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GRADY GAMMAGE MEMORIAL LECTURE

The World Environment:
A Program for the People
of Planet Earth

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Secretary of the Interior, 1961 - 1969

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GRADY GAMMAGE

In his 27 years as president of the institution known today as Arizona State University, Dr. Grady Gammage transformed a little-known and struggling teachers' college into a state university of national prominence.

A native of Arkansas, he came to Arizona in 1912, earned bachelor's and master's degrees at the University of Arizona, and later took his Doctor of Education at New York University. After achieving success as a teacher and public school administrator, he became president of Arizona State Teachers College at Flagstaff. In 1933, Dr. Gammage accepted the presidency of Arizona State Teachers College at Tempe. He remained in that post until his death in December, 1959, building faculty, student body and educational facilities through a depression, two wars, a harrowing population explosion, and two institutional name changes.

The Grady Gammage Memorial Lecture Series, established in 1962, is named in honor of this much beloved educator who did so much to further the cause of teaching excellence in Arizona.

THE WORLD ENVIRONMENT: A PROGRAM FOR THE PEOPLE OF PLANET EARTH

*Man lacks the capacity to foresee and forestall;
he will end by destroying the earth.*

— ALBERT SCHWEITZER

IN ONE OF HIS RECENT BOOKS, MY FRIEND LOREN EISELEY (HIMSELF a Gammage Lecturer) summed up his deepest fears about the future with the statement, "The terror of our age is man's conception of himself." Dr. Eiseley's apprehension was related, of course, to the overwhelming power modern man now exercises over the environment of this planet, and the gargantuan demands man is preparing to make on the world's resources in the years ahead.

It will not surprise you to learn that I agree with Eiseley's thesis. We are, I believe, entering an age of transformation that will be as fateful for the future of humankind as was that period which evolved the concepts of modern man and modern progress — the era of Western civilization called the Renaissance.

Man's conception of himself was altered drastically (if not abruptly) during the Renaissance. As distinguished from men of the Middle Ages, modern man cast off the incubus of superstition, and the fears and religious dogmas that had damped his earthly expectations. This "new man," instead, became above all an independent and rational being, and his curiosity and self-confidence formed the crucible of the scientific method. With this pragmatic perspective, organized groups and individuals pursued change and innovation, and material progress became the dominating concept of the epoch. Thus, it followed that growth — and the relentless expansion of man's dominion over the earth and its natural system — were both inevitable and beneficent. These were the central assumptions of modern man.

These concepts — enlarged and confirmed by such concrete achievements as the discovery of the New World, the invention of the printing press, the validation of the new explanations of planetary phenomena by astronomers and physicists, and the design of countless new machines — have dominated human affairs since the 16th Century. Out of these concepts grew certain tenets that have increasingly guided the human advance in the intervening years:

- (1) the principle that the external world could, and thus should, be ruthlessly conquered to add to the fullness of material life on earth;
- (2) the faith that any new machine or manufacturing process was indeed “progress” and should be welcomed as a positive contribution to human welfare;
- (3) the tenet that speed and locomotion were ends in themselves, and should always be increased (the “SST syndrome” one might call it today);
- (4) and the axiom that all growth is inherently desirable, and that world growth rates of population and material output could continue indefinitely.

These tenets are at the heart of the growth ethic that dominates world thinking today. In this century they have been extended and reinforced by the arrogant notion that the power and energy available to man are essentially limitless; and that the men of science and technology are now so ingenious that substitute resources and raw materials can be created even if the nonrenewable mineral resources are exhausted. Indeed, the belief that nations must “grow or die,” the conviction that everything can be “engineered” to fulfill rising expectations everywhere, and the pretense that the saturation points of growth are “too far off” to be worrisome, are high among the assumptions that govern most planning and actions of governments and their leaders in the year 1972.

Having reported this general state of mind, I must now set forth my own assumptions and beliefs. I am convinced a sense of limits is the survival imperative of the next generation. I do not believe the earth’s ecosystems can absorb the exploding, collective demands and appetites of the people of this planet. I am profoundly skeptical of the materialistic utopias some so-called futurologists are ped-

dling in the marketplace. I believe restraint and stability are the only rational guidelines for the long haul. And I further believe the so-called "developed" countries are in the grip of technological hubris which poses grave threats to the life-support system of earth.

