and again during the history of man, major changes have taken place that would have been considered impossible during earlier times. (BB50)

31. The impacts of technology on long-held values may be highly disturbing:

> The fact that technology is now very rapidly bringing into the common pot of a single world society, peoples who have been adapted to diverse levels and styles of cultural values may turn out to be not so much a melting pot as a pot that boils over or explodes. The confrontations of cultural values within formerly relatively stable population mixtures may spring out of a natural, unplanned, and inadequate human response to new technological and economic possibilities that may often be coming into effect too rapidly for any possible cultural or social integration and too fast even for the prevention of disruptive explosions...Cultures giving rise to different expectations of duty and privilege, when mixed too fast without time for proper enculturation, become explosive. The rising expectations, when combined with the often self-contradictory or self-defeating social or value structures of various peoples, may become tragically disruptive to human stability in the next thirty years and trigger a nuclear war, even if the Soviet Union and the United States were to continue their present programs of sufficient self-restraint and accommodation that have thus far prevented a nuclear holocaust. (BB55)

32. Rising expectations may be explosive, internationally and domestically. Each member of the public at large is a secondary party to every decision on exploitation of technology. Market forces are not satisfactory to allocate these secondary costs. The individual wants both good transportation and a clean environment. But when the benefit of clean air accompanies everyone's sharing the cost through more expensive "clean-air" cars, many individuals' market behavior has not justified any manufacturer's effort to produce the more expensive non-polluting car. This uniform standards are required.

> Our traditional legal mechanisms for redressing civil wrongs are no longer so effective as they were when only two parties were involved. It is increasingly common to blame injury on "society", but society is hard to sue. In any case, technology is creating new situation at a rate faster than the courts can work out precedents, so the value of civil suits as a means of allocating responsibility for future acts is greatly diminished -- or at least characterized by confusing lag. (BP146)

33. The growth of knowledge is very like ar evolutionary process, that is, it is extremely difficult or impossible to predict. Knowledge is like a sum of capital which accumulates at continually rising interest rates. There are many interruptions and reversals; but on the whole, the probability of growth is greater than that of decline.

The growth of knowledge has two aspects: education and research. "Education" is the spread of knowledge from one mind to another by means of communication processes between them. "Research" is a process by which somebody gets to know something which nobody knew before. The two processes are highly intertwined. Knowledge is lost in transmission...through noise and misunderstanding. Dialogue and two-way transmission is important if such a loss is not to occur. Hopefuily, knowledge increases with age, with "readiness" of input for certain kinds of knowledge at different ages. The growth of knowledge must always contain surprises, simply because the process itself represents the growth of improbable structures. The distribution of new knowledge among the various fields and disciplines is at least likely to have some relation to the current distribution of research funds among these disciplines. The spread of knowledge in the world population is going to be related to some extent to the size of the educational industry and the funds allocated to it. (BB242)

More frequently, there is arising advocacy of intermittent lifelong education to counter the trend toward divorce from social existence, and to combine initial specialization with a subsequent broadening of philosophical and scientific horizons, specializarion at the age of greatest absorptive capacity, followed by more intellectual integration at a stage of increased personal maturity. (BB54)

34. Even college attendance effect impact on life styles and values, according to the Carnegie Commission on higher education.

> The study, conducted by Stephen B. Withey and his colleagues at the Institute for Social Research at the University of Michigan, found that individuals who go to college tend to be:

1. More satisfied with their jobs.

2. More highly paid and less subject to unemployment.

3. More thoughtful and deliberate in their consumer expenditures.

4. More likely to vote and to participate generally in community activities.

5. More 'liberal' and tolerant in their attitudes toward, and relations with, other individuals.

6. More informed about community, national, and world affairs.

In comparison with other young people, the college students were perceived to be "more concerned with aesthetic and cultural values, more relativistic and less moralistic", and also "more integrated, rational and consistent".

On the other hand, certain problems resulting from college attendance were also discernible. They were:

1. Prolongation of youth with its inherent tensions.

2. Generational conflict between the more highly-educated younger generation and the less-educated older generation.

3. Conflict within the younger generation between those who go to college and those who do not go.

4. Opposition between those with more 'liberal' points of view and those with more 'conservative' points of view on social issues. (BMII)

35. Certain Delphi surveys illuminate selected aspects of education, technology, and future social change. One explored the implications of the availability of a computer which comprehends standard IQ tests and scores above 150 (where "comprehend" means behavioristically, the ability to respond to questions printed in English, possibility accompanied by a diagram), and

concluded that the outstanding possibility is the rise of a new elite: the "programmers". (BM61)

36. Another concluded that the implications of the development of laboratory operation of automated language translators capable of coping with idiomatic syntactical complexities would include emergency of real-time television service, decrease in the number of extant languages, and further ethnic separation between countries speaking different languages, since there would be fewer linguists and less intimate understanding of vocabulary nuances. (BM61)

37. Some Delphi surveys even explored possible implications if reliable use of ESP were to be realized perhaps as telepathy in communications (considered by most experts to be feasible "after 50 years or never"); their conclusions on such a development:

- Application to situations which demand absolute honesty, such as criminal justice, diplomacy, and so on.

