Proceedings of

# THE NATIONAL AGRICULTURAL MARKETING CONFERENCE

Denver, Colorado

April 27-29, 1971

Sponsored by:

Consumer and Marketing Service, USDA
USDA and State Extension Services
Experiment Station Committee on Organization and Policy
Foreign Agricultural Service, USDA
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## FOREWARD

The sponsoring agencies and the Program Committee express their appreciation to the speakers; the individuals who served as Steering Committee--Discussion Leaders for the various work groups; the Secretary-Consultants; and to those individuals who served as Chairmen of the various sessions. The smooth functioning of the Conference was due to work of many groups and individuals but particularly to the Colorado Department of Agriculture, the Colorado Extension Service, and the Colorado Experiment Station.

Copies of these proceedings may be obtained from the Matching Fund Program Staff, Consumer and Marketing Service, USDA, Washington, D. C. 20250.

## Contents

# CAN MEN SOLVE THEIR ENVIRONMENTAL PROBLEMS?

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In preparing this presentation I decided you might appreciate a change from the usual recitation of what needs to be done to meet today's environmental crises. I have, therefore, selected a broader issue for discussion--an issue that undergirds any faith and hope we may have in even trying to meet current problems.

The issue I raised is, "Can men really solve their environmental problems?" I raise it because ever since the latter days of World War II, men have been trembling in fear of themselves -- shocked and scared by the enormity of the possible consequences of their actions.

Our new technology -- dramatized for us all in the mushroom cloud of nuclear weapons -- has given us pause in our scientific rounds.

We see that our ability to lengthen man's life span has greatly accelerated population growth, bringing with it unmet demands for food and the consequent starvation, or at least under-nourishment, for greater numbers of people.

Industrial development has brought unparalleled standards of living to millions of people; yet, we are appalled by the extent to which this productivity has been accompanied by the befouling of our air, the defiling of our waters and the contaminating of lands with the offal of civilization. And the unfed, unclothed and unhoused are still with us.

These and other crushing problems resulting from the actions of men are being detailed daily by a crescendo of voices. Watchdogs cry the alarm. We hear the call from some for a destruction of the present; from others a return to a romanticized past that never existed.

Watchdogs serve a useful and important purpose; one would be foolish indeed not to pay them heed. But while they can alert us to a noise in the dark, they do not tell us what the disturbance is, what caused it, what may result from it. Yet if we are to meet the demands of the future on men and their environment, we must not only heed the alarms, we must have a real understanding of the disturbances, what causes them and how we can best deal with them.

Where in the present-day clamor and apprehension is the perspective? The long view that analysis and full understanding would present?

The presentation of my own personal assessment of the information from science and recorded history which relates to such an understanding is the challenge I found in accepting the invitation to speak here today.

I shall first discuss the massive, often violent and continually changing formations and rearrangements of the environment which have affected -- and still do -- men's activities and survival. I shall then compare the biological, social and cultural characteristics which men share with other forms of life and those in which men are nearly or completely unique. From these facts I am led to the inescapable conclusion that men, even though creatures of their environment, have an unequalled opportunity to be engineers of their future. Their unique capabilities, in fact, carry with them a moral responsibility to fully exploit their opportunity to shape the future. While our record of accomplishments to date includes the painful and the blundering, there are also the noble and the healing to sustain our determination.

Let's look at the physical environment as a part of which men and all types of life were formed.

The earth itself went through its formative stages three to five billion years before men occurred. In its very early development, the earth was a globular whirl of particles. Insulated from space by an envelope of cosmic dust, the earth grew in substance and density and heat mounted internally to molten levels. Within the inferno, heavier elements sank and stony lava rose to the surface. Gases were driven off to space. With the absorption of the solid elements, and the outward pressure on the gases from the radiation of the sun and the earth's own furnace, the insulating envelope gradually cleared. Heat poured out from the molten earth. A thick crust of granite and basalt formed around the sphere. Enormous pressure converted nearly half of its depth to an elastic solid.

The crust heaved and broke with the cooling. Great internal stresses uplifted the granite and basalt, piling enormous rocks one upon the other, building gigantic ranges of towering mountains.

Overhead, escaping vapors gathered in clouds, and torrential rain fell. The streams rushing down the high mountains boiled back to the sky until the surface cooled, eroding and breaking off the peaks and slopes and forming vast areas of sea.

Into this recurring violence, about two billion years ago, living materials began their existence on earth. These molecular beings clung to a sparse existence through long epochs of change that provided only feeble support for expansion and differentiation. Then, a cooler earth accelerated their proliferation, and they filled the seas with great numbers and forms of life.