A decade ago, such statements would have been dismissed as "absurd" by most Americans — including most scientists. However, traumatic events — and developments in science — during the 1960's have belatedly brought the life sciences to the forefront, and their sobering findings have not only forced us to recognize the finiteness of our only habitat, but to comprehend the interrelatedness of the natural system and the necessity of husbanding this system and its resources.

I believe it is clear that man's environmental predicament is the end result of the following interacting and accelerating forces:

- an explosive rate of global population growth;
- world-wide mass migrations of population to urban settlements;
- staggering present and projected demands upon the planet's limited natural resources;
- an alarming deterioration of the world's life support system, including the global atmosphere and the oceans.

True, scientists differ widely today as to the imminence of the various disasters and ecocatastrophes to which the natural system is exposed. However, it is clear that some ecosystems have already been severely impaired, that man's activities are increasing the pressures on the biosphere and its resources at a precipitous pace, and that environmental degradation can become irreversible and endanger not only the quality of life but the life-support system itself.

In recent months I have had an opportunity to sample the opinions of scientists and resource experts here and abroad. I am convinced a growing agreement is emerging among these experts concerning the gravity of the global environmental crisis. These are some of the major assumptions and conclusions at the core of this consensus:

- I. If the future is a linear extension of the past, mankind is ultimately doomed — doomed either to extinction, or to progressive environmental degradation that will condemn future generations to exist under conditions that will be increasingly antihuman.
- II. Most of the serious disruptions of the earth's ecosystems are caused by abuse of natural resources and by misguided technology. Life is being steadily demeaned and endangered by these destructive actions that are impairing the vitality of the earth.
- III. Man is also the victim of the explosive growth of his own species: Today unbridled population increases are cancelling out the legitimate expectations of mankind and/or exacerbating social, political and environmental problems on all continents and in all countries.
- IV. Universal population control is urgent. The developed countries which consume the great bulk of the world's resources and cause most of the ecological disruptions must control *their* increases of population to protect the biosphere and save the quality of life in their respective countries. The less developed countries must control the growth of their population if they are to have at least a fighting chance to improve the material welfare of their citizens.
- V. Present patterns of growth are undermining the political stability of the world. The widening economic gap between the rich and poor nations poses a formidable threat to world security in the decades ahead.
- VI. The food crisis is certain to become increasingly severe: There is grave doubt that food supplies can be produced and distributed to sustain the doubled world population forecast for the year 2000.
- VII. Unless a new regimen of human restraint is initiated, it is improvident to assume that science can alleviate the major ills and errors that are at the root of this global crisis.

Such a consensus was unthinkable even a few years ago. However, the dynamics of our era have swept across national boundaries and established a whole new array of interdependencies: the spaceship earth concept is the overpowering reality of our time. Cooperative efforts to protect regional resources must now be extended to the whole biosphere. This is the imperative of our age.

Put into perspective, these findings do not forecast the imminent collapse of civilization. They do, however, constitute a stern call for self-restraint. Consider this summary statement in the recent Report of the Study of Critical Environmental Problems (SCEP) sponsored by the Massachusetts Institute of Technology:

An intractable crisis does not now seem to exist. Our growth rate, however, is frightening . . . the risk is very great that we shall overshoot in our environmental demands (as some ecologists claim we have already done), leading to cumulative collapse of our civilization.

It seems obvious that before the end of the century we must accomplish basic changes in our relations with ourselves and with nature. If this is to be done, we must begin now. A change system with a time lag of ten years can be disastrously ineffectual in a growth system that doubles in less than fifteen years.

These statements by a group of distinguished international experts can hardly be dismissed as "doomwatch prophecies." They will be buttressed by a new study, *The Limits to Growth*, to be published next week. In this book a team of scientists at the Massachusetts Institute of Technology has used computers to analyze world trends in population, economic growth, pollution, resource use and food supply. The basic conclusion of the MIT study is set forth in *The Limits to Growth* in these words:

Since the delays involved in negotiating an orderly transition to a state of equilibrium, however defined, are very long — 50 to 150 years or more — it is essential that nations begin to recognize that progress cannot eternally be equated with growth, and to stop the implicit and explicit management of population increase and material expansion. Each year of delay decreases man's long-term options and lowers the probability of carrying out an orderly transition to equilibrium.