- Replacement for normal communication modes of telephone and telegraph, particularly for military application.

- Emergence of new modes of scientific collaboration.

- Thought interference becoming a form of aggression; thought-shielding becoming a social necessity.

- Strains in international politics, business, and family relationships.

- Difficulty in establishing "priorities", especially the originator of ideas. (BB16)

33. Another survey considered implications of a more mundane contingency, the use of 3-D television routinely for entertainment:

- Almost total acceptance and ubiquitous application.

- Increasing emphasis on the development of the "All-Wall" television screens.

- Increasing dependence on television.

- Continued use of television for trivial purposes; enhanced presentations substituting for decent program material.

- Further deterioration in society's ability to determine meaningless froth from substance, the make-believe from the real. (BBI6)

39. Turning to future health problems, Nevin Scrimshaw reminds us that, as bad as health conditions are today in the less developed countries, they were matched or exceeded in the United States and western Europe only 50 - 100 years ago.

Health programs are necessary for effective population programs. Only parents assured of living offspring can be expected to practice family planning. (BMII8)

40. An almost assured, though moderate, increase in life span is predicted for the developing countries, whose average life expectancy is considerably below the average for the developed countries. (BM43,95)

41. There is, of course, an increasing potential worldwide for better health through control of disease, repair and replacement of organs, correction of genetic defects, and chemotherapy. (BM43,95)

42. Gordon and Helmer explored consensuses among panel members concerning possible effects on values of various technological developments. It was concluded that improvement in means of transport and communication could result in upgrading of manking-oriented values (and to some extent a corresponding devaluation of nation-oriented ones), growth of cosmopolitanism, and strengthening of internationalism. (BBI6)

43. Gordon has speculated on ways in which man might lose his liberty, his identity - en masse, by over population, or individually through intentional or surreptitious sacrifice

Potential Impact

The social and cultural aspects of the international scene will be the subjects of numerous changes of interest to the Navy, although most

of war is a human rather than a technological problem. We need a human solution.

Complete explanations of nature require two parts: "How and Why" Science can approach answering "how", but not "why". Man has needed "why" answers before, and for these answers he will turn to religion. In sum, the three major determinants of our future are automation, population growth and war. (BB90)

44. Humanistic approaches appear in numerous predictions: The mindless expansion of the material production that is now possible would soon lead to irrational economic waste. At a certain point of growth the most effective method of expanding society's productive forces is inevitably found to be the development of man as an end in itself. (BB290)

45. It is the object-oriented work in our society that is being replaced by mechanization, automation, and cybernation. In the years ahead, it is the people-oriented type of work that is likely to increase. The work of the world for the next twenty years would appear to be more and more that which has to do with people rather than objects. Let the machines produce objects; let people become more concerned about radical evolution in individual and group values. There are other possibilities, however, particularly in the international area. Collectively or individually, there exist sources of international conflict, macro-issues of such potential seriousness that they may demand society's complete concentration, to the neglect of some of the person, group, or social issues otherwise conceded to have trancendant importance. Among such potentially explosive issues we would include the following:

- Population explosion and consequent inadequate food.

- Dwindling resources on earth, particularly those related to energy-generation, and increasing competition for such resources as are still available.

- Increasing tensions as the gap widens between standards of living in have and have-not nations.

- Increasing pollution of the land, sea, and air environment on an international scale.

- Competition over exploitation of the resources in the oceans and seabeds.

cerned with people. (BM!39)

46. In Japan recently a blue-ribbon commission of scientists and economists suggested adopting a Gross National Satisfaction index, to replace, or at least supplement, the index called the Gross National Product.

These five areas appear to contain the greatest potential for conflict. Given rising tensions polarized about these (or similar) issues, any one of which is potentially explosive enough to generate widespread international conflict, concern over the amenities of life in an affluent society may well be subsumed within more basic motivations of socio-political entities, viz, defense and survival. Thus, motivation to "keep its powder dry" will serve to temper the impact of social and cultural change on the Navy.