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"Education for global survival" : an examination of a curriculum concept.

Stephen Eves Guild

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"EDUCATION FOR GLOBAL SURVIVAL:"
AN EXAMINATION OF A CURRICULUM CONCEPT

A Dissertation Presented

By

Stephen Eves Guild

Submitted to the Graduate School of the
University of Massachusetts in partial
fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

May, 1973

Area of Concentration: International Education

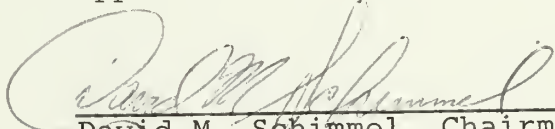
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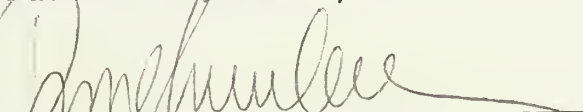
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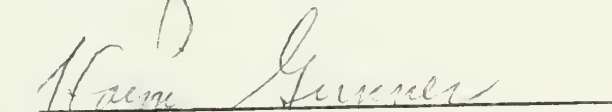
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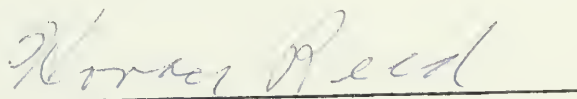
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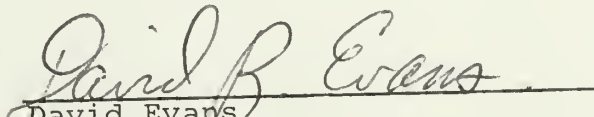
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Haim Gunner


Horace Reed


David Evans

May, 1973

DEDICATION

To my wife Pat, without
whom it can truly be said
this would never have been
done.

ACKNOWLEDGMENTS

I would like to acknowledge the efforts of many who have helped me conceptualize and clarify an "Education for Global Survival" curriculum. There are writers too numerous to mention who introduced me to a different way of viewing the globe and have opened a whole new world to me. Most of them are included in the body of this work.

I am grateful for the help that many of my fellow doctoral students in the Center for International Education at the University of Massachusetts have given in the organization and content of the dissertation. Especial thanks is due to the advising support group which met regularly at David Schimmel's home and were a great aid in translating what was in my head to paper.

"Thanks" seems to little to say to Horace Reed, Haim Gunner and David Evans for their reading, critiquing, and improving an imperfect work. They gave generously of their time and were perceptive critics, as well as strong supporters.

David Schimmel, with whom I have worked for over 6 years, is as much a part of this most recent enterprise as I am. His pushing, supporting, questioning, arguing, soothing and faith have been invaluable. I am deeply indebted to him.

Finally, I could never understand why the typist had the last word. Now I understand. My deep thanks to Pat Joiner who spent many, many hours putting this in final form. Any mistakes are mine not hers.

"Education for Global Survival:"

An Examination of a Curriculum Concept

Stephen Eves Guild, B.A., Washington and Lee University

Ed.D., University of Massachusetts (May, 1973)

Directed by: David M. Schimmel

There are several basic themes to this work: that the world is a globe and that there is a systematic operation of its parts; that physical survival, as well as psychological survival and the quality of life, are major issues today and of the future; and that people can change and that education is an important part of that change.

Generations have learned to view the world in a particular way: one in which the various parts -- land forms, nations, individual tribes and social groupings, animal life, etc. -- generally are seen as separate entities, with little relationship to each other. Another way of viewing the world, however, is through the "Spaceship Earth" image.

Many have spoken of a "world society," of a "global society," both of which have emotional and political connotations. A less controversial term is "global system." At present most individuals do not view the world as interrelated parts which are necessary for the operation of the system. A curriculum which prepares individuals for today and tomorrow should present the world in terms of a global system.

There are some basic ecological principles which are useful for understanding environmental relationships, and as an extension, the global survival curriculum. These are: "Everything Is Connected To Everything Else," "Everything Must Go Somewhere," and "There Is No Such Thing As A Free Lunch."

Some specific concepts, which are important in designing a curriculum, emerge from these ecological principles, from the "Spaceship Earth" image, and the idea of the world as a global system. These include interrelatedness, variety and similarity, finiteness, continuity and change, competition and cooperation, systems and patterns, and others.

A curriculum cannot be based only upon concepts. It must have related content. Five major issues, which are common throughout much of the current related writing and which promise to be issues of the future, form the areas of content of the curriculum: (1) war, peace and world order; (2) population; (3) resources and their distribution; (4) environmental deterioration and economic development; (5) cross-cultural communication and conflict.

The content of a curriculum and the process of teaching and learning are related. A global survival curriculum should give as much attention to the process of learning as to the knowledge or facts that are being learned. A crucial element in such a curriculum is the way values and attitudes are

dealt with. Any action resulting from an acceptance or rejection of the concepts and content of the global survival curriculum is an expression of certain values and attitudes. Students should be aware of what these values are and how they can make these choices.

There is a background of "international" education and ecological and environmental education in American schools. In addition, there have been a number of curriculum materials produced by public and private concerns which are valuable sources for both comparison with and use in a global survival curriculum. And finally, there are some original specific curriculum materials, including case studies, simulations, and critical incidents which can be used for in-service teacher training and regular classroom teaching.

Summary. There are five major foci to the work: (1) the rationale for the combination of "international" and environmental education concepts in a single curriculum (2) the definition and review of the content of a global survival curriculum (3) the attention given to the process, values and attitudes in the proposed curriculum (4) a survey of current "international" and ecological and environmental curriculum materials (5) specific examples of teaching materials for a global survival curriculum.

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"He had spoken in the little room near the courts where the pleaders waited for clients; clients, waiting for pleaders, sat in the dust outside. These had not received a card from Mr. Turton. And there were circles even beyond these--people who wore nothing but a loin-cloth, people who wore not even that, and spent their lives in knocking two sticks together before a scarlet doll--humanity grading and drifting beyond the educated vision, until no earthly invitation can embrace it.

All invitations must proceed from heaven perhaps; perhaps it is futile for men to initiate their own unity, they do but widen the gulfs between them by the attempt. So at all events thought old Mr. Graysford and young Mr. Sorley, the devoted missionaries who lived out beyond the slaughter-houses, always travelled third on the railways, and never came up to the club. In our Father's house are many mansions, they taught, and there alone will the incompatible multitudes of mankind be welcomed and soothed. Not one shall be turned away by the servants on that veranda, be he black or white, not one shall be kept standing who approaches with a loving heart. And why should the divine hospitality cease here? Consider, with all reverence, the monkeys. May there not be a mansion for the monkeys also? Old Mr. Graysford said No; but young Mr. Sorley, who was advanced, said Yes; he saw no reason why monkeys should not have their collateral state of bliss, and he had sympathetic discussions about them with his Hindu friends. And the jackals? Jackals were indeed less to Mr. Sorley's mind, but he admitted that the mercy of God, being infinite, may well embrace all mammals. And the wasps? He became uneasy during the descent to wasps and was apt to change the conversation. And oranges, cactuses, crystals, and mud? and the bacteria inside Mr. Sorley? No, No, this was going too far. We must exclude someone from our gathering, or we shall be left with nothing.

E.M. Forster
A Passage to India

"...For the first time in all of time men have seen the earth; seen not as continents or oceans from the little distance of a hundred miles or two or three, but seen from the depths of space; seen it whole and round and beautiful and small as even Dante--that "first imagination of Christendom"--had never dreamed of seeing it; as the twentieth century philosophers of absurdity and despair were incapable of guessing that it might be seen. And seeing it so, one question came to mind of those who looked at it. "Is it inhabited?" they said to each other and laughed--and then they did not laugh. What came to their minds a hundred thousand miles or more into space--"half way to the moon" they put it--what came to their minds was the life on that little, lonely, floating planet: that tiny raft in the enormous empty night. "Is it inhabited?"

The medieval notion of the earth put man at the center of everything. The nuclear notion of the earth put him nowhere--beyond the range of reason even--lost in absurdity and war. The latest notion may have other consequences. Formed as it was in the minds of heroic voyages who were also men, it may remake our image of mankind. No longer that preposterous figure at the center, no longer that degraded and degrading victim off at the margins of reality and blind with blood, man may at last become himself.

To see earth as it truly is, small and blue and beautiful in that eternal silence where it floats, is to see ourselves as riders on the earth together, brothers on that bright loveliness in the eternal cold--brothers who know now they are truly brothers.

Archibald MacLeish

PREFACE

Man has come to an important dividing place in his social, intellectual and biological history. There have been crucial points in history before; but what is different about this point is the intersection of the social and intellectual forces with man's progress as a species. No longer can we ignore natural and man-made forces; they direct us to question old assumptions and stretch our thinking about a number of issues on a single theme: survival. Will man survive as a species? Will the world, which nurtures him, survive despite his actions? If man survives, how will he do it, what kind of person will he be and what kind of world will he live in?

In recent history, survival for man as a species has not been a real question. It is a question every day for most other animals in the world; but because of unique capabilities, which evolved over hundreds of millions of years, man has generally been able to control and change the form of the physical forces of the land he lives on, the creatures he shares the land with and the natural resources which make up the world as we know it. There have been times when isolated groups of humans have become endangered because of natural and human actions, but never has there been the wide-spread consciousness that through man's own

actions he could destroy himself and the living world around him.

The possibility of this happening -- some feel it is a probability -- has not yet sunk deep into man's consciousness. He is still looking at his world in the past tense, not realizing the potential power that exists in his actions. There are many contributing factors for this -- religion, social systems, economics, technology, science -- have all played their part. To assign guilt would be giving ourselves and future generations easy answers.

Survival seems and is a crisis word. It has been used so often in the past twenty years to describe a variety of things, from nuclear war to racial conflict, that it has lost some of its impact and meaning. Yet, enough individual indications, while not "crises" by themselves, converge to present a serious danger to our own existence as well as to that of other parts of the natural world. Some of these indications illustrate the concerns of this work:

- ** if the present growth trends in world population, industrialization, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached¹ sometime within the next one hundred years.

¹Donella H. Meadows, et al. The Limits to Growth, (New York: Universe Books, 1972), p. 23.

- ** since 1962, when expenditures were assessed at \$120 billion for military spending around the world, there has been a fifty percent rise in spending, and military expenditures now consume more than seven percent of the world's gross product.²
- ** Given foreseeable increases of food supplies over the long term, the earth ultimate carrying capacity seems to be about 30 billion people at a level of chronic near-starvation for the great majority.³
- ** the DDT intake of infants around the world is now about twice the daily allowable maximum in standards recommended by the World Health Organization.⁴
- ** According to figures in The Limits to Growth, the process of economic growth, as it is occurring today, is inexorably widening the absolute gap between the rich and poor nations of the world.⁵
- ** all states will soon be in a position to achieve access to biological, chemical and nuclear weapons of mass destruction and will, therefore, be in an improved position to rely on force to press their claims.⁶
- ** to raise all 3.6 billion of the world's people of 1970 to the American standard of living would require the extraction of 75 times as much iron as is now annually extracted, 100 times as much copper, 200 times as much lead, 75 times as much zinc, and 250 times as much

²Richard Falk, This Endangered Planet, (New York: Random House, 1971), p. 127.

³Committee on Resources and Man, Resources and Man (San Francisco: W.H. Freeman Co., 1969), p. 5.

⁴Paul R. and Anne H. Ehrlich, Population, Resources, Environment (San Francisco: W. H. Freeman Co., 1970), p. 129.

⁵Meadows, op. cit., pp. 43-44.

⁶Falk, op. cit., p. 130.

tin. Iron is theoretically available, but needed quantities far exceed all known or inferred resources.⁷

The bias of this work is that there is a crisis, no matter what figures one chooses, and that the integration of the concepts of "Education for Global Survival" into school curricula is a radical and important step that must be taken if we are going to meet the challenge we are faced with. In the following pages, one framework for approaching this challenge educationally will be explored. Viewing the world we live in in a different way also means viewing education about that world in a different way, and this will be examined. Curriculum materials and other instructional resources for teachers -- which means all of us, since we teach in many ways every day, -- will also be suggested.

This is only a beginning. The questions are so deep and far-reaching, the amount of factual material already at hand is so great, the need for further research and investigation is so pressing and the possibility for a collective creativity of minds so real that this work can only claim to be one broad brush stroke in a crucial picture of our world of today and of the future.

⁷Ehrlich, op. cit., pp. 61-62.

C H A P T E R I
R A T I O N A L E A N D O V E R V I E W

Interest in providing an international or world view through education is not new. Various individuals in past centuries have thought and written about it, and others have proposed specific ways of educating people about the world. More recently there have been a number of attempts to conceptualize and organize a new approach to learning about the world which could be taught in public schools. Howard Mehlinger, Leonard Kenworthy, Harold Taylor, Lee Anderson and James Becker¹ are among the individuals who have written on the subject. There are numerous organizations and institutions -- Educational Development Center, World Law Fund, Foreign Policy Association, UNESCO, New York State Department of Education and other state education departments -- which have published materials and suggested various approaches. In addition there are literally hundreds of

¹Howard D. Mehlinger and James M. Becker, International Dimensions in the Social Studies (Washington, D.C.: National Council for the Social Studies, 1968); Leonard Kenworthy, "Developing World-Minded Teachers," in Howard R. Anderson, ed. Approaches to an Understanding of World Affairs (Washington, D.C.: National Council for the Social Studies, 1954); Harold Taylor, The World and the American Teacher (Washington, D.C.: American Association for Colleges of Teacher Education, 1968); Lee F. Anderson, "An Examination of the Structure and Objectives of International Education," Social Education, Vol. 32, No. 7, pp. 639-47; and James M. Becker, An Examination of Objectives, Needs and Priorities in International Education in U.S. Secondary and Elementary Schools-Final Report (New York: Foreign Policy Association, 1969).

individual articles and papers touching upon one aspect or another of "international studies."

Formalized ecological/environmental education, however, has a shorter history in the United States and exists hardly at all in most other nations. Government agencies, such as the National Park Service, the Department of Agriculture, the Soil Conservation Service; and private organizations, such as the Conservation Foundation, the National Wildlife Federation and the Issak Walton League have historically had an educational element in their efforts. Individuals such as Aldo Leopold, Fairfield Osborn, Eugene P. Odum and Edward C. Kormondy² have dealt with conservation, the environment or ecology in an educational context. Only recently has there been a serious effort to think in terms of "environmental education," and its leading proponents have been William Stapp, Clay Schoenfield, Mark Terry and others.

The present work attempts to correlate what has already been done in both areas and to present a curriculum concept and specific materials which would help students view the world as a whole system. This "global systems approach" to

²Aldo Leopold, A Sand County Almanac (New York: Oxford University Press, 1949); Fairfield Osborne, Our Plundered Planet (Boston: Little Brown and Co., 1948); Eugene P. Odum, Fundamentals of Ecology (Philadelphia: W.B. Saunders., 1959); Edward C. Kormondy, Concepts of Ecology (Englewood Cliffs, N. J.: Prentice Hall, Inc., 1968).

a study of the world and its components, both human and non-human, goes beyond the traditional separation of the world into many segments. There is as yet no curriculum which synthesizes many current concepts in international education and ecological/environmental education, although there are many which have individual parts. There is a need, therefore, for a global survival curriculum which would increase a learner's

(1) understanding of the organic nature of the world and of the mutually-dependent interrelationships between the human, non-human and inanimate elements in that world,

(2) knowledge and understanding of the basic elements of global survival and

(3) awareness of particular culturally-derived attitudes and values towards the environment and other human beings.

Combination of international and ecological/environmental education concepts. "In modern society the principle of unity, is producing a higher and higher degree of disorder and disutility."³ This is the basic rationale behind the development of a global systems curriculum. The idea of a global system (which is another way to speak of unity, wholeness and interdependence) has taken several forms. Lee Anderson speaks of the "systemness" of the modern world, as expressed in such things as the expanding volume of world-wide human interaction, the expanding network of cross-national organizations and associations, the increasing similarity in mankind's social behaviors and institutions, and the internationalization of

³Max Ways, "How to Think About the Environment," in The Environment, ed. by Editors of Fortune (New York: Perennial Library of Harper and Row, 1970), p. 207.

social problems.⁴ Kenneth Boulding feels that a curriculum should be built around the concept of the earth as a total system, including the lithosphere, the hydrosphere, the atmosphere, the biosphere and what he calls the "sociosphere" or "anthroposphere."⁵ Arthur C. Clarke has predicted a "trans-national" culture which transcends all geographic borders, linked together by a common communications network,⁶ and Marshall McLuhan coined the evocative phrase "the global village" to describe a world society toward which we seem to be moving.⁷ Boulding, Buckminster Fuller, Archibald MacLeich and Barbara Ward have all chosen the image of the "spaceship earth" to suggest a closed, unified, interdependent system.⁸

⁴Anderson, op. cit., pp. 640-41.

⁵Kenneth Boulding, "Ecology and Environment," Transaction, March, 1970, p. 38.

⁶Arthur C. Clarke, "Beyond Babel," Way -- Catholic Viewpoints, Vol. 26, p. 4.

⁷Marshall McLuhan, Understanding Media (New York, : McGraw-Hill Co., 1964).

⁸Kenneth Boulding, "Education for Spaceship Earth," in Becker, op. cit.; R. Buckminster Fuller, Operating Manual for Spaceship Earth (Carbondale: Southern Illinois University Press, 1969); Archibald MacLeich, New York Times, December 25, 1968, p. 1; Barbara Ward, Spaceship Earth (New York: Columbia University Press, 1966).

Systems in the natural world have been used by ecologists for many years to illustrate the relationships between organisms. Kormondy, Odum, Buchsbaum and others have written clearly and concisely about these systems.⁹

The thesis. If, indeed, the world can be viewed as a system with various kinds of relationships between parts of the natural world, then this can provide a new way to view the world and man's part in it, especially the integration of those elements that humans tend to separate. If we were to take those "international education concepts" suggested by Anderson and others and the basic ecological principles and overlay them with one another, a new, integrative framework for viewing the world may emerge.

Thus, there are several basic themes to this work: that the world is a globe and that there is a systematic operation of its parts; and that people can change and that education is an important part of that change.

Generations have learned to view the world in a particular way: one in which the various parts -- land forms, nations, individual tribes and social groupings, animal life, etc. -- generally are seen as separate entities, with little relationship to each other. Another way of viewing the world, however, is through the "Spaceship Earth" image.

Many have spoken of a "world society" of a "global

⁹Kormondy, op. cit.; Odum, op. cit.; Ralph Buchsbaum, Basic Ecology (Pittsburgh: The Boxwood Press, 1957).

society," both of which have emotional and political connotations. A less controversial term is "global system." At present most individuals do not view the world as interrelated parts which are necessary for the operation of the system. A curriculum which prepares individuals for the world of today and tomorrow should present the world in terms of a global system.

Some specific concepts, which are important in designing a curriculum, emerge from the "Spaceship Earth" image and the idea of the world as a global system. These include interrelatedness, variety and similarity, finiteness, continuity and change, competition and cooperation, and systems and patterns and others.

A curriculum cannot be based only on concepts. It must have related content. Five major issues, which are common throughout much of the current related writing and which promise to be issues for the future, form the areas of content of the curriculum: (1) war, peace and world order; (2) population; (3) resources and their distribution; (4) physical and psychological causes of the deterioration of the environment and economic development; (5) cross-cultural communication and conflict.

The content of a curriculum and the process of teaching and learning are related. A global survival curriculum should give as much attention to the process of learning as the knowledge or facts that are being learned. A crucial element

in such a curriculum is the way values and attitudes are dealt with. Any action resulting from an acceptance or rejection of the concepts and content of a global survival curriculum is an expression of certain values and attitudes. Students should be aware of what these values are and how they can make these choices.

Definition of terms. In this work, the following terms, as defined, will be used:

- (a) a global systems approach refers to a collection of concepts and methods which serve to illustrate the systematic relationships between the human, non-human and inanimate elements of the total environment.
- (b) ecological/environmental education (E/EE) refers to those courses and learning experiences designed to give students a knowledge of and understanding about the relationship of man and other natural beings to each other and their surroundings.
- (c) international education is defined as those courses and learning experiences designed to give the student a knowledge and understanding of the world and its cultures.