One need hardly argue that such predictions (even when expressed in the cautious prose of troubled scientists) are a summons

in action. Many authorities believe an intellectual and psychological turnaround must begin in the 1970s if we are to "foresee and forestall." Among those holding this view is the recently retired Secretary General of the United Nations, U Thant, who issued this warning in late 1970:

I do not wish to seem overdramatic, but I can only conclude from the information that is available to me as Secretary-General that the members of the United Nations have perhaps ten years left in which to subordinate their ancient quarrels and launch a global partnership to curb the arms race, to improve the human environment, to defuse the population explosion, and to supply the required momentum to world development efforts.

In my view, vigorous action will be required on many fronts if this "global partnership" is to succeed.

At the national level, the economically developed countries which generate most of the world's energy and consume most of the world's minerals must set the pace. Each of these affluent societies has a high responsibility to control pollution, stop population growth, and conserve resources. Unless these advanced nations lead the way there is no hope.

Regional action is equally urgent.

The most logical way to alleviate large-scale environmental ills is through the management of regional resources. Those nations which theoretically "own" and therefore share common responsibility for inland resources such as the Baltic, the Mediterranean, the Great Lakes, and huge river systems such as the Rhine and the Danube should not only establish multinational political institutions but give them the power to set common standards of environmental behavior.

Such institutions could reverse the inroads of pollution and establish new beachheads of cooperation among nations, thereby enlarging human control. But can we take such a step through foresight and will, or are we so tied to obsolete concepts of national sovereignty that only a series of ecocatastrophes can produce joint action?

At the global level, the most formidable problems lie beyond national jurisdictions and must be tackled by new institutions that

have the funds and the authority to act for the whole world community.

At an International Environmental Conference convened in Finland last summer, I proposed the creation of a United Nations Institute for Planetary Survival. As I conceived it then, such an Institute would concentrate in a single new agency all facets of the international effort to cope with the ecological crisis. Its focus would range from human settlements to the preservation of endangered wildlife. It would monitor environmental threats, whether global or subglobal; interpret and assess the data and disseminate its conclusions freely and regularly; and develop corrective action plans to meet such threats. The Institute's governing body would be expert and interdisciplinary, appointed by governments for a single fixed term but not accountable to them. At least half of its budget would be allocated to the research and development of specific programs of corrective action. It would be authorized to assemble conferences of states, either through the United Nations General Assembly or on its own, for the adoption of its action plans, and to give scope and appropriate status to the Institute's work its recommendations would be placed on the regular agenda of the United Nations for debate and discussion — and be accorded a sense of urgency comparable to that given to the military and political crises that usually constitute the central focus of concern for the UN.

The work of this agency might also be supplemented (as has been recently proposed by the International Institute for Environmental Affairs) by the formation of a "World Institute for Environmental Research and Development," organized by existing scientific organizations such as the International Council of Scientific Unions (ICSU) and by the creation of regional centers of excellence in environmental affairs in the major developing areas of the world.

I have also suggested a larger role for international law in forestalling and resolving international disputes growing out of actual or threatened environmental injuries.

A number of treaties or proposed treaties have dealt with specific polluting activities — such as ocean oil spills or ocean dumping. I propose that we move toward a treaty which develops and codifies the international law of remedies for environmental

injury. Such a code would then be available for resolving environmental disputes. It could, for example, constitute a legal framework that would

- a) allow injured nations, companies, or citizens of one country to pursue legal remedies against major polluting industries in the courts of other nations where the pollution originates;
- b) confer explicit jurisdiction on the world court or an arbitral tribunal to provide appropriate relief in cases involving multinational pollution both in legal proceedings brought by one nation against another;
- c) provide an analogous forum for adjudicating the claims of aggrieved citizens of one nation against polluting activities injurious to them carried on in another state.

