

17th

PROCEEDINGS

MID-CONTINENT

RESEARCH
AND
DEVELOPMENT

CONFERENCE

Theme: Implementation For Change

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University of Kansas
Lawrence 1971

THE 17th ANNUAL CONFERENCE
of the
MID-CONTINENT RESEARCH AND DEVELOPMENT
COUNCIL

State Geological Survey of Kansas
University of Kansas
Lawrence, Kansas

September 27-28, 1970

PROGRAM

THEME: IMPLEMENTATION FOR CHANGE

Monday Morning
September 28, 1970

WELCOME

Francis H. Heller, Vice Chancellor for Academic Affairs,
University of Kansas

HISTORICAL DEVELOPMENT AND CHANGE

Dr. James A. McCain

CULTURAL VALUES AND CHANGE

Dr. James B. Taylor

Monday Luncheon

Toastmaster: W. W. Hambleton

Speaker: John Conard, Director, University Relations,
University of Kansas

Topic: The University and Regional Change

Monday Afternoon
September 28, 1970

PRIORITIES OF GOALS FOR CHANGE

Dr. William A. Vogely

RESOURCES FOR GROWTH IN THE MID-CONTINENT REGION

Dr. Charles N. Kimball

Banquet

Toastmaster: Frank Mirgain, Dean, School of Engineering,
North Dakota State University, Fargo, North Dakota

Introduction: E. Laurence Chalmers, Jr., Chancellor,
University of Kansas

Speaker: Honorable Robert B. Docking,
Governor, State of Kansas

Topic: Dialogue with Policy Makers

Tuesday Morning
September 29, 1970

STRATEGY AND IMPLEMENTATION OF GOALS

Mr. Garland R. Hadley

Tuesday Luncheon

Tuesday Afternoon
September 29, 1970

DIALOGUE WITH POLICY-MAKERS

Mr. Jack M. Campbell

IMPLEMENTATION FOR CHANGE

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INTRODUCTION

By

Dr. William W. Hambleton
Director
State Geological Survey of Kansas
University of Kansas, Lawrence, Kansas

During recent years, annual meetings of the Mid-Continent Research and Development Council have generated comment by some members that no central theme has been developed, too many unrelated papers have been presented, and the program permitted too little time for discussion and informal conversation. Responding to these comments, the Program Committee for the 1970 annual meeting in Lawrence, Kansas, reviewed many possible themes, and concluded that Implementation For Change would be a highly appropriate exploratory subject.

Having established the general theme of the meeting, we decided that sessions should include major presentations by no more than six speakers who had capacity for articulate and provocative presentation. This format would allow adequate time for penetrating discussion. Finally, we decided that a group of knowledgeable discussants would constitute a round-table panel for each paper, and engage in conversation about the paper following presentation. Manuscript copies of each paper would be delivered to appropriate panel members for study and review in advance of the meeting. At the conclusion of this discussion, all participants in the conference would be free to address questions to either the speaker or panel members.

The past few years have brought change of great variety and complexity. Young people are challenging established patterns and policies, a highly focused interest on pollution and environmental problems has become evident, and the whole concept of growth is challenged. Even in rural America, problems are increasingly difficult for small communities as residents move to the city.

The topic of Historical Development and Change seemed to be a necessary ingredient in order to provide perspective. We asked President James A. McCain of Kansas State University to take this assignment. Because of his associations, we expected that he might devote attention to the impact of the land-grant schools, the homestead program, government support of the railroads, and the Populist movement. Instead, he chose to concentrate on events since the end of World War II, including intensification of efforts to promote economic growth by municipalities, states, and regions; the establishment and expansion of state and local agencies staffed by

trained experts; tax and land concessions; public corporations; river basin development; and water-resource development. He devoted special attention to the 1961 Governor's Economic Development Committee in Kansas, which analyzed economic activity for all sectors of the Kansas economy during a 25-year period, and recommended creation of an Office of Economic Analysis, an Economic Finance Authority, a Kansas Research Foundation, and vocational education programs.

Dr. James B. Taylor, social psychologist and Director of Research at the famed Menninger Foundation, next developed the subject of Cultural Values and Change. He described change from a pre-industrial society to a technocratic society in which growth and development are central to the major value system which undergirds western culture. He developed the theme that technological change is the driving force behind major social change. For example, family and clan ties which previously had provided the strongest social links began to disappear within the industrial city, and divergent life styles replaced economic status in terms of social values. He noted, however, that the various parts of a technocratic society are tightly linked, and government has become management of systemic complexity. The dual pressures of diversity on the one hand and complex systemic linkage on the other present the emergent technocratic society with a dilemma. The new technocratic society requires new mechanisms for planning and governance to augment or replace archaic structures and resolve inherent value conflicts.

Dr. William A. Vogely, Director of Planning, Internal Revenue Service, then turned to Priorities for Change. Recognizing that patterns of change in the Mid-Continent states are, to a major extent, imposed from outside the region, he emphasized recognition of these external forces. The world is becoming a single economy, and economic change over the next century will be dictated by new technologies. Society will organize for its tasks in a pluralistic way, and knowledge will play the central role in determining productivity and structure. He recommended establishment of a regional organization for the purpose of monitoring and interpreting fundamental change for decision makers, and discovery of mechanisms whereby goals for the region can be articulated, discussed, and accepted in order to permit implementation.

Dr. Charles N. Kimball, President of Mid-West Research Institute of Kansas City, continued the theme by developing the subject Resources for Growth. He noted that the Midwest is underutilized rather than underdeveloped, and that the relatively uncomplicated problems of the Midwest are much more amenable to intelligent resolution than those of the eastern or western megalopolies. The region requires greater application of research, with growing emphasis on determining problem priorities. The future will bring rapid change in

technology, organizational form, operational practice, and in the intensity of market competition with a shift from a production-oriented economy to one in which the principal employment is providing services.

Garland D. Hadley, Executive Director of Frontiers of Science Foundation of Oklahoma, also developed the theme of better utilization of resources in discussing Strategy and Implementation of Goals. He described one strategy for developing home-grown industry that is based upon science and technology, and requires investment in research and formation of risk capital. Another strategy favors promotional programs that sell the resources of the area. He suggests that an optimal strategy lies close to the conventional industrial development approach, and to promotional programs to sell the resources of the area. Much of the region is not particularly suited for an economic development strategy based upon science and technology. However, where substantial capability does exist, an economic development strategy based on science and technology does not necessarily require large capital outlay.

In a concluding session on Dialogue with Policy Makers, Jack M. Campbell, President of the Federation of Rocky Mountain States, Inc., and former Governor of New Mexico, declared that regionalization is inevitable, and unless defined at the local and state level, will be imposed from the national level. Private corporations and public institutions must recognize that crisis-planning achieves minimal social values and on a short-term basis. Policy making must be concerned with long-term goals and priorities. Dialogue between people and groups of people is essential to the survival of a democratic system, and dialogue must be institutionalized through group participation that will break down communication barriers between the private and public sectors.

We are deeply grateful to these articulate and capable leaders of change for their splendid response. We also are grateful to all of the panel members who contributed so freely of time and intellectual resources. The panelists represented a wide range of interest and professional orientation: legislative leadership, metropolitan planning, scientific leadership, students, faculty members, business, minority groups, banking and women's professional development.

Although panel discussions were recorded, we concluded that the edited transcripts should not be reproduced because of cost of publication and demands upon readers. Our solution to this problem was to ask some of our colleagues to extract the main ideas from panel discussions, and to weld these into a coherent presentation. If we have done violence to the presentations of our panelists, we apologize and express the hope that brevity and scholarship have been served.

Finally, as Program Chairman, I must acknowledge the superb contribution of my colleague, Mr. Ronald Hardy, who assumed major responsibility for organizing and bringing this annual meeting to a successful conclusion. His attention to the infinite details of program development, meeting arrangements, and preparation of this report was the key to a successful annual meeting.

Historical Development and Change

Dr. James A. McCain
President
Kansas State University
Manhattan, Kansas

Moderator: Robert Aanngreenbrug, Director, Institute for
Social and Environmental Studies, University of Kansas,
Lawrence, Kansas

Panelists

Blaine W. Bickel, Associate Economist, Research Department,
Federal Reserve Bank, Kansas City, Missouri

Walter Kollmorgen, Professor, Geography Department, The
University of Kansas, Lawrence, Kansas

Jack Lacy, Director, Kansas Department of Economic Develop-
ment, Topeka, Kansas

William Mitchell, Attorney, Former Chairman, Kansas Corpora-
tion Commission, Hutchinson, Kansas

Duncan McDougal, Professor, Department of Economics, The
University of Kansas, Lawrence, Kansas

Richard Poole, Dean, College of Business Administration,
Oklahoma State University, Stillwater, Oklahoma

HISTORICAL DEVELOPMENT AND CHANGE

Dr. James A. McCain
President
Kansas State University
Manhattan, Kansas

Since World War II there has been a steady intensification of efforts by municipalities, states, and geographic regions to promote economic growth. In general such activities have been designed to expand industries and their payrolls within the area served, stimulate the establishment of new industries, and persuade industries established elsewhere to locate production plants and research laboratories within the area.

The devices employed to achieve accelerated economic growth have been common to most areas. A first step has usually been the establishment or expansion at state and local levels of agencies staffed with experts in promoting development. Many programs have resorted to tax and land concessions to new and expanding industries; creation of public or quasi-public corporations or authorities making risk capital available; river basin development and other measures designed to insure adequate water and power resources; the improvement of transportation facilities; creation of technical training programs to insure an adequate supply of skilled workers; and development and enlargement of scientific, technological and research services. States and municipalities have made extensive use of communications media, including display advertising in nationally circulated journals, in extolling the advantages afforded industries in the area involved.

It is reasonable to assume that an audience such as the Mid-Continent Research and Development Council already possesses familiarity with such standard techniques. I will devote most of the remainder of this statement, therefore, to a description of the efforts of one state, in this instance Kansas, to develop a new and more effective program for stimulating economic growth by employing a combination of these techniques.

The 1961 Kansas Legislature established a Governor's Economic Development Committee and charged it with five major tasks: (1) to investigate economic conditions in Kansas; (2) to project economic conditions into the future but not beyond the year 1975; (3) to examine economic and industrial development programs in other states and identify those that might be appropriate for Kansas; (4) to study the desirability for creating a department of commerce or a similar agency within the governmental framework and make

recommendations based on the study; (5) "...to publish under the name of the committee all of its studies and investigations, together with proposed legislation embodying a 'blue-print' for the economic development of the state."

The Governor appointed as members of the Committee 21 persons occupying positions of high-level leadership in industry, agriculture, and education in the state. The Committee was provided with the services of a staff of 36 research consultants from such fields as taxation, management, cartography, agriculture, economics, sociology, and geology, all of them from the staff of the two state universities. As a member of the Committee I can certify that it performed its duties conscientiously. Regular meetings, most of them lasting throughout an entire day, were held over a period of one year. Voluminous materials were reviewed including Kansas economic data and the details of successful economic development programs in other states.

The Committee made a detailed analysis of the development of and changes in the state's economy over the past 25 years. Then it reached an agreement with reference to "goals for population and income in 1975."

POPULATION

"Three population projections were made, each based upon different assumptions about future migration into and out of the state. Two of the projections were then combined into a fourth--Projection X, which was selected as the most desirable course of population increase for the state during the next 15 years. Underlying Projection X are the assumptions (1) that the 1950-1960 relative population growth for Kansas will continue through 1965, and (2) that population growth in Kansas will equal the projected national rates between 1965 and 1975.

Total population in Kansas in 1975, if the goal of Projection X is attained, will be 2,815,600. This is an increase of 637,000 over the 1960 figure, and more than double the increase of the previous 15 years. To reach this goal the average increase for the period 1960-1975 will be 42,000 persons per year, compared to an average of 27,000 per year in the 1950's. However, the Committee's population goal for 1975 is based on an increase of 155,000 persons from 1960 to 1965 and an increase of 515,000 during the following decade.

"The associated labor force increase between 1960 and 1975 is estimated at 236,000 workers, making the 1975 total 1,083,000."

INCOME

"In 1960 total personal income in Kansas amounted to about \$4.4 billion and personal income per capita was \$2,066. The Committee noted several things about the past performance of Kansas income. In recent years Kansas per capita personal income as a percent of United States per capita personal income has shown an upward trend. In terms of income per person Kansas has been coming closer to the United States average. But Kansas total personal income as a percent of the United States total personal income has shown a slight downward trend. This seems to indicate that recent improvements in Kansas per capita income have been associated with a relative decrease in the state's population through net out-migration.

"The Committee thought it desirable to express its income goals in terms of Kansas per capita personal income relative to that of the United States, since the growth of individual states stems primarily from a common source--the growth of the country as a whole--rather than from local circumstances. On the basis of past relative performance and the Committee's hopes for the future, a Kansas income per person in 1975 equal to 95 percent of the national figure was accepted as a goal. This approach required that an acceptable estimate of national per capita personal income be used, and an estimate was prepared by the research staff, which was a modification of a Gross National Product estimate. Finally, allowance was made for an expected continuing increase in the general price level and the estimate was expressed in constant 1960 dollars, so that changes in real income could be studied.

"By this approach the Committee arrived at a Kansas income goal for 1975 of \$2,740 in real personal income per person in the state. Attainment of this goal requires that per capita income rise faster than it ever has in the state's history. When the 1975 Projection X population estimate is applied, the goal in terms of real total personal income is found to be about \$7.7 billion, compared to \$4.4 billion in 1960."

The Committee reported its findings and recommendations to the Governor prior to the 1963 session of the Legislature. The Committee's findings were published in a series of 11 monographs. The first was a summary of findings and recommendations. The others were devoted to the following topics:

- Agriculture
- Education and Research Resources
- Financial Resources
- Government
- Manufacturing and Industry
- Mineral and Water Resources

Population and Labor Force
Recreational and Cultural Resources
Trades, Services and Construction
Transportation and Utilities.

Collectively the recommendations of the Committee were designed to give the state of Kansas the benefit of the most enlightened and effective methods available to achieve a fast rate of economic growth and in the process to give the state the advantage of a closely coordinated program. Specifically, the recommendations submitted to the Governor and the Legislature were as follows:

(1) The Office of Economic Analysis

"The Committee recommends that there be established in the Executive Department of the state government an office responsible for making a continuous analysis of the Kansas economy. At present there is no state agency, department, or private organization responsible for providing such an analysis to the Governor or the legislature or the people of the state.

"More specifically this office would be required 'to see whether economic growth is occurring, or whether corrective action is possible or needed,' and to 'provide the Governor and the legislature with a realistic report as to the success of various state programs dealing with economic development.'"