Content areas in a global survival curriculum. The basic causes of the "environmental crisis" and the threat to world order have been enumerated by various writers. Falk has identified them as (1) the war system (2) population pressure (3) insufficiency of resources and (4) environmental overload.¹⁰ The Ehrlichs, by the very title of their book, pre-

¹⁰Richard A. Falk, This Endangered Planet (New York: Random House, 1971).

sent a similar list: population, resources and environment.¹¹ Others, such as Commoner, Mumford and Leo Marx¹² view technology and the perversion of science as the principal problem. Others have broken the problems of our environment into various areas -- air and water pollution, population overgrowth, a continued-growth economic system, with an emphasis on consumerism. The most comprehensive list, and the one which most conveniently meshes with the global survival curriculum, borrows the four areas of Falk. A fifth factor, cross-cultural communication and conflict, has been added because of its importance and relation to the other four. The five major areas upon which the synthesis of international and E/EE concentrate are:

- (1) war, peace and world order
- (2) population
- (3) resources and their distribution
- (4) environmental deterioration and economic development
- (5) cross-cultural communication and conflict.

Tied to the content is the process of "Education for Global Survival" and the value and attitude issues which are implied by the curriculum.

¹¹Paul R. Ehrlich and Anne H. Ehrlich, Population, Resources, Environment (San Francisco: W.H. Freeman Co., 1970).

¹²Barry Commoner, Science and Survival (New York: The Viking Press, 1966); Lewis Mumford, The Myth of the Machine (New York: Harcourt, Brace and Janowitz, 1967 and 1970); Leo Marx, Machine in the Garden (New York: Oxford University Press, 1964).

Attitude and value formation and "process education."

For over half a century attitudes and values have intrigued social scientists, particularly psychologists and sociologists such as Allport, Jahoda, Osgood and Fishbein. Examination of values and attitudes toward our environment, however, is newer and the literature is sparse. Lynn White, Jr. has traced the historical development of the present-day ecological conscience back to the scientific and technological movements of the Middle Ages: man moving from being a part of nature to an exploiter of nature; the victory of Christianity over paganism, where there is an implicit faith in perpetual progress; changing from a concept of cyclical to non-repetitive and linear time.¹³ Ian McHarg, in his paper "Values, Process and Form," calls for a "value system which corresponds to the creative processes of the world and both a diagnostic and constructive view of human adaptations and their forms."¹⁴ Lynton Caldwell sees man as having two ways of looking at the physical environment: economic, which implies a world created for man to exploit; and ecological, indicating man is a part of his

¹³Lynn White, Jr. "The Historical Roots of Our Ecological Crisis," Science, Vol. 155, No. 3767, pp. 1203-07.

¹⁴Ian McHarg, "Values, Process and Form," in The Fitness of Man's Environment (New York: Harper and Row, 1968), p. 217.

own environment,¹⁵ and Robert E. Roth has specifically evaluated some of the value and attitude positions in a recent study on environmental management concepts.¹⁶

Roth's scale provides one valuable device for identifying some of the values and attitudes involved, but perhaps the most useful tool is in the work of Edward C. Stewart.¹⁷ He outlines some of the contrasting values between Americans and non-Americans, which will be modified for the purposes of this study to read "technologically-oriented" and "naturistic-oriented." Scales such as these help to identify and categorize values and attitudes relevant to curriculum.

A critical element in the proposed curriculum framework is the emphasis on process education. It has become increasingly apparent that an educative structure must move from a static, traditional, rigidly defined set of facts and concepts to a more dynamic, continual process of learning. Kenneth Boulding believes that "the main object of formal education should be to teach people how to continue

¹⁵Lynton Keith Caldwell, Environment: A Challenge for Modern Society (Garden City, N.Y.: Natural History Press, 1970).

¹⁶Robert E. Roth, "Fundamental Concepts for Environmental Management Education, (K-16)," Environmental Education, Vol. 1, No. 3, Spring, 1970, pp. 69-74.

¹⁷Edward C. Stewart, American Cultural Patterns: A Cross-Cultural Perspective (Pittsburgh: Regional Council for International Education, 1971).

learning,"¹⁸ and the U.S. Office of Education booklet on environmental education stresses that "educational systems must provide the learner with the skills of continuous learning and continuing flow of information about man and his environment."¹⁹ In essence, "education is a process, the making of personal experience out of information."²⁰

Process in another sense is represented by Mark Terry's example of the powerful, unintended environmental lesson he received in high school, when he was encouraged to write theme after theme, teaching him that paper was in infinite supply.²¹ This is what could be called "subliminal process" and is an important part of every educational venture which takes place. Because a global survival curriculum envisions a welding of the environmental and ecological viewpoints to the world of human interaction, ultimately, whatever is said or done is a lesson in the curriculum. Thus, a curriculum would include two kinds of process and is concerned with both a way of learning and a way of living.

¹⁸Boulding, op. cit., p. 42.

¹⁹"Education That Cannot Wait," (Washington, D.C.: U.S. Office of Education, 1971), p. 30.

²⁰Ibid..

²¹Mark Terry, Teaching for Survival, (New York: Ballantine Books, Inc., 1971), pp. 3-4.

Outline of the work. There are five major foci to this work (1) the rationale for the combination of international and environmental education concepts in a single curriculum (2) the definition and review of the content of a global survival curriculum (3) the attention given to process, values and attitudes in the proposed curriculum (4) a survey of international and ecological/environmental education and the identification and analysis of the major curriculum materials (5) examples of teaching materials for a global survival curriculum.

Chapter One presents the rationale and thesis of the dissertation, and identifies the major literature written on the various elements of the work.

Chapter Two first presents the concept of a global survival curriculum, including the combination of the "Spaceship Earth," basic ecological principles, and the global systems view.

Chapter Three identifies the content areas of the curriculum and gives a brief summary of the basic issues involved in each of the areas.

Chapter Four discusses the relationship between content and process as well as reviewing some additional characteristics in the curriculum. A major portion of the chapter focuses on the significance of values and attitudes in the curriculum.

Chapter Five summarizes important developments in international and ecological/environmental education. The most important curriculum materials which have been produced in each of these areas are reviewed.

Chapter Six combines the concepts content and process of the curriculum and contains examples of materials. This portion includes case studies, critical incidents, and simulation games. It concludes with a summary statement about "Education for Global Survival."

C H A P T E R I I

"EDUCATION FOR GLOBAL SURVIVAL:" A CURRICULUM CONCEPT

We focus on some basic themes in this work: that the world we live on is a globe, and that it is a whole earth; that physical survival is a major issue, but just as important is the psychological survival and the quality of life we have; and that people can -- and will -- change and that education is a fundamental part of that change. These themes are not new; many have been touched upon in past curricula, but the educational system has never fully embraced them. They are not all that could be included, so they should not be limiting. They encompass more than the usual interests and concerns of education and provide us with a new perspective to investigate a new view of the world and some ways of teaching and learning about it.

Many who have gone through the American educational system, and perhaps the systems of many other countries as well, have had a compartmentalized education. Knowledge has been broken into disciplines, which have been further divided into fields and those even further into sub-fields. Concepts are put into subjects, subjects into units, units into lessons and so on. The world itself is disassembled and seldom put together again. As with Achebe's book, Things Fall Apart. We

become isolated, alienated, disintegrated and disembodied. Much of this work is about re-integration -- putting things back together again -- with special emphasis on the world of nature and human interaction.

We have been taught to see the world in a strange way. Our globe is a collection of separate nations, not many of which are equal.

We sometimes see a relationship between ourselves and others in "our nation" but only rarely do we see our connections with others outside our boundaries.

We depend substantially upon nature to provide us with life, yet we treat nature with a disrespect and arrogance which belies our dependence. We see ourselves as an unusual kind of animal, one that biologically resembles and replicates many of the "lower" animals, but which acts to deny those similarities.

We see all around us the evidences of stress and conflicting values and priorities -- war, economic and social inequality, pollution and other forms of environmental degradation and an exponentially growing population -- yet we do little to reassess and redirect our efforts.

We need to understand what changes are occurring and what the implication of those changes are.

We need to see the world anew -- to "disenthrall ourselves," as Lincoln said -- before entering again to what we hope will be our own "brave new world."

A world view. In most educational efforts today, whether they be public or private, adults and children are taught to view the world much like a pool table, to use Lee Anderson's image,¹ where various countries are the individual, colored billiard balls on a sea of green. They may touch each other physically, but even so they are presented as separate entities. The image is flat, one-dimensional, separated. Maps reinforce this image, and they are supported by textbooks and other visual materials. Although world globes are used in classrooms, many teachers feel they are "hard to work with."

Even if the physical world is represented visually in an accurate manner, often the "world of people" is presented just like the pool table. We learn about the people "over there" as if what they do has no particular relationship to how we live and what affects us. Even the best of programs often fail in tying things together, so intent are they on getting it all laid out. Thus, we quickly become accustomed to and finally accept the world as a collection of individual, separate and independent countries and people.

At some time in the past this world view, or more accurately non-world view, may have been pragmatic and functional. There was little need to view the world differently.

¹Lee F. Anderson, "An Examination of the Structure and Objectives of International Education," Social Education, Vol. 32, No. 7 (November, 1968), pp. 639-647.

The old view served us adequately, if not accurately, and few thought of the consequences for future generations. But many signs now point another way, indicating this is an outmoded and disfunctional world view. It becomes increasingly harder to reconcile the traditional classroom view of the world with what we see and know about the globe. There is an increasing amount of interrelationships with and interdependence upon other institutions, political bodies and other people.

The shrinking globe. We see people criss-crossing countries and circling the globe in a matter of hours with increasing frequency and regularity. Governments have always had a large number of international contacts; but with new developments and improvements in transportation and communication, people in business, the arts, education, religion -- almost any field -- have a greater opportunity to explore and interact with the rest of the globe. Even those who do not move about can be put in touch with others almost instantaneously, primarily through communication media.

Consider, for example, the large and continually expanding network of cross-national organizations and associations. Societies, associations, compacts and cooperatives abound in all fields. These have few or no official government links, and there is little regard for national boundaries and ideologies in many of these. The Pugwash Con-

ference for instance, brings the brightest scientists together to focus on nuclear armament, and every year there are hundreds of international conferences for scientists, mathematicians, doctors, anthropologists, historians and many others who gather to share information and opinions. They often find they have more in common with each other than with many of their fellow countrymen. The "tie that binds" is their shared interests.

Another example of important non-governmental associations are international businesses, many of which have budgets exceeding those of a number of world nations. A president of one of the largest multi-national corporations has said that "the political boundaries of nation-states are too narrow and constricted to define the scope and sweep of modern business."² Some see the "new globalists" as prime agents for economic development, international prosperity and even world peace by their addressing not the demands of the privileged few but the needs of the overwhelming many.

Another indicator of our changed globe is the increasing similarity in many of man's social behaviors and institutions. Granted there are many differences which exist, but there is also a legion of examples where fashions,

²William I. Spencer, Newsweek, Vol. 80, November 20, 1972, p. 96.

music, dance, and movies, have global influence. While they may have begun in one place, soon they become transformed and adapted to other locales throughout the world. There are numerous companies of the musical Hair, playing from New York to Paris to Tokyo; the musical's subject matter is distinctly American but its appeal is universal. Jazz and rock music are other examples of the same phenomenon. If there is any generation gap, then it is a world wide one; for while the specifics may be different, many of the same characteristics are manifested among young people. They, in fact, may understand better than anyone else the implications of a global society.

Social problems are no longer one country's single purview, if they ever were. Environmental degradation, whether it be through air and water pollution, atmospheric nuclear tests, or the misuse of the world's natural resources, are now multilateral. They require a global view and a global dependence upon one another for their solution. Cross-cultural and intergroup conflict are localized problems in terms of space and time, but their implications for us all are not limited. The Irish "Civil War," the plight of the Pakistani refugees, and the continuing problem of apartheid in South Africa are social issues which we affect and are affected by, through action or by inaction.

When we deal with the issues of the quality of life beyond mere survival, we are no less dependent nor is the

world any less global. Whether it is the sharing of knowledge, the direction and kind of technological growth or the economic development of rich and poor nations, it is increasingly apparent that matters of society and man are inextricably linked.

"Spaceship Earth"

If we are part of a shrinking world, one in which the parts are interrelated and interdependent, then we need a new way to describe this changed world. In the past few years, the concept of "Spaceship Earth" is one which has gained greater currency as a way to symbolize this new view of the world. As early as 1963, United Nations Ambassador Adlai Stevenson used the image:

We travel together, passengers on a little spaceship, dependent on its vulnerable resources of air and soil; all committed for our safety to its security and peace; preserved from annihilation only by the care, the work, and³ I will say the love we give our fragile craft.

Since then, this has been adopted and enlarged upon by people such as Buckminster Fuller, Kenneth Boulding, Barbara Ward and Archibald MacLeich. To Barbara Ward, it is obvious that we have become a single human community and that most of the energies in our society tend towards unity. She feels we have become neighbors in terms of inescapable

³Adlai E. Stevenson, Comment made on July, 19, 1965.

physical proximity and instant communication, in economic interest and technological direction, in facets of our industrialization, in the pattern of our urbanization and in the risk of total destruction. Thus,

the most rational way of considering the whole human race today is to see it as a ship's crew on a single spaceship on which all of us, with a remarkable combination of security and vulnerability,⁴ are making our pilgrimage through infinity.

Buckminster Fuller feels we are all astronauts on the spaceship earth, but we have no instruction manual. Because it is missing, man is learning just how safely he "can anticipate the consequences of an increasing number of alternative ways of extending our satisfactory survival and growth -- both physical and metaphysical."⁵

Kenneth Boulding also agrees when he says:

... the world has become a "spaceship," a rather small, crowded globe hurtling through space to an unknown destination and bearing on its surface a very fragile freight of mankind and the noosphere which inhabits men's minds.⁶

And poetically, Archibald MacLeish has summed it up by saying:

⁴Barbara Ward, Spaceship Earth (New York: Columbia University Press; 1966), p. 15.

⁵R. Buckminster Fuller, Operating Manual for Spaceship Earth (New York: Pocket Books, Inc., 1970), p. 48.

⁶Kenneth Boulding, "Education for Spaceship Earth," An Examination of the Objectives, Needs and Priorities in International Education in U.S. Secondary and Elementary Schools -- Final Report (New York: Foreign Policy Association, 1969), pp. 316-23.

To see the earth as it truly is, small and blue and beautiful in that eternal silence where it floats, is to see ourselves as riders on the earth together, brothers on that bright loveliness in the eternal cold,⁷-- brothers who know now they are truly brothers.

"Spaceship Earth" is a convenient and graphic symbol for some basic propositions for how we view the world. The very concept challenges the Western idea, at least, of what the world is and how we relate to it. It implies the need for re-thinking our idea of the world, re-orienting our attitude toward the earth and its inhabitants and finally changing the way we act. This is a large order, and the challenge is to bring our educational resources to bear on these implications.

What is implied by "Spaceship Earth?" What are some of the concepts basic to the idea around which we can formulate a curriculum? We can first begin with the literal meaning of a spaceship and see the earth as a piece of machinery. The spaceship contains air, water, food and usually people, who depend upon those basics in a fixed amount of physical space. It is a self-contained unit, so that what is used is normally kept on board the craft for re-use or disposal at a later date. The resources the spaceship uses to keep going are well-defined; and although

⁷Archibald MacLeish, "A Reflection: Riders on Earth Together, Brothers in Eternal Cold," New York Times, December 25, 1968, p. 1.

the energy resources may be extended by recycling, there is a fixed amount of resources upon which to operate. In a like manner, the resources which the people in the spacecraft have (air, food, water) are also limited and must be used with good judgement and wise planning. Thus, in this description of a real spacecraft, we can begin to see some of the concepts which a "Spaceship Earth" view of the world implies.

Interrelatedness. The various elements of the spacecraft -- air, food, water, space, people, fuel -- are all closely related to each other in the operation of the craft. If we look at our world, we see that there is a fundamental interrelatedness which ties us to nature and to one another on the globe. There are complicated webs of relationships not only in our own locality or country, but also with people and events around the world. Certainly, what we do and are is affected by others; we likewise affect others.

Two examples, one from nature and the other from the world of human interaction, will illustrate the point. Commercial fish production in Scotland is increased by blocking the lochs to make fish-raising ponds. The young fish need to be fed in labs before they are "planted" in the ponds, and brine shrimp eggs, produced in the San Francisco Bay and the Great Salt Lake in Utah, are the cheapest and most abundant food source. San Fransisco Bay is already

"overfarmed" and the Great Salt Lake is so polluted with insecticides to the point that the brine shrimp eggs can kill the fish that feed off of them. Thus, in an intricate linkage, the insecticide pollution in Utah hampers fish production in Scotland. This would have been of little importance not too long ago because of our isolation from each other, but this can no longer be the case.

The second example deals with the economic policies of the United States. Where in the past it may have been possible to change and adjust our economic policies unilaterally to fit our own needs, this becomes increasingly harder today. The events of the 1960's and 70's have shown that no matter what the United States does, it will affect others in many countries in many ways -- and vice-versa. A readjustment in oil import quotas affects our political relations with Arab nations in the Middle East. A change in the international money market affects the lives of thousands of Japanese textile workers. Across the globe people's lives are altered in large and small ways by the actions of one group of people. One thing is connected to something else, and each is related to the other.

Mutual dependence. In the spacecraft, things depend upon each other. Most importantly, the people in the craft depend upon the air, food, water, fuel and living space for sustenance and well-being. On our own spaceship, mutual dependence is important in the world of nature, but is less

frequently applied in the world of human nature. Mutual dependence, or symbiosis, occurs in nature when one organism is dependent upon the other. Forest trees and a certain fungus (mycorrhiza) have such a relationship. The roots of the tree secrete carbohydrates which the fungi need, and the fungi help extract nutrients from the soil which aid in the growth of the forest trees. These instances of mutualism are more likely to develop between organisms which have widely different requirements. As with interrelatedness, where individual elements in nature are related to each other, so are we dependent upon the plant and animal worlds in what we do and how we live. In much the same way, we should begin to see that there are beneficial -- and crucial -- symbiotic relationships between human beings, as well as in nature. As astronauts on "Spaceship Earth," we depend upon each other for the smooth running of the world -- and as is becoming increasingly apparent -- for our very mutual survival.

Closed system. A spacecraft is a closed system. All of the resources needed to run the craft are contained within the capsule. The resources are finite and if there are to be more, they must come from recycled matter. On our "Spaceship Earth," with the exception of solar energy, all of the world's resources, energy sources and plant and animal life come from within. Western societies, and America in particular, have been living with the myth that

there is always something more, that there is an abundance of resources -- food, minerals, human resources. Yet we've discovered only recently that there may not be that overabundance -- or even an abundance at all. We may find ourselves soon in the position of having to do "more with less," as Buckminster Fuller puts it, because of the convergence of population growth, resource depletion and exponential growth. If we accept the idea that we are living in a world that is a closed system, where there is a finite quantity of resources to exist upon, then some old ideas about the world must change. We can no longer see ourselves as constant users, able to have a never ending "fountain of resources and materials" to fabricate and utilize for our pleasure. We would have to give serious attention to the concept of re-cycling rather than see it as a current fad of the "ecology movement." We would have to revise our idea of "waste," for example. We speak of waste disposal and wasting time and money, yet we fail to see that "waste" doesn't simply go away. It is present, although in a different form. Thus, we never destroy something, only transform it into something else.

Cyclical view. Accepting the concept of a finite world and a closed system also implies a cyclical view of the world. In much of Western thought, the world is seen as being basically linear: one event follows another, one action produces a direct reaction, "one good turn deserves

another." Life is often viewed as progressing along a straight line, and most frequently progressing upward. Others in different cultures, however, see events and themselves in terms of cycles, where events and their existence come full circle: reincarnation; the seasons and their effect upon life; personal relationships which often appear to "Westerners" as convoluted, but often are a part of this cyclical notion of the world. Often these two views of the world are seen in conflict with each other. One popular critique of "Western culture" is that the linear idea is outmoded and short-sighted. Increased awareness of Eastern thought, in particular, has revealed a new way of interpreting the events of life and one's place in the universe. But it may be that neither is the "right" way, but that we need to consider examining each of the views of the world, and particularly the cyclical view, in terms of what we know about the "Spaceship Earth." One concept of the world might be that of a "rolling spiral," where events move along a time line, but they are also cyclical. With this, there would still be a "closing circle" of life, and we could place ourselves in this circle, but it would also account for differences in time and space.

A caveat. As we have seen there are many similarities between the earth and a spaceship. The analogy is so close that it becomes easy to see the entire world in this way. It should be cautioned, though, that the image should not be applied too literally. A spaceship is dependent upon outside, man-controlled electronic ties with "ground control" to keep the systems going. The earth has no ground control, except its own natural system and thus has no outside link, with the exception of solar energy, as does the spaceship.

In general, however, this image of the earth as spaceship is a useful tool when we begin to examine some of the concepts involved in a global survival curriculum. It provides us with a framework in which to place the concepts, the content and the process of the curriculum, and it offers an interesting integrating device for the model. As we begin to look at some of the ecological principles which form part of the conceptual base for the curriculum, the "Spaceship Earth" image should be kept in mind.