The law is one of the most rational, and least abrasive, institutions ever devised by civilized societies. It has great potential for settling disputes and abating injuries that involve the health and welfare of people who share resources common to whole regions. With increasing frequency, such disputes are straining international bonds of amity.

I have been in public life long enough to know that powerful governments mistrust any international process whose vigor they cannot reliably control. International bureaucracies, like all bureaucracies, feel they must guard their own fiefdoms. Nations which may be deeply concerned about what *other* people are doing to the common planetary heritage may passionately oppose any questions about what *they* are doing inside their own borders.

However, even bolder steps are needed. In my view, the time is ripe for the United Nations to make a dramatic move that will augment its authority and launch a strategy for survival. In short, I believe the UN should assert its jurisdiction over the oceans (beyond the existing demarcation lines of national sovereignty) and over the global atmosphere.

To me, the logic of such a step is irrefutable. Oxygen is the life-elixir of the inhabitants of this planet — and in the long run life itself hinges on the health of the oceans which manufacture nearly three-fourths of our oxygen — and on the protection of the thin

envelope of air that encases the earth. These resources are, in fact, "owned" by all men, and we have reached a point where they must be policed and managed for the common good.

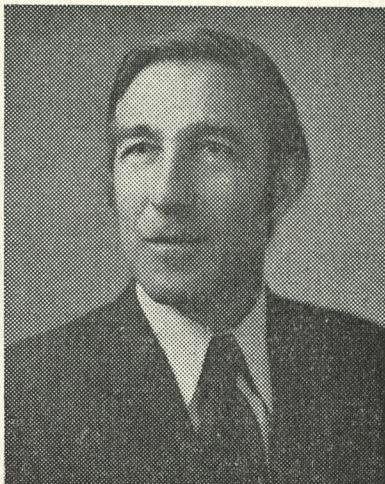
As a logical follow-on measure, I propose that the United Nations levy equitable user taxes on those who use the high seas and international airspace for commercial gain. At the outset, modest taxes should be levied which would yield annual revenues of at least \$1 billion. These funds should then be allocated to the broad environmental programs outlined above, and to the provision of "seed money" for promising projects in all parts of the globe.

In sum, if we are to "foresee and forestall" we must be willing to take drastic steps — and take them without delay. My own conviction is that the thinking people of this planet are miles ahead of their leaders on this issue. We have reached a juncture of history when we must be radical in order to be conservative — when the conservation of life and the quality of life cannot succeed unless drastic remedies are initiated.

Implicit in this view, of course, is a new concept of the world community and a new conception of man's place in world environment. The old order must adapt itself to the new realities: a universal ethic is needed which recognizes that the future of the human species depends on the health of the biosphere.

If Dr. Eiseley is right — "If the terror of our age is man's conception of himself" — post-modern man must formulate a new conception of himself. Would it be amiss, then, on this campus and in this auditorium (with an acknowledged debt to Frank Lloyd Wright), to suggest that the "new man" be given the appellation *organic man*, and that the new age of reformation we must now evolve be called the *organic age*?

STEWART L. UDALL



Shortly after being elected to a fourth term as the U. S. Representative from Arizona's Second Congressional District, Stewart L. Udall of Tucson was appointed by President John F. Kennedy to serve as the 37th Secretary of the Interior, a Cabinet position he held throughout the entire administrations of Presidents Kennedy and Johnson. In that capacity, Mr. Udall directed a Department with wide-ranging responsibilities for the nation's natural resources. As Secretary, through the ideas he initiated and the programs he implemented, Udall made his imprint on the Sixties.

Following the change of administrations in January, 1969, Mr. Udall formed Overview, a pioneering international consulting firm devoted to creating a better environment for man.

Udall lectures frequently to university and business audiences. In addition, during the 1969-70 academic year, he was Visiting Professor of Environmental Humanism at Yale University. Since June, 1970, in collaboration with Jeffrey Stansbury, he has been writing a twice-weekly column, "Udall on Environment," which is syndicated nationally by the Los Angeles Times Syndicate.

In his first book, *The Quiet Crisis* (Holt, Rinehart and Winston), Mr. Udall outlined the land and people story of our nation, advancing the proposition "that men *must* grasp completely the relation-