(2) Department of Economic Development

The Committee recommended that there be established in the executive branch of government a department of economic development which would consolidate under one administration a large variety of economic development activities which were then the responsibility of several agencies of state government. The Committee proposed that the new department be assigned duties as varied as tourist promotion, agricultural development, transportation rates, the advancement of scientific research, and the expansion of markets for Kansas products in other states and in foreign countries.

(3) Kansas Economic Finance Authority

The Committee recommended the submission to the electorate of the state of a proposed "economic finance authority" which would provide credit for agricultural and industrial and natural resource development. This would supplement and expand resources now available through local development corporations, the Small Business Administration Acts, the Credit Development Corporation Act, the Revenue Bond Act, and the normal channels of financing through banks, and savings and loan associations, and others.

(4) Vocational Education

The Committee proposed that a coordinated state system of vocational education be established for the purpose principally of "training its citizens who have been displaced or need additional training to qualify for job opportunities in the state" and to provide an adequate supply of trained workers for industry, business, and the professions.

(5) Scientific Research

"The Committee considers it essential to economic progress in Kansas that an immediate effort be made to vitalize existing research resources, and to encourage additional developments in this field by increasing research volume in the universities and expanding into more areas."

It was proposed that the Kansas Legislature increase its appropriations in support of research in universities, that a non-profit research foundation be established to correlate scientific programs of the state and promote an expansion of research, and that the Legislature establish in the two state universities "a minimum of six distinguished professorships at salaries necessary to attract scientists and engineers of national and international distinction."

It is heartening to be able to report that the major recommendations of the Committee have in one form or another been adopted, in most cases through acts of the legislature but in some instances within the private sector of the economy or through cooperation between government and private industry. Whether the goals set for 1975 will be achieved is still to be determined. However, since implementation of the Committee's recommendations there has definitely been an acceleration in the state's economic development.

Several aspects of economic growth have unique implications for the Mid-Continent area and deserve further comment.

There is intensive competition among the nation's states and cities in this drive for economic development. This fact assigns unusual significance to the natural resources indigenous to an area which enhance its competitive position. The Mid-Continent states enjoy such an asset in our capacity to produce food as a result of optimum climatic, soil and topographical conditions. The states of Oklahoma, Nebraska, Iowa, and Kansas, for example, can raise wheat and feed grains considerably cheaper than elsewhere in the nation. This in turn affords them the decided advantage in meat production and in the marketing of wheat both in the United States and abroad.

Historically, processing industries have been located near the source of raw materials. Hence, Kansas and

Minnesota for many years led the nation in flour milling and Iowa has maintained supremacy in meat packing. In recent years this advantage has been threatened as a result of technological changes in the transportation of commodities and the impact of these changes on shipping costs. The parity which had prevailed for years in the cost of shipping wheat and flour from Midwest points to the East and West coasts, for example, was discontinued with the advent of the Big John hopper car and freight rates on wheat severely reduced without a commensurate reduction in flour rates. This development in turn made it possible for mills on the East Coast, principally in the southeastern states, to reduce production costs and undersell flour shipped in from the Midwest.

Several years ago a 12-state Governor's committee on transportation was established for the purpose of formulating a strategy to cope with this erosion of flour production in the Midwest. The Committee soon discovered that not only flour milling but other major processing industries in the area were similarly jeopardized.

Mid-Continent leaders would be well advised to assign transportation costs a central role in whatever strategy they employ for economic development.

A principal source of new wealth in recent times has been the so-called "science based industries." John Fischer in a widely quoted article in Harpers in September 1961 noted the growing importance of these industries and the further fact that they were a product of the trained manpower in a given area rather than its natural resources. At about the same time the president of the Stanford Research Institute warned the Mid-Continent area of a brain drain through which the scientists who earned their professional and doctoral degrees at universities in the area were lured to other parts of the country where many were employed in science-based industries.

The Mid-Continent area has benefited enormously from scientific research in the development of its great agricultural industry. Expenditures for agricultural research in six land-grant universities of the Great Plains states, for example, have totalled some \$20 million a year.

Although other scientific programs in these same universities have been considerably expanded in recent years, they have yet to achieve results comparable to those in agriculture. The Congress of the United States four years ago established a state technical services program for the specific purpose of giving industries access to the research data potentially useful for improving efficiency, increasing production, and developing new products. Federal funding for this program was discontinued on July 1, 1970.

The Mid-Continent area is still lagging in the exploitation of the wealth inherent in science-based industries. As examples of how scientific resources can be employed to stimulate this type of economic growth, I refer you to Christopher Rand's study, Cambridge, U.S.A., published by the Oxford University Press, in which he sets forth in detail the development along Highway 128 in Boston of the electronics industries attracted by the research facilities available at Harvard University and the Massachusetts Institute of Technology. A similar development is the North Carolina Research Triangle through which access is made available to scientific talent at the University of North Carolina, North Carolina State University and Duke University.

Finally, I would call attention to the subtle role of cultural resources in efforts to achieve economic expansion. As John Fischer pointed out in Harpers, "long-haired" scientists tend to have "long-haired" tastes. An industry located in an environment blessed by first-rate school systems, good libraries, art collections, drama, opera, and symphony orchestras will undeniably appeal to most scientists. In one bulletin publicizing the North Carolina Triangle, attention is called to the access of people in the areas to such cultural resources at only a fraction of the cost of patronizing them in a large city such as New York or San Francisco. The meagerness of such resources in our own area should concern us. A sound program of economic development must certainly take into account the quality of the cultural environment.

SUMMARY OF PANELISTS' DISCUSSION

Subject: Historical Development and Change

The 1961 Kansas Economic Development Committee's study of Kansas economy was one of the most deliberate efforts of the State to spell out goals and achievements desired by 1975. Included in the study were allusions to the needs for a financing mechanism to provide capital for industry expansion, and vocational education to provide trained man-power.

For a complete review of historical development, this paper lacked historical perspective. For example, transportation has always played a major role in the development of this region; even so far as to account for in a large measure ethnic groups that were brought into the state in order to build railroads.

Area growth can be influenced in a large measure by the relationship between its government, industry and universities. It is extremely important that any communication with the government start with the members of the legislature. At the same time any region will have its economy influenced by forces from the outside. For example, Kansas population, or Kansas GNP is not going to be determined basically in Kansas but by trends in the United States.

Obviously we are in an age when space utilization is being examined more critically; how is it to be divided between open and occupied? This brings up the question of economies of scale which could become a most critical factor. Is it possible to create population centers that are of sufficient scale to enable them to have adequate educational, health, cultural, etc. facilities? Studies to date suggest that public policy is the best antidote to the problem of rural underdevelopment and urban overdevelopment. Tax incentive to modify serious geographical imbalances appears to be the answer to correct these problems.

All of this again raises the question of whether growth is always beneficial to a region and if it is, what kind of growth is best; will economy of scale be beneficial? In a last analysis any goals set today should be highly people-oriented; it is the people speaking to the legislatures that determines the kind of state they want. Human attitudes must be taken into consideration, and the human attitudes move the legislature. This is where the decision is made as to the level of university funding and the amount to be spent on economic development. Questions are being raised more frequently now as to just what is the best use of the available land. Planning by regional leaders must be dynamic to be worthwhile, and at the same time these groups of concerned people can focus their practical professional experience on common problems.

Cultural Values and Change

Dr. James B. Taylor
Director
Department of Research
Menninger Foundation
Topeka, Kansas

Moderator: Robert Aangeenbrug, Director, Institute for
Social and Environmental Studies, The University of
Kansas, Lawrence, Kansas

Panelists

Dale Kincade, Professor, Anthropology Department, The
University of Kansas, Lawrence, Kansas

Curtis McClinton, Jr., Executive Director, Kansas City
Chapter, Black Economic Union, Kansas City, Missouri

Victor Obley, Parole Office, State of Kansas, Topeka, Kansas

Lynn Osborn, Professor, Speech and Drama Department, The
University of Kansas, Lawrence, Kansas

Victor Poirier, Chief of Social Development, City Develop-
ment Department, City of Kansas City, Missouri

Allen Quetone, Bureau of Indian Affairs, Washington, D.C.

Emily Taylor, Dean of Women, The University of Kansas,
Lawrence, Kansas

CULTURAL VALUES AND CHANGE

Dr. James B. Taylor
Director
Department of Research
Menninger Foundation
Topeka, Kansas

To be frank with you, when I sat down to prepare this talk, I was astonished with myself. Why did I ever agree to speak on such a topic? Look at the title--Cultural Values and Change. As Heraclitus long ago observed, we never step into the same river twice. Change is the only thing in existence. Stability is a myth we make up for our own comfort as we struggle to maintain continuity in our life. If I am to talk about change, I am to talk about the universe. As if this were not difficult enough, I am also supposed to talk about cultural values. Nothing man does is free of influence by culture and its values, if by values we mean those directing notions of what is good or bad, right or wrong, valued or worthless, important or negligible. So I am committed to talking of all mankind throughout history. Finally, the notion of value quickly links to the notion of morality and the sanctions of religion. As if the universe and mankind were not enough, I also have a mandate to talk about the doings of heaven. Obviously, the thing is absurd.

This was my first reaction--but not my last one. As I thought about it, I became increasingly intrigued. After all, much of my research for the past twelve years has been concerned with small-scale social change. Like all of us, I have been astonished and distressed by larger changes in the United States and the rest of the world. I have had a chance to observe at firsthand the processes of change in West Africa and Europe. I have done some thinking about these matters, but I have never put my thoughts down in systematic order. Perhaps this was a chance.

Besides, when you get right down to it, I had said I would give such a talk; my name was on the program; and what else could I do?

Very well, my topic is Change and Cultural Values. I shall talk about how a changing technology produces change in the social order, and how change in the social order in turn produces value change and personality change. I shall be talking about trends, about the past, and about the future. I should warn that what I am going to say will require you, as audience, to take a novel stance, and adopt a novel frame of reference. Most of the sessions here will be concerned with the immediate needs and immediate tasks of the Mid-Continent region. Fine; that is why you came. But if I am going to talk about the forces of change and

their effects on human beings, I will need to go beyond the Mid-Continent region. I will need a longer time span. I will need to be highly speculative. I will be playing in the same ball park as the so-called "futurists," whose stock in trade it is to anticipate future events. Herman Kahn and Anthony Wiener in their book, The Year Two Thousand, both limit and justify such flights of analysis in these words:

Useful or interesting as long term predictions would be, it is simply too difficult to make them well, and even more difficult to estimate how this relatively distant future depends on current policies. Nevertheless, at the minimum, such studies, even if only partially successful, contribute to interesting lectures, provocative teaching, and stimulating conversation, all of which can broaden horizons and increase creativity--by no means negligible benefits.

Okay, I am going to talk about change and I am going to be fairly sweeping. I hope you will adjust yourself to this. I am going to do something else too which may demand a different frame of reference from you. I am going to look at growth and development, the key components of economic and technological change, with a neutral but jaundiced eye. I am not going to assume that they are necessarily Good Things. Nor shall I assume they are Bad Things. I shall assume that they are processes, the effects of which deserve examination.

Within the context of this meeting, this places me in a heretical role. As I read through the program notes, I became aware that two terms occurred with metronomic regularity: the terms "growth" and "development." These terms are central to the major value system which undergirds our current western culture. To western man, the idea of development is related to evolution, to progress, to a better life. Change is a good thing. These are very western values. Many a traditional society would not agree with them. Nor are all segments of our current western culture willing to take them on faith.

The difficulty is obvious: what is development to one man or group may be disaster to another. Our great westward thrust "developed" the United States, but failed to give a better life to many a murdered Indian tribe. The "development" of South Africa poses certain problems for the native population. Industrial development in the U.S.S.R. exterminated a million or more peasants. As for growth, I doubt if even in this room one would find a wholehearted allegiance to it as a value in itself. The relationship between our explosive growth and our present ills--both national and international--is becoming painfully obvious. Our unplanned, uncontrolled urban growth has resulted in unending urban crisis. Our unplanned, uncontrolled industrial growth has

led to major pollution of water and air. Our growth of international power has led us to the nightmare of Vietnam. Our growth of government has led us to a bureaucratic chaos, which escapes rational control. In short, growth itself may pose vast problems for the prevailing ecosystem, the prevailing technological system and the prevailing sociopolitical system.

Now, these remarks may seem an unfair departure from a set of innocent program notes. After all, we are not here today to discuss the growth of government bureaucracy or the problems of Vietnam. In your program notes, the phrase "growth and development" occurs in a restricted context. It refers to economic and technological growth, economic and technological development. I suppose that most of you here play a part in promoting such growth and development. New industries produce new jobs, more money, more wealth for the region and its people. Your knowledge and skills are generally employed in the service of human welfare; your concern is to do an ever more effective job. This meeting today should provide one resource. Why, in this limited context, should I question the ideal of growth and development? And certainly, this reply contains much truth.

The same reply was equally reasonable when formulated in the sixteenth century by that great prophet of progress, Francis Bacon. We have inherited his faith that new science and new technology will increase the public weal. Yet it must be remembered that Bacon was a great prophet, but his prophecies came true only in part. The new Atlantis has failed to arrive on schedule. In the early stages of the technological revolution a host of unanticipated problems arose. Masses of dispossessed peasants or yeomen moved to the city, creating slums, civil unrest, and major problems of addiction--to gin, if not to drugs. The environment became polluted by smoke, the family structures and social structure of the past were shattered, and protest against technology became rife. The dark satanic mills of England, it was claimed, were not promoting public welfare but public chaos, and disrupting every value which made life worth living. Nor have later developments justified Bacon's optimism. Wars of unprecedented fury erupted, culminating finally in the bloodbaths of 1917 and 1942. Protest against technology is not new, and the truth of its complaints also cannot be denied.

In our era we are seeing a resurgence of protest against the results of development and growth. Such protest has been a constant theme in western culture; it waxes and wanes but it never dies. We are undergoing a neo-romantic epoch at present, and during such times the voice of protest becomes unusually loud. Students are distrusting technology, avoiding engineering and sciences as a career. We may find the loudness of the protest distressing, but the protest itself is not new.

I've said there was merit on both sides of this argument--which means that both sides are probably wrong. It is true that technological advance does increase certain aspects of health and welfare. It is also true that growth and development may have profoundly disturbing consequences. Once you have granted these two truths, you have to move beyond polemic. You have to give up a religious faith in growth and development, or in romantic revolt. We need sharp, clear analysis. What are the expectable social effects of technological change? And how do these effects influence human values or individual personality? We need less argument, and a better diagnosis.

So much for preamble. Let us now begin.