Ecological Principles

The field of ecology provides us with some insights which are useful for understanding human relationships in

the world and our relationships with nature. Ecology by its definition involves the study of the interrelations between organisms and their environment, including examining the structure and function of nature. While the field itself is a technical one, there are some simplified principles which summarize the most important concepts necessary for an understanding of environmental relationships, and as an extension, the global survival curriculum.

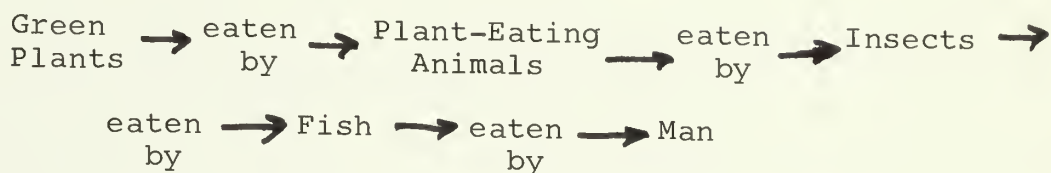
The biologist Barry Commoner, in his recent book The Closing Circle, outlines some of these ecological principles,⁸ which state in a more formal manner some of the basic concepts of the global survival curriculum idea:

- ** Everything Is Connected To Everything Else
- ** Everything Must Go Somewhere
- ** There Is No Such Thing As A Free Lunch

Everything Is Connected To Everything Else. We have already seen the importance of interrelatedness in the spacecraft; there is a similar interrelatedness in the ecosphere. The interconnections which exist among the populations and species of individual living organisms and their physical and chemical surroundings are intricate and complex. Ecologists use the tool of food chains and food webs to depict these complicated relationships. Food chains

⁸ Barry Commoner, The Closing Circle (New York: Alfred A. Knopf, Inc., 1971), pp. 14-48.

describe the process of the transfer of food energy from plants through a series of organisms with repeated eating and being eaten. A typical food chain in a pond or stream might look something like this:



In each of these steps, there is a transfer of energy, and one of the most interesting and important aspects of food chains is the role of man in that energy flow. Howard T. Odum has written an interesting book in which he first deals with these energy flows in ecological systems and then has transferred some of these concepts to social concerns of man -- economics, religion, politics.⁹

Food chains, however, do not exist in isolation. There is an interlocking pattern which connects one food chain with another and this forms a food web. There are numerous illustrations of these kinds of relationships and one example, reproduced in Appendix A, is a section of a food web of a Long Island estuary. In this example, if the marsh plant - cricket - redwing blackbird cycle could be isolated from the rest of the web and the blackbirds were removed by the man-initiated action (hunting), then there

⁹Howard T. Odum, Environment, Power and Society (New York: John Wiley and Sons, 1971).

would almost certainly be an overabundance of crickets, since they are the primary food source for the blackbirds. An increased number of crickets competing for food would lead to a cricket "plague", and soon the marsh plants would be defoliated. This would then lead to the eventual devastation of the crickets, cutting their numbers back to a reasonable size. One change in the system can have important -- and sometimes disastrous -- consequences for the entire system. But food webs, although delicately balanced mechanisms, are not static. Often natural occurrences, as opposed to man-made actions, cause the web to get out of balance. The results are the same as before, however.

We can see at least three things working here: first, interconnectedness, secondly, the dynamic equilibrium which is kept in these systems and thirdly, the importance of complexity in producing stability, i.e. the more elements there are to a system and the more relationships, the more stable it will be. Web is an apt term for this set of relationships, for an ecosystem is like a net, where each knot is connected by several strands. If one is cut or becomes frayed, the others will hold weight until it can be repaired or mended.

The analogy to social interaction between two cultures, or many cultures, should not be lost. Although human relationships between people are more complex than the physical relationship between plants and animals, we

should consider looking at the social systems as an ecosystem in itself. Interconnectedness is perhaps the easiest part of the analogy to see. We have already looked at some of the ways our globe is shrinking, and most of these involved the increasing amount of contact between people. With more contact, we begin to see that what we do affects another, and vice-versa. We are not isolated beings, who can take unilateral action, although we may act that way at times. We are part of a whole system and are inextricably joined to each other, if by nothing more than we exist on the same piece of spatial property. Just as in the food web example above, one change in a human system can have important -- and sometimes disastrous -- consequences for the whole system.

In many ways we recognize the importance of a dynamic equilibrium in interpersonal affairs. In many instances we consciously or unconsciously try to keep it by our own will. At other times, though, we employ truces, compromises, agreements and treaties to preserve a state of equilibrium. Without a certain equilibrium at work, human existence would be an extremely precarious business.

What we are aware of, but in many ways have not yet come to accept, is the importance of complexity in producing stability in the world of human interaction. We have always thought of homogeneity and simplicity as being the most conducive to social stability, but these might sometimes

make it more difficult. Perhaps this complexity helps to offer enough alternative styles and adaptation characteristics for the world and human life to continue.

We see the connection between ourselves and others close to us -- family, good friends, associates -- and we have been taught that we have a special relationship with those in our nation state. However, when we go beyond this and extend the concept of interrelatedness to others who are not part of our particular political unit or general cultural group, we find a peculiar ethnocentrism sets in. "No man is an island, entire of itself; every man is a piece of the continent, a part of the main," is something many hear but few really understand. If we accept that everything is connected to everything else in the natural world, then perhaps we should consider more seriously the idea that everyone is connected to everyone else in the world of human interaction. This would mean that we cannot act in isolation nor in the abstract, but must be aware of and consider the effect upon someone and everyone else.

Everything Must Go Somewhere. We are accustomed to seeing our world as a limitless body where we use -- and then "dispose of" -- resources. However, as the astronauts' explorations of space have shown us, everything used in the tiny capsule they are in must go somewhere. On our "Spaceship Earth," the failure to recognize a simple law of

physics -- that matter is indestructible -- has lead to many of the current problems of depletion of resources and excessive waste.

Although it may be more difficult to make a direct analogy, the "Everything Must Go Somewhere" principle has important implications for our view of the world of human interaction, as well as our view of the physical world. We cannot dispose of human relationships or feelings, just as there are no "waste" products. We have family, friends, acquaintences and what we do with them is a permanent part of our experience. In turn they, and the people affected by them, are part of a larger consciousness of the world. On a global scale, we see that human interaction is like a stone dropped in water in a pond. Our actions start a rippling effect, which do not leave the pond, but spread out and then bounce off the shore to return to us.

There Is No Such Thing As A Free Lunch. This principle is borrowed from economics. In an ecological sense, everything extracted from the environment by human effort -- no matter what it is -- must be replaced in some way. This encompasses the other two principles in some ways. Because we live in a global ecological system where everything is connected to everything else, and where everything must go somewhere, we must pay for what we do in some way, whether it be "paying for" in a beneficial or detrimental sense. Or stated another way, "every gain is won at some cost."

We have been operating in Western societies as if there were many "free lunches," both in nature and in our relations with other people and nations. We have abused the natural order beyond its own tolerance, and we have often abused people beyond their own tolerance. We have extracted from the ground, the oceans and the air without regard for the cost of that extraction. We have often extracted from other human beings (through war, injustice and discrimination to name a few,) life and wealth without thinking of the consequences or cost of that extraction. The laws of ecology provide a framework in which to consider our own actions and their consequences for ourselves and for others.

Additional Curriculum Concepts

While the "Spaceship Earth" image and the ecological principles form a general conceptual framework for the curriculum, there are other concepts which are an important part of "Education for Global Survival." These will not be discussed at length here; the purpose of including them is to illustrate the breadth of the conceptual base. In succeeding chapters, we will examine how some of these concepts combine with the content and process to make a total curriculum.

A brief summary of these additional concepts follows.

Variety and Similarities

Likeness and difference abound among living and non-living things. There are a variety of functions, sizes, and structures which

exist in plants, rocks processes and people. There are also enough similarities to allow them to be classified into relatively orderly patterns.

Evolution and Adaptation

Living and non-living things alter and develop over a long period of time. An organism adapts to its environment through this process of evolution and then heredity takes over and preserves the continuing elements. Those characteristics that make adaptation possible are also the traits that are most likely to be passed on from generation to generation. This insures the survival of the species.

Finiteness

Closely related to Commoner's "law" that "Everything Must Go Somewhere," the finiteness of the universe is an essential concept of the global survival curriculum. It implies that there is a limited amount of resources, whether physical or human, and that there must be limits on the use of these resources. There is an end point which can be reached in terms of the utilization of matter and energy.

Continuity and Change

Living and non-living things are in a state of constant change. As a result there is a dynamic quality to the universe. We can see this in galaxies or in body cells and systems. In spite of this constant change, some things remain the same. Matter and energy change in form, but never can be created or destroyed.

Competition and Cooperation

All living things compete and cooperate in some form. Some exist and survive because of their competition; others continue to live because of their cooperative instincts and behaviors. At times one or the other can become dominant, but usually they are in a delicate balance with each other.

Life Cycles

Among living things there is a cyclical nature to their existence. The major elements of this are birth, reproduction and death. The cycle may vary in length, and in some instances the reproductive phase may not occur, but in general this holds true.

Communication

Among living substances there is often an avenue or system of communication which makes it possible for one to transfer information or feelings to the other. This system of communication may be either verbal or non-verbal and may or may not be recognized by others.

Systems and Patterns

Much in the universe occurs in a systematic fashion, where there is an interrelationship and dependence on various parts. Sometimes these systems are cyclical and other times there is a traceable relationship between the "in-put" and the "out-put." Organization patterns are found in inanimate objects (such as rock formations) as well as in the social organization of groups of people and animals. There are functional patterns and spatial arrangements which occur both in nature and in artistic design.

Interaction and Interdependence

Nothing exists in isolation. Living and non-living things are interacting with each other at all times. An individual interacts with family, friends, and the rest of the world, and these depend on the individual to function properly. This is a continuous process and continues after death, since dead life nourishes the living.

Ethnocentrism/Egocentrism

Human beings, and perhaps other forms of animal life, are ethno- and ego-centric. They have a self-centered view of life and come to believe that their particular social

grouping or nation-state is unique and above all others. This is expressed in competition and works against mutual dependence.

"Global Systems" Concept

There is another concept which provides an additional lens for viewing the world. For many years individuals have spoken of a "world society" or a "global society," both of which have emotional and political connotations which have often obscured the concept. A less controversial term is that of a "global system."

Man is beginning to recognize and understand more about systems (any set of interrelated elements) in our own daily lives. For instance, an educational system, contains a whole set of interlocking parts -- students, teachers, buildings, administrators, employment opportunities, etc. -- which act together to make a complete system. We speak of a computer system. We are familiar with a heating system, containing a thermostat, furnace, fuel oil, registers, ducts, and other essential mechanisms for a system to transfer the heat. This collection of interrelated parts works in a certain way to produce a specified result or a number of results, some of which continue to make the system run and other which are "output."

An equally important aspect of a system is the dependence of the parts upon each other. As with the heating system, if the thermostat is missing, the heat may be pro-

duced but there may be too much or the furnace may be overworked. Obviously, if there were no furnace in the heating system, there would be no heat and little of a system. Thus, if we define something as a system, the separate parts have to work together and the absence of any of the parts weaken, or in some cases obviates, the system.

We have already discussed many of the parts of the global system. Man and his relations with other men is an essential part of the system, but just as important is man's interaction with the biosphere. Each part of the system, whether it be man, other animals, plant life, the elements or energy has a specific and essential part in making the system work. The system will work without some of the parts, but does not work well. One part depends on the other and together they make the whole.

If we continue to enlarge the concept of the system, however, we find that from a broader viewpoint the earth system is just one part of a larger cosmic system, which probably contains similar sub-systems comparable to the earth system. We can quickly see that the global system concept takes us beyond a simple "world society" view or even an elementary understanding of the mechanics of the system into a radically different view of the world, the universe, and our place in it.

As we have seen, an important aspect of any system is the interrelatedness of its parts. This is also true of the

global survival curriculum. The concepts, which we have examined in this chapter; the content; and the process are each essential parts, but they do not stand in isolation. Each must complement the other in order to form an integrated curriculum. As we explore some of the implications of a global survival curriculum, we shall begin to see some of the relationships between these various elements. We have already examined some of the basic concepts, and we shall now turn to a review of the content that is included in the "Education for Global Survival" model.

C H A P T E R I I I

THE CONTENT OF "EDUCATION FOR GLOBAL SURVIVAL"

In the previous chapter, we examined the image of "Spaceship Earth" and some of the basic concepts connected with a global survival curriculum. To be useful, however, such a curriculum cannot be built entirely upon concepts. There must be content which translates the general concepts into specific terms and gives learners a substance to deal with. While the content in this chapter focuses on some issues, it should be kept in mind that these issues are related to the concepts we have examined in Chapter II. In this chapter, we shall first explore each of the five content areas identified in Chapter I, and then examine in the concluding portion of the chapter how they are related to each other and the global survival concepts.

Choice of issues. There are many ways a global survival curriculum could be divided. The issues and questions dealt with are broad and far-reaching. We have tried to select those areas which affect the greatest portion of the world population, whether directly or indirectly and which are generally recognized as being crucial problems for most of mankind. Some have been issues and problems for years and ages, some are contemporary problems, and others fall into the "future" category. There are some which, while of current importance, e.g., drug abuse and use, are often the result of some of the larger issues.

In the past, religion has played a large part in determining what would cause the Armageddon, and the causes often focussed on morality and faith. For early man it was the ravages of nature, or those caused by a super-natural spirit. Disease and plagues were likely candidates in Western Europe for many centuries. In more recent times, the questions about man's survival have often focussed on the psychological and technological. The basic issues have been enumerated by various contemporary writers. Richard Falk, in his book This Endangered Planet, concentrated his attention on the war system, overpopulation, depletion of natural resources and the general deterioration of the environment.¹ Paul and Anne Ehrlich focus on population, resources and the environment in their book.² Others, with Commoner and Mumford being major examples,³ view technology and the perversion of science as most important. There are also many others with their own particular bias who have identified a whole host of specific issues currently facing many

¹Richard A. Falk, This Endangered Planet (New York: Random House, 1971), pp. 93-213.

²Paul R. and Anne H. Ehrlich, Population, Resources, Environment (San Francisco: W.H. Freeman Co., 1970).

³Barry Commoner, Science and Survival (New York: Viking Press, 1966); Lewis Mumford, The Myth of the Machine (New York: Harcourt, Brace and World, 1967).

"developed" nations:⁴ air and water pollution, population overgrowth, food production and distribution, a continued-growth economy, urbanization, space utilization.

From these various sources, we have chosen five major issues which are universal in nature, which form a common thread throughout much of the current environmental and international writing and which promise to be issues for the remainder of the 20th century and for a significant part of the next century. These are not all-inclusive, and certainly any plan for a global survival curriculum would include provision for periodic revisions and updating. However, these five issues provide us with a take-off point in terms of content for the global survival curriculum concept. They are:

- (1) war, peace and world order
- (2) population
- (3) resources and their distribution
- (4) environmental deterioration and economic development
- (5) cross-cultural communication and conflict.

⁴The term "developed" nations is inaccurate in my view. It implies a static state that some nations have reached and others have not when, in fact, there is a significant, if not incredible, dynamic occurring which we have not recognized until recently. The Limits to Growth graphically illustrates these dynamics at work. All nations then are developing.

To some, it may seem that these are limited to only a certain part of the world: those countries that are heavily industrialized and Western-oriented. Do they take into account the non-industrialized nations of the world and their problems? Except for localized problems of environmental degradation and deterioration, each of these affects all countries to some degree. Certainly war and cross-cultural conflict are part of everyone's world, whether they live in America, Russia or the so-called "Third World." Distribution of resources is one of the major issues of the world and the split between the economically "rich nations" and "poor nations" affects anyone who falls into either of these categories. If we recognize a global view of mankind and the interrelationships which exists between all men and their actions, if we see ourselves as mutually-dependent entities on this earth, then it is difficult to categorize things as "Western" problems and "non-Western" problems.

In the remainder of this chapter, we shall focus on each of these areas and highlight some of the major issues associated with each. This is not, however, a comprehensive survey. There are extensive sources of information about each of the areas; some of these are mentioned in the footnotes to each of the sections and others are listed in the bibliography at the end of this work. To treat each of the five areas with any completeness would require several volumes. The intention of this section is to illustrate

some of the issues involved, and some of the major positions that have been taken by those associated with the field.

There is a need for a more complete summary of the basic information and alternative strategies for action for each of the areas. Unfortunately, much of the writing is too technical for the layman, or is exhortatory and "doomsday" writing. A start in this direction has been made through the publication of five papers prepared for a Global Survival Studies Colloquium at the University of Massachusetts,⁵ but a more complete outline of the information and alternate courses of action would be helpful for teachers and non-teachers as well. The material in this chapter is, thus, one beginning toward this goal.

War, Peace, World Order

Thinking and writing on war, peace and world order has occupied -- and tormented -- individuals for centuries. But the massive destructive power of nuclear energy radically changed the traditional game -- and the stakes. Ever since nuclear power left the laboratories and became a political and social force as well as a physical one, scholars, politicians, students and citizens of many countries have

⁵Comparative, International and Global Survival Studies Program, "Global Survival Studies: Five Papers" (papers published for the Faculty Colloquium on Comparative, International and Global Survival Studies, University of Massachusetts, Amherst, Massachusetts, Fall, 1972).

been compelled to examine with greater urgency the causes of war and the conditions for peace. Since the early sixties public knowledge and opinion about nuclear weapons and armaments has drastically changed, so that we now consider voluntarily limiting such arms.

As an environmental issue the use of nuclear weapons is the ultimate environmental threat. It is clear that we are able to destroy others, ourselves and the natural world which surrounds us in several swift strokes. Despite some conflicting opinions concerning the aftermath of a major nuclear war, mere survival would be extremely precarious, not to mention what kind of world man would be "surviving" in. The destructive effects of the detonation of nuclear devices are drastic enough, but added to this is the mutative effect of nuclear radiation. There would likely be a major change in the environment, including a radical change in the nature and composition of men and animals. Although there are some who feel "clean" weapons can avoid this situation, our present state of technological development in nuclear energy, and the "mistakes" which have been made, cast some doubt on our ability to control these effects. For the most part, we have avoided dealing with the moral responsibility involved, and schools have failed to adequately deal with the implications of such power and destructiveness.

If nuclear weapons and the use of these weapons are the ultimate environmental threat, conventional warfare is not far behind. Thus the destruction of towns and buildings, the devastation of fields and the natural environment, the simple use and waste of tremendous amounts of energy for destructive purposes -- the side effects of war -- all have an effect upon the environment and our lives. There are many who will argue that war is unfortunate, but necessary. Others hold that preparation for war is insurance of peace. But if we look at all the effects of war, not just the win/lose column, we find that the long-term results, particularly with the possibility of nuclear destruction, should generally make war a non-viable alternative to peace.

This still leaves unanswered the question of why man wages organized war upon those of his own species. Again, there has been extensive examination of this question. Some find answers in the territoriality of human beings, the effects of social and ethical systems on man, ethnocentrism and egocentrism and how they are taught, and the religious explanation of essential evil, which expresses itself in

the capacity for destruction and original sin which all men possess. Konrad Lorentz, Robert Ardrey and Desmond Morris⁶ have written on the aggressive and the competitive aspects of man and the counterparts to this in other animals.

Roderic Gorney challenges this and demonstrates that cooperation, not competitiveness, is the central law of life.⁷

All of these views should be part of the curriculum so that students will deal with them as social and practical issues -- ones of life and death.

Peace, on the other hand, has often been associated with weakness. Peace is often viewed as a mutually-agreed upon breathing spell between the competitive and destruction manuevers of war. Peace is seen as stability; war as progress. To many, peace is dull, war is exciting. In war we know what to do and it's a "safe" course; in peace we are often lost and have few goals. War provides a reason for living and dying; in peace people have to find a rationale for living -- and dying.

One of the recent criticisms in the United States is that there is a war system which is consciously and unconsciously operating. A war system is defined by Falk as "a

⁶Konrad Lorentz, On Aggression (New York: Harcourt Brace and World, 1966); Robert Ardrey, The Territorial Imperative (New York: Dell Publishing Co., 1971); Desmond Morris, The Human Zoo (New York: McGraw-Hill Book Co., 1969).

⁷Roderic Gorney, The Human Agenda (New York: Simon & Schuster Inc., 1972).

set of social and political relationships in which the members of a social group expect that violence is likely to be used to settle conflicts with other foreign groups and with hostile factions within their own midst."⁸ A war system has many parts which work together and depend on each other. The "military-industrial complex" is one of the parts of the system, as are the complex and tangled relationships which are involved in the Vietnam war.