Upheaving mountains established land, and over long eons of genetic alteration, a multiple heritage of plant life gradually mottled the land in green.

Certain animal inhabitants of the sea survived the non-sea exposures over a sufficient number of generations for the interactions of chance variance and adaptation to allow fins to become legs and to provide backboned creatures who could crawl and walk among the rocks and trees.

Environmental circumstances conditioned the survival of various life forms. Ice packs encrusted the lands and melted to flood the lowlands; volcanoes; earthquakes; rains; constantly rearranged the face of the earth.

And always, there were intergroup conflicts and compromises and balances forced by competition among the living things themselves: When common food supplies were reduced to scarcity. When places to live were crowded. When hiding places were infrequent or when mating grounds were insufficient. Sometimes, reproductive competition forced violent and terrorizing struggles between individual animals or between packs and herds or flocks. Sometimes competition went unnoticed, as in the quiet of a meadow overpopulated with sheep.

As frequent as struggle and aggression in the development of life-forms, were the changes that allowed different groups to exist together without competition through accommodation and symbiotic relationships.

Pre-men occurred during the more recent of these physical and biological rearrangements and as creatures of them. These early men experienced the phenomena of differential adaptation; of convergent, or divergent or parallel evolvement; of discontinuity or expansion or perpetuation of their numbers that affects all forms of living matter.

Early men shared with other forms of life the capability of reproduction and the needs for food and for protection against adversity. They shared with many forms of life a similarity of molecular and cellular specialization and organization.

Along with a large variety of animal life, they acquired social and cultural behavior that increased their probbbility of survival. Talents and skills accumulated for the establishment of feeding or nesting territories, for the construction of communal shelters, for physical play and song and, in some, for expression of affection and mutual assistance in personal contact.

Not all these skills were the result of instinctive responses built by generations of biological change and adaptation. The expanding specialization of brainy nerve tissue in a multitude of animal groups gave rise to memory; gave rise to individuals using their stored memories to guide their future actions; gave rise to teaching one another.

Learning became a part of improving the performance of individual or group rituals. Remembered experience formed the basis for identifying danger in the environment or reacting to other beings with fear, distrust, hostility, friendliness or affection.

For many animals, culture was a halting, feeble adjunct to biology. For others, it stereotyped into a plateau of specialization. But for men, as their brainy tissue expanded in capacity and versatility, the meager beginnings of culture gradually accumulated over one or more million of years until its growth became exponentially rapid and surpassed the slow erratic pace of biological variation.

Men utilized their biological specialties, including their cultural proclivities, to increase the productivity of their methods for procuring food. They started using tools made of naturally occurring shapes of rocks or limbs and then developed with accelerating rapidity over the ages an immense number of both simple and extremely sophisticated machines, appliances, implements, instruments and apparatus. They learned to specialize, to increase their productivity, to trade goods and services with one another--first by simple barter and then by greatly complex economic and technical systems of trade.

Men built a major portion of their cultural practices around sexual activities and created a myriad of marriage customs that differ widely in the nature and elaborateness of their practice. They developed greatly varied family patterns, mating arrangements, parental responsibility and intra-family relationships.

Men are unequalled in the extent to which they have developed their varying forms of art, their use of intellect and imagination for aesthetic pleasure. Only men have developed complex vocabularies for both oral and written discourse. Only men have utilized language for the storage of knowledge about their traditions, their skills, their love life, their technical discoveries, their history, their projections of the future. Men are the only being whose minds have sought explanations of the unknown, definitions of the undetermined and clarification of the obscure.

Men alone have established religions for the regulation of their beliefs and conduct. Men alone have raised the concept of interpersonal love to heights that transcend underlying biological bases.

Men exceed all other beings in their social organizations for the welfare of individuals and groups. Only men have developed governments and the laws and political, patriotic and idealogical biases to support their governments.

Men along have developed a multitude of destructive, terrifying weapons. Men are unsurpassed in their highly organized and continual intraspecific aggression. Men have no peers in their torturous, sadistic treatment of each other.

All of these cultural actions of men have been conditioned by the environment -- present and past -- physical, biological, and cultural. But essential to these actions and the accelerating pace of their development, has been the growing capacity of men for conceptual thought, for internally generated self-consciousness. This ability for conceptual awareness of the past, present and the future has given them opportunity, infinitely superior to all other forms of life, to influence the course of their own development, to influence the future of their environment.