Start with a simple observation. It is this, that the force behind all major social change in the current world is the force of technological change. It is technological change which leads to new social forms and new human values. The current American system, with its restless discontents, its rising Gross National Product, its problem of ghetto poverty, its alienation of minorities and youth, is an outgrowth of a particular kind of industrial technology. The development of our huge urban areas--the central city and the sprawling suburbs--are made possible by the automobile, the steel technology necessary for high-rise buildings, the invention of the elevator, the electric light, the sewage systems, and the telephones. The megalopolis is as much a technological invention as a social one. Take another example. Henry Ford begat the hordes of automobiles, the automobiles begat roads and motels, roads and motels begat a major change in sexual morality. We have had a revolution in agricultural technology, and now five percent of the population can feed all the nation--which means that 95 percent of the population can damn well do something else. The examples make the point. Under present conditions, technological change provides the invisible hand behind all other types of change. (I'll toss in some qualifications later, but right now let's take this as a guiding tool for our analysis).

If we take technology as primary, we can look at different stages of technological growth and development and chart their consequences. The futurists have suggested a number of different terms with which to classify the stages of social change. Kahn, for instance, suggests a 5-point progression: (1) preindustrial, (2) partially industrialized, (3) industrial, (4) mass consumption, (5) post-industrial. Galbraith talks about take-off points. One can expand terminology without limit. But I would like to keep it simple. I want to suggest two terms, and two terms only, to define the limits of technological change. The first term refers essentially to the past, to where we have come from. Call this the pre-industrial stage. The second term

refers to where we are going. Call it the technocratic stage. These are extreme points on either end of a spectrum, and I assume no inevitable progressions along the way. I hope you will take them seriously, since they provide the framework for all I shall say.

Let me describe the pre-industrial society. In pure culture it is mainly traditional in its orientation, looking to the past for guidance. It does not place a high value on technological innovation, and in fact, such innovation is slow. Its per capita income is relatively stable, and its economy tends to be based on agricultural pursuits or the production and trading of raw materials. Partial examples in the world scene are Nigeria, Pakistan, Indonesia, United Arab Republic, India, almost all the African states, etc.

In the opposite extreme are the technocratic societies. In pure culture these are oriented to the future, place a high value on technological innovation, show a continuing growth in per capita income, and have an economy based ultimately upon industrial processes. Partial examples of relatively advanced technocratic societies are the United States, Western Germany, Sweden, and the United Kingdom.

You will note however that I speak of partial examples; I do not identify any current society as completely pre-industrial or completely technocratic. The reason for this is simple. There is no place in the world so isolated that it is completely pre-industrial. The Eskimos?--no. Remote African tribes in the hinterland?--no. All to some extent are influenced by technological innovation. Nor, on the other side, is any country completely and stably technocratic. As a matter of fact, the technocratic society in pure culture does not yet exist. It is an abstract or ideal type; useful for analysis, perhaps useful in identifying the nature of the future; but not presently in existence.

Between these two poles of development are a number of intermediate stages. The pre-industrial society has a stable technology concerned mainly with agriculture. Its archetypal technological instrument is the hoe and plow. At some middle range the technology shifts. There are two directions it can go. In England, the U.S., Germany and the other major world powers, technological growth has been dominated by the growth of heavy industry, and the related expansion of power sources. This, of course, is a classical road to development, and the one which the Communist societies have tried to emulate under state control. The archetypal technology here is the steel mill and the production line. There is a second road which societies can travel in their technological development--a road which we see emerging in some so-called underdeveloped countries. We may call it "bargain basement development." The small underdeveloped society has certain things it can offer the more developed technocratic nations.

It can provide cheap manpower, cheap raw material, and cheap preliminary processing. In areas such as Hong Kong, Formosa and the Philippines, new factories arise, and people are trained to produce relatively advanced consumer products. Such bargain basement societies develop no heavy industry. Their economy grows, but their fate is completely dependent on the market forces of their more advanced neighbors. Thus their economy is tremendously fragile, tremendously vulnerable. A mild recession can lead the key country to stockpile rubber, or sugar, or iron, and so cut back its purchases and its labor force in the underdeveloped area. This cut-back can be disastrous if the underdeveloped country depends entirely on the rubber, or sugar, or iron market. The whiplash effect in bargain-basement economies produces major social instability throughout South America, and in fact in all areas under western economic domination.

It may be that technological growth based on bargain-basement economies is inherently unstable, inherently self-limiting. But sometimes a bargain-basement country may succeed in building stable relations with a key nation as Puerto Rico seems to have done with the U.S. Or sometimes the country may be large enough to develop its own internal markets and resources detached from the world economy, as Red China is trying to do. Let us assume, then, for the sake of analysis, that technological growth proceeds. What then? We here argue that the next stage of development is towards the technocratic society.

The technocratic society, insofar as we can see its emerging shape, is based on a rapidly changing technology. The major problems of industrial production and food production are solved. Increasingly, products are introduced to fill psychological needs, rather than for their intrinsic utility. Some small proportion of the population is capable of producing all the goods and groceries needed to some reasonable level. As we shall later see, this accomplishment is accompanied by a major and widespread systemic change. The various parts of the social order become increasingly interdependent. More and more the technocratic society has to concentrate on "making the system work." The technocratic society develops new methods for transmitting or analyzing information about change, for making policy decisions about change, and for deciding priorities about change. Since information and its utilization is all-important in the technocratic society, its essential technology is the technology of the computer network and of the systems analyst.

Some parts of the technocratic stage are as yet just on the horizon. Some parts are here, and one can recognize them already. And some parts are here now, but one just hasn't noticed them yet.

This, then, is the basic technological continuum. It moves from the pre-industrial stage to the stage of the technocratic society, with alternative roads to industrial development along the way.

Now, I have suggested that technological change is the main driving force behind all other kinds of large-scale change: ecological change, social change, change in human values, even change in mass patterns of personality. What kinds of social and personality changes go along with the technological changes I have just described?

The first social change occurs with the development of a new kind of city. In pre-industrial societies, most people lived in villages or rural areas. What cities existed were small, designed mainly as seats of government or religion, or as centers of trade. With the growth of technology the existing urban areas become larger. They become industrial centers. They start to swing the major weight in the culture. Increasingly people come to the cities in search of jobs and opportunity. When this happens, the population loses its ability to sustain itself by its own agricultural products. Unemployment and social unrest result. These processes are underway throughout all of Africa, the near and far East, and South America.

Such urbanization follows a similar pattern everywhere. A small city serves as the nucleus. This core city is inundated by untrained people. Most of them believe that life can be better in the city. They are often wrong. Shanty villages spring up. At first these villages duplicate the social structure of the home place. We saw this in our own New York in the nineteenth century, where the Irish had their section, the Poles theirs, and the Jews theirs. The same pattern occurs in West Africa. In Monrovia, for instance, there are separate city sections for people from the Kru tribe, from the Ghia tribe, from the Loma tribe, and so on. Rather quickly however these tribal divisions break down. The tribal groups intermingle and intermarry. New social groups form. Cults arise. Some of the new social organizations provide new ways of finding jobs, provide some opportunities for self-help and advancement, and supply a limited measure of security.

This too is a pattern we have seen in our nineteenth century New York. At a later stage, the form of the city again changes. The industrial core becomes merged into a much larger metropolitan or megalopolitan area. This we are seeing with the development of the Boswash area, stretching from Boston to Washington, D.C., and the similar complexes developing around the Great Lakes and on the West Coast. The megalopolis is typical for the technocratic stage of development.

The new technologies and the new forms of urbanization have profound effects upon all social institutions, and especially upon the most basic human institution of them all, the family. It is in families that people learn to become human beings; it is in families that the core social values are formed and transmitted; it is in families that individuality and personality are forged. Anything which changes the form and structure of family life changes the core values and the core personality structures of the culture. With technological growth, the family undergoes profound change. What then are the consequences for values and personality?

Let us see what happens to the family as a society moves from the pre-industrial stage towards the technocratic state. At the pre-industrial stage, individuals do not move around a lot; the people you grew up with are the people you know during your adult years. The extended family--aunts, uncles, cousins, grandparents (maybe) are close by. Family and clan ties provide the strongest social links and call forth the strongest loyalties. The clan (or some grouping within it) provides the major source of security in hard times or in crisis. Hospitality to clan is a major duty; and if one can squeeze an idiot third cousin into a comfortable job, even if it plays hob with organizational efficiency, then one has a moral obligation to do it. Under certain conditions, the fight of a clan member is equally your own--a situation which has had consequences as various as Romeo and Juliet, and the Hatfields and McCoys. Whatever its form, however, clan membership typically involves a pattern of obligations and duties--and God help the man who transgresses.

In pre-industrial societies the nuclear family--Momma, Poppa, and the kids--may often be broken. Death comes early in such societies; women commonly die in childbirth; violent demise or enslavement is not rare. The extended kinship patterns provide stability and help.

Comes then the industrial city. Typically, the younger members of the family go to sample its opportunities and delights. Kinship ties remain, but become weaker with time. The small village, with its effective reinforcement of obligation and duty, is gone. The individual finds himself caught in competition with others: for work, for status, for security. The results are various. Those lowest in the hierarchy, and bound by other ties, may retain some security by kinship for several generations. A "culture of poverty" is also likely to develop, with paternal role unstable, and the women bearing the brunt of child raising and economic support. The focus of child rearing in any case shifts away from the extended family, and the modal structure becomes the "household"--one or two parents and their children. The children grow up, not in the stable

and expectable world of the village with its reciprocal ties and obligations, where everyone knows his place and rights and duties, but in the diversified, ever-changing, competitive world of the city, where life becomes oriented to the scramble for money, status, and the security that both can bring.

In the early stages of industrialization, a few city folk may be like the Forsythes, but many more are Sammy Glicks, starting at the bottom and fighting their way out of poverty. The family in the early stages of industrialization may also often be broken or conflicted--not so much by death as by desertion and the stresses of poverty.

Now, each kind of situation is likely to produce different values. The pre-industrial society typically produces individuals who are not highly striving, who value the personalistic ties of kinship more than the competitive scramble for advancement, who have some comfort with themselves and with non-strangers. Security lies within and between individuals. The early industrial city, in contrast, produces individuals who are strongly achievement oriented. Striving is not only for themselves but for their nuclear household--the wife and kids. Such people know that their own childhood was stressed by poverty, and they wish to do better for their children. Kinship security is gone, and the city or government grumblingly attempts here and there to fill the gap.

Yet this form of family also has its conflicts. The emphasis upon competition and achievement, yea, even unto the third generation, and especially to the eyes of the neighbors, poses a major burden to many children, and a certain number revolt against the work ethic. The family itself may be unstable, since the social and economic advantages of pre-industrial days are gone. Family instability now results from a soaring divorce rate rather than death or poverty. The successful father is judged by his children, not by work standards, but by the standards of the nuclear family--its harmony, comfort and civility. If there are strains in these matters, then the next generation vows to do better. It is less concerned with "success" or status than with experience and human encounter--much to the hurt astonishment of its elders.

I have painted all this in the broadest of brush strokes. Obviously there are vast variations: pre-industrial families differ from culture to culture, and adaptations to city life can be highly diverse. Take this for what it is, an impressionistic sketch rather than a detailed blueprint. If you grant me such leeway, I will proceed to lay on a few more brush strokes.

The success-oriented family of the industrial city gives way to a more relaxed generation, concerned with its human identity and with meaningful human encounter. But its concern occurs in a partial vacuum, since the supporting structures for an identity rooted in the past and in the present are gone. Technocratic man lives in a world of short-term, task-oriented encounters. In the highly mobile technocratic society, children may go successively to different schools with different people. The social controls of neighborhood and lasting peer group disappear. The technocratic man is in part an anonymous man, a rootless man. He seeks identity in the development of shared life styles, and in social movements of various sorts. There is freedom in this; the full blown megalopolis has no neighbors to peer and gossip and control, so the individual may experiment with new moralities and new notions of self. But his freedom may be less than creative, for creativity implies goals, zest, and identity, while anonymity implies nothingness.

Thus new forms of urbanization is one consequence of technological development. A second consequence comes with shifting patterns of class, caste, or group--what the sociologist calls "social stratification." In the pre-industrial society, people typically are born into a certain strata; they "know their place." In the more complex pre-industrial societies, the power hierarchy is based on land and background: a small elite of land owners, perhaps arranged in feudal hierarchy, are above a mass of peasantry. The elite are ministered to by the priest, the lawyer, the physician, the clerk and the trader. Wealth accumulates slowly; there is a continuity among the hereditary elite. Newcomers may occasionally join this elite, but slowly, and full acceptance takes several generations.

As the society becomes industrialized, the basis of power shifts. The new masters are the entrepreneurs, the mill owners, the people with capital to invest and money to make. In full flower, this too creates a status hierarchy: the Astors and Vanderbilts at the top; Joe Pavlonskis, mill hand, at the bottom. Each status level has its own life style, tribulations, and expectations. Lloyd Warner gave sociological sanction to such hierarchy with his fine-graded class distinction: the upper class, upper middle class, lower middle class, upper lower class, and lower lower class. In the main, these hierarchical distinctions reflected one's placement in the job market, where skills could be bought and traded like any other commodity.

Now, a status hierarchy--feudal or capitalist--is predicated on an economy of scarcity. Its motto is: to them that have shall be given. The technocratic society is not an economy of scarcity. This fact leads to a major change in social stratification, and to certain non-obvious consequences.

In the technocratic society, power is exercised not by single capitalists or entrepreneurs, but by large corporate groups: government bureaucracies, vast corporations, guilds of high specialists like the AMA. Power resides not so much with identifiable "leaders of industry," but more with the anonymous policy makers of committee and board room. Leadership and personal power do not disappear, but they are exercised in the name of an organization or bureaucracy.

As always the rewards are greater for the powerful than for the others, but they are not all that much greater, and not all that much more visible. In the technocratic society, other forces come into play in determining social stratification. They result in a blurring of hierarchical status, and a reorganization of social groupings. In a technocratic society, distinctions become less based on social class. They become more based on life style.

To show what I mean, let me take a personal example. By traditional standards I should consider myself middle class, roughly equal in social status to the bank manager who lives next door (a very decent fellow, by the way). Yet in our life styles we two are completely different. We do not buy the same products; we do not furnish our houses at similar stores; we do not listen to the same radio or TV programs--or even the same stations; our leisure is spent in different pursuits; our political and social values are not even in the same universe--need I go on? Significant aspects of my life style are shared with people who make far less money than I do, and with people who make far more. I feel more immediate sense of kinship to such people than to my banker friend next door.