In a like sense there is a peace system which is often at work. Families, schools, churches and tribes operate as a peace system under normal conditions. Violence is rarely threatened or expected in these situations. Problems arise when men choose to use the war parts of the system rather than the peace parts. There are, of course, types of psychological violence which are perpetrated and may be as destructive as physical violence, but this is not normally thought of as "peaceless." What we have not found the capacity -- or perhaps will -- to do is to make the peace system work as well as the war system. It seems we know how to conduct war but that we are rather inept at waging peace. It may be we do not understand the system as well and are at a loss as to how to go about using it. One of the roles of education in the future may well be to understand and make functional a global peace system.

⁸Falk, op. cit., p. 105.

Some feel the best way to insure "global peace" is through a system of world government. For the most part, they say, nations act under their own sovereign law and inter-government organization at present is often agreed to when there is little to be lost. They argue that not until governments realize the value of giving up some of their sovereign powers to a world governmental structure will the dangers of war and many of the causes of human suffering be allayed.

There have been various projects, studies and organizations established over the recent years to investigate and advance the idea of a world government. Grenville Clark and Louis B. Sohn⁹ have worked on the legal problems of setting up such a structure. Falk and Mendlovitz¹⁰ have gathered into four volumes writings on war prevention, international law, disarmament and economic development for use by scholars and students. Such groups as the Institute for International Order with its World Order Models Project, under the direction of Mendlovitz, and the World Federalists have done a great deal to heighten public awareness of the possibilities and problems of such a global political system.

The World Law Fund, the Center for War/Peace Studies and the Foreign Policy Association have been the major

⁹Grenville Clark and Louis B. Sohn, World Peace Through World Law (Cambridge: Harvard University Press, 1958).

¹⁰Richard A. Falk and Saul Mendlovitz, The Strategy of World Order (New York: World Law Fund, 1966).

bodies concerned with education about a world order system. Curriculum materials have been published, and in-service teacher workshops have been held. Yet, much still remains to be done to expose students to the concept of a world order system and have them grapple with some of the real political and social implications of such a system. The global survival curriculum is one framework for continuing and expanding these efforts.

Population

A distinction should be drawn between population and population growth and control. Most of the popular literature deals with the issues of growth and control because the author's assume there is a population problem. The study of population is, of course, a different matter. One can study demographic trends and various factors associated with population and not arrive at the conclusion that there is an "overgrowth" of people.

Of all the current environmental problems, population and pollution have been given the most public attention. Both are dramatic and visible, especially in their impact on resources and our environment. Population is particularly controversial. In no other area, perhaps, is there so much difficulty in gaining consensus among the "experts." Most can agree on a good part of the demographic data and the existence of exponential growth, but beyond this there is

little agreement. Some believe that population is the "root of the evil:" more people cause more demand for food, space, goods and products. They make a strong case that until population is brought under control that there is no possible hope for survival. Garrett Hardin has succinctly drawn the issue in his "The Tragedy of the Commons."¹¹ Others feel the problem is that there are not enough goods, food or services for the population that now exists or that of the future. This has been called the "Malthusian-Marxist Debate" and is reviewed in some detail in a valuable paper by Clark.¹²

Those who do feel there is a population problem have difficulty in agreeing on exactly what the problem is. For some, the possible lack of food is the major issue.¹³ Others focus on the impact of large numbers of people upon the environment.¹⁴ And still others feel it is the combination of

¹¹Garrett Hardin, "The Tragedy of the Commons," Science, Vol. 162, 13 December, 1968, pp. 1243-48.

¹²Leon Clark, "World Population," (paper presented at the Faculty Colloquium on Comparative, International and Global Survival Studies, University of Massachusetts, Amherst, Massachusetts, Fall, 1972).

¹³William and Paul Paddock, Famine-1975 (Boston: Little, Brown Co., 1967); Georg Bergstrom, The Hungry Planet (New York: Collier Books, 1967); Paul Ehrlich, The Population Bomb (New York: Ballantine Books, 1968).

¹⁴The Report of the Commission on Population Growth and the American Future, Population Growth and the American Future (New York: New American Library, Inc., 1972); Robert and Leona Train Rienow, Moment in the Sun (New York: Ballantine Books, 1967).

these and other factors (space, economics, resource utilization) that create the "problem."¹⁵ With this much disagreement, it is no wonder that population is a volatile and emotional issue.

It is clear that a re-examination of values and attitudes toward population growth and control is necessary. Our concepts of birth, death, and life itself must come into question. There are myriad questions from abortion to birth control to monetary incentives and rewards for non-births which politicians and the world citizenry will have to consider. The ethical and moral structure, to say nothing of the social structure, of any society with a large population will be challenged. A natural result of this challenge should be education for the viable alternatives open to people, as well as the tools for decision making.

Resources and Their Distribution

Resources are an essential part of any nation's or society's ability to exist. Without the raw materials for basic subsistence or to produce goods for

¹⁵Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, The Limits to Growth (New York: Universe Books, 1972).

consumption, the society will eventually die. A growing society, of course, needs more and more goods to keep itself alive and running. In the United States, this growth has been generally viewed as a good thing, a sign that the country is healthy and "progressing." Recently, however, the concept of a continually expanding economy has been called into question. The Limits to Growth shows the results of a world population growing exponentially, and as a result using resources at an exponential rate.

The critics of the expanding economy point out that there is an ever-increasing use of the non-replaceable natural resources and that we will soon come to the point where some of the most crucial ones -- coal, iron, copper, for example -- will simply be exhausted or become economically unfeasible to extract from the earth. Still others see the resource problem as one of energy of all kinds -- electric, nuclear, radiation, solar -- and question whether, from whatever sources, we can provide the energy sufficient to meet the needs of even a small increase in population. Optimists feel we have not begun to tap the resources we already have. They point to the fact that we are continually finding new reserves which we had not previously known existed, such as the Alaskan oil field, and they emphasize that many resources are being recreated and replenished.

In recent years as the question of resources has moved

from being merely important to crucial, an increasing amount of study has been done on the problem and the issues involved. Part of the task has been to bring the facts together and the work of Resources for the Future and the Conservation Foundation have been outstanding in this regard. Early in the 1960's both of these held major symposia and published the results.¹⁶ More recently the National Academy of Sciences held a series of conferences dealing with resources and man and issued a study with the same title.¹⁷ As preparation for the United Nations Conference on the Human Environment, MIT has published Man's Impact on the Global Environment.¹⁸ Both Forrester's World Dynamics¹⁹ and the Meadows study mentioned previously deal extensively with resources and resource depletion.

While few of these agree on the specifics of the immediate threat or what future actions should be taken, there

¹⁶Hans H. Landburg, Leonard L. Fischman and Joseph L. Fisher, Resources in America's Future: Patterns of Requirements and Availabilities, 1960-2000 (Baltimore: Johns Hopkins Press, 1963); F. Fraser Darling and John P. Milton, Future Environments of North America (Garden City, N.Y.: Natural History Press, 1966).

¹⁷Committee on Resources and Man, Resources and Man (San Francisco: W.H. Freeman Co., 1969).

¹⁸Massachusetts Institute of Technology (SCEP), Man's Impact on the Global Environment (Cambridge: Massachusetts Institute of Technology Press, 1970).

¹⁹Jay W. Forrester, World Dynamics (Cambridge: Wright-Allen Press, 1971).

is basic agreement that nations of the world will have to confront the issues of a continually-expanding economy and population, and the resultant increased use of resources. At first glance this area may appear to many as the least value-laden part of "Education for Global Survival," because so much is involved in the statistical analysis of the nature and quantity of resources. But upon closer examination, we find that the facts surrounding resources and their depletion and distribution contain a number of potential value and attitude questions. The factual materials concerning resource reserves and energy potential, for instance, are the raw material for certain policy decisions which must be translated from general terms into specifics of personal behavior. The issue is the balance between limiting consumption and increasing production. Another key question concerns recycling.

The questions surrounding the depletion of natural resources are closely tied to those of the inequitable distribution of the world's resources. There is no debate on whether world resources are mal-distributed; natural forces have already caused this, and man has done the rest. The deserts of North Africa are certainly not as rich and fertile as the plains of the United States. On the other hand, the great cities of the world can point to few natural resources of their own to explain their richness. They are in large part built and maintained from the resources which

exist in other parts of the world. This maldistribution has been dramatically emphasized by the information that the United States has 6% of the world's population and somewhere between 40-60% of the world's resources. An obvious example of this is the food in U.S. supermarkets. The potential energy stored in the shelves and cases in these buildings is dramatic, and often wasteful. Most people in the "developed" nations exceed the minimum daily energy levels which have been set for human beings, but few have made the connection between these excesses and the condition of those in the "underdeveloped" countries.

Barbara Ward has cogently analyzed the problem of the rich nations and the poor nations.²⁰ She points out that there is every possibility that the gap between the rich and poor nations will continue and perhaps enlarge. The information provided by Limits to Growth makes it clear that the distribution of resources and the economic gap existing between nations is likely to become wider. One question, then, is whether or not there will be a voluntary redistribution of resources and wealth among the nations of the world. Ehrlich feels that the developed countries have to recognize that "their fates are inextricably bound up with those of the UDC's (underdeveloped countries). They must further recognize that their patterns of resource utiliza-

²⁰ Barbara Ward, The Rich Nations and the Poor Nations (New York: W.W. Norton Publishers, 1962).

tion cannot continue and that dramatic measures must be taken to effect some level of redistribution of the wealth of the world."²¹ Some proposals have been made along this line, the most notable of which is that of Andrei D. Sahkarov of the U.S.S.R. who suggests that after America and the U.S.S.R. have "overcome their alienation," they should collaborate on a massive program which would commit the developed countries to contributing 20 percent of their national income over a period of fifteen years to the underdeveloped nations. Much of this would be a "no-strings attached" contribution funnelled through international organizations. If the task of dealing with the value and attitude questions involved with the use and depletion of natural resources and the issues of zero-growth economy are difficult, they pale beside those of a voluntary redistribution of wealth throughout the world.

Environmental Deterioration and Economic Development

As mentioned before, pollution and population are the two most "popular" elements of the present environmental concern. Pollution has been especially important because of the visible effect it has had on our lakes, rivers, countryside and cities. We can see pollution, and often can identify where it comes from and who produces it, even though we are not able to always

²¹Ehrlich, op. cit., p. 302.

do something about it. But pollution is part of a much larger problem which can be defined as the physical and psychological causes of the deterioration of the global environment.

The list of transgressions against the environment is long and well-known. For a long time, man knew that deterioration of the environment in which he lived was occurring, but only in the past few years have the effects been documented well enough to provide some hard information for scientists and the public. Such information as:

- ** air pollution in a variety of forms damages over 500 million dollars worth of crops annually²²
- ** the American consumption of tetraethyl lead in automobile fuel has risen from 1 million pounds per annum in 1924 to 700 million pounds per annum in 1968. About 75% of this ends up in the atmosphere, which means that it can be absorbed by human beings and lead to lead poisoning²³
- ** there is growing evidence that noise in the 90-decibel range may cause irreversible changes in the automatic nervous system. A

²²Ibid., p. 118.

²³Ibid., p. 135.

jet airplane taking off at close range emits 120 decibels²⁴

** Lake Erie is turning into a dead sea from water pollution. The Potomac River has been described as an "open cesspool." The Hudson River is so polluted that much of it is no longer relied upon to provide water to the cities which draw upon it.

** British and American breastfed babies consume 10 times the recommended amount of dieldrin. Some babies in Australia are exposed to 30 times as much.²⁵

There are hundreds of other examples which can be used to illustrate the problems of pollution and its effects upon our world. The issue of pollution has been greatly amplified, though, by many writers and environmental activists. Many view the solution as "cleaning-up" as if the air, the oceans or land areas are like a large house that needs a little elbow grease. To many, it is obvious who the transgressors are; "businesses" do most of the polluting and they ought to pay the price for creating an unpleasant environment. Others see technology as the solution, and believe we can control pollution and other forms of environ-

²⁴Ibid., p. 140.

²⁵Ibid., p. 133.

mental deterioration with new methods and machines.

The other strong view, however, is that environmental deterioration is a result of much deeper factors, and the basic, underlying causes of pollution will continue no matter how much "cleaning-up" we may do. It is the converging forces of population and continued economic growth, they say, that move a society to greater production and as a result greater "waste" and pollution. The more people there are, the more goods they demand, which requires more industrial production. This production is a primary cause of the pollution in the more "developed" countries. In addition, the strong economic force of continued growth makes it imperative that there be more consumption and thus greater production. The growing society is evidence of societal health and well being. Yet, there is an increasing number of concerned people who feel quantity does not equal quality. They hold that a non-growth economic structure may be necessary to provide non-material benefits to all. To these "static state economy" advocates, society must decide what maximum level of goods is necessary to meet the basic needs of all citizens. A small number feel there is little possibility that a "static-state economy" can exist in the competitive market place, where greater production and profits are the goals.

Obviously there are enormous implications in any change of this kind. Even the discussion of such a shift

in our economy and modes of production is controversial in some quarters. The issues are full of questions concerning the things which we value and our attitudes toward life and what is important. The Western view of the world as a constantly expanding and growing body is challenged. Our idea of progress is questioned, and our concept of security is shaken. These are not easy to deal with in the classroom, but it is important that questions be raised and that available information is provided.

We have briefly examined some of the issues involving the physical aspects of environmental deterioration. Another element is the psychological, which can be divided into two components. One is the psychological causes of the deterioration of the environment and the other has to do with the psychological effects. The psychological causes deal mainly with values and attitudes. We have looked at some of these questions in this chapter, and will examine it in more detail in Chapter Four. It suffices to say here that dealing with these causes is an extremely important part of a curriculum in global survival.

As for the psychological effects of environmental deterioration upon humans, we know our environment has a profound effect upon the way in which we act and react. There is increasing evidence of a relationship between environmental problems and the way people behave toward their environment. As an example, McHarg related a disturbing

study in New York City where the area between Park Avenue and the East River, 59th to 96th streets was extensively examined and compared with the rest of the city. The average density of the area is 600 persons per acre, four times that of Manhattan, ten times that of Bronx-Brooklyn and 130 times that of Staten Island. In a comparison with the rest of the city, it was found that in the study area, there was three times as much suicide, accidental death, tuberculosis and infant mortality and ten times as much alcoholism. Most disturbing of all, in the sample population, "twenty percent were so mentally incapacitated as to be indistinguishable from patients in mental hospitals, a further sixty percent showed symptoms short of impairment and only twenty percent were free of symptoms of mental disease."²⁶

Cross-Cultural Communication and Conflict

Of the five topic areas of global survival, cross-cultural communication and conflict is often the hardest to grasp. The term, admittedly, is general, and it is difficult to know just where cross-cultural communication and conflict "fits in." Yet, these two aspects of cross-cultural relations form an extremely important base for looking at the other four areas of global survival.

²⁶Ian L. McHarg, Design With Nature (Garden City, N.Y.: Natural History Press, 1969), p. 194.

Cross-cultural refers to the comparative and contrastive analysis of social behaviors, both in terms of individuals and a society. Often confusing is where the dividing line is drawn between communication of individuals in various sub-cultures in a national grouping and those of other nationalities. There are a few convenient ways to make this distinction. International communication implies a certain political, rather than cultural situation. It is concerned with the formal communication in large groups, usually in the form of nation-states, rather than small groups or one-to-one contact. Intercultural communication focuses on the communication between members of different cultures and is usually less formal. Intracultural and interethnic communication are special types of intercultural communication.

Why is this important? What value is there in looking at cultures in this way? One of the interesting phenomenon of human psychology is the individual's ability to view himself and the culture around him as the center of the universe. The consequences of this egocentric and ethnocentric view can be seen in world events, both large and small. Racism and prejudice often results from seeing oneself as better than other types of human beings in the world. Religious strife and conflict often result from a belief that the particular religion is the center of things. Wars and other types of armed aggressive behavior most often

occur because one group of people feel that they are "right" and others are "wrong."

Instances of miscommunication among people of two different cultures often occur because each is coming from a particular viewpoint and cultural background. From childhood, many grow up seeing things the way their parents, friends and acquaintances do. Schools foster this belief by their heavy concentration on transmitting the prevailing culture to the students, without much consideration of alternative cultures and other modes of thought and behavior. As a result many continue through life with a "distorted" view of the world and others in it. Their reactions, whether they be to the Russians or to ethnic groups within their own borders, are colored by this.

Cross-cultural communication has been examined by anthropologists, sociologists, psychologists and communications experts in some depth. Scholars such as Mead, Kluckhohn, Wedge, and Oliver have looked at the field through a variety of lenses.²⁷

²⁷Margaret Mead, "A Case History in Cross-National Communications" and "Some Cultural Approaches to Communications Problems," in The Communication of Ideas ed. by Lyman Bryson (New York: Institute for Religious and Social Studies, Harper and Row, 1948); Clyde Kluckhohn, Culture and Behavior, ed. by Richard Kluckhohn (Glencoe, Ill.: Free Press, 1962); Bryant Wedge, Visitors to the United States and How They See Us (Princeton, N.J.: D. VanNostrand Co., 1965); Robert T. Oliver, Culture and Communication (Springfield, Ill.: Charles C. Thomas, 1962).

Edward T. Hall in his two books²⁸ deals with some of the "non-verbal" elements to communication such as space and time. Edward C. Stewart and others with the Human Relations Resources Office in Washington, D.C. have examined some elements of cross-cultural communication, with special attention on the practical application of some of the theory. The Peace Corps also has been very interested in the effect of cross-cultural communication upon Volunteer service, and has commissioned a major study to determine the most effective kind of training.²⁹ The Regional Council on Education at the University of Pittsburgh has compiled two volumes of readings in intercultural communication, especially as it relates to conducting cross-cultural workshops.³⁰

Richard E. Porter has written a valuable essay on the entire subject. He holds that cross-cultural communication is "cultural variance in the perception of social objects and events. The barriers to communication caused by this perceptual variance can best be lowered by a knowledge and understanding of cultural factors that are subject to

²⁸Edward T. Hall, The Silent Language (Garden City, L.I.: Doubleday and Co., 1962); and The Hidden Dimension (Garden City, N.Y.: Doubleday and Co., 1966).

²⁹Albert R. Wight and Mary Anne Hammons, Guidelines for Peace Corps Cross-Cultural Training (Estes Park, Colorado: Center for Research and Education, 1970).

³⁰David S. Hoopes, ed., Readings in Intercultural Communication, Volumes I and II (Pittsburgh, Pa.: Regional Council for International Education, 1972).

variance, coupled with an honest and sincere desire to communicate successfully across cultural boundaries."³¹ He suggests eight variables which influence perceptions and affect meaning:

- (1) attitudes,
- (2) social organization
- (3) patterns of thought
- (4) roles and role prescriptions
- (5) language
- (6) use and organization of space
- (7) time conceptualization
- (8) non-verbal expression.

These are not isolated within themselves; attitudes, for example, do influence patterns of thought. Porter divided attitudes and how they affect cross-cultural communication into several sub-categories: ethnocentrism, world view, absolute values and stereotypes and prejudices.

Intercultural conflict is often an outgrowth of the lack, or failure, of intercultural communication. This kind of conflict differs from war. War, many feel, is more organized and the force of arms is used more frequently, although intercultural conflict is an important part of the causes of war. The causes of intercultural

³¹Richard E. Porter, "An Overview of Intercultural Communication," in Intercultural Communication: A Reader, ed. by Larry A. Samovar and Richard E. Porter (Belmont, Calif.: Wadsworth Publishing Company, Inc., 1972), p. 5.

conflict are numerous, and they have been clearly outlined by Snoek in his paper on "Inter-Group Conflict and Communication."³² He lists several causes including cultural norms, parental influences, education and socio-economic status, personal contact, cooperative or competitive interactions, authoritarian personality types, and dissimilarity of beliefs and values.

The implications of cross-cultural communication and conflict for the global survival curriculum are enormous. As members of the crew of the "Spaceship Earth," it is crucial that there be communication with others in our own culture as well as others on the planet. An examination of what we know about communication and conflict across cultures, as well as an understanding of their importance for our and future generations, should be an essential part of the curriculum. In addition, an understanding of the relationship of values and attitudes we hold to the lack of communication and to the incidence of conflict is necessary.

This has been a brief look at the major areas of concern of a global survival curriculum. Each of these are obviously complex areas and any thorough treatment of them in a school curriculum would require a detailed and exten-

³²J. Diedrick Snoek, "Inter-Group Conflict and Communication," (paper presented at the Faculty Colloquium on Comparative, International and Global Survival Studies, University of Massachusetts, Amherst, Massachusetts, Fall, 1972).

sive structure. They are not areas which could be dealt with in several weeks, or even several months. They should be integrated into the curriculum from the earliest grades through college level. They are not separate as we have described them here, but interlock and interact with each other, one effecting the other.