The use of the opportunity to plan and direct their future is not, however, an involuntary activity of men. They can choose to use their ability to think and to increase the comprehensiveness of their awareness, and the validity of their judgments; or they can choose not to think, to evade the mental effort required and avoid contemplation of issues. The existence of this choice,

the freedom to make it, makes men responsible for their actions, whether those actions are individual or collective. The availability of this choice, to determine the extent to which they will utilize their opportunity to be engineers of their future, is the fundamental basis for the concept of moral responsibility in men, a concept applicable to no living beings except men.

Men's progress in the use of their opportunity to influence their future has been halting, fumbling, erratic and irregular; unorganized, undesigned, undirected and muddled; troubled, brutish, bloody and painful. Why has this been so? Because, despite the massive accumulated body of information, recorded and unrecorded, from experience and from experiments, men have never had the benefit of omniscience in making any of their judgments. Men never have had complete awareness of the composition of their physical surroundings, of the phenomena of variation or concomitance, of cause or effect and of their own nature. In fact, those men who have probed the deepest and most effectively into the unknown have usually been far more conscious of the inexactness of their knowledge, the superficiality of their understanding, the extent of their mythological delusions than they have been impressed by their comprehension, erudition or enlightenment.

Furthermore, what awareness men do have of the complex dynamics of the structures and forces about them, and even within them, has led to a partitioning and specialization of efforts to obtain and to use knowledge.

And as the number of specializations has grown, as the knowledge in any single specialty has magnified in precision and range, the users of knowledge have found that the effects of their activities interact with one another more and more frequently and with seriously disrupting consequences. It is the accumulating awareness of these interactions, the relatively recent acute and general awareness of the ineffectiveness of present efforts to prevent the harmful impacts of the interactions that have created the current widespread anxiety about the future.

Men, in a tiny moment of time, have developed a phenomenal body of information regarding the dynamic history and characteristics of the universe around them and the changing nature of men themselves. Imperfect and incomplete as this knowledge is, a sense of history leaves no doubt but that the future of men and their ability to deal with their environment is highly dependent on their willingness to organize the knowledge they now have and to evaluate new facts and concepts and principles as they are discovered or as they evolve.

Can men solve their environmental problems? Let me recapitulate. The record of science and history shows that men are unique and unusual creatures of the continually changing formations and rearrangements of the physical and biological environments surrounding them. These changes will not cease but can be expected to continue infinitely. Men with their imperfect knowledge cannot be expected to remove the uncertainty and anticipate the consequences of all these changes in the future. Men will always be subject to the unexpected; the unknown will always be part of men's environment. Nevertheless, it is the intellectual capacities of men -- far superior to all their fellow creatures -- that place on men the moral responsibility to use that intellectual capacity to its fullest.

Action to meet current alarms is critically important. In agriculture itself we know that there are actions we can and must take to correct the practices that degrade our environment; actions we can take to develop an intelligent land-use policy; actions we can take to enhance rural living and at the same time ease some of the pressures in our congested cities.

Furthermore, this is no time for yielding to fear of new knowledge or of more effectively using and understanding what we already know. This is not the time to consider retrenchment of research, particularly that dealing with basic natural and social phenomena. To the contrary, the problems we are having today with applications of knowledge are stark testimony of the need to learn far more.

I would be irresponsible, however, if I were to state here that the sole need for research is expansion of present efforts. We in research have no reason to be smug or complacent about the nature of our present efforts or the way we go about conducting research. We have a primary obligation, right now, to develop and improve our methods, our working relations with each other, our organization of research, our institutions. We must do this in a way that will provide for more effective consideration and management of the interactions that are causing so many of the present day conflicts and problems.

We have talked about this in the past. We have called it, "The need for multi-disciplinary research," but we have really done little about it in terms of the magnitude of the need. We have either allowed the organizational barriers to remain or have built encumbering machinery of coordination that burdens rather than expedites the effort. This we must change if the furtherance of men's knowledge is to continue at the pace required. We must not only be innovators in research ideas but also creative experimenters with research organization and administration.

Men can be engineers of their future. Their unique capabilities for voluntary choice coupled with the lessons from their painful progress -- creates an inescapable moral responsibility for men to take the actions needed to better mankind and . . . environment. New knowledge, including that which we are beginning to acquire of men's interdependency with all other elements of the universe, can form the framework with which we can improve future value judgments; guide our own behavior, and influence with far greater effectiveness the behavior of our physical and biological surroundings.

Always, however, men's fallibility will be with us. But the evidence from science and history tells me that the recognition of this fallability does not call for fear or despair or a collective psychotic avoidance of human endeavor. I maintain that it calls for humility, realism, strength, tenacity and courage.

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