Now I would claim that my personal experience is not unique. In Hollingshead's study of a small-town high school some years ago, it was clear that the social distinctions in the school were based mainly on social class. Recently my colleague, Dr. Frank Petroni, studied social distinctions in a Topeka high school. He found any number of discernible groups and discernible distinctions--but class distinctions were relatively less important. Life style was the important thing. People of any class could be peaceniks, or hippies, or jocks, or what have you.

What I am suggesting, then, is that in the technocratic stage, social distinctions are more likely to arise from divergent life styles than from class placement on an economic ladder. This, it seems to me, is partly a consequence of affluence and of market pressures. In our economy, the push is to identify or build specialized markets. For example, all kinds of products are specifically beamed now to the "youth market"--special magazines, clothes, TV programs, soft drinks, automobiles and so on. This commercial pressure plays a major role in defining new kinds of life

style. A second kind of pressure arises from the way in which large groups of youth are treated as raw materials, to be processed in the knowledge factories of the great university.

Detached from significant contact with a community of people younger or older than themselves, with some surplus funds and much leisure, the student these days finds the university to be a place to experiment with different styles of living and being.

I have here focused on youth and its developing life styles, but to some extent the same thing could be said for all of us. Commercial pressures and social niches seem to be producing an ever-increasing diversity of life styles, and the phenomenon is likely to become more and more visible as we move towards the technocratic state.

The consequences of this are mixed. Superficially, such developments would seem to augment individual freedom and potentiality. Variety is increased, and the fads and fashions of each life style group may add kaleidoscopic color to the megalopolis. On the other hand, such diversification breaks down further the shared values and beliefs which bind people and communities together. Fragmentation increases the probability of polarization. What to the individual is variety and freedom, to the society may be fragmentation and chaos.

Such fragmentation among life styles is only one part of a more general process which characterizes technological development. With technology, all social systems become more differentiated, less homogeneous. An effective technology requires specialization of skills; effective marketing requires specialization of products; effective people-processing requires specialization of institutions. The sheer pace of change in the technocratic society also increases diversity, for different social groups adapt to change in different ways and at different rates. Diversity multiplies, perhaps exponentially. But this tendency towards fragmentation is countered by another pressure equally strong. For the pressures towards coordination and integration increase at the same rate.

America was once an isolated bastion, secure behind its oceans; now its fate is integrally linked to happenings in Berlin, Israel, and Cambodia. The single system is more closely linked to other systems in the world. Within the technocratic society, the systems also become more tightly linked. A power failure in Canada affects the whole Eastern power grid, so that New York and much of the eastern seaboard is disrupted. Industrial pollution may cause major changes in the ecology of a great lake. A ghetto riot in Los Angeles may influence events in Lawrence, Kansas. In

short, every part of the technocratic society becomes more tightly linked to every other part. Government increasingly becomes an exercise in the management of systemic complexity.

These twin pressures--towards diversity and fragmentation on the one hand, and towards systemic tightness on the other--present the emergent technocratic society with a terrible dilemma. Our current institutional structures--city, state, and national government; the educational systems which process people to fit into technocratic roles; the service-delivery institutions like hospitals and welfare agencies--simply have no mechanisms to provide the necessary integration. Our political structures, with one candidate out and another in every few years, force us to move from crisis to crisis without much long-range planning. Muddling through works pretty well when change is slow and people have time for individual adaptation, but in the technocratic stage muddling through produces only muddle.

I would like to pause to cite one example. It concerns the problems of city life. I quote from a committee report to the President of the United States.

The metropolitan region is the child of modern facilities for transportation and communication... The modern community usually embraces a number of centers of different size... We shall examine some of the important changes taking place in local institutions as a result of specialization and differentiation of functions, and finally, outline a few of the problems associated with this complex pattern of local activities.

The report then goes on to speak of the cities' need for regional programming. It suggests that "the general exodus of the upper economic classes from the inner sections of the city is creating serious problems by lowering land values and depriving the city of taxable wealth...." It points out that this movement outwards is true of all ethnic groups, with one exception.

Negro colonies have a somewhat different history. Instead of scattering, they tend with time to become more compact and racially more homogeneous... The rapid growth of Negro population since the war in many of the northern cities has naturally enlarged the colonies... It does not appear, however, that the recent Negro migration has greatly disturbed the natural evolution of the northern cities. They came at a time when the outward drift of whites was at its height, and though they may have accelerated the movement in some localities, in many places they merely took over declining areas.

These movements create long-term problems. Here I quote in full:

In the first place, every large city has experienced rapid shifts in its local population since the end of the War. The suburban drift has not only increased in volume but has altered in character. The outward movement in recent years has been largely among the white-collar classes, who have created a definite new problem by removing themselves to an increasing extent from the political city while remaining within the sphere of influence of the economic and cultural city. They have drawn after them a number of local institutions, business outlets, and municipal services. Industry likewise has tended to migrate outward, not for the same reasons but because increasing congestion in the more central districts has hampered its activities and added to its production costs. The heavy industries go first and farthest; the lighter ones and those which are most dependent on proximity to their metropolitan customers do not go so soon or so far; but the tendency in nearly every case is centrifugal.

When individuals, businesses and industries move out in this way, at the rate which has recently marked these migrations, they leave a partial vacuum. The general effect of this drift, coupled with the more intensive use of land brought about by large structural units, is to hasten the obsolescence of much of the older patterns of the city. This applies to practically every type of institution and service. Every large city is confronted on the one hand with the problem of increasing congestion in certain areas and, on the other, with that of revitalizing its blighted areas. The deteriorated districts are rarely rehabilitated by private enterprise, though in some cities, notably New York, blighted areas have been restored, at least partially, by the erection of high class apartment houses. But these areas are always in competition with newer subdivisions which offer a more inviting field for private enterprise. Usually lying close to the main business center of the city they become the habitats of the vicious and criminal elements of the population.

I think you would agree with me that this well describes the roots and nature of our current city crisis. It is not perhaps a terribly innovative analysis, but the problems it points to are far from solved, and the solutions it implies are not yet with us. Government concern with such matters is a fairly recent development. I wonder if things might

have been different if the report had led to long-term planning and action when it was first submitted to President Franklin Roosevelt--in 1933.

Perhaps you see what I mean about the difference between long-range planning and crisis muddling. We could have had almost 40 years' lead time to deal with this particular crisis of transition. We did not have the mechanisms then; we still do not. We are depending on nineteenth century forms of social governance as we enter the technocratic phase.

Well! As I promised, I have covered all of space and time and humanity, ambitiously if not well. The analysis suggests further issues ahead. During the early stages of industrialization the major social problems arose from conflict between social classes, and between the older agricultural elite and the newer industrial elite. The nation weathered these conflicts, although at the cost of a major civil war. The technocratic society poses still other problems, and demands new mechanisms for their solution. The technocratic state system requires more responsive and more complex coordinating structures; and it needs to balance its increasing diversity and its increasing interdependence. It needs new mechanisms of planning and governance to augment or replace the archaic structures of the nineteenth century. We can see the shadowy shape of the emergent technocratic society, and some of the value conflicts inherent in it. Beyond this our faulty sight cannot--and perhaps, for our comfort and hope--should not go.

SUMMARY OF PANELISTS' DISCUSSION

Subject: Cultural Values and Change

In general, the panel felt that the transition from a pre-industrial, primarily agricultural-based society to a technocratic society is beset with difficulties which man is ill-prepared to face.

The problems of transition to a technocratic society are particularly acute for certain minority groups. For example, the Negro who has been oriented towards an agricultural society and has suddenly congregated in the city is uprooted by urban renewal and left searching for identity as an individual and in relation to society. People today are often faced with an identity crisis. The American Indian is torn between the past (family ties) and modern enticements to depart from the past. Some groups like Italians, Germans, and Jews generally have been assimilated into our society while other minority groups which have less ability to change have been excluded. These minority groups, groups which resist change to "a common denominator of the major sociable force"--the Negro, the American Indian, the Mexican American--need to be brought into the mainstream of American society.

As a result of a shift to a technocratic society, the traditional family structure is altered. Gone in most cases is the extended family. The "household" consists of only one or two parents and their children. Family and clan ties no longer provide the strongest social links. The expectable world of the village with its reciprocal ties and obligations is replaced by the competitive world of the city where security depends upon money and status. Those lowest in the hierarchy of money and status are caught in a "culture of poverty" and again the identity crisis is evident--the paternal role is unstable and women may bear the brunt of child rearing and economic support.

There exist other minority groups not determined on the basis of race, religion, or nationality which face the dangers of transition to a technocratic society; indeed, some of these groups have been created by the transition. The disappearance of "the family working together," the shift from agriculture to technology and the consequent growth of the cities and suburbia have changed the intimate role women played in pre-industrial society. Half of the adult women in our society who do not work outside the home are completely isolated during the day except for the company of very small children.

Another group whose problems must be dealt with is the man on parole. Although several agencies exist for the purpose of aiding parolees, more must be done. Lacking skill and with various background problems, the man who comes out

of prison is often forced into a society which possibly gave him his beginning in crime. A way must be found to assist these persons in changing their goals and values.

The panel members expressed themselves in more general terms on the subject of goal-setting and were concerned with the difficulties of setting goals. Goals were defined as society's vision of itself; a society sees everything in terms of its own values. Technology is changing society's values. The consequences of introducing change are unknown. A society's values cannot be compared to those of another, yet a technocratic change in one society will affect all other societies.

The panel offered no simple solutions to the problems involved in shifting towards a technocratic society but felt that for any solution, we must: (1) learn to coordinate knowledge, abilities, and values in order to derive specific goals. This in turn means coordinating basic groups consisting of technical experts, decision makers, and the ordinary person, and (2) stop looking at problems from the outside and get involved with them. American culture must stop playing the game of change on an "I win - you lose" basis, a "zero gaining technique," and must strive for a constantly increasing sum--"if I win, you win."

Resources for Growth in The Mid-Continent Region

Dr. Charles M. Kimball
President
Midwest Research Institute
Kansas City, Missouri

Priorities of Goals for Change

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Internal Revenue Service
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Moderator: Clifford D. Clark, Dean, School of Business,
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Panelists

James Barr, Natural Resources Coordinator, Office of Planning
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James Gigoux, Executive Director, Southern Colorado Economic
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Garland Hadley, Executive Director, Frontiers of Science
Oklahoma City, Oklahoma

Larry G. Heeren, Director, Community Development, Northern
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Roland Lehr, Business Consultant, Kansas City, Missouri

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RESOURCES FOR GROWTH IN THE MID-CONTINENT REGION

Dr. Charles N. Kimball
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Kansas City, Missouri

The important word in the general theme of this meeting is implementation--how to mobilize the development resources, which in this region means people. They represent the essence of our regional source of productive skills and entrepreneurial abilities, as well as markets for the nation's and region's business and industry.

The Mid-Continent region has done more than its share in providing "people resources" for the rest of the nation. Between 1960-68, net migration from the eleven states in this region was 377,000 people--an average of nearly 50,000 persons annually. Only Colorado and Oklahoma had net in-migration.

Generally, the most potentially productive people--the young ones--have gone away. This age selectivity has left an older population. In many counties it is almost tragic.

Ever since I can remember, in nearly 30 years of exposure here, the Midwest has bewailed its loss of young people to other areas.

If our people are our most valuable resource, what can we do about it? One overworked proposal is to provide the opportunities to induce them to stay. This reasoning might have been valid a generation ago, but I wonder if simply offering good jobs right out of school is the answer today to keeping our young trained people here "in the territory." (If we attempt to reverse the current out-migration of young people, it will require a new frame of mind, a new outlook on our part, as well as on theirs.)

I think the realistic approach is to let them go, and bring them back a few years later. At MRI we have found these expatriates to represent a very fertile field for recruitment. Many who have left the Midwest for either coast welcome the opportunity to return, especially after they have had their fill of air pollution, commuting, and lack of privacy. When they return their skills are real, they have been tested, and their career and life expectations have become more realistic.

Too many of our potential entrepreneurs go elsewhere because their talents are not adequately recognized at home. Native persons who succeeded elsewhere might have made good right here, had someone recognized their incipient

ability and provided the assistance needed to get them started (which is often modest in scope).

There is much entrepreneurial opportunity available in this Mid-Continent "bread basket," with its exploded agricultural productivity. Take the case here in Kansas:

Growth in feedlot and meat packing operations;

Numerous new specialty agricultural equipment manufacturers;

Irrigation in some counties which has reversed the decline in population (preliminary 1970 census figures show increases for many of the western Kansas counties).

Of course, these developments bring along a new package of problems as well:

Feed-lot wastes and pesticides and herbicides all spelling water pollution;

New demands on our financial institutions--large capital requirements far in excess of the lending capacity of many of the country banks.

Parts of this Mid-Continent region are also blessed with fine recreation resources which can respond to the increasingly affluent American's appetite for recreation and leisure activities. Accessibility to attractive recreation opportunities is high on personal-priority lists--and in the priority of firms seeking new locations. Personal mobility is the key factor here.

Even in those parts of the region lacking the attractiveness of the Rockies, a surprising number of developments have occurred, changing the entire recreation complexion of much of our region.

Oklahoma's lake development has helped to revitalize that area; and in Kansas, lakes are within easy access of virtually any community in the state.

It needs to be said repeatedly that this Mid-Continent region does not suffer from lack of resources, human or otherwise. But we have failed to take full advantage of what we have. In some instances we need to protect and conserve what we have. But in most respects, we have not fully utilized the resources we have in the region.

I'd like to express a few thoughts about various forces or mechanisms which could bear on future regional development.

On the national level technological advance has been a major developmental force. Some of the dislocations due to this technological on-rush have been traumatic. We have to realize that the technical innovations that had the greatest impact in the early part of this century were products of mechanical ingenuity, rather than calculated applications of science. But now, technology has its roots in highly organized and diverse science. And not every industry--or every region--is prepared to handle the barrage of new ideas and ways of doing things that come from nowhere, and crash upon our complacency.

The positive economic impact of technology has been great in those industries susceptible to technological invasions from other industries. The chemical industry--through synthetics--revolutionized the textile business; and the aerospace industry--through its precision requirements and subsequent development of numerical control--revolutionized the machine tool business.

Looking at it from another angle, we see technology as the source of much of our national progress, and conversely, as the root of many of our present social problems: traffic congestion on the land and in the air; corrosive pollution of the atmosphere and of our streams; and a whole host of other issues--sonic booms, oil leaks, the tobacco/health issue. We have yet to understand the effects of computers on jobs, on decisions made in the political sector, and on individual privacy; the effects of consumer protection against certain foods and drugs; and other results of technology.

In the future we will see much more overt recognition, by both industry and government, of the role of technology and of its positive and negative implications. There will be more attempts to organize and control technology, to design its effects for concurrent optimum public benefit and private profit. Its introduction will become less random, more carefully planned.