Content and concepts. We have already examined some of the concepts of a global survival curriculum in the second chapter and have looked at the content that should be used to build the curriculum in this chapter. As mentioned before, these are not separate elements, but are tied to one another. Interconnectedness is an important part of a spaceship and in ecology, and this is true in the content areas of the global survival curriculum. While population, for example, may be studied as an isolated topic, it takes on crucial importance in relation to diminishing resources and increasing pollution. Many believe that population growth is responsible for creating tensions and conflict in various cultures. One element in war and cross-cultural conflict is the distribution of resources, both within nations and among nations. We can begin to see there are numerous other instances where the content areas are connected with each other.

The content areas and the concepts of the curriculum are connected in another sense. If we look at the concepts outlined in Chapter II (variety and similarities, continuity

and change, competition and cooperation, finiteness, etc.), we can begin to see that these concepts mesh with the content. For example, if we are focusing on the subject of cross-cultural communication and conflict in the curriculum, a number of the concepts provide an organizational framework. We could examine the idea of variety and similarity and the relationship to communication and conflict. Certainly, cooperation and competition are important ideas to be considered. Some feel that evolution and adaptation are essential elements in the way humans live with each other, and are in evidence in communication and conflict across cultures. An understanding of ethnocentrism and egocentrism is also important. Or, if we were examining environmental deterioration we need to look at the natural world and the effects of environmental stress. This requires an understanding of the principles of ecology and the role of variety and similarity in the natural world. We can see the relevance of evolution and adaptation to understanding the role of animal and plant life in the environment. Life cycles are extremely important, and a concept of interaction and interdependence would be crucial.

Thus, the concepts which we explore in Chapter II are a foundation upon which each of the five content areas of the curriculum rest. The concepts cut across each of the content areas and provide integration for the curriculum. Ideally, a student would not only gain an understanding of

the basic issues involved in the curriculum but also become aware of a conceptual framework which could be applied to each of the five areas.

In the next chapter, we will explore some questions concerning process in the curriculum. We shall first consider the relationship between process and content, then examine some of the most important processes and finally focus on the importance of values and attitudes in a global survival curriculum.

C H A P T E R I V
PROCESS AND THE ROLE OF VALUES AND ATTITUDES IN THE
GLOBAL SURVIVAL CURRICULUM

Process and content, as separate elements in education, have been recognized by observers for a number of years. Content has generally been seen as a fixed body of knowledge an individual should learn and have at his fingertips -- a kind of insurance policy or savings account that any well-educated person possesses. It is a classical view of education, and typical of many liberal arts courses. Process, the way something is presented rather than what is presented, has been a relatively simple matter, until recent years. Teachers have had courses in instruction, methods and techniques and have learned about lectures, testing, evaluation, and group discussions. Only recently have teachers been exposed to an increased repertoire of teaching techniques. What has been noted by some, listened to by others and seemingly understood by a few is the connection between content and process.

This connection is often a subtle one. Process affects, and often dictates, content; likewise content affects and dictates process. Marshall McLuhan identified this content-process phenomena in the now familiar phrase "the medium is the message." A news event reported by the radio, a newspaper or television would necessarily be presented differently in each instance, and is likely to be interpreted differently by the receiver, because of the limitations and possibilities of the medium of presentation. If this same principle is applied to an educational setting then the particular methods or process one uses strongly influences the way in which the content is received.

Teaching about cultural differences is an example. We read a descriptive passage -- anthropological, sociological, psychological -- about the cultural characteristics of a particular people. It explains how they differ from our own culture. Discussion follows and certain inferences and conclusions are drawn from the reading and discussion. If this were all that was done, the student would not only be learning about the cultural differences but he would also be learning about a process of education. He might well assume that it is possible to describe a particular culture and cultural differences as a rational and disinterested observer and, thus, one can adequately learn about people in this fashion. On the other hand, we could present the same information through a simulation, which represented

the culture as accurately as possible. The student could adopt certain kinds of behaviors, which he was not necessarily committed to but could gain some feeling for. In addition to the content of the lesson, which might be drawn from the same sources as in the first example, there would be, to use Dewey's term, a concomitant learning from the process: the possibility of removing ourselves from the reality in which we live and adopting another way of behaving to "see how it feels." The second method will probably be more "real" to the students. Each have an appropriate place in the classroom, but in using each, teachers and students should be aware of the process, as well as the content.

In the global survival curriculum, the issue of content and process becomes very important. Mark Terry, in his book Teaching for Survival,¹ gives a small, but important, example of the connection between content and process. The lesson he learned in school about paper was that there was always a continual and ever-abundant supply. While this was not a lesson included in the curriculum outline -- the "real" lesson was the correct usage of English and good theme writing -- the powerful, unintentional lesson was that there was no need to worry about where paper came from, how it got there and whether there would be any more. Or another example: although possible, it would seem difficult to deal

¹Mark Terry, Teaching for Survival (New York: Ballantine Books, Inc., 1971), pp. 4-5.

with the area of cross-cultural conflict and communication without doing something about it. If the teacher and students spend weeks talking about the whole issue but did nothing to investigate what is meant by cross-cultural communication in their own classroom, then the lesson would seem to be empty. The facts may have been presented, but they may have little or no meaning in terms of behavior. What may have been learned is that cross-cultural communication is not very important or possible, because we personally don't do much about it. Both of the examples are evidence of what could be called concomitant learning or a "hidden curriculum," often unintended or unthought of, but which produces a significant and lasting impression upon the learner.

Other Curriculum Characteristics

There are a number of other characteristics, which grow out of a personal philosophy of teaching and learning, of a global survival curriculum which are related to process. We will examine some of these in the following pages, and will see them emerging later in the materials discussed in Chapter VI.

Active vs. "Passive" Learning. Many of the social studies and science textbooks and workbooks developed in the first half of the 20th century, are largely passive materials, requiring reading and writing. The curricula efforts give greater attention to the value of activity-based learning, where the students are real participants in the learning process. In many ways, the sciences were quicker to adopt this approach because of the "scientific method" required for experiments in a laboratory situation. Even so, in secondary schools, laboratory activities are often relegated to a less important role than the "textbook teaching." In other academic areas, especially the social studies and English, very little creative work has been done with experiential learning. The inquiry approach, as represented by the Fenton materials,² is a significant step toward greater student involvement; but materials such as this are too often used in the same way as older materials.

It is this heavy dependence upon the textbook or the "pre-formed experience" that we are attempting to move away from in "Education for Global Survival." A major goal of

²Edwin Fenton, Holt Social Studies Curriculum (New York: Holt, Rinehart and Winston, 1967).

the curriculum is a blending of content with activity and experience, so that the experience becomes the content and vice-versa. If the classroom for the global survival curriculum is based in the whole earth that surrounds us, then it is important to provide experiences which can be related to that whole world. This is not being done very effectively at present. One of the major deficiencies of our educational system is the lack of primary learning experiences. Information and experiences are distilled, packaged and presented to us in a palatable form, allowing us to be the receptors of an experience rather than the producers of or participants in them. Textbooks, multi-media packages, filmstrips, films and workbooks are, by their very nature, replacements for the essential experience which they are trying to illuminate.

Television has certainly influenced many of our ideas about education in the past twenty years. Television viewing is primarily passive; the audience is acted upon rather than active. Even Sesame Street, in spite of its wide success and popularity, prepares and presents information, and it is still easy for the viewer to remain passive.

On the other hand, much of education and the transmission of knowledge is a distillation of facts and the experiences of others. If we were to rely entirely upon primary experiences for learning, we would find ourselves reinventing the wheel each time another child was educated.

Primary learning experiences and experiential learning are not the same as beginning at the beginning, but rather are a way to provide more relevant and alive learning settings for students -- of whatever age.

An example may serve to clarify this distinction. Recently, a high school social studies class in Winnacoonut, New Hampshire Regional High School was studying archaeology. The students had learned basic principles and had a good academic grasp of archaeology. However, the teachers felt that some real experience would be valuable. They discovered the site of a nearby house that had been burned in the early 1900's and had been left undisturbed until the late 1950's. The cellar hole became an archaeological dig for the class. The students spent a number of days uncovering artifacts, classifying them, examining them, and finally, back in the classroom reconstructing what life must have been like at that time. It was a real experience which made use of local resources. It served to provide a primary experience in archaeological surveys which one normally only reads about in a National Geographic magazine or in textbooks. While the digging itself was a primary experience, the basic principles of archaeology were reviewed before and after the dig actually took place, providing a blend of more abstract knowledge and the primary learning

experience.³

Experiential Learning. There is often the assumption that the quantity of experiences a student has is the most important thing. And just as often experiential learning becomes a succession of apparently unrelated experiences, which remain isolated from each other. Schooling, if it is more than merely a simulation of "real life," must include a conscious examination and analysis of experiences which the student has both in and out of school. This examination is difficult for both students and teachers, and rightly so. It requires the objectivity of an anthropologist combined with the insight of a psychologist.

To fully explore experience as a teaching and learning device would be the subject for another dissertation, and in fact, these have been written. John Dewey, of course, has been the most prominent spokesman for the past half century, and most experiential learning theory eventually returns to his writings. These brief comments arise from the author's experiences in a variety of teaching situations. They also summarize what seem to be the most important aspects of experiential learning as related to a global survival curriculum.

Too often it is easy to interpret this kind of learn-

³Winnacoonut (New Hampshire) Regional High School, Report of the Archaeology Project (mimeographed), 1972.

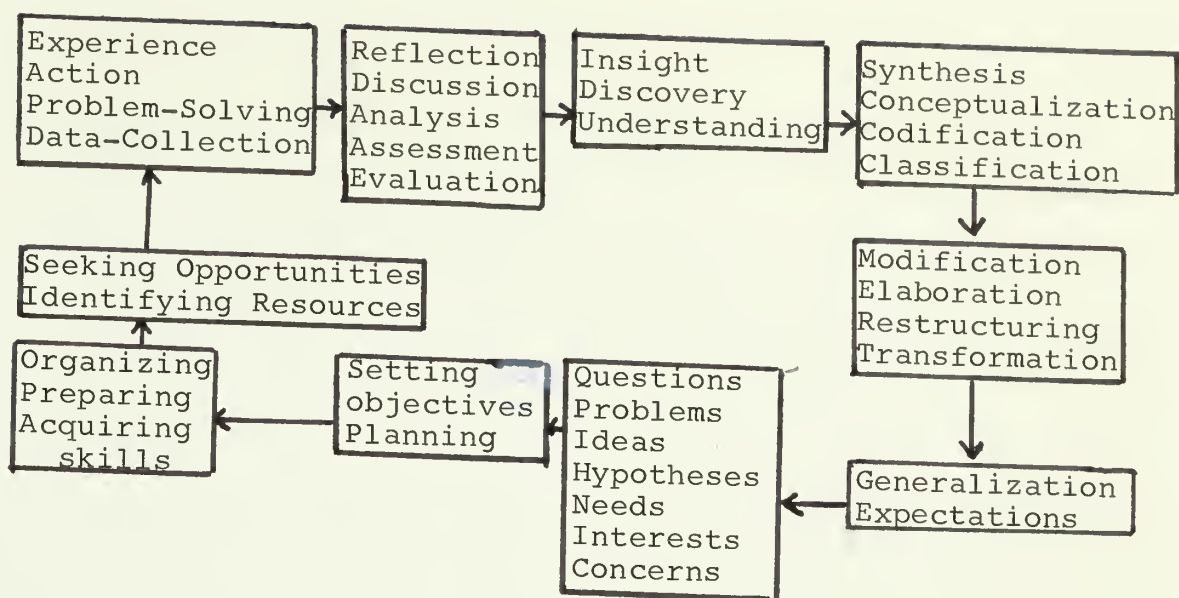
ing as consisting only of the undistilled experience itself. Preparation for and the analysis following an experience is just as crucial. There are instances, however, where the responsibility for organizing the learning and analyzing the experience will be primarily upon the learner. Without tools to do this the experience will probably remain isolated, without a great deal of educational value.

There are several levels of complexity connected with experiential learning. One is the spontaneous experience which is often accidental. This experience may be significant in terms of potential learning value, but it will generally be the individual's responsibility to make something out of it. Planned experiences are by definition more conscious and intentional. In these cases the process of experiential learning has three basic steps: preparation, the experience and conceptualization. Any experience should begin with a period of preparation, when the students begin to understand what they are going to do and gain skills to do it. Following this preparation period is the experience itself. In most cases there should be some consistency to it, which does not mean a minute-by-minute schedule. Any "plan" can always be modified depending on what occurs in the experience, but there should be some thought about the experience before it happens. Reflection and consolidation following the experience is crucial, yet this often receives the least attention. It often makes the difference between

experiential learning seen as isolated experiences strung together and something bound together in an organized whole. The consolidation process should consist of two steps: an immediate review of the experience, while it is still fresh in students' minds, and a less intensive examination some time after the experience. For example, if a class were to play the simulation game "Culture Contact"⁴ a review period should follow immediately to analyze what people did, and what they said, and how they acted toward each other. The second stage of the consolidation should be at a later date when the specifics of the game would not be as important as the broader issues raised. The conceptualization need not only be discussion; writing, and other forms of creative expression, testing, students teaching other students, research and a variety of other methods can also be used. A convenient conceptual scheme for examining the process of experiential learning is the model on the following page which has been devised by Wight and Hammons.⁵

⁴Abt Associates, Inc. Culture Contact (Cambridge, Mass.: Abt Associates, Inc., 1969).

⁵Albert R. Wight and Mary Anne Hammons, Guidelines for Peace Corps Cross-Cultural Training, Part I (Estes Park, Colorado: Center for Research and Training, 1970), p. 14.



In examining this area, we should keep two other factors in mind. In the case of either spontaneous or planned experiential learning, students must be given some tools with which to examine their experiences. In the latter case, this can be done in or outside of the classroom by a variety of devices, some of which have been mentioned previously. But with spontaneous learning, the individual must rely on his own tools to analyze the experience and draw some conclusions about its meaning. Although schools often claim the contrary, few really try to develop these "experience-analysis" tools for students. Thus, students often have a difficult time making sense out of their experiences. Reflection on our own experiences is often difficult but necessary, and a good curriculum should include these skills.

The other factor to be aware of is the delayed learn-

ing that can take place. Learners are often too close to the original experience to have the kind of perspective needed for analysis. Many times this does not occur until weeks, months, or perhaps even years after the experience. One example is provided by returned Peace Corps Volunteers. Many Volunteers realized that they had had a significant experience, but frequently they could only describe the experience in personal, non-analytical terms. For people who had not had the same experience, it was often difficult to find out what learning really had taken place. Yet, several years afterwards many of these same Volunteers could talk at length about the experience and what it meant to them in a more abstract, and often eloquent, way.

Interdisciplinary and Integrated. A global survival curriculum should be interdisciplinary and integrated. If we accept John Muir's statement concerning nature that "when we try to pick out anything by itself, we find it hitched to everything else in the universe," then this should be no less true in human activity -- and in school curriculum. Unfortunately, the history of curricula shows that this is easier said than done. There are examples too numerous to mention where schools and teachers have compartmentalized knowledge and experience into a group of sub-categories and bits and pieces which, while making sense in themselves, make little sense in terms of a whole. Part of the explana-

tion lies in the problem of exponentially exploding information in the world. So much knowledge is being coalesced, distilled and widely distributed that it is practically impossible for any one person to understand and assimilate even a significant portion of the information that is available. Thus specialists, knowledgeable about a particular sub-speciality, become necessary in a variety of fields, whether it be science, medicine, social sciences or English. Yet, Buckminster Fuller points out that "extinction was a consequence of overspecialization."⁶ He argues that the functions of specialists today will eventually be taken over by machines and man should be using his creative energy in thinking of the world in general, conceptual terms rather than in specialized compartments. What man is best at is not specialization but generalization.

Interdisciplinary learning are those activities where individual disciplines lend their perspective to a concept, idea or problem under examination. Interdisciplinary work or study requires a willingness to look at the broader picture. It demands a teacher extend himself in order to cut across subject matter lines. It requires a healthy amount of flexibility and openness and a commitment to learning anew. And lastly, it requires a cooperative spirit among

⁶R. Buckminster Fuller, Eric Walker and James R. Killan, Jr., Approaching the Benign Environment (New York: Collier Books, 1970), p. 23.

all those involved.

Integration of various disciplines extends interdisciplinary learning further. Where interdisciplinary work brings various disciplines to bear on a particular problem, integrative study should begin to combine these various viewpoints into a whole. Integration must be done on a conceptual, rather than at the subject matter, level because there it is possible to see the network of interrelationships that exist between individual disciplines. Ideally, a curriculum might be devised that was not divided into any subject areas but which flowed into a kind of Gestalt, surrounding the individual, which he, with the help of the teacher, forms into a whole. This is what we experience in our everyday lives, but often it is difficult to separate out all the stimuli that daily bombard us -- aesthetic, cognitive, philosophical, poetic. An integrated education should help the student recognize and understand these stimuli as parts of a whole. The proposed curriculum and the examples of materials are one attempt to demonstrate how integration might occur in a global survival curriculum.

Student-Centered Learning. The teacher has traditionally been the focus of attention in an educational setting; materials and educational experiences were usually devised for the teacher rather than the students. Lip service has been given to the "needs" of the students, but essentially the teachers have decided what is most important

for the students to learn. In the past few years, student-centered learning is an area which has received much attention. In "new" student-oriented curriculum materials, in theory, there should be a greater emphasis on the student having control over his own learning. Critics of these materials often feel that much of what is presented as student-centered learning, is really teacher-centered learning but in new clothes. The materials tell the teacher what the students ought to do or tell the students what the teacher wants them to do. If they were really student-centered, critics say, the learning decisions would be placed in the students hands, and as a result the ultimate power for learning. The most extreme of the critics would obviate the need for a teacher, except as an "organizer" of learning experiences.

The adopting of either of these two views -- clearly teacher-oriented or clearly student-centered -- as the "right" way seems to imply a false dichotomy. It is true that education -- both teaching and learning -- is not merely the transmitting of information from the authority on high to the uneducated below. But, if the students' role in the educational process is seen as all-powerful, then the knowledge and experience of the teacher is denied. The teaching-learning process is a complementary one, in which all participants are being "educated." There is a whole series of relationships involved: teacher-student;

student-teacher and student-student. A teacher can provide information and help make students' experiences more meaningful. The students, by their interaction with each other and the teacher, often serve as teachers themselves. The teacher should also be a learner, cognitively and affectively. He should be learning about himself in the process of teaching as well as learning more about the content matter and ultimately what learning is. In short, he should be an integral part of the process of education.

Values and Attitudes

While knowledge of the facts surrounding the issues of global survival are important, decisions to act are based largely on attitudes toward the issues and value choices of individuals. Global problems have been viewed primarily as one of the ways we treat our environment rather than the way we feel about the world which surrounds us. Few regard the problems as psychic ones as well as physical ones. It is often difficult to recognize the influence values, which are deeply ingrained, and attitudes, which are often hidden in our subconscious, have over our behavior. They are important we know, but just how important, we don't know. As a result schools,

and education in general, tend to give little attention to value and attitude concerns; the search for factual knowledge tends to dominate. In a global survival curriculum, it is crucial that values and attitudes be dealt with on a level equal with the cognitive concerns.

In the twentieth century, the area of attitudes and attitude measurement has been investigated mainly by psychologists and sociologists. There is a large body of theory about attitudes and, a number of definitions. Chave⁷ sees an attitude as "a complex of feelings, desires, fears, convictions, prejudices or other tendencies that have given a set or readiness to act to a person because of varied experiences." Thomas and Znaniecki⁸ define them as "individual mental processes which determine both the actual and potential responses of each person in the social world," and Lundberg⁹ regards them as denoting "the general set of the organism as a whole toward an object or situation which calls for adjustment." Allport¹⁰ calls an attitude "a

⁷Ernest J. Chave, "A New Type Scale for Measuring," Religious Education, Vol. 23, pp. 364-69.

⁸Marie Jahoda and Neil Warren, ed., Attitudes (Baltimore: Penguin Books Inc., 1966), p. 19.

⁹George A. Lundberg, Social Research (New York: Longmans, Green Co., 1929).

¹⁰Gordon W. Allport, "Attitudes," in Handbook of Social Psychology, ed. by C.M. Murchison (Worcester, Mass.: Clark University Press, 1933).

mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related." Whatever the definition of attitudes, it cannot be denied, as Allport also has said, that "attitudes determine for each individual what he will see and hear, what he will think and what he will do." To borrow a phrase from William James, they "engender meaning upon the world."¹¹

Psychologists, sociologists and educators have also examined individual and societal values. Hunt and Metcalf¹² define them as providing an individual with "a set of beliefs about himself in relation to his social and physical environment which are extensive in scope, dependable in action, and compatible with one another." Raths, Harmin and Simon¹³ see values as "those elements that show how a person has decided to use his life," and the dictionary defines them as "the things of social life (ideals, customs, institutions, etc.) toward which the people of the group

¹¹Ibid., p. 18.

¹²Maurice P. Hunt and Lawrence Metcalf, Teaching High School Social Studies (New York: Harper and Row, 1955), p. 52.

¹³Louis E. Raths, Merrill Harmon and Sidney B. Simon, Values and Teaching (Columbus, Ohio: Charles E. Merrill, 1966), p. 6.

have an affective regard." These values may be positive, such as cleanliness, freedom, and education, or negative, such as cruelty, crime or blasphemy. Values indicate the whole range of things an individual attaches worth to and considers important in the conduct of their daily lives. While more could be said about the definition of values and attitudes, we are primarily interested here in determining what are some of those values and attitudes that affect our behavior toward the environment.

Little has been written. Lynn White, Jr., in a recent Science article,¹⁴ traces the historical development of the ecological conscience. He contends that the ecologic crisis is the product of an emerging, entirely novel, democratic culture, which tended to unify the "brain and the hand." Much of our present day thinking is due to the scientific and technological movements of the Middle Ages: man moving from being a part of nature to an exploiter of nature; the victory of Christianity over paganism, where there is an implicit faith in perpetual progress; changing from a concept of cyclical to non-repetitive and linear time. Robert Disch in The Ecological Conscience has collected a series of articles which approach value questions in a general way. One of these, by Ian McHarg, deals with value, process, and

¹⁴Lynn White, Jr., "The Historical Roots of Our Ecological Crisis," Science, Vol. 155, No. 3767, 10 March 1967, pp. 1203-07.

form. He states that "this view of the world [the increase to life forms, habitats and roles, symbiotic relationships and the dynamic equilibrium in the system] as a creative process involving all of its denizens, including man, in a cooperative enterprise, is foreign to the Western tradition that insists upon the exclusive divinity of man, his independent superiority, dominion and license to subjugate the earth. It is this man in whose image God was made." This concept he feels is "a residue from a past of inconsequence when a few puny men cried of their supremacy to an unhearing and uncaring world. One longs for a psychiatrist who can assure man that his deep-seated cultural inferiority is no longer necessary or appropriate." He states that "the Judeo-Christian-Humanist view...has bred and sustained man's simple-minded anthropocentrism and anthropomorphism... [in this view] man is exclusively devine, all other creatures and things occupy lower and generally inconsequential status; man is given dominion over all creatures and things; he has enjoined to subdue the earth." In his view the essential ingredient of an adequate view of the world is "a value system which corresponds to the creative processes of the world and both a diagnostic and constructive view of human adaptations and their form."¹⁵

¹⁵Ian L. McHarg, "Values, Process and Form," in The Ecological Conscience, ed. by Robert Disch (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1970), pp. 21-36.

Caldwell implies value judgements and determinations throughout his book on the environment and public policy, and in his chapter on "Environmental Management as an Ethical System" states some of the principles guiding his conclusions in other parts of the book. He feels our attitude toward the environment may have historical and religious roots, as suggested by White, but they may also result from "human vanity, slovenliness, and an urge for excitement. The tasks of ecological protection and maintenance are essentially 'housekeeping chores.'"¹⁶ He sees man as having two ways of looking at the physical environment: economic, which implies a world created for man to exploit; and ecological, indicating man is part of his own environment, which exists in dynamic equilibrium governed by natural laws which cannot be disregarded with impunity. Finally, he feels that necessity, rather than prudence, should govern our actions and that we should develop an "ethics of respect."

Value/Attitude Scale. These commentators have noted some important aspects of the relationship between values and attitudes and the environment. They provide a starting point to organize the values and attitudes into a useful tool for teachers and students. At present, there is no

¹⁶Lynton Keith Caldwell, Environment: A Challenge for Modern Society (Garden City, N.Y.: Natural History Press, 1970), p. 234.

accepted scale of environmentally-related values which one can readily refer to in designing curriculum. Robert E. Roth has specifically evaluated some value and attitude positions in his recent study on concepts for environmental management education, and his scale provides a useful device for identifying some of those values and attitudes.¹⁷

The most helpful tool in determining some of the values involved in various views of the world is taken from the work of Edward C. Stewart.¹⁸ He has done a great deal of work in examining cross-cultural problems as differences between patterns of thinking, assumptions and values. Part of his work has been to outline and describe such assumptions and values as form of activity, form of relation to others, perception of the world and perception of the self, placing particular stress on the relativity of values. His thinking has been modified in the Wight and Hammons manual¹⁹ and put in tabular form. This table has been adapted for our purposes, primarily by changing Stewart's categories "American" and "Contrast-American" to "Technologically-Oriented Man" and "Naturistic-Oriented Man."

¹⁷Robert E. Roth, "Fundamental Concepts for Environmental Management Education (K-16)," Journal of Environmental Education, Vol. 1, No. 3, Spring, 1970, pp. 69-74.

¹⁸Edward C. Stewart, American Cultural Patterns: Cross-Cultural Perspectives, Dimensions of International Education, No. 3 (Pittsburgh: Regional Council for International Education, 1971).

¹⁹Wight and Hammons, op. cit., Part II, pp. C-761-771.

Technological-Oriented
Man

Naturistic-Oriented
Man

Natural World

1. physical viewpoint
2. mechanical orientation
3. use of machines

1. spiritual viewpoint
2. organic orientation
3. disuse of machines

Nature of Man

1. apart from nature or
from any hierarchy
2. changeable

1. part of nature or
of some hierarchy
2. permanent

Relationship Between Man and Nature

1. goods are unlimited
2. man should modify nature

1. goods are limited
2. man should adjust to the
natural order

Approach to Activity

1. concern with "doing"
progress, change

1. concern with "being"
(relating, status)

Basis of Evaluation

1. utility (does it work)

1. essence (idea)

Generalized Forms

1. lineal (time)
2. efficient and material
(space) cause and effect
3. material, substantive
(essence and energy)

1. non-lineal
2. formal causes
correlative thinking
3. spirit, energy

4. world stuff expansive
(unlimited goods)

4. world stuff restricted
(limited goods)

Stewart's model suggests further work should be done in defining and expanding his work to include other values and attitude factors which relate directly to environmental concerns which could then serve as taxonomy to design and evaluate curriculum and global survival education activities.

In the next section we will look at a way to use the guide to values and attitudes in designing learning experiences which combine the cognitive and affective aspects of "Education for Global Survival."

Value/attitude classroom examples. We have chosen three specific examples of classroom application. We will first look at a particular problem (content), then some of the attitudes related to the content, and finally some classroom approaches (process) which can be used. In these examples, the content will be drawn from problems of environmental stress in America, but as we have seen the stress placed on Lake Baikal in the Soviet Union, the use of DDT in India or Japanese mercury poisoning is just as important. Understanding the relationship between man and his environment cuts across national boundaries and ethnic chauvinism.

Solid Waste

The disposal of solid waste materials is a complicated

and continual problem. The annual figures for waste disposal in the United States are roughly: 55 billion cans, 26 million bottles and jars, 65 million metal and plastic bottle caps, 150 million tons of urban solid wastes, 7 million junked automobiles, 3 billion tons of waste rock and mill tailings dumped near mine sites. Disposal of this incredible amount of material by either burning or burial carries with it the problems of air and water pollution, and burial involves the additional problem of being a breeding ground for rats, cockroaches and flies. While there are measures that have and can be taken to ameliorate the solid waste problem, it still remains massive in proportions and will require both legislation and education.

Obviously, what is disposed of must come from somewhere. The basic raw materials that are used produce this and other solid waste matter are not unlimited. Fossil fuels are being eaten up at an increasing rate. Other mineral and ore deposits are being rapidly depleted, and there are few prospects for fresh resources. Just as apparent is the affect that large population growth has on the amount of goods and materials that must be produced for consumption. The fact that we can produce and consume such an immense collection of solid matter is evidence that there are some strong value factors at work. The solid waste problem demonstrates three of the value/attitude areas on the previously discussed Stewart scale:

Stewart Category: generalized forms -- world stuff expansive (unlimited goods). The consumption of most goods depends upon the natural production of resources with which to make the goods. The consumer of those goods (man) affects the amount of resources which are available. If man sees the world as containing an unlimited amount of goods, then he is not concerned about the amount he consumes. Since there has always been more, there will always be more. To see the world as an unlimited reservoir of resources encourages behavior of liberal usage rather than conservation of resources.

Stewart Category: nature of man -- (apart from nature of any hierarchy). If the material man consumes comes from nature, then by his consumption he is affecting the non-human world or the world of nature. If he views himself as apart from the world, then what he does makes no real difference. An attitude of not being related to the animal world produces dissonant behavior in relation to that world. If what we make and use affects other levels of the natural world, then we cannot separate ourselves from that world.

Stewart Category: approach to activity -- (concern with progress, change). With a view of man's relation to the world as one of change and progress

rather than with being at one with the world, there is a greater tendency to disregard and discard what is in the natural world. Items have low value since they will be disposed of or become obsolete. We must prepare for the world of the future rather than exist in the world of the present. Thus, when presented with the possibility of keeping and sharing, we choose individual ownership and disposal.

To deal with this problem on a junior high level, the teacher could devise a simple simulation game which would illustrate not only the dimensions of the problem but also the attitudes and values involved. Five to ten members of the class would participate in the simulation, and they would "play" various citizens of a small town. Each would assume a definite role to illustrate the range of values present: the conspicuous consumer, the frugal saver, the ecologically conscious citizen, those in the middle. They would have a variety of possessions which they could either keep or exchange for more attractive or efficient new possessions. If they exchanged the old ones they would have to put them in the dump (a cardboard box) which would rapidly become filled. The town government would then have to decide what to do: require people to limit their purchases, buy or take by eminent domain more dump space, or try to educate the people as to the effects of their consumption. The game could be made more complicated depending on the level

of the class and their interest.

Following the simulation, the students would discuss the attitudes and values expressed by various players. They would explore what the consequences of these attitudes and values are and how they affected the problem of solid waste disposal in the town. After they had fully explored the roles of the game, the teacher could ask them to write down or think about some of their own attitudes toward usage and wastage in the school and at home. The teacher might ask each student to pick one thing he does and see if he can change his behavior in the next week or two weeks (a sort of New Year's resolution). At the end of that period the class might discuss the game, the roles and the values and attitudes involved once again.

Animal Life

Americans generally view themselves as respecting animals. Yet, there is ample evidence that we only see certain things as animal life: dogs, cats, songbirds, hamsters, and the "cute" animals -- squirrels, rabbits, baby Easter chicks. But big game and small organisms--in fact many forms of life--are regarded with little respect by large numbers of people. The hunting of some game animals is rigidly controlled in most states, but other forms can be killed indiscriminately, since they are a "nuisance." Rachel Carson's Silent Spring brought the effects of DDT

upon plants and the animal life, and upon ourselves to the general public's attention; but we still continue to kill all forms of small insect life and other "pests" as if they had no special purpose in the ecological system, except to bother us. Flies, spiders, rats, mice, snakes and mosquitoes -- animals nobody loves -- are things to get rid of as fast and as on as large a scale as possible.

Two values/attitudes issues on the Stewart scale seem to be at work here:

Stewart Category: Nature of Man -- Apart from nature or from any hierarchy. If man does not see himself as part of the natural world, then what he does will have little effect upon that world. Animal life is here for him to use, contend with, or destroy. That non-human life may have a purpose or some effect upon the world in which man lives in is inconsistent with this attitude. There is no value placed upon man living in harmony with nature; instead he is the master of it.

Stewart Category: Relationship Between Man and Nature -- Man should modify nature. This is closely related to the first value, and in some ways is a natural consequence of it. If man is not a part of the natural world, then it is his to alter as he wishes. If he believes he is not a part of the complicated food chains and webs as are other animals, then what he

does to his environment should make no difference. The earth has been a cruel mistress and must be subdued, modified to mans own purposes and "improved" upon. Nature appears to be the weaker of the two, and thus is easy to modify.

In the case of the depletion of animal life, a much broader approach should be taken than the traditional attempts to instill an "appreciation" for animals that is often done in elementary schools. The basic values of man being apart from nature and being able to modify it must be dealt with. At the elementary school level (although there is no reason this could not be done in junior and senior high), the students would begin in kindergarten to examine a specific and well-defined area -- land adjacent to the school, a nature center, a conservation area -- that was particularly suited to ecological study. For the six or seven years the students were in primary school, this area would be their focus for the study of animal life and its relationship to the environment and human beings. Over a longer period of time, students would begin to see some of the effects various forms of animal life had on the environment and what their individual roles were. Essentially this means choosing a small ecosystem and having the students study this ecosystem as part of their elementary education.

With this approach, students could begin to see the

long range effects of various forms of animal life on the ecosystem. They would see that there are complex and complicated relationships between the various organisms. Through discussion in the classroom and their own observations, the students should begin to see what the effects of this environment have on their own lives. Ideally, by the end of the elementary school years, the children will have a good idea of what an ecosystem is, and what part various forms of animal life play in the system.

At the same time they are learning about their "own" ecosystem, they can begin thinking about their own attitudes and values and how they behave toward animal life. These questions should not be considered apart from the ecosystem study, but in direct connection with it. Monthly and yearly changes should provide good material for these discussions and the students themselves will raise a whole host of issues by their behavior.

Lead in the Environment

While we know what an overexposure to lead can do to the human body, many still act as if it was not a major problem. In the United States people are exposed to lead in a variety of ways: air contamination from lead smelting, the combustion of gasoline with tetraethyl lead, paints, pesticides. Geochemist Clair C. Patterson, has stated that "there are definite indications that residents of the United States

today (1965) are undergoing severe chronic lead insult."²⁰ Airborne lead is the major source of exposure for most people in the urban areas; since 1924 the American consumption of tetraethyl lead through gasoline use has risen from one million pounds per annum to 700 million in 1968, with another 50-60 million from aircraft gasoline. Seventy-five percent of what is used ends up in the atmosphere. Automobiles and materials containing lead, which enters the digestive track, are the major offenders. These things are known, and many of the effects are known, yet the consumption continues. As Paul Ehrlich says: "It seems hardly prudent to wait until much of the population begins to show chronic or acute symptoms before we attempt to lower [lead's] level in the environment."²¹

On the Stewart scale, three values/attitudes seem to be involved:

Stewart Category: Basis of Evaluation -- Utility.

We do most things because they work well and efficiently. A thing is often judged solely by its utility to us. In this case, if automobiles work, if they get us from one place to another, then they are a good thing. If tin cans preserve food and make

²⁰Paul R. and Anne H. Ehrlich, Population, Resources, Environment (San Francisco: W.H. Freeman, 1970), p. 135.

²¹Ibid.

it easier to prepare meals, then whatever lead that may be consumed through the solder is of secondary importance. The attitude is that if a thing works well, whatever secondary or side effects it might have are unimportant.

Stewart Category: Generalized Forms -- Efficient and material -- A prime value is whether a machine or person works efficiently. Time is a commodity and should not be "wasted." We much prefer an efficient machine, especially one which will carry us from one place to another quickly, to a less efficient way. Thus, we turn toward more efficient cars and those things that make them more efficient, leaded gasoline, even when they may be detrimental to our well-being.

Stewart Category: Natural World -- Use of machines. Because they are more efficient and have greater utility, we placed great importance on machines and their utilization in our society. We have a whole social organization of roles to maintain, repair and operate the machines. We use a machine to do something when often it could be done otherwise without a machine. In regard to lead pollution, the automobile is the prime example of this. Individuals prefer to drive, even when they could walk or use some other form of transportation.

On the senior high level, the problem of lead pollution and the associated values and attitudes could be dealt

with through a cross-disciplinary class project. A kind of study group would be formed (their own "Nader's Raiders") which would study various aspects of the problem of environmental stress from lead pollution. Some would gather factual knowledge about the problem through library research and reading. Some would study the effects of lead pollution on animals and human beings. Others would try to determine what the major causes of the pollution were and why they existed. And still others would look at the values and attitudes involved. The results could then be used for class discussion in biology and chemistry, social studies, history, sociology, psychology, mathematics and language skills.

In addition to the report, they could then create a multi-media presentation which could be shown to other students in the school and perhaps to outside groups as part of a public education program. They might want to use photographs they had taken, film, tape recordings (of people's expressed attitudes, for instance) and other visual materials. They would be learning through the multi-media presentation both the importance and difficulty of public education and would give a specific purpose to their work.

Combining affect and cognition. Although many strongly support it, the marriage of the cognitive and affective areas, especially those dealing with values and attitudes, is difficult. Often schools and teachers concentrate on only one or the other. Yet there are examples of where it has been achieved, and with significant results. One example is an effort by the West Hartford (Conn.) Public Schools to provide a "primary" experience for junior high school students in the system. "The Bermuda Workshop" is described in some detail, with the accompanying research data, by John D. Ross in his unpublished doctoral dissertation.²²

The workshop is a week long experience for 16 junior high students in the West Hartford system. In general, students who have a low self-concept as learners are chosen for the trip. The Workshop, held in cooperation with the Bermuda Biological Station, is designed to give students some basic information about marine biology, but a "hidden agenda" is the improvement of the students attitudes toward learning and academic work. Bermuda was chosen for two reasons: the biological station primarily and its resources, and the island itself, which provides a microcosm in which to study the interconnections in the natural and human worlds. In the fall and winter (the Workshop is usually in mid-April), the students spend several hours a week preparing for the experience

²²John D. Ross, "A Study of the Effect on the Learning Environment on Selected Factors Related to the Self-Concept of School Children" (unpublished doctoral dissertation, University of Massachusetts, 1972).

by examining the biology, geography, sociology and history of Bermuda. During the week-long stay on the island, students collect specimens, do library research, take a variety of trips around the island to identify various habitats, spend one evening on a plankton tow, meet government officials, watch British television and take a trip to Nonesuch Island, a small neighboring island which is used as an example of a closed system. Each of these activities has content but is also affective. Students react to the "foreign" atmosphere, they handle and care for sea animals which they had only seen previously in pictures, and are on their own and are basically responsible for their learning. In many ways, this is a test for them. They are not graded, but they are testing themselves against their own standards, and very little on those imposed from the outside.

During the experience, students are asked to keep a journal, both of their "scientific" findings and of their impressions and feelings while they are going through the experience. At various times, the staff meets with the group in a large meeting to discuss what is going on and what the experience has meant to the students so far. Thus, the connection between the content and affective materials is drawn.

The teachers role. A teacher has an extremely important role in this entire process. By helping to set a tone for a group he or she can increase or decrease the emphasis

placed on values and attitudes. Because of the controversial nature of this area, there has been much debate on what exactly the role of the teacher should be. Is the teacher's responsibility to teach values or to teach about values? The teacher has been placed in a variety of positions. Should he impose his own values on students or should the classroom be essentially valueless? In between those two ends of the spectrum, there is a whole range of opinion -- and strong feeling. Some say that the teacher's role is to teach values, that it is as much a part of education as the three R's. Others feel this should not be part of a teacher's job because she will end up imposing her own values on students. Another group believes that the teacher can certainly deal with the students' values in the classroom but should not expose his own values; and others hold that values are an integral part of any classroom whether or not they are consciously expressed, and that a teacher must deal with that fact.

From this range of opinions, perhaps the best definition of what the teacher's role should be is that of "procedural neutralist." This is a term borrowed from British open schools, where in terms of classroom conduct the teacher does not take sides. This does not mean, however, that the teacher is a neutral personality, as some have suggested. In his role as procedural neutralist, the teacher has values and is free to state them, but he should

not impose his own values on the students. The teacher is an albeit and important example, which the student associates with, and for teachers to attempt to appear to be valueless would certainly be a powerful lesson for students.

The values and attitudes teaching question has often been placed at the affective end of the cognitive-affective education debate. This assumes first that learning and education is clearly one or the other -- cognitive or affective -- and secondly, that they can be neatly divided. They cannot and should not; one should be part of the other and they should be complements of each other.

Summary. In this chapter we have looked at the relationship between process and content, some of the characteristics of a global survival curriculum, and the role of values and attitudes in the curriculum. In Chapter VI, we will examine some examples which translate the concepts, content, and ideas about the process of "Education for Global Survival" into useable curriculum materials. First, however, we will review the history of both international education and environmental/ecological education (E/EE) in American schooling, and analyze the major curriculum materials in each of these areas.

C H A P T E R V

INTERNATIONAL AND ECOLOGICAL/ENVIRONMENTAL EDUCATION:

A RECENT HISTORY AND CURRICULUM MATERIALS

The concepts that are part of a global survival curriculum cannot be considered in isolation from an historical perspective of what has been done in international and ecological and environmental education. There have been major trends, individual curriculum materials and total curriculum projects. All of these have had their influence on each of the fields, and these have been important in developing a framework for global survival education.