Expressed in another way, we can say with some assurance that the future will bring no less rapidity of change in technologies, in organizational forms, in operational practices, and in the intensity of market competition.

This would be consistent with the national shift from a production-oriented economy to one in which the majority are not employed in making things, but rather with providing services.

Recreation and leisure will affect all levels of income; our levels of education will continue to rise.

Continued growth and erosion in city life of once-held values will put a premium on individual and family privacy and integrity; these are strong assets of our ecology in this region.

A generation whose median date of birth is 1943 is reacting violently to the assumption that either a war or a recession is inevitable. It is seriously challenging the authority of those who may feel differently. Americans have moved rather sharply away from the 1930's Depression point of view--from personal achievement to self-actualization--from self-control to self-expression. Authority is increasingly being challenged on pragmatic terms; seniority and credentials count for less than performance. What can all this mean to future attitudes for business?

Perhaps the point most frequently misjudged in looking ahead is that while people and their values are continuously changing, for a variety of reasons, such changes are cumulative and self-reinforcing, in both life-styles and expectations.

All of these influences find impact on our society in a number of ways; many are of a national character, and others are of a regional or even a local nature. They all create new demands upon all institutions.

In all of this, and in the development of regions, the state and federal governments must take on increasing responsibility. The federal government must be the focal point of most of the funds for attacking state and regional problems, but regional direction must be derived through the state and local government efforts. All of these governmental bodies recognize that regional priorities are changing and that they often differ widely among regions, and that the programs being developed must take these changes into consideration.

An appropriate challenge is to take the national abundance of technology and knowhow, and to get on with the very tough job of translation to adapt much of what is known to resolution of problems at regional and local levels. The Midwest is an under-utilized part of the country, rather than an underdeveloped part, and our relatively uncomplicated problems are much more amenable to intelligent resolution than those of the eastern or western megalopolis.

What the region and the nation need is more applications of research, with growing emphasis on determining problem priorities. We need to focus on using what is available on problems we already know a lot about.

Each state and the region as a whole has more resources and greater opportunities than are now being employed.

States should conduct investigations to identify their real strengths and weaknesses. Only then can they establish appropriate action programs, identify their own elements of uniqueness, and design individualistic state-development programs around them.

Another major resource to aid in the development of the region is our current crop of business leaders. This group, in addition to developing the insights and capabilities to capitalize on the effective use of emerging technology, will need to respond to a new social role. One example lies in the responsibilities many corporations are now assuming to move beyond their previously minimal interest in public affairs, and to take a very active role not only in setting public goals, but in seeing that they are accomplished.

The federal government is, of course, also a major development resource for the region. It can be the focal point for development of many of the resources of the region. And governmental priorities are changing, with a stronger trend toward regionalism than in the recent past--witness the proposed program for the development of ten regions in the nation, operating out of "little White Houses."

The rationale for solving problems at a regional level is also growing stronger and is basically fourfold:

- Each region differs from the others;
- The problems are more manageable without being fragmented;
- The implementation/involvement process is more tractable;
- Funding may be more readily obtained.

John D. Whisman, of the Appalachian Regional Commission, has said: "Essentially, we find that our problems today are the same general problems we have always had--the basics--providing for human needs for food, shelter, usefulness, security, pleasure, and liberty. But the crux of today's problems is simply that they are becoming more complicated."

Whisman has said that "We need a set of public institutions to take into account these new characteristics of our problems." Most of our existing public institutions were designed to deal with problems of a different time. But instead of creating wholly new institutions we could develop combinations of existing institutions through which they are able to act cooperatively on a larger scale and scope.

Use of existing institutions may be difficult. During the past year we have examined the characteristics and programs of a large number of research centers. We found that regionally related research is usually performed at the "lower common denominator" of regional differentiation--the local natural resources, climate, geographic features, or population characteristics. The research is done from

the bottom up, starting with "what is here," and working toward "what can be done with it." Goal-oriented research, starting from what needs to be done, proceeding to investigate ways of accomplishing desired goals, is poorly represented and practiced.

Research of this kind is invariably dictated by problems of the investigator's choice, not by response to needs and problems articulated from outside. Such research is conducted on problems in the abstract, with the implication and the hope that the findings and results will somehow be relevant and applicable to real-world needs at some later, undefined time.

The classic compartments of knowledge do not correspond to today's social problems. We see the need for new sets of skills to translate formal knowledge into socially and economically useful results. Power in the future will lie in the hands of the people who know what to do with knowledge, rather than those who merely possess it.

Need-identification, planning, and setting priorities are almost totally neglected among the research centers we studied. Most research centers are organized to accept funds and conduct research, not necessarily to wrestle with problem-identification, alternative options, and priorities; and few are equipped to implement their findings and results. Coupling-mechanisms and action-plans are few and far between.

Regional research done differently than is now the case is essential to future regional development. Each region must find its own quality of change and rate of growth appropriate to its people. No region knows enough about its people. Too little is known about the dynamic patterns of regional life and their relationships to the future of our urban society. We cannot understand the nation as a whole or our individual states unless we take into account the regional patterns which have emerged in response to differences in historical traditions, local environment settings and the culture of the original and subsequent settlers.

A major barrier in dealing creatively with these issues on a wider regional basis is that we are burdened with organizational structures that are holdovers from the nineteenth century when we were an agrarian society; we were out to "Win the West," and the vast majority of our citizens lived and worked on farms. As a result, separate or conflicting jurisdictional commitments are characterized by rigid and archaic attitudes that prevent identifying, let alone solving, the problems on a regional basis.

We need to plan the growth of a region, beginning with an identification of the problems, a careful analysis of the essential elements now present in the region. The natural growth or the evolution of these problems or opportunities can then be projected into the future. Once this has been done, it is then possible to extend the level of economic development by planned action, designed either to counter adverse trends or to take better advantage of opportunities.

Research organizations in the region must turn increasing attention to problem identification and setting priorities, becoming more attuned to local and regional needs--as MRI has done and is doing at a stepped-up pace. They must move aggressively into implementation assistance, and provide that element of assistance lacking in governments and universities. This is the key role of institutes such as MRI--coupling research with practical and action-oriented solutions, and then seeing to it that things happen.

The Mid-Continent region is largely an area of small towns and rural communities, so more effort should be directed to the needs of these communities.

Our work at MRI has graphically demonstrated the growing magnitude and complexities of those needs. To deal with them we are further demonstrating our commitment to this region by establishing a Small Town Development Center at MRI. This center, which will be launched early next year, will be devoted exclusively to assisting small towns and rural communities with the entire gamut of local problems--industrial development, transportation, education, public safety, retail trade, planning, and so forth. This program is, and should be, only one illustration of other activities that must be initiated by the research resources in this region.

Other organizations, also, must take on broader regional and local roles. Private industry, the financial institutions, utilities, etc., must provide part of the resources--both money and people--to implement research recommendations, to encourage the development of local industry and take active leadership in state and regional planning.

Our universities must continue to provide increasing guidance in this planning and regional development. Their technical knowledge and their ability to provide objective evaluations and develop new alternatives are essential to regional development. They must increasingly be looked to, to provide the basic knowledge resources for the region.

If this application of available expertise and resources from all elements is to be applied to the problems

that confront the states and region, it will require an ever-increasing involvement from all of us--and the demonstration of genuine concern over the problems facing our region by actively encouraging this tremendous reservoir of talent and capability to help solve these problems, not from afar, or in the ivory tower, but in the field. And the first key step in this direction should be the development and acceptance of quality goals, locally, state-wide, and regionally.

I stated at MRI's Annual Trustees Meeting in May the criteria by which I think MRI should be judged in the '70s. This could be applied to any organization in the region.

1. By our abilities to attract and keep sound, competent professionals who have a sense of urgency--people who want to implement things rather than study them--people who know the rigors of the marketplace--people who see things through the public or private client's eyes but still remain objective.

2. By how well we handle the products of the social sciences, as from the natural sciences, and deal with broad questions on human values and problems that often fall in the cracks between conventional disciplines.

3. By how well we continue to serve and receive the support of the real leaders of this region, and maintain fruitful contact with them.

4. By how well we serve as a trusted and respected source to all levels, not just to our professional peers.

5. By how well we inspire our people--particularly the young ones--with a sense of excitement, a feeling of involvement in meeting the challenges of life as it really is. For example, MRI is a place where individuals with knowledge certified by the university or professional experience obtained elsewhere can come to work on very practical terms. We will find out whether they can use that knowledge--and so will they! This is the only way they are going to get real satisfaction, and the client any real results.

"There once was a nation of 200 million people that was the most powerful country in the world. At the national level, the inhabitants were very rich, but at the local level, they often turned out to be quite poor. And as luck would have it, they all lived at the local level."

PRIORITIES OF GOALS FOR CHANGE

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It was with a great deal of pleasure that I accepted the invitation of Ronald Hardy to address this Council. A couple of years ago I participated in another conference, also planned, in large part, by Mr. Hardy. The subject matter of that conference, which related to the role of the State Geological Survey of Kansas in the development of the State of Kansas, is, of course, directly related to the theme of this conference. However, this conference starts with basic assumptions which make it different in kind to previous efforts that I have any knowledge of. The theme which we are addressing here is "Implementation of Change." The very statement of this theme involves two fundamental assumptions which will be the beginning point for my analysis.

The first assumption is that changes will occur. I use the word changes in the broad, radical sense. Individuals change over their lifetime physically and mentally. This pattern of change has been uniform throughout the history of man. Change in the sense of continuity is not the kind of change that I see implicit in the Council's theme. The kind of change involved is not more of the same things or movement along the same paths; it is, to use Dr. Peter F. Drucker's felicitous phrase, change in the sense of "discontinuity."^{1/}

Second, implicit in the theme, characterized by the word "implementation," is the assumption that society, that is, you and I, can have an impact on these changes. That is, to put it bluntly, we do have a choice about the direction of change, the goal of change, and the path of change. These implications of the theme involve rather heroic assumptions. They place before this Council a tremendous challenge in understanding and a tremendous challenge in innovation of thinking and action.

Within this context I have been asked to address myself to "Priorities of Goals for Change." The first issue is to define, in some operational, useful manner, the range of goals which deserve consideration.

^{1/} Drucker, Peter F., The Age of Discontinuity, Harper and Row, New York and Evanston, 1969.

As an economist, I am immediately restricted by personal bias and, I think, really by the genesis of the Council, to goals in the area of economic change. As recently as ten years ago to raise any question at all with respect to the goals of economic change would have been considered heretical. Quite clearly and obviously, the goal for economic change was continuously rising output, and progress was measured by per capita income in a region; a region or an economy always desired not only increases in gross output, but also a high level of increase in per capita output. Subsidiary economic goals (but clearly subsidiary) were addressed to the distribution of that output among the people, and perhaps to the encouragement of some specific sectors of the economy. No speaker, addressing himself to the problem of economic change, would assume that the goal for change was anything more than continued economic growth. The axiom of "more is better" was just that--an axiom.

But in 1970 the answer is not anywhere near as obvious. It has become clear that continued economic growth may carry with it some very undesirable impacts on other aspects of society and human life. The examples are obvious; air pollution from heavy industrial activities, water pollution from the use of our streams as disposal mechanisms, esthetic pollution as nature is turned upside down and landscapes are modified and destroyed, and perhaps not so obvious, human pollution as society tries to grapple with the problems of affluence and radically changing technologies.

Even though we accept the implications of the term "implementation," it has to be recognized that the geographic area represented by this Council is not independent from the world. The pattern of changes in this region are going to be, to a major extent, imposed upon the region from the outside. Goals and priorities established here have to be consistent with these outside forces impinging upon the region. Therefore, we have to have a frame of reference, a border on the slate board which confines where we can draw and write our goals and objectives for the future. Following the stimulation of Dr. Drucker this framework has the following broad characteristics:

1. Economic change over the next century will be dictated by genuinely new technologies, rather than the extensions of those technologies which founded the industrial revolution;
2. The world is a single economy;
3. Society will organize for its task in a decentralized, pluralistic way, rather than a continuation of a concentration of power in larger and larger organizations; and

4. The critical resources will no longer be physical factors of production--knowledge will play the central role in determining productivity and industry structure.

You must think now that not only is society going to become more pluralistic, but your speaker is obviously afflicted with that disease. The easy answer--the simple goal of economic growth--has been discarded. The idea of change as a continuum has been discarded. Even the ability of people within a region to have much to say about their own future has been severely restricted by the four major discontinuities identified by Dr. Drucker.

Having destroyed the edifice, what can be erected in its place? The foundation of the new structure is the assertion that the region will prosper (by whatever measure we use for prosperity) to the extent that it is able to use the external forces as propellants for its own internal adaption and change. Strategies must be directed toward exploiting the new trends and developments, rather than protecting the existing economic and social organizations from the impact of these trends. To state it in simple terms, the region should be concerned with attracting, adapting and utilizing the energy forms of the future, rather than preserving and protecting the high cost and marginal energy producers of the present.

To follow this general prescription will require the region to have a mechanism by which it can do two tasks. First, and perhaps most difficult, is the gaining of the knowledge and understanding of the trends and changes that are occurring in the world today. This can be accomplished only by the cooperate effort of knowledgeable and innovative minds from all strata of society. The obvious focal point for this kind of effort lies in an association such as this Council, or more generally perhaps, in a regional center at one of the major universities. I am not suggesting here any detailed projection of things to come, or any detailed plans of action. I am suggesting a continuous monitoring of what is going on in the world, and a feedback of these findings to the decision-makers in the region. The newest kinds of communication technology must be employed. Dry research reports committed to paper, thereupon committed to either wastebaskets or bookshelves unread, will not do the job. It will take lively, attention-getting communication media, perhaps even the necessity of stimulus of controversy, to arouse interest. This leads to my first recommendation which is the establishment of an organization with responsibility for monitoring and interpreting fundamental changes for the decision-makers in the region.

The beauty and simplicity of the situation when our goals were from pure economics, efficiency and growth, was

that each individual business firm, while trying to achieve its micro-goal of prosperity for itself, contributed to the macro-goal of efficiency and growth. Such a system has served to bring a good portion of the world to very high levels of economic prosperity. When the simple goal structure is abandoned, however, there seems to be no equally simple mechanism to replace it. I see here a dilemma. The goals having to do with increased quality of life can only be accomplished if everybody recognizes their importance and strives for their achievement. They cannot be met if significant portions of society do not accept them, and act in response to other stimuli. If the achievement of a goal requires that everybody does it, then it must be achieved by law. Voluntary effort, in a situation where deviation from society's goals can be individually profitable, will not achieve those goals. Thus, the mechanism available to society for the achievement of its desires is apparently strengthened central control of that society. This flies in face of the third discontinuity of Dr. Drucker. In fact, society is moving toward decentralization. Decision points are moving downward. This leads into the second major recommendation; find a mechanism whereby goals for the region can be articulated, discussed and accepted in such a way as to permit their implementation.

That rational choice is not easy, or even possible, where there are multi-objectives, and one-to-one choices can be illustrated by the following example.^{2/} Suppose the regional authority is faced with three alternative projects. The objectives, of equal importance to the authority, are to:

1. Increase regional Gross National Product;
2. Provide "hard core" employment opportunities; and
3. Improve environmental quality.

Project A is a large dam remote from the city with power generation facilities which will also provide recreation opportunities.

Project B is a combined urban renewal mass-transportation system for the center-city ghetto area.

Project C is a sewage treatment plant for the city.

Each project, therefore, ranks, in descending order, in achievement of objectives as follows:

^{2/} See Mundall, Robert A., Man and Economics, McGraw-Hill, 1968, page 172-ff.

OBJECTIVES

<u>Project</u>	<u>Regional Gross National Product</u>	<u>Hard Core Employment</u>	<u>Environmental Quality</u>
A	1	3	2
B	2	1	3
C	3	2	1

The ranking is without question--everyone agrees that Project A has the greatest positive impact on regional Gross National Product, followed by Projects B and C respectively. The same is true for the other projects.

Suppose Project A and B are put to a vote within the authority. Project A outranks B in two of the three objectives, so would be preferred. Suppose B and C were similarly compared. B outranks C in two objectives, so is preferred. Logic tells us that if A is preferred to B, and B is preferred to C, then A is preferred to C. However, C outranks A in two objectives, thus is preferred to A! Rational choice is self-contradictory! The only path to choice is to revalue the objectives--to impose order on the anarchy of contradiction. The job of deciding what to do--not the job of doing. That is the job of the mechanism I am recommending you find.

I believe this involves the creation of a true regional government. A government not to do, but a government to establish what needs to be done. The implementation will belong to those pluralistic elements of society such as businesses, local governments, educational institutions, and social-welfare organizations. There are some examples of this in recent history, having to do with interstate compacts, and metropolitan area authorities.

I was asked to discuss with you priorities of goals for change. I apologize for not being able to give you a simple list as implied by this assignment. What I have indicated is that the major priority facing the region is to provide the institutional flexibility for adaption to the major discontinuities in the world of change. The establishment of this institutional framework is, I believe, the top priority and the ultimate goal for the implementation of changes.

There is much, however, that can be done now while the extremely difficult task outlined above is undertaken. The most productive activity, which will be useful regardless of the institutional structure evolved, is the "modeling" of the entire system within the region.

There is, of course, an infinite number of economic models which it would be possible to construct. One of the

most generally useful, because of its generality, is a regional inter-industry, input-output model. Many such models have been built for states, metropolitan areas, and river basins. The model has an extremely useful characteristic; it requires for its implementation a consistent set of detailed data concerning transactions within the region and between the region and the outside world. The discipline of constructing such a model has valuable by-products in improved data and understanding of the structure of the region's economy.

A transactions model is no longer sufficient, however, for analysis of the region's potential for change. Industries, which from a transactions point of view, might appear to offer substantial comparative advantage and therefore substantial opportunity for regional growth, might, in the larger system of things, turn out to be ultimately detrimental to the region. The transactions-type table has to be expanded to include considerations of environmental damage. Environmental-damage functions must be very broadly conceived and, admittedly, quantification of many of their aspects is extremely difficult. However, their specification, if not quantification, is an essential step.

As indicated earlier, the region is going to prosper over the next century because of a different bundle of characteristics than that which led to regional prosperity in the last century. These characteristics include not only the traditional measures of comparative advantage and high productivity, but also the quality of life variables. Clean air, clean water, well-planned and pleasant cities and towns, flexible, responsive, and agreeable social structures, all will play a major role in a region's attractiveness. They must be considered resources to be conserved and properly allocated in the same way that the economic factors of production are efficiently utilized. These items, however, do not appear in economic transactions, and therefore the transactions model of the economy will not reflect the constraints imposed upon change by the maintenance of adequate and acceptable levels in these environmental variables.

To state the problem in formal economic-analysis terms, we must add to the cost functions of all industries another element--the environmental damage functions, or the imputed cost to the environment from each industries' operations. Then we can begin to plan for the optimum utilization of the region's total resources.

This job will require much more than the talents of the economists, econometricians, and statisticians. Environmental degradation and change is an extremely complex phenomenon; it is, of course, in an absolute sense, underway all the time. As we are using the term "environment," it

also encompasses the sociology of human society. Specification, then, of the environmental impacts will involve almost the whole spectrum of educated men. Coordinated attacks on these problems are, therefore, best suited for the university atmosphere where the social scientists, the physical scientists, the professions, the politicians, the industrialists, and all other segments can come together in rational exploration of this most complex subject.

So we, in a sense, have come full circle. The ultimate priority is to establish a mechanism of gaining the knowledge and understanding of the changing world and transmitting this to a flexible institutional structure for the determination of the framework of implementation. This ultimate goal requires the active participation of the academic, professional, political, and industrial sectors. Our more immediate goal is to develop the data and analytical base for short-run decisions for use by these institutional organizations. Here, too, we find it necessary to propose a melding of these groups, and some kind of formal attack on the problem of knowledge and its use. The immediate priority, then, from both the long- and short-run view is to establish, within the major universities of this region, a place where this interaction in pursuit of a common goal can be fostered, encouraged, nurtured, and brought to flower. Such an arrangement, or institute, if you wish, is the first step toward the establishment of regional priorities and goals and the establishment of mechanisms whereby changes can be implemented to achieve those goals. To mix slogans and political parties, we must follow both President Johnson and President Nixon. Gentlemen, let us reason together, so that we may go forward together.

SUMMARY OF PANELISTS' DISCUSSION

- Subject: (a) Priorities of Goals for Change
- (b) Resources for Growth in the Mid-Continent Region

With the proliferation of Federal, State and other agencies there is a tendency to ignore the involvement of local citizenry in planning for development. Even industry is guilty of this same mistake. All of these competing activities only serve to confuse and exasperate the citizens and small business man at the grass-roots level. Even much of the effort of research institutions does not deal with the real issues facing local communities. Competing groups can actually interfere to the point of needlessly restraining development, i.e., environmentalists.

The application of technology (such as automation and proper use of human resources) in the right places will be necessary to offset or minimize the conflicts resulting from the extraction and preparation of our natural resources for mankind's use. It will not only be necessary to prevent further deterioration of the environment but to attempt to undo past damage.

There is an obvious conflict emerging between further economic growth and the environment which few will deny. However, chances are that if technology and government programs are given proper priorities these can contribute substantially to answers for the conflict problems. Hopefully some of our new discoveries will be planned and better managed to fulfill real human needs. There is still some question as to the best way of going about this and recent indicators are that the answer lies in some sort of a regional mechanism; it could involve more intergovernmental cooperation. Again there is a need for the researcher to understand some of the kinds of problems that the people who are actually making decisions must cope with. Probably better communication between universities, corporations, and research institutions is needed to bring to the people some of the technologies that can be applied to aiding community development.

In addition to technology or economic knowledge to resolve current regional development problems, an entrepreneurial factor is needed. Money will be invested for a return on the investment, thus continuing the basic operation of our economic system as part of the method of inducing regional development. This also is a means of de-emphasizing the influence of government at all levels; the private enterprise part of our system is what will insure that proper priorities are handled first without considerable debate with government agencies.

Regional change or development is most likely a combination of continuous and discontinuous events--discontinuities as the introduction of the railroad, automobile, telephone, air travel and television--although the degree of emphasis may seem to make certain of these events continuous. Finally, development is dynamic, concerned simply with achieving an objective, whatever it might be, in a most efficient manner.

Strategy and Implementation of Goals

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Panelists

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STRATEGY AND IMPLEMENTATION OF GOALS

Mr. Garland R. Hadley
Executive Director
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Introduction

I'm sure all of you realize that one of the principal functions of a person in my position is to present ideas and to raise questions that will stimulate discussion. I will try to fulfill that role. Indeed, I may say some things that will be somewhat controversial. I hope you will keep in mind that I do this not to widen any potential differences that may exist between us, but to raise some questions that hopefully will lead to a better understanding.

My principal thesis in this presentation is that the key to an effective strategy for implementation of goals is to make more effective utilization of our limited resources. That is, if we're going to get to where we want to go, we're going to have to pull together.

The Strategy Dilemma: "Eggheads" vs. "Smokestack Chasers"

When I say we, I am not necessarily trying to promote regionalism. What I am driving at is the fact that I believe there exist in this group two separate schools of thought on development strategy and that they are in conflict in practice. I further believe that an extremely important step toward effective implementation is resolution of this conflict.

One school of thought can be characterized by the group of research administrators and academicians who founded this Council seventeen years ago. This school of thought adheres to the concept of social and economic development via science and technology. It is a dream of great universities, of large research laboratories housing scientists working at the frontiers of knowledge, and science-based enterprises feeding upon new scientific discoveries to create thousands of high-paying technical jobs for the graduates of local universities and colleges.

The other school of thought is more closely identified with Chambers of Commerce and professional industrial development groups. This school of thought adheres more closely to classical economic development ideas. Its philosophy of "our city (or our state) must grow or die" is well-grounded in historical precedents. The objective is to expand the export base--that is, to create more jobs in the manufacturing sector and thus, in turn, promote economic growth.

Certainly, the goals of the two may well be the same in general terms. Both tend to state that their goals are to increase per capita income; to provide jobs for young people as they come into the labor market, thus stemming out-migration; improve educational and cultural opportunities; etc. But the strategies advanced by the two groups vary considerably. Those espousing an economic development strategy based upon science and technology favor large investments in higher education and research and the formation of risk-capital sources to finance the creation of home-grown enterprises.

On the other hand, the industrial development group favors promotional programs to sell the resources of the area; technical and vocational training programs to make the work force more attractive to manufacturing firms; and community development programs to make their area more attractive to industrial prospects. While they verbally support the concept of home-grown enterprises, in practice they focus upon attracting branch plants of large manufacturing concerns.

These different approaches to strategy could be called the "eggheads" vs. the "smokestack chasers."

The panacea offered by the "eggheads" appeals to everyone. Senators, governors, college presidents, mayors, industrial developers, and Chambers of Commerce all look enviously at Route 128 and ask, "How can we make it happen here?" This one question sums up its universal appeal and its greatest shortcoming--the lack of a sound plan for making it happen.

On the other hand, the "smokestack chasers" are getting results. Those states that are making substantial employment gains attribute a large percentage of those gains to aggressive industrial development programs. (This is certainly true in my home state of Oklahoma.) The concern is not so much whether this strategy will get results or not, so much as the kind of community or state which will result from such a strategy. Some industrial developers approach their task with such abandon that people fear no one is taking a really hard look at the social and economic desirability of some plants. How many new jobs will be created; how many new bank accounts, auto sales, consumer sales; and how many additional haircuts have all been calculated. But often the community forgets to analyze how much in new roads, water lines, sewage treatment; how many new classrooms; increase in traffic control problems; and other costs associated with the plant. For example, many of us have seen cases of towns that eagerly voted in revenue bonds to build plants and then found themselves strapped for funds to provide normal services to their new and old citizens.

Fortunately, we are not faced with a situation where we must adopt one strategy or the other. Fortunately, they are not mutually exclusive. In my opinion, we need to do some of both.

But at the same time, each of us must realize that our respective states have limited resources to apply to either one or a combination of the two strategies. Our resources are not sufficient enough--or at least in Oklahoma they aren't--to simultaneously grow a University of Michigan and a Purdue and still have enough left over to fund an aggressive conventional economic development program.

Thus, this is our dilemma. Which strategy or what combination do we choose?

Optimizing Development Strategy

Before talking about optimizing development strategy, I want to make it clear that I do not intend to lay out a sure-fire recipe that is guaranteed to work everywhere. We all need to realize that economic development is a very complex and little-understood process. What will work one place may not work another. Resources mixes vary, existing economic structures vary, geographical relationships vary, and attitudes vary; and all of these are extremely important in talking about economic development. Each county, each state, and, in many cases, regions within the state need to be approached differently.

In a few minutes I am going to look like a turncoat to many of my academic colleagues. I am going to suggest that for a vast portion of the region represented in the Mid-Continent Research and Development Council, the optimal strategy lies very close to the conventional industrial development approach. I am, however, going to suggest that promotional programs should be sharpened and focused; and I am going to suggest that more needs to be done to promote local entrepreneurship.

I am also going to argue that while an economic development strategy based upon science and technology appears to offer little in the way of return to most of the areas of our region, there are certain exceptions where such a strategy may pay sizable dividends in the long run. These opportunities should not be overlooked.

Digression on the Route 128 Syndrome

I think I can best make this point by carefully explaining my reservations with respect to an economic development strategy based upon science and technology.

As you all know, area developers have for a good number of years been fascinated by the Route 128 phenomenon. They have been told that research is the seed from which the giant industries (the big employers) of tomorrow will grow. They have been told how the pioneering work of Cal Tech's Dr. Theodore Von Karman in jet propulsion led to the establishment of the Jet Propulsion Laboratory and Aerojet General Corporation which, in turn, laid the foundation for the multi-billion-dollar aerospace industry in Southern California. They have been told how Stanford University's communications laboratory sparked the growth of the electronics industry in the San Francisco Bay region; and how four government-financed laboratories in Boston triggered the postwar economic growth in that area.

Armed with this convention wisdom, nearly every village and hamlet containing an educational institution began to dream of becoming Palo Alto or Cambridge. Regions such as ours, which had longed for industrial growth but never had a way to achieve it, now had a recipe for creating vast industrial complexes beyond their fondest dreams. The ingredients were: (1) a strong technologically oriented university, (2) research laboratories fueled by federal dollars, and (3) financial backers eager to fund scientist-entrepreneurs with ideas.

In some regions which contained established universities, it seemed to be working. Chicago, New York, Houston, and Ann Arbor seemed to be making progress. But such notable exceptions as Madison, Lafayette, and Urbana raised nagging doubts. Then came the Graduate Research Center of the Southwest, Spindletop, North Star, and Gulf South to raise further doubts. Something seemed to be wrong. The recipe didn't seem to be working as it should.

In early 1960 the Route 128 syndrome began to be examined by competent researchers. The first study of any note was a path-breaking little study by the Denver Research Institute.^{1/} This was followed by a series of studies by the Stanford Research Institute, the Federal Reserve System, and others.^{2/} Some of the most significant of these conclusions were:

1/ Denver Research Institute, The Scientific Complex: A Challenge to Colorado (Denver University, June 1964).