The history of curriculum trends in both international education and ecological and environmental education in the United States is not a long one. Both of these fields have been a concern of educators for less than a century at the most. They have often been subsumed under different labels and various philosophies, and, as with much of public education, have responded to popular educational trends. There is also a kind of stair-step quality to the historical development of each of these fields, a building on previous efforts to get to the next stage. In this chapter, we shall examine some of these stages in the history of both areas and follow each by an examination of some of the most prominent current curriculum materials in each field.

"International" Education

Early efforts. Geography provided much of the basis for work in "international education" in the late 19th century. Because of the intrinsic interest in the earth and its environs, there was more than usual interest in finding out about other places in the earth. Evolution and environmental determinism, popular at the end of the 1800's and in the beginning of this century, were important in supporting the view that man and his physical world could not be separated. While the approach was often ethnocentric and the textbooks would be considered very traditional by modern day standards, early geography teaching set the stage for later, more sophisticated work.

World history and the social sciences. In the first third of this century, learning about the world concentrated on history, and most often on Western history. Emphasis was generally on exploring Western civilization's roots in Europe and the Mid-East, with perhaps an occasional glance at the Orient. "World history" became increasingly important in school curricula, but the focus was still on European and Western civilization. Dates and places were often the most important things to know, and there was little time spent on the rest of the world; what was taught was often the bizarre, and just as often inaccurate or distorted. Generations of students learned to view the world, not as a whole world but as a truncated one.

Around the same time that world history courses became a popular part of the curriculum, the various social sciences began to develop and gain legitimacy as individual fields of study. Archaeology, sociology, anthropology and economics, by their very nature, dealt with other cultures and other places, and a few bold schools began to incorporate social science concepts and research into their courses. Not until the early fifties, however, were the social sciences seriously incorporated into school curriculum and now there are separate courses in sociology, psychology, anthropology and economics, which together comprise social studies.

In these early efforts, there was an attempt to broaden students' learning about the world, but unfortunately it often stopped at the borders of the Mediterranean Sea. The classical tradition had a strong influence on "international education." On the other hand, the social sciences, with their exploration of a variety of social and economic systems, as well as their concentration on comparative and contrastive study, laid some important foundations for future education about the world.

World affairs. With America's entry as a major participant into the arena of world affairs and international relations in the late Thirties, and especially following the Second World War, "international education" took on new significance. America emerged from isolation with new

responsibilities and relationships, and the terms international relations, foreign affairs and world affairs began to take on new meaning in school curriculum. Thus, in the late Forties and throughout the next two decades, international politics and United States foreign relations was the trend in most curricula dealing with the world. Generally, the United States and its self-interest has been the center of this approach and the balance of power -- and terror, Communism, international military assistance and economic development in the world political scene -- essentially a State Department view of the world -- have been the major topics of study. Many different organizations and companies have been active in the development of curriculum materials. Various foreign affairs councils, as well as the Foreign Policy Association, have provided case studies, readings, audio-visual and other classroom materials. Publishers have created similar materials, in addition to numerous games and simulations dealing with power politics relationships.

Disciplines, cultural, area studies. In the past ten to fifteen years there have been several new trends in some of the "international education" activities in schools. The first is a deeper interest in the social science disciplines. The second is an emphasis on culture and society and its different forms throughout the world, which in some ways complements the first; and the third an interest in

area studies, non-Western studies and ethnic studies in the late Sixties. Each represents a portion of what has been taught most recently in schools, and as such, provides us with a perspective on international education curricula.

The social sciences had gradually worked themselves into school curricula in the second half of the century. Individual courses were established in psychology, sociology and economics, to name the most popular. Special textbooks were written for these courses and in many ways they paralleled introductory college courses. The special courses helped to expand the narrow purview of social studies, from a primary concentration on Western society, to Africa, Asia and other areas of the world which are relevant to the disciplines. An anthropology course, then, usually includes some discussion of African or South Pacific cultures as an illustration of cultural differences; and sociology, although less likely to include material on non-Western or non-European cultures, occasionally draws examples from a cross-cultural study. Economics courses sometimes include a chapter on world markets or world trade, giving attention to the broader world economic picture. In spite of these instances of a social science discipline approach, however, the major emphasis in each of these was and often still is on America and American concerns. There are few, if any, "international social science" curriculum materials.

The cultural approach is harder to identify than either of the other two discussed in this section. There are few materials specifically designed with this in mind, although the Taba Curriculum Series and the World Studies Inquiry Series, which will be reviewed later, are important examples. Along with the development of social science curriculum and non-Western studies materials, some individuals have been concerned by the strictly historical approach that many courses and materials -- textbooks, supplementary readings, etc. -- take. In some instances courses and materials have been re-oriented, so they will draw upon some of the concepts and research in sociology and anthropology, without taking a straight discipline approach. Schools and teachers who have chosen this direction for international studies emphasize the cultural and human aspects of societies rather than the facts and figures and the courses often take a comparative approach, emphasizing the relativity of customs, values and behavior.

The area studies courses, which began in the late Fifties and early Sixties, grew out of efforts funded by the Federal government of a number of colleges and universities to undertake research and teaching about various areas of the world, particularly the "developing" world. The independence movements in Africa and Asia, plus a new international political situation, contributed to the need for scholars, researchers and language experts in these

areas. Asian, Latin American and African studies programs were established at major colleges and universities in the nation, and these were later joined by other area studies, such as Middle Eastern Studies and Eastern European and Slavic Studies. One aspect of area studies programs at the college level has been an attempt to formulate interdisciplinary and interdepartmental efforts, focussing on a particular problem or situation from a variety of perspectives; and thus area studies programs came to include anthropologists, sociologists, historians, linguists, economists and psychologists. While there was a real commitment to see the broader picture of societies in the areas studied, many programs became only areas of academic research and study.

On the other hand, the tremendous amount of knowledge, and eventually materials, which the area studies efforts have produced have been a great contribution to international education in schools. On both the secondary and elementary level, many recognized that most of the history and social studies courses dealt primarily with the Western and European world with little attention given to the developing world. High school courses in "non-Western studies" -- generally combining Asian, Latin American and African studies -- are now offered, and there is an even greater number of schools that include non-Western studies as a unit in a world history or social studies course. New York and Pennsylvania now require non-Western studies as

part of the regular curriculum, and there is an ever-increasing number of units and courses being commercially published. In addition, there is also a growing interest in ethnic studies in schools. This began with the Black and Africa studies in the mid-1960's, followed by Mexican-American/Chicano and native American studies. Because of their cultural heritage with other parts of the world, some of the materials which have been used for non-Western studies are appropriate for use in these courses.

Survey of "international" curricula. In the past decade in the United States, there have been a number of important curriculum efforts in the social studies, which have devoted more attention to international concerns than in the past. Many of these projects borrowed the model of the science curriculum efforts, where consultants in specialized areas worked closely with curriculum development specialists and teachers in the writing of the curriculum. As opposed to teaching materials in the past, these "total curriculum packages" were, in large part, self-contained.

The projects which are part of this survey are generally the most important which have been produced to date. There are others which fit the category of "major national curriculum projects," but they do not include much international emphasis, by either design or choice. The projects which are considered here are:

Anthropology Curriculum Project (University of Georgia);

Anthropology Curriculum Study Project (American Anthropological Association);

Geography Curriculum Project (University of Georgia);

High School Geography Project (Association of American Geographers);

Greater Cleveland Social Science Program (Educational Research Council of America);

Minnesota Social Studies Curriculum Project (University of Minnesota);

Social Studies Curriculum Project (Educational Development Center);

High School Social Studies Curriculum for Able Students (Carnegie-Mellon University/Fenton);

World Studies Inquiry Project (University of California);

Taba Curriculum Development Project (San Francisco State College).

It should be pointed out that this review is not a comprehensive or definitive analysis. The materials which have been selected for this examination are generally the major materials in use today with an international emphasis. They have been divided into several categories: those concentrating on a specific discipline, such as geography or anthropology; those with a strong emphasis on the inquiry approach; those which concentrate most heavily on conceptual development and one which strongly stresses behavioral objectives. Aspects of the materials which will be examined are:

1. Discipline emphasis
2. Degree of interdisciplinary emphasis
3. Adequacy of treatment of values and attitudes
4. Quality of teaching methods/instructional activities suggested

First, there are some general comments which can be made about most of these projects, in comparison to the material previously available. In a lengthy appraisal of curriculum, published recently in Social Education,¹ the authors outline some of the characteristics of these new curricula. Briefly summarized they are:

- ** the materials have drawn heavily upon ideas and methods from the social sciences
- ** most of the curricula are integrated and interdisciplinary
- ** there is a concern for the structure of knowledge as well as the facts themselves
- ** there is a major emphasis on discovery and inquiry methodology, including problem solving, the scientific method and inductive and deductive thinking
- ** most of the curricula show a concern for values questions, both in the analysis of the students' own values and increasing his awareness of his own and other values in general
- ** there is a greater amount of realism and social conflict than in previous materials

¹Norris M. Sanders and Marlin L. Tanck, "A Critical Appraisal of Twenty-Six National Social Studies Projects," Social Education, Vol. 34, No. 4, (April, 1970), pp. 383-447.

- ** the patterns of thinking which the materials emphasize are more creative, subjective and divergent than those in the past
- ** cross-cultural studies and an emphasis on the non-Western world are more in evidence than in previous efforts
- ** in depth examination of an event or question is more common than a general survey; especially the use of case examples and primary rather than secondary sources of information
- ** there is a great variety of types of materials, including booklets, simulations and games, audio-visuals (films, records, film-strips, transparencies) and workbooks
- ** many of the projects provide all of the materials resources needed for the course in the package itself
- ** a good many of the projects do not stop at the materials themselves but give equal attention to teacher preparation and guidance
- ** the materials have been field tested in a variety of situations and the projects have often solicited the comments and criticisms of teachers and educators

The projects. In the disciplines there are four major projects; two in anthropology and two in geography. The anthropology curricula as developed by groups at the University of Georgia and from the American Anthropological Association are basically similar in content and in purpose. They are designed to present in various formats the basics of anthropology and to expose students to the ideas, skills and issues associated with the field.

The Anthropology Curriculum Study Project (ACSP) has developed materials which can be used in world history and

world cultures courses at the high school level. Called Patterns in Human History, this one-semester program includes study of patterns in:

- (1) how human societies change and why there is resistance to change,
- (2) man's adaptation to his social and physical environment,
- (3) how societies hold together against internal conflict,
- (4) the distribution of power and wealth in different cultures.

The project uses a variety of teaching materials to complement the examination of the different perspectives including teacher guides, student reading books, records, film strips, transparencies, "artifacts" charts, "evidence cards" and photographic prints. The course encourages the comparative use of data and by the study of a variety of societies exposes the students to differing values and ways of life.

The material is distinctly anthropology-oriented and makes little effort to include research and/or questions from other disciplines. Societies used as case examples are the Bushmen of the Kalahari, the Mbuti Pygmy of the Congo, the people of Jarmo in Southwest Asia, Iran, Vietnam and Peru. The materials do recognize value and attitude questions, and teachers are encouraged to deal with issues which might be raised, but no specific attention is given to them.

The University of Georgia materials are much more extensive. The curriculum includes two kinds of materials: a sequentially organized anthropology curriculum for grades one to seven and various other materials for specific instructional purposes (a unit on race, caste and prejudice, an archaeological methods course on American Indians, political anthropology, etc.) primarily for the upper grades. The elementary materials are organized around some of the basic ideas of anthropology--evolution, race, culture, technology, kinship, life cycle--and the program has been developed so that grades 1-3 and 4-6 can study the same ideas in the same order but at a different level. The units produced so far are:

The Concept of Culture (K, 1 and 4);

The Development of Man and His Culture (2 and 5);

Cultural Change (3 and 6);

Life Cycle (7);

Race Caste and Prejudice (Junior High).

As with the ASCP, the developers have drawn upon the latest knowledge and thinking in anthropology. Since one of the goals was to produce materials for teachers who have little or no experience in teaching anthropology, there are extensive teacher guides provided with the course but little attention is given to the interdisciplinary teaching possibilities. The values and attitudes questions are not dealt with explicitly in some of the materials but the implica-

tion in the Cultural Change, Race Caste and Prejudice and Life Cycle units is that these should be a major focus. Guides, textbooks, and pre- and post-tests comprise the instructional materials.

Two geography curricula have also been developed. The University of Georgia has fashioned a set of elementary curriculum materials which parallels their anthropology efforts; and the High School Geography Project, under the auspices of the American Association of Geographers, has developed a two-semester course intended for the tenth grade. The Georgia materials focus on some of the fundamentals of geography and include units entitled:

- Earth; Man's Home (K);
- Place and Environment (1);
- Resources and Production (2);
- Spatial Arrangement and Region (3);
- Rural Settlements (4);
- Urban Settlements (5); and
- Population (6).

Through a variety of visual materials and workbooks, students are introduced to geographical concepts and since several global settings and cultures are used, they are required to do some comparative and contrastive thinking. The materials are distinctly discipline oriented and there are few attempts to relate some of the lessons to other

subject areas which might be taught. There is almost no treatment of values and attitudes and these issues are left in the hands of the teacher to decide what he or she wants to do. The materials make little use of the new view of the world that space exploration has afforded and in this respect they are relatively traditional.

The High School Geography Project is designed as a two-semester course and has produced extensive and well-designed materials. The six units which comprise the course--Geography of Cities; Manufacturing and Agriculture; Cultural Geography; Political Geography; Habitat and Resources; and Japan-- are interdisciplinary and in large part integrated. They draw from geography, history, economics, political science and anthropology. The materials have a strong cultural and international flavor. For example, sections on cultural geography which include material on different ideas of cattle (the Nuer of Sudan, bull-fights in Spain, cattle in India); sports; the expansion of Islam; Canada; and cultural change in the cities are excellent examples of how geography and culture are tied together presenting in a simple and concise form some valuable resource material for comparative and contrastive study. The unit on habitat and resources examines the relationship between these two elements and uses rivers and water management as the subject matter. The concluding unit on

Japan is an effort to tie together much of the preceding five units and can be used in conjunction with the other units in the series.

While all of the curricula pay some attention to concept development, there are three major projects with "international" elements that rely heavily on the conceptual scheme approach. These are the Greater Cleveland Social Science Program, the Minnesota Social Studies Curriculum Project and the Social Studies Curriculum Program. The Greater Cleveland Project is a K-12 curriculum based on the sequential development of social science concepts and generalizations. A major emphasis in the curriculum is on the process of transmission of culture with stress placed on important concepts selected from all social science disciplines. The international focus is evidenced in these units:

Learning About the World and Children in Other Lands (K);

Communities At Home and Abroad (2);

India: A Society in Transition (4);

Middle East (5);

Latin America (6);

Africa (7);

North America and the Carribbean (8); and such

topics as

The Challenge of Our Time: The Recent and Contemporary World; and

Comparative Politics and Economics.

The goal of the program is the development of "healthy emotional attitudes and intelligent interaction in social relations," and, in large part, the curriculum succeeds; but this is not entirely consistent with the heavy concentration on subject matter. Values and attitudes receive less attention than content matter. In general, however, the Cleveland materials are a significant step toward interdisciplinary and integrated materials with their distinct cross-cultural focus.

The Minnesota Project, under the direction of Edith West, has produced a large number of materials under the general title, The Family of Man. The curriculum was developed by an interdisciplinary team of social scientists, social studies specialists and classroom teachers, and the materials reflect this integration of knowledge and skills. This project emphasizes the behavioral sciences and the non-Western world more than most and includes a great deal of comparative and contrastive study. The curriculum uses three basic principles in its design; moving from the simple to the complex, cross-cultural comparison, and the part-whole principle of organizing content. Beginning with The Earth As the Home of Man (K), through Communities Around the World (3), and Man and Culture (7), and areas studies

of the U.S.S.R., China, India and Western Europe in the eleventh grade, the curriculum focuses on the concept of culture. In the inquiry which takes place, students are required to develop skills, attitudes and major social science concepts which apply to this main thread. Behavioral goals, cognitive and affective, are developed for each unit. Value and attitude issues are developed most completely in the twelfth grade unit on Value Conflicts and Policy Decisions, which deals with such issues as civil liberties, national security, economic growth, aiding underdeveloped countries, keeping peace, and racial conflict in the United States. Given the units which precede this one, the value and attitude questions have a substantial cross-cultural base for examination.

The Minnesota materials are an ambitious effort and often succeed in terms of the world view they are trying to foster. While inquiry is the suggested method, there is a recognition that this may not be appropriate for certain topics and expository teaching may be more appropriate. This flexibility is typical of the curriculum.

Man: A Course of Study, developed by the Social Studies Curriculum Project at the Educational Development Center, places great emphasis on the fact that man is only one species of life, and thus man-animal comparisons are a significant element in the curriculum. Where other projects follow the family, neighborhood, community, state,

nation, world sequence, MACOS takes the child out of his classroom and neighborhood to aid his understanding of himself as a human being. The curriculum concentrates on man's experience and his common or unifying characteristics. The three major questions of the curriculum are:

"What is human about humans?"

"How did they get that way?"

"How can they be made more so?"

Much of the material is heavily anthropological and animal behavior and man-animal relationships are an integral part of the curriculum.

The materials are designed for the intermediate school age and are built around concepts such as life cycle, adaptation, innate and learned behavior, structure and function, territoriality, and social organization. The basis of the course is a series of booklets beginning with the life cycle of salmon and moving "upwards" to the Netsilik Eskimos, which were chosen because they were "intrinsically interesting" and are different enough from most of the students, which makes it easier to distinguish what is common about man in general and what is specific to culture. The materials are designed to be used with a whole series of excellent films which form the backbone of the course. Games and some individual projects are also included.

Cognitive and affective concerns are an essential

part of the curriculum. There is a companion set of teacher guides which leave the teacher a good amount of flexibility for creative teaching unlike many of the other curricula. Another significant feature are the teacher workshops which are required for those who are planning to use the curriculum. The designers believe there is a very real connection between the content of the curriculum and the process of teaching and this is the major emphasis of the workshops.

Two curricula strong on inquiry methodology are the High School Social Studies Curriculum for Able Students, commonly called the Fenton series, and the World Studies Inquiry Program. The Fenton materials are perhaps the outstanding example of an inquiry curriculum with an international focus published today. It is a four year (grades 9 through 12) integrated-sequence curriculum, which is designed to teach and to develop students' skills, knowledge and ability to deal with questions of fact and value. The units for grades nine and ten include Comparative Political Systems, Comparative Economic Systems, The Shaping of Western Society and Tradition and Change in Four Societies and are most relevant for this study. The Western Society text is the traditional Western civilization and history course, but taught through inquiry. Tradition and Change takes four topics -- race relations in South Africa, race rela-

tions in Brazil, economic development in India and totalitarian government in China -- and explores them thoroughly from a variety of viewpoints. Much of the "textbooks" consist of readings from primary sources, and are complemented by a number of audio-visual materials, which should be considered part of the course rather than supplementary. In Comparative Economic Systems, the basic economic theories are taught through examples from different cultures and requires the student to draw some parallels and divergences between various economic systems. The Political System unit is a comparison of American and Soviet systems.

The Fenton materials are generally successful in integrating various disciplines into the readings and other curriculum materials. There is not much variation in the instructional strategies, and a good part depends upon high reading ability and a strong verbal ability for discussion. The program, however, is an interesting alternative to the normal high school curriculum.

The World Studies Inquiry Program is a well-written series of texts on Latin America, Asia and Africa. They are inquiry-oriented and are designed for high school students who have reading difficulties. The three booklets are divided into twenty-five single-class lessons on topics generally relevant to lower income groups in rural and urban schools. They are designed to motivate the students both intellectually and emotionally and present material

around which value issues will form. Generally, they are not interdisciplinary, but a creative teacher could make them so.

Finally, the Taba Curriculum Development Project is a major effort to state the principle objectives of a course in observable behaviors. The curriculum, which will eventually be for grades 1-8, is designed to develop thinking skills, help acquire selected knowledge to help in acquiring selected values and attitudes, and to develop the academic and social skills for all of the aforementioned. The individual book materials which are entitled People in Families, People in Neighborhoods, People in Communities and People in States take a comparative and contrastive approach to a variety of cultures. For instance, the Families volume takes four American families and one family each from Kenya, France, Canada and Mexico and through a series of pictures illustrates the primary activities of the families. The Communities book compares the Bedouin, the Yoruba, the Thai and the Norwegian. There is no attempt to cover all of the factual material as many social science curricula do. The books are resource books rather than textbooks and provide data which can be used for whatever learning activities the teacher and students wish to do.