2/ Also see: Shapero et al, An Exploratory Study of the Structure and Dynamics of the R & D Industry (Stanford Research Institute, 1965); Hadley, Garland R., Science, Technology and Regional Growth (St. Louis Research Council, 1967); and Allison, David, "The University and Regional Prosperity", International Science and Technology, April 1965.

- (1) Science-based industry does not grow in a vacuum apart and separate from the existing economy. Indeed, a sizable in-place industrial base is required to provide proper interaction to induce economic growth.
- (2) Economic growth based upon science and technology tends to be an urban phenomenon. In urban areas the fledgling science-based firm minimizes risk by maintaining the economic flexibility available in these areas. In urban areas the firm finds a labor pool that contains the specialized talents it requires, specialized services and supplies it must have, and easier communications with potential customers.
- (3) Already established areas such as Boston and the San Francisco Bay area have established dominant positions in our scientific and technical communities. They are looked to as the cutting edge in new scientific thrusts; indeed, to a large extent they decide the direction of new thrusts. Because of this dominant position they have the first opportunity to see and exploit commercial opportunities arising from scientific advances. This position makes it extremely difficult for other areas to compete.
- (4) Any attempt to apply an economic development strategy based upon science and technology in the absence of excellent universities and a strong industrial base is a slow and expensive process. As Harvard's Harry Brooks said, "Basic research and higher education are seeds which take a long time to germinate in terms of economic growth. The present technological strength of the east and west coasts has roots which go back well before World War II." If new centers of excellence are to be created, these commitments to education and research must be continuous and big. Being very optimistic and assuming that such a strategy may begin to pay off in ten years, look at some of the costs involved. The average cost of supporting a good scientist is about \$50,000 per year. For one hundred such men for ten years, the cost is \$50,000,000. Add two hundred post-doctoral fellows at half that cost and you add another \$50,000,000. Hence, a somewhat modest effort would cost \$100,000,000. Of course, federal grants and contracts would offset a large portion of these costs, but as you well know, that's a very tight market these days.

The point I'm trying to make is that the vast portion of our region does not seem particularly well-suited as a base for an economic development strategy based upon science and technology. It is far more likely to achieve economic growth, if that's what it wants, through more conventional economic development programs.

This is not to say that our universities and our research programs should be neglected. Quite the contrary--we must continue to strengthen our universities and to develop our research capabilities.

But the most rational way in which to develop our universities and our research programs is to couple them with workable social and economic development programs. Rather than trying to develop academic excellence in a vacuum that has no relevance to the region that it supposedly serves, we should develop and utilize these resources to further the goals of the region.

Some Exceptions

As I said before, there are some exceptions--there are some areas within our region which appear to hold special promise for an economic strategy based upon science and technology. In general, these are urban areas that have universities with established technological capabilities. Most promising seem to be the Boulder-Denver area, Minneapolis-St. Paul, St. Louis, and Kansas City; and there are others.

But if these areas are to achieve a significant degree of success, the local business leaders and the academic-research communities need to work together. The people in the statehouse also need to understand that these communities are "special" and give them full backing in their efforts to make this strategy work. The state government should make a conscious effort to cluster research laboratories in these "special" centers and to develop related academic programs.

There is a great deal that can be said about implementing an economic development strategy based upon science and technology. While in St. Louis we tried to sum up the key points in a little pamphlet entitled Strategy for Growth.^{3/}

As we visualized the process, the objective was to create an environment conducive to technological innovation. We considered the desired environment as consisting of seven basic elements in proper proportions:

^{3/} Hadley, Garland R., et al, Strategy for Growth (St. Louis Research Council, 1968).

- (1) A technical base of capable scientists and engineers actively engaged in R & D activities.
- (2) Entrepreneurs ready and willing to replicate instances of successful innovation (entrepreneurship breeds entrepreneurship).
- (3) Institutional and individual sources of risk capital that are (a) receptive to technological innovations and (b) capable of appraising the prospects of translating technical ideas into successful business ventures.
- (4) Technologically oriented universities and colleges that encourage their faculties and students to participate in and generate innovative ventures.
- (5) A general "research awareness" evidenced by close, frequent communications among technical people, entrepreneurs, universities, risk capital sources, and other participants essential to the innovative process.
- (6) Availability of sites including low-cost "incubator" space for fledgling technical firms and zoned parks for better established venture firms.
- (7) A pleasant living environment that provides cultural amenities and recreational opportunities.

We measured the adequacy of each of these elements by comparing St. Louis with other areas that were realizing success, thereby identifying those areas where we felt St. Louis was lacking.

We felt that St. Louis was adequate enough in most areas to give it a fair chance of success. Areas where we felt St. Louis most lacking were financial institutions that had the ability to service small science-based companies, availability of technicians, and incubator space near universities.

In the Hirshman tradition, we began focusing upon these inadequacies by designing and implementing programs to correct them. For example, we identified forty fledgling science-based companies to use as guinea pigs. We then began to identify aggressive young "comers" in the financial community and began placing them on the boards of the companies in order to give them a better understanding of science-based enterprise.

To help offset the lack of technicians, we helped establish industrial committees to work with the Junior College District to develop curricula for two-year technician

programs. The result was the development of twenty-seven new two-year educational programs. In addition, we produced a movie and a program conducted by technicians working in St. Louis industry to induce students into the programs.

My point here is that in those areas that already have substantial capabilities in science and technology, it does not necessarily require large outlays to implement an economic development strategy based upon science and technology. Hence, the benefit-cost ratio is considerably more attractive than in those areas that must start from scratch. But also remember that the competition is stiff and it will become even more so.

Some Comments on Industrial Development

The atom bomb, social upheaval, and pollution have appreciably decreased the attractiveness of the large urban center as a place to live and a place to do business. Individuals and industries alike are finding our region more and more appealing.

No longer are we in a position of being frustrated in our efforts to attract industry. Quite the contrary--our region is clearly in the path of expansion of industry from more mature industrial areas. As our own industries continue to expand and more companies establish plants here, there seems little doubt that we will become increasingly industrialized.

Because of these factors, conventional industrial development programs can pay great returns in terms of economic growth. And this is why I feel that states should use aggressive industrial development programs to capitalize upon this opportunity. The pay-off in terms of economic growth is clearly visible.

But at the same time, we must recognize that high social costs can accompany industrialization in the absence of intelligent guidance and adequate planning. Rather than going after anything they can get, industrial development programs should be coupled with intelligent planning. Our objective is no longer just to chase smokestacks, but to utilize aggressive industrial development programs and planning to guide the social and economic development of our state.

With respect to this development strategy, I think Oklahoma is setting a pattern that is well worth closer examination. Oklahoma's economic history is much like that of your own states. Its location in the sparsely settled Southwest and its remoteness from the nation's large markets have been deterrents to Oklahoma's development. Most of its abundant agricultural and natural resources were shipped

to industrial centers for processing. To a large extent, these factors collectively fostered a colonial type of economy in Oklahoma. And the state has suffered because of these circumstances--there never have been enough jobs for its citizens and their offspring.

Just as Oklahoma was forced to export its agriculture and mineral resources, its most valuable human resources were forced to migrate from the state to find challenges commensurate with their talents. Over the years Oklahoma has paid dearly in efforts to provide its youth with a quality education, but this out-migration left it frustrated in its efforts to reap the benefits of this sizable investment. At the same time, the average age of its population increased and the welfare needs of its citizens escalated.

After ten years of aggressive industrial promotion, this has changed. We have stopped the net out-migration of population from which the state has suffered for forty years. Oklahoma is now, at least in terms of numbers, providing enough jobs for its citizens and their offspring. Thus, if we look at stemming out-migration as a first goal, we have accomplished it.

We are also well on our way toward a second goal of industrial dispersion. We do not want to continue the development of routine manufacturing activities in our major cities. We have implemented a policy of encouraging those types of activities to locate in our smaller cities and we are encouraging our larger cities to focus on the development of business services and nuisance-free industry. This is also working. With the release of the 1970 census data, we were pleased to note that the growth rates of Oklahoma City and Tulsa were definitely slowing, while our many smaller cities showed appreciable gains.

The goal of industrial dispersion is proving to be an asset in many ways. It reduces the intercity rivalry that has been strong in Oklahoma. For example, with the leadership of the Oklahoma City Chamber of Commerce, a new regional approach to development is being implemented in central Oklahoma. Through the leadership of Tulsa and Bartlesville, a large portion of northeastern Oklahoma has formed regional development organizations. This, of course, allows smaller towns and cities to benefit from the expertise available in the larger Chambers.

Another important aspect is that it encourages economic growth to occur where it is needed most and where it will have the least detrimental effects on the environment.

And last, but certainly not least, it aligns state goals with those of the Ozarks Regional Commission. This

allows two very potent economic development organizations to work in harmony to promote the social and economic development of the area.

I think that we in Oklahoma owe much to the Ozarks Regional Commission and to our state's industrial development program. Working in cooperation, they have done much to get the out-migration problem under control, to stabilize intrastate movement, and to build a sounder tax base. But as with all good things, we must beware of excesses. Now that we have the out-migration problem under control, we need to lift our sights to qualitative goals.

We do not want to create another Pittsburgh or Newark. We want to make a complete break from the classical economic growth processes that created those cities and others like them. We believe there exists a unique opportunity for Oklahoma to establish a pattern of economic and social development that can be a model for other areas throughout the entire world. We can learn from the mistakes of others and put what we learn to work in creating a better Oklahoma. As we continue to develop, we can enhance those things that contribute to improving the quality of our lives--more and better education at all levels, work that is more humanly creative and challenging, cultural enrichment, improved health services, and a wider spectrum of recreational opportunities for all our citizens. At the same time, we can avoid such tragedies as urban congestion and blight, sprawling slums, polluted air and water, and wasteful exploitation of natural resources that plague many areas of our country.

To do this, I believe that in Oklahoma we need to make some adjustments in our strategy. For example, we need to become more "picky" with respect to industrial prospects. Instead of focusing so much of our attention upon the attracting of branch plants, we should begin to look inwardly for additional growth opportunities. We should look at our resources and how to further develop them; we should examine opportunities to develop services and skills to complement those manufacturing activities already in the area; and we should look at our human resources and what more we can do to further develop them.

I personally feel that programs to encourage local entrepreneurship should be given much higher priority than they currently receive. One of my greatest reservations with respect to continuing an aggressive industrial development program is the stifling effect it has on entrepreneurship. It in itself fosters a type of colonialism. This one is not based upon the exploitation of raw products, but upon the exploitation of human resources.

Summary

Let me now try to summarize these ideas and we will then proceed with a discussion. I have raised some questions--reservations--about the applicability of an economic development strategy based upon science and technology for the vast underdeveloped areas of mid-America. My principal concern here was the lack of the proper kind of environment to act as an incubator for small fledgling science-based enterprises that would be formed if such a development strategy were successful. I sincerely doubt that many of our smaller cities have labor pools containing the specialized skills needed by these firms or easy access to the specialized services these firms require.

On the other hand, the combined impacts of the atomic and hydrogen bombs, urban blight with its accompanying problems of air pollution and waste disposal, and social conflicts have caused a reevaluation of the national trends of migration toward urban concentrations. People are now looking much more favorably toward our region as a place to live, and industries are now seeking locations away from the megalopolis. This creates a situation favorable to classical industrial development programs. I believe that the vast portion of our region can benefit substantially from well-planned and well-executed industrial development programs. These programs can create jobs to help stem the out-migration of people. If planned and executed properly, they can encourage the balanced development of the state and result in increased per capita income. As industrialization proceeds, the tax base of the state is strengthened and the state's capability to fund quality academic institutions improves, as does its ability to support other programs that contribute to the overall social and economic development of the state.

I have also noted some concerns about carrying an aggressive industrial development program too far. In my way of thinking, a population growth rate of zero out-migration is ideal (that is, population growth would equal births less deaths). Thus, when industrialization has proceeded to the point that net out-migration is zero, it is time to look inwardly for additional growth opportunities. At that point we can begin to give serious consideration to coupling our universities, that are hopefully developing real strengths in areas related to existing industrial activities, with entrepreneurship programs to encourage the growth of home-based industries--not just in high technology areas, but in all those areas that promise further economic growth.

There are, however, some cities and areas within our region that appear to be likely candidates for an economic development strategy based upon science and technology.

If state leaders and community leaders can work together, they may be able to create an environment that will set off a chain reaction of technological innovations that will result in a continual stream of new products and new processes that will insure future economic growth.

SUMMARY OF PANELISTS' DISCUSSION

Subject: Strategy and Implementation of Goals

While it is difficult for planners to conceive of the technological advances that may take place in the future, tremendous population growth has been projected for this country and plans must be made to cope with it. One of the problems will be attracting favorable kinds of industry to this area. Low-populated, underdeveloped areas need new industry in the manufacturing sector to broaden the economic base required for future growth in science-based high technology industry. Some larger urban areas are ripe for new science-based industry and should work towards creating an atmosphere favorable to this kind of growth. The factors involved in attracting industry are by no means simple and well understood, but should include: 1.) Concrete national development goals; 2.) Increased interest and participation in industrial development by all citizens in local communities; 3.) The development of entrepreneurs and established of an environment in which they may operate; and 4.) Increased information exchange between bankers and industrial development groups to develop more management-oriented rather than collateral-oriented policies geared to the small business sector. The last two items are particularly important for the development of science-based industry which usually originates as a small fledgling business.

It appears that entrepreneurs cannot be created or trained, but only permitted to develop by establishment of a favorable environment. It is not always the scientist or technically trained person that forms and manages technology based enterprises but instead, people from sales organizations who recognize the value of a technical idea and know how to promote capital (for example, in St. Louis only half of a sample of ancestral entrepreneurs were technically trained). It is true however, that these people need some source from which to draw technical ideas on which to base a profitable company.

A study of bankers in certain regions with particular reference to their willingness to loan to high technology companies has shown that they are somewhat confused about recognizing the companies' economic value for their region; that they have a very low tendency to loan based on an idea; and that their personnel are inconsistent in their willingness to make loans. It might be worthwhile to get bankers more interested in learning how they can help and about the profit they can make from an idea. However, even if more cooperation can be achieved, the results could not be expected to solve all problems since bankers know that no one else pays for their mistakes. Perhaps, a better solution might be provided by small business investment companies which are especially designed to deal with this type of risky investment. To date

such companies may not have been too successful, but in many cases they have fulfilled a certain function.

It would not be as difficult to develop local, regional and state plans if there were some direction in the form of concrete national goals. An example of the kinds of problems facing us is illustrated by events surrounding the President's State of the Union Address. While he says that urban centers should be disbanded to some extent, the Defense Department is concentrating more expenditures in urban centers.

If national policy called for wider distribution of our population, this probably could be accomplished on an economic basis by carefully planned distribution of government contracts such as some \$70 million in defense contracts. There are other ways which would not dip too far into the national treasury such as investment tax credits for depressed areas which would make industrial location in the areas more attractive.

On the local level, communities must be aided in developing an awareness for attracting industry which will increase per capita income rather than create jobs alone. Universities and vocational-technical schools can help in this process by determining the types of skills in which people should be trained.

Dialogue with Policy-Makers

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DIALOGUE WITH POLICY-MAKERS

Mr. Jack M. Campbell
President
Federation of Rocky Mountain States, Inc.
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I join you here for two reasons. First, I always enjoy returning to my home state of Kansas. Whatever modest success I have achieved must be due to my middle-western background and my education here. Second, I am most interested in interstate regional efforts to help Americans adjust to, and hopefully, direct change.

The Federation of Rocky Mountain States, of which I am president, is such an effort. Organized by the Governors and private business interests of the six states of Idaho, Montana, Wyoming, Utah, Colorado and New Mexico five years ago, it identifies opportunities and problems of these states. It brings to bear public and private sector resources on six areas of concern: Transportation, Telecommunications, Natural Resources, Economic Development, Human Resources and Arts and Humanities. It is financed by state appropriations and by an equal amount of private contributions. It uses the human talent in the region to develop and implement programs.

My experience in government convinces me that in the light of growing complexities regionalization in our country is inevitable. It can be imposed upon us from the national level, or created by us at the state and local level. I much prefer the latter approach.

I am pleased that this Council is directing its attention toward "change." Fortunately, change has always been a part of the way of animal life--truly, life itself is change. But unlike other animals man should be able to direct change--not just be the victim of it. And, in the respect of directing change, man has, thus far at least, failed miserably. For the history of man to now this failure was not particularly significant for most, but now it has become not only significant but quite possibly fatal, unless we are prepared to do something about it, and quickly. Furthermore, we are now experiencing change at a rate more accelerated than at any other time in the history of man. Few men can comprehend the change that has occurred in the past 25 years. Even fewer can appreciate the change yet to come--change that is both technological and social. Our traditional institutions--governmental, business, educational and religious--are weakening from the stresses and strains such change brings. And so, it is appropriate that we try to understand change--accept it, examine it, direct it in the best interests of mankind.

This is really what "policy-making" is all about. Up to now, let's face it, in government, business, or education there really hasn't been much policy-making, at least consciously. We, like our other animal friends, have been crisis-reacting. We respond late and then on a short-term basis. Thus, our options and choices are limited. Our motivations are for political advantage, or current profit, or professional advancement. Thus, our achievements, in terms of true human values, are minimal. This is simply not enough, certainly now. Unlike other animals, we must not be content merely to react. We must perceive the future and seek new horizons and we must influence events. We must establish longer-term goals and we must set priorities. This is what "policy-making" is all about. This is what distinguishes it from day-to-day decision-making.

If we are to institutionalize meaningful and influential dialogue with policy-makers, then we must first convince ourselves that when we speak of "policy" this is precisely what we mean and that we do not mean some short-term, crisis-reacting, fragmented response to pressure from some special or personal interest. We must engage in the process of dialogue not only to influence policy-makers, but also to make "policy-making" a real part of our public and private institutional processes. The institutions of our society must respond to change in this fashion or they will, indeed, crumble down upon us. We simply must learn to understand and appreciate the impact the long-range future has upon immediate decisions. And this is as true with private business corporations as it is with public institutions. There is evidence of a growing awareness of this imminent danger.

On July 4, 1970, the staff of the National Goals Research Committee issued its first report. This is the first time true national long-range goals and objectives have been viewed in terms of immediate decision-making. The staff acknowledges that they are only dipping their toes in the pond, but it is nonetheless encouraging to see this true policy-making approach emerging.

All of the 50 states now have a designated State Planning Office to look at change and the future, and attempt to coordinate effort toward the achievement of identified goals and objectives. True, some of these efforts are puny and tentative and some may succumb to the resistance to change in bureaucracies, but it is a ray of hope. The compelling and exceedingly complex problems of our technological age may yet win out over resistance and public apathy.

More and more cities are establishing citizen-oriented goals committees to begin to view urban areas as the total systems they in fact are, and sort out the sub-systems for

orderly improvement on the basis of priorities for the future.

It is this "policy-making" I am talking about. I refuse, and I urge you to refuse, to be chained by historical, conventional ways of adjusting to change. Let us engage in dialogue here and now, and in the future, which breaks the chains that hold us to conventional wisdom and traditional ways of seeking to improve our quality of life.

Now, having demonstrated a mild degree of frustration but a stronger degree of hope, let me turn to the more specific subject of my remarks--"Dialogue with Policy-Makers."

We, fortunately, live in a democracy. We have accepted the role of a democracy by conceiving and developing a representative form of government--one which has worked longer and, for most of us, at least, better than any other form of government in the recent history of man. But this system is in danger. Accelerated technological change, a shrinking of the world through high-speed transportation, an immediate view of the world and its people through fantastic telecommunications media, have resulted in uncommon stresses upon representative government and new processes to bring more people into dialogue with decision-makers and policy-makers. This sort of dialogue by more people and groups of people is essential to the survival of our democratic system and we must begin to institutionalize it to make certain it is continuing and effective in these days of technological and social change.

It seems to me there are essentially three elements in democratic dialogue looking toward influencing policy-makers and, through them, influencing policy.

First, of course, there are the people, most of whom have become members of groups. Americans are perhaps the most over-organized society the world has ever known. Most of us belong to a number of organized groups ranging from selfishly narrow professional or business organizations with severe myopia to political or environmental or religious groups with broad and sweeping social goals which the members support, with varying degrees of enthusiasm when they conflict with their own concept or their individual desires. But these organized groups are influential and, in some respects, government is simply the arbiter for their conflicting positions. In them we are each concerned with our own goals and interests. Someone, usually the executive or the legislature, but oftener now, the courts, seeks to reconcile the diversity of these interests--in these days not very successfully. But, human nature being what it is, there seems to be little evidence of substantial departure from this "democratic" approach.

If you, as public officials or as private entrepreneurs, are to engage in dialogue with policy-makers to influence national policy for the future, you must participate in this interest group process. I would urge you, however, to seek to merge your own personal or limited group interests with the larger public interest lest we all be crushed under the Tower of Babel.

Second, in this democratic dialogue, come the decision-makers: the public officials, elected and appointed, corporate officers, businessmen--those who have the responsibility for ultimate decision-making and the implementation of long-range policy. We must begin the painful process of breaking down the communications barriers between our public and private sectors. We must find ways to open more effectively communication lines between the people and these decision- and policy-makers. Interesting new processes are being explored. Neighborhood organizations are being attempted in model cities and urban renewal programs; community action organizations are being attempted in the poverty program. There is evidence that these organizations are serving to fragment decision- and policy-making by adding more layers to the governmental cake, but they are, at least, encouraging evidence of a new awareness of the necessity for institutionalizing people-participation. Our private corporations are experiencing more and more, especially in this new ethic we call "environmental considerations," the significance of effective dialogue before decisions and policy are made.

Third, we now have a new opportunity to improve dialogue with policy-makers. This comes to us through technology and through the analytic process for decision- and policy-making. We now have available persons specifically trained in disciplines which anticipate future opportunities and problems and predict the effect of action. Indeed, important work is being done researching a new science called the science of policy making--utilizing the systems approach, modelling, and other analytical methods--to develop alternative policies and measure their costs and benefits. There is a new breed of professional called the "policy analyst." True, these means must be used cautiously and with a constant awareness of social and political implications but they offer to all policy-makers extremely valuable resources for the future. Fortunately, our new technology permits us to use computers to store and retrieve useful information to enable us to engage in rational dialogue for policy-making. We must become proficient with these tools but not slavish to them.

My remarks come last on this program dedicated to an examination of change. I would not like to end this dialogue upon a note of gloom but my experience compels me to suggest that perhaps we have organized and talked about

enough. We are attempting to shore up our existing institutions and justify our traditional way of doing things when we should be examining new institutions and new policy-making techniques. My age may be showing, but it seems to me that we are on the verge of becoming more and more like the lemmings almost racing to throw ourselves into the sea--clawing and shouting at each other on the route. Perhaps the look you are taking at accelerated change may be some evidence that there is hope. You do it through a new kind of institution and in a new kind of way.

SUMMARY OF PANELISTS' DISCUSSION

Subject: Dialogue with Policy Makers

The art of free society consists of maintenance of a symbolic code and fearless revision. That is to say, those societies which cannot combine reverence for their symbols with freedom of revision must ultimately decay. This paraphrase from Alfred North Whitehead combined with the comment that "our present system of communication is underused or misused" perhaps can be identified as the central theme of conversation about Dialogue With Policy-Makers. The main components of the discussion included citizen participation, characteristics of legislators and their responses, the role of the executive branch, and new structures for communication.

Although many young people today are disillusioned with government, and judge that communication with policy-makers is impossible, this panel concluded that public interest groups have been effective in identifying social, economic, and health problems, and in stimulating new policy and legislation. However, the results of this process have not always been satisfactory. At times, issues are complex and have a high emotional content. Priorities often are not properly established, responsibility is ill-defined, no real guidelines are developed, funding has been inadequate, services have been duplicated, and implementation through administrative bureaucracy has been haphazard. Although the activities of the League of Women Voters were cited as appropriate and effective in influencing policy, the lawmakers present seemed to agree that pressure for policy change for the good of the majority seldom comes to the attention of legislators. Most legislators find that their contacts are with lobby groups who represent a minority view and self-interest. For example, they rarely see men of industry in legislative halls unless pocketbooks are affected. The response of these groups is present if legislative proposals may increase taxes, but absent when legislation relates to school foundation programs.

Citizen participation in such areas as regional and comprehensive health planning has been an effective attempt to establish dialogue with policy-makers by developing a partnership of all who are interested in the health-care process. Professionals in the health field and consumers have attempted to set priorities and established goals within a framework of concrete objectives as part of long-range planning. However, the credibility of such groups often has not been established adequately and lack of community consensus has frustrated plans.

The legislative genre is a significant aspect of the dialogue process. One type of legislator hews completely to

representation of his constituents. If his constituents are not interested, he is not influenced. Another species of legislator counts his correspondence and votes accordingly. Another will vote against his own conscience, and will ignore the information presented by special interests groups. Yet another believes in a representative democracy; he was elected on his general record, and his broad philosophy and ability. He judges that he is to weigh facts and come to a conclusion that will represent the best interests of the people in his district and the state as a whole. However, such legislators are not reelected with any great frequency.

Panel discussion indicated that legislators cannot make policy unless they are elected, and they cannot continue to make policy unless they are returned to office. A legislator must be a politician before he can be a statesman, but he has obligation to lead political thought in his community rather than respond to a poll. One cannot escape the responsibilities of leadership, either at the legislative or executive level, because of fear of failing in reelection. The stakes in society today are so high that a person in a policy-making position must seek valid information and analyze all reasonable alternatives. One must look beyond the next fiscal year or the next term of office in order to arrive at rational and reasonable decisions. Short term objectives must be reviewed periodically within the context of long-term goals.

The office of the Governor generally was recognized as the principal source of major policy recommendations in most states. In Nebraska, for example, the Governor is identified in statute as the state planning officer, and his office develops studies and policy for both the legislative and executive branches. Too often, effective communication with the executive branch is ignored in favor of communication with the legislature, and the legislature and citizens groups frustrate the executive branch in providing funding.

Legislation, too often, is produced without standards, director or defined lines of authority, and the legislation is returned to the executive or administrative branch of government for implementation. Very often, implementation in the executive departments of government produces something quite different from the intent of the legislature. Duplication of services and delay may result. However, legislative research councils are more sophisticated in providing information for reasonable decisions, and many legislative committees now work throughout the year rather than just during legislative sessions. An administrator in the executive branch of government normally has responsibility for interpreting the intent of legislation through rule-making in response to demand. However, at times interim rule-making permits reaction, response, and revision after testing in the field.

New organizational structures and policy-influencing devices must be developed in order to minimize the impact of living from election to election. New kinds of citizen groupings are being developed. However, the role of citizen groups must be clearly defined, otherwise the erroneous impression is created that these groups are making policy. The results of citizen-group attempts at policy-making often are poor, and frustration sets in. The model cities program at the national level is an example. The citizen ultimately turns back to the politician.

Citizen groups can utilize existing leadership and develop a broad base of participation that is external to the governmental power structure. Such groups are most effective when a combination of citizen groups is involved in a community of interest. For example, if the adequacy of a railroad is an issue, the topic should be turned to the entire problem of transportation. In the area of public health, private interests trying to provide a broad range of services should attempt to bring together all people involved in providing and receiving the service. This kind of grouping attacks an entire issue rather than a particular part of the issue.

Councils consisting of elected officials at city, county and state level, representatives of industry and citizen groups are promoting dialogue in the subregions of states. Special-use and multiple-use districts concerned with soil, water conservation, watershed planning, ground-water conservation, irrigation, recreation, and water quality increasingly are important. Organizations are being designed for consolidation of districts into substate, regional-planning districts under the powerful impetus of federal support. For example, Nebraska has 400 to 600 special districts, but an effort is being made to consolidate these into 33 natural resource districts. Thus, regionalization trends are becoming increasingly important in the dialogue process.

The lines between public and private policy are becoming blurred. New voluntary or statutory organizations such as metropolitan governments, councils and interstate compacts relating to water, education, pollution and the environment are coming into being. However, formal institutionalized changes in government structure do not come rapidly. For example, if one waits for formal consolidation of 1,400 jurisdictions in the New York City area, the new airport will not be built. Ways must be found to circumvent and minimize these obstacles through new kinds of arrangements.

A growing number of regional organizations made up of the private and public sector, universities, and others have been formed. An example is the Federation of Rocky Mountain States; the New England Council is another. Such

organizations are attempting experimentation in improving communication between government, universities, and industry. We should continue to seek such new kinds of arrangements and not be trapped by tradition.

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1. The first part of the paper is devoted to a general discussion of the problem of the existence of solutions of the system of equations (1) for arbitrary values of the parameters $\alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \iota, \kappa, \lambda, \mu, \nu, \xi, \omicron, \pi, \rho, \sigma, \tau, \upsilon, \phi, \chi, \psi, \omega, \varphi, \eta, \theta, \iota, \kappa, \lambda, \mu, \nu, \xi, \omicron, \pi, \rho, \sigma, \tau, \upsilon, \phi, \chi, \psi, \omega, \varphi$.