The teacher's guides are an extremely important part of the curriculum. Each contains a list of the overall

objectives and there is a list of more complex objectives for each succeeding year. Both cognitive skills and affective learning are given equal weight in the curriculum. The materials, in spite of their completeness of objectives, leave the teacher much flexibility in how the course is put together and what kinds of materials could be used. Additional preparation for teachers who would use this course would be necessary.

Some general observations. Most of the new curricula developed through the projects are well-written, thoughtfully constructed, practical and well-designed compared to the textbooks which have been used in the past, and still are being used in many areas. They are a welcome change from the more traditional materials. It is to their credit that there has been wide acceptance of these materials. There are, however, certain criticisms which can be made especially in light of the global survival curriculum concept:

1. The project materials, while they devote much attention to the "international" aspect of the curriculum and contain a good deal of cross-cultural material, do not present a view of the world essentially different from the one that has been taught in the schools for many years. The knowledge we have gained from orbiting satellites, manned space ex-

plorations and improved communication is largely ignored in the units and lessons, and the work of the "futurists" has been passed over altogether. Almost none of the materials ask students to contemplate alternative futures.

2. None of the curricula approach the world as a global system nor try to draw some conceptual relationships between the various elements in the system. This is not to say that parts of this have not been attempted - the Minnesota materials are one good example - but by and large the interrelationships have not been drawn.
3. In a like manner, the materials' interdisciplinary focus is either not there or does not succeed. Some materials try to combine different fields, but for whatever reasons, they stop short of ultimately tying together the humanities, sciences and social sciences in an integrated whole. The difficulty of doing this should not be minimized; perhaps this is the task for another round of curriculum projects.

4. In spite of the emphasis on the international, the curricula still persist in stressing differences rather than commonalities and in creating what often become invidious comparisons. The visuals in the textbooks and other materials are particular examples of stereotyping; in the case of race, these over-emphasize the differences and can leave the student with some distorted images of human differences.
5. A great deal of attention is given to the sub-national and national aspects of social organization, but almost no attention given to trans- and cross-national associations and institutions. As has been pointed out, there are an increasing number of organizations and institutions that often supplant individuals' national ties. It is unfortunate that this aspect has not received greater attention.
6. Except for the significant exception of the Man: A Course of Study materials, none of the curriculum deal with man-animal relationships. Given the amount of research now available in this area and especially the

whole range of books and articles available, this is an unfortunate omission. This is especially true because of the stated purposes of some of the curricula is to present a "new idea" of man and his relationship with the world.

7. In spite of some excellent efforts on the part of Man: A Course of Study, the Minnesota Curriculum, and the Taba Curriculum, values and attitudes still take second place in many of the materials. The curricula have been re-designed and re-structured, and in a number of instances the content has been up-dated; but teachers are given very little help in how to recognize value questions and choices and how to structure experiences which will increase a students awareness of and clarify his own values and attitudes.

Ecological and Environmental Education

Ecological and environmental education has been many things to many people in the past fifty to one hundred years. There have been different labels, different emphases and varying commitments. It would be a major study in itself to separate all of these efforts and document them

completely. Here only the few major developments in ecological and environmental education are dealt with, and especially those which seem most relevant to this global survival education study.

Early efforts. The work of Theodore Roosevelt and Gifford Pinchot were important in raising the American public's awareness of the idea of conservation -- rationally conserving our natural resources and managing them in such a way as to have a continuing abundance for future generations. As this idea began to gain acceptance, it soon became apparent that there was a need for some long-term efforts in conservation; otherwise there would be a continuing battle just to implement stop-gap measures. Thus in the early Twenties, there was the beginnings of a movement toward including "conservation education" in the school curriculum. This was the first real attempt to deal with the topic of man and the natural world in the public schools, except, of course, for the general science courses that were a standard part of the curriculum.

What began with somewhat faltering efforts gained full strength after the events of the 1930's, especially in the Mid-West and the Western states. The Dust Bowl was a powerful lesson for the nation, and conservation education received new attention because of it. The major attention to curricula and teaching materials came from those areas of the United States with a significant

quantity of natural resources and where there tends to be a greater access and involvement with nature. Today, for instance, in an agricultural and oil-producing state such as Texas, there is an extensive conservation curriculum; and this is also true of many of the Plains and Western states.

The existing conservation curricula consist of courses -- or more often units -- designed for two separate groups of students -- those who need only a general awareness of conservation, and those who will be working in a field directly concerned with or related to conservation, such as farming or mining. These units focus on the practical application of conservation principles, land, range, and natural resources management for the best possible utilization of the limited resources which exist. The curriculum materials that have been developed include an examination of previous mistakes and the results of not properly managing resources. Most try to provide basic guidelines and suggestions of how to avoid similar situations in the future.

Outdoor, recreational education. Parallel with the rise of conservation education in some schools, especially in the 1930's and 1940's, was the beginning of outdoor and recreational education. Both of these are an off-shoot of conservation education on one hand, and on the other, an outgrowth of the progressive education of the early 20th

century. The efforts at outdoor education centered around breaking the "four walls make a classroom" model and using the outdoors as an experiential education laboratory. Nature trails and nature study areas were established for appreciation and study as part of outdoor education. Although this has not been widely popular in most public schools until the recent "ecology movement," it did have some success at progressive elementary and secondary schools, and was later adopted by a small number of public schools.

Recreational education has also used the out-of-doors for a classroom, but this has been geared more toward physical education activities than scientific study. Physical educators have recognized that the "healthy environment" of the outdoors could be a great asset in encouraging people, and students, to exercise and participate in recreational activities. Camping, hiking and other non-competitive sport activities have been part of this philosophy, and they have provided the opportunity for physical activity for students who might not otherwise participate in sports.

Physical sciences education. Another important factor in ecological and environmental education history is the role of physical sciences education. Biology, chemistry and physics courses, which have been taught at the high school level, and general science, taught in the lower grades, have, to some extent, used the surrounding environment. While both environmental and ecological education

necessarily involve an understanding of the physical aspects of the natural surroundings and natural phenomena, the use of the environment as a way of relating the content of science courses to the students' world has been minimal. As science began to assume a larger role in society and in people's daily lives, the pure physical sciences became increasingly important in schools. Where in the past science courses had been very general, they now became more specialized, with separate courses being established in many schools. As with the social sciences, which were developed as fields of study in the universities and were later converted into high school courses, the discoveries made in science laboratories and in research were translated into high school textbooks and curriculum.

A major change in science education came with the successful launching of the Sputnik satellite in 1957, which forced educators, politicians and the general public to consider if there might be an "education gap" in the sciences between the United States and Soviet Union. School systems, the Federal government and all concerned with education began to make a concerted effort to provide facilities, new materials and teachers for the sciences. All this had a significant effect on school curricula and science education has improved in the public schools, in both quantity and quality.

Most of the new efforts, however, have essentially

been college preparatory, designed for those students who might possibly major in chemistry, physics or biology. Many felt steps should be taken to provide a pool of future scientists who would fill the positions that were increasingly in demand. Little thought was given, at the time, to offering courses to non-college bound or non-science majors which focussed on an understanding of how the world works and how man relates to the physical environment in which he lives. Non-technical science education is still not a part of most school curricula.

A part of the general emphasis on the physical sciences after Sputnik was the renewed interest in science curriculum development. The National Science Foundation funded several major projects to develop curriculum materials which would present both a new view of science and use a new approach to the teaching of science. The Biological Sciences Curriculum Project, the Physical Sciences Curriculum Project and the Earth Sciences Curriculum Project are all efforts to develop these new curricula and methods. Experts in the individual fields offered their advice on what were the essentials to be taught, as well as the results of current research. These were translated into teaching materials by curriculum development specialists working with the scholars. Many of these projects moved away from the information transmittal methods, which had been typical of much of the science curricula in the past, to an inquiry approach, which

depends more heavily on the student's discovering the basic scientific elements and principles, as well as learning some of the methods of basic scientific inquiry and research.

Ecological /environmental education. Ecological and environmental education are relatively new as "fields of study" in schools. They are in many ways the children of conservation and outdoor education, nature study and the various science curricula, but not until the recent public awareness of "the environmental crisis" have they been separated and given a special title and place in the curriculum. The courses range from basic biology courses, with some sprucing-up, to completely new courses that tie together social studies and the sciences.

Ecology courses are generally more "scientific." They use a basic ecology text, cover the major ecological principles and show where ecology is related to environmental concerns. This type of course would not be much different from an ecology course on the college level and is most appropriate for those who would plan to do further work and research in the field.

Environmental studies courses fall into two categories. First are those which have a science bias, are usually included as an elective course in the high school schedule, and cover some of the basic information and issues concerning the environment. Most courses devote a good deal of attention to air and water pollution as the major problems,

and some may cover more controversial aspects, such as population growth and control and economic growth. In some of these courses, there is more emphasis on "field study" than in normal science courses, and students are often asked to deal with local, real, rather than theoretical and abstract, problems.

Secondly, environmental studies in some schools has become a part of the social studies, where the social, economic and political implications of environmental issues are approached. In some instances, these may be special courses or electives in social studies, but in general the environment becomes one of the units for study among others. Publishers are beginning to produce materials (booklets, films, filmstrips, etc.) and teachers often supplement these with current readings and materials from the media. Although environmental studies in this form is designed to be inserted into the social studies at the "appropriate" time, there are a few examples where it is brought in throughout a semester or a year.

Some elementary schools have been able, because of their structure and philosophy, to integrate environmental concerns throughout the curriculum. Science, social studies, math and reading are all used to approach some of the aspects of the environment and man's relation to it. In some cases these are truly integrated efforts, but in others, the areas are covered but the relationships are

not always drawn.

Survey of ecological/environmental curricula. There is a broad range of teaching materials in ecological and environmental education. State department of education guides, individual school districts and systems syllabi, and commercially-produced materials are all available. In addition, there are a large number of books on the environment which include teaching and education as one section or chapter. With the exception of one major effort (People and their Environment), however, there are no published curriculum projects at this time. There are a number of individual programs and projects being funded by the U.S. Office of Education, the Department of the Interior and some private foundations, but there is nothing in the environmental education field to compare with the depth and scope of the materials produced in "international education." The same type of general description and comparative analysis of environmental curriculum materials as was done previously in this chapter with international education is not possible. Instead, selected, representative materials will be examined. Among them are state department of education guidelines or syllabi; school system-produced outlines, syllabi or curriculum; commercially-produced booklets or materials; and materials published by non-profit organizations.

State department guides. In March, 1971, the author wrote to the heads of the education departments in all fifty states and all U.S. territories requesting information on their environmental education efforts. Out of these 55 letters, 43 replied. Some answered in detail and sent current materials, other replied perfunctorily and still others had not done enough at the time to answer the questions. A summary of these responses appears in the Appendix C

From the survey, the most prominent materials which had been published at that time were selected to be reviewed in this section.

The three states having the most extensive set of materials in ecological and environmental education are Connecticut, Minnesota and New York. The Connecticut state effort is a curriculum unit for 7th and 8th grades and consists of a topical outline and syllabus, broken into four sections, and four accompanying resource manuals. The sections are entitled: Man's Natural Setting; Man's Interaction With His Environment; Man's Interaction With Man; and The Future of Man and His Environment. Each topic under these four headings is then enlarged upon in the syllabus with an explanation of the "understandings" accompanying each topic and followed by "activities." For instance, under "The Role of the Individual," we have

<u>Topic</u>	<u>Understanding</u>	<u>Activities</u>
C. The Role of the Individual	Ultimately, the role of the individual is the single most important factor in determining the quality of man's environment.	IVA-16, IV-T16
1. Personal Responsibilities	Each person must evaluate the type of world in which he wants to live. The welfare of the whole must be balanced against that of the individual	Draw up and discuss descriptions of the world in which we want to live. IVA-17, IV-T17
2. Social Responsibilities	Social institutions are an extension of the individual. Social responsibilities are the aggregate of responsibilities.	IVA-19

The numbers under "Activities" refer to the resource guide, where in this case we find such suggestions as reading Profiles in Courage to show what one individual can do, writing descriptions of the world we want to live in, and writing letters to individuals listed under "Activities."

The syllabus has been designed by science and social studies teachers and to that extent is interdisciplinary. It is apparently intended for use in either of these courses, but that is not explicitly stated in the syllabus nor is there any indication as to the amount of time the designers feel should be spent on the material. The major concerns of environmental studies are included, but unfortunately tend to be somewhat superficially developed. There is no mention of resource distribution and its effect on economic

development, nor is there a very adequate treatment of technology in the syllabus. There is no mention of the value issues and choices which must be made in any "problem situation" and only passing reference to attitudes and beliefs. There is an adequate treatment of basic sources of environmental stress -- air and water pollution, solid waste disposal and soil conservation -- and the section setting forth the basic information on ecology is good. Unfortunately, the activities in the resource guides are simple and one-dimensional and not particularly challenging for this level of student. The designers have avoided, telling the teacher exactly what to do. This curriculum is marked "Tentative," and thus is likely to be changed as it is tested with classes.

The Minnesota materials are fairly extensive. They are a set of K-12 units, which are in the experimental stage, entitled: Recognizing Associations (K); Needs and Requirements (1); People and Places (3); Litterbugs (4); Home Environment (5); Cookout (6); Waste in Water (7); Socio-Physical Environment (8); Population (9); Culture and Environment (10) and Community Planning (12). Units for grades 2 and 11 were not available. In the introduction, the writers make several points about the curriculum units: they are not "subject matter" or "discipline oriented;" they are isolated examples of environmental inves-

tigation and must be tied to local concerns; there are no tests, but "evaluation can come from observation by someone who has already gained experience in wise living;" and finally that there is no rule which says a unit can't be torn apart and used as a tool or building block. These give some idea of the spirit with which the writers designed the units. As they indicate, it is not a full curriculum, but is a collection of examples of environmental investigation which can be used in a variety of ways by teachers and students.

The view of the environment presented by the materials is a broad one. The materials focus not only on the scientific aspects, although there are some activities which deal with water pollution and waste disposal, but also on the social and political questions. A number of the units contain activities which require real involvement from the students. In the "Community Planning" unit, for example, the students are given maps, charts and conditions, and they are required to analyze the information and decide on various questions which affect the design and future of a hypothetical city. Students are required to learn some basics about environmental design as well as something about sociological and psychological factors, and then apply it to a "real" situation.

While the units do not pretend to be [REDACTED] all-encompassing, they provide a good set of learning

experiences which can be used by teachers and students. As with other materials, they are short on the value and attitude side. Lastly, there is no evidence of an overall scheme which might tie the material together. With such a scheme the Minnesota materials would be an outstanding alternative to a full-fledged curriculum.

The New York State booklets are similar to the Minnesota materials in that they are a collection of instructional activities for teachers to use with classes. The two booklets, one for K-6 and the other for 7-12, are divided into conceptual sections, such as "Survival," "Interdependence," "Planning," "Valuing," and "Social Forces." Under each of these conceptual headings, there are between four and eight activities which related to the main concept. There are also appendices which list films, book and other resources for use with the activities. It is not intended to be a full-fledged curriculum but merely suggestions for teachers in many different subjects. As the introduction explains, the publication is an attempt "to couch a small part of the school's curricular preoccupation in terms which emphasize the primary role of man as a participant in, rather than a master of, his natural surroundings." How well this goal is met depends a great deal upon the teacher and how she or he uses the materials.

School system materials. Two examples of school system-developed materials stand out. The Fremont Union High School District (California) has published a "Teacher's Guide for Environmental Crisis" which is a semester long social studies course taught in the district. It is based on five social studies concepts (Power, Culture, Self, Habitat and Change) and uses the inquiry process. Each of the lessons is divided into three parts -- objectives, learning opportunities and relevant responses -- and deals with some basic ecological information, questions concerning scarcity of resources, the impact of urbanization on nature, and some of the questions involved in the resolution of the environmental crisis. Each of these has many sub-topics and there are a number of objectives and activities keyed to these sub-topics. Most of the major issues concerning the environment are covered, and there is a listing of books, films and other resources at the end of the guide. Considering what can be done in a one-semester course, this outline is quite ambitious, especially in the treatment of value and attitude questions. In several places throughout the guide, there is attention given to these issues, including some analysis of why we have these values.

Pollution in U.S.A. is a unit developed by the Bloomington (Minn.) Public Schools. It is designed for the

ninth grade level economics. The unit is specifically a pollution unit, and thus other aspects of the environment are not included. There is an introduction which explains a little about why pollution exists and then three other sections which deal with the pollution problems, measurement of pollution cost, and how to solve pollution problems. There are unit lessons for each of the sections, which offer suggested questions and activities. The major portion of the guide, however, is the extensive resource section which has readings, charts that can be reproduced, a simulation, films and other materials. While these are suggested for the various topics, the teacher is free to use them as he sees fit.

The unit is limited in scope. It is a single theme and at the maximum is designed for 13 class days. Thus, it cannot be compared to other environmental studies curricula. Most of the major issues of pollution are covered, and there are examples from other countries as well as the United States, which emphasizes the global nature of the problem. The suggested activities are adequate and the resources section is quite good. As with many of the other curricula, little attention is given to the values and attitudes; and, in fact, there seems to be no direct mention of these in any of the Bloomington outline. It would seem almost impossible to discuss the economic questions of pollution without examining value choices.

Commercial materials. There has been a rush by publishers to produce commercially-available materials. We shall look at four representative examples which should give an adequate overview of what is currently being produced. By far, the most extensive of the environmental materials and the only real "curriculum" is People and Their Environment: Teachers Guide to Conservation Education. This series of eight books is designed for the K-12 curriculum and includes specific grade books as well as others entitled "Social Studies," "Outdoor Laboratory," and "Home Economics." The curriculum is designed to be interdisciplinary, and thus there are activities relating to almost every course taught in a school. There is a conceptual scheme structure to many of the books, and most of the activities associated with the concepts are well-designed and explained. There is an extensive resource section and film guide at the end of each guide. Thus, they are practical and easy to use; they have obviously been designed with teachers in mind.

The series makes a point of being interdisciplinary, not so much through introducing social studies in the sciences and vice versa, but by having conservation introduced into all subjects. Whether or not this would be successful would, of course, depend on the schools and teachers; but there is a danger in separating the concepts into course divisions. Parts of environmental studies

and conservation do overlap somewhat, but there is little attention given to some of the major environmental issues, or value issues.

Scholastic magazine has published a series of materials under the general title of "Earth Corps." Designed for the elementary grades, one set of materials deals with environmental awareness and the other with ecology and conservation topics. There are student booklets and teachers guides, posters, transparencies and other materials. The booklets are well-designed and the graphics are good. The major problem with the Scholastic materials is the rather traditional approach they take toward the environment and ecology, and the failure to tie together some of the concepts explicit in the materials. While the publishers suggest building an entire program around the materials, it would seem better to use them as supplementary materials and for teachers to build them into their own programs.

American Educational Publications have issued a series of booklets designed to be supplementary entitled Ecology and Focus on Pollution for the elementary grades and You and Your Environment suggested for grades 7-9. In addition, there are some separate small booklets on ecology, conservation and pollution designed for high school students. They are all good general treatments of the subjects but would have to be used in conjunction with many other

materials to give a well-rounded view of the area. They are inexpensive and are designed to be used by the students. They are student-oriented, rather than being geared toward the teacher, and thus unusual among the current materials.

Finally, an extremely important - and useful - handbook for environmental education is Teaching for Survival by Mark Terry. Not a curriculum in the usual sense, it is a small paperback which contains valuable information and thoughtful examination of environmental education. It is "must" reading for every teacher. Terry begins by giving an overview of the environment and education, and the connection between the two. In a few short pages, he summarizes the important concepts and ideas concerning environmental education in an extremely readable style. Most of the book, however, is spent on examining how environmental education can be taught. He discusses the ways the school can be used -- the classroom, the school and the district -- and gives concrete examples for teachers and administrators. In his examination of the subject areas, he gives short illustrations for many subjects taught in schools. He concludes by discussing interdisciplinary study. It is the best introductory work done on environmental education presently published, in addition to being a practical and useful guide.

Non-profit groups. The last group of materials are those published by non-profit groups, and most of these are guides, outlines or general materials to get a teacher started. The Massachusetts Audubon Society, under the authorship of Charles Roth, has produced a booklet called "Curriculum Overview for Developing Environmentally Literate Citizens." This small booklet is a listing of some of the basic ideas around which a curriculum and materials can be designed. It is divided into "Natural Science," "Social Science," and "Humanities -- Language and Arts," and there is a section on the process of education. The guide covers most of the concepts dealing with the environment and is a unique resource for those designing a program. As this kind of taxonomy, it is unique among environmental materials.

A similar publication is that of Miami-Dade Junior College called "Man and Environment." It is the result of a working conference of junior college personnel who were given the task of designing a two-semester college level course dealing with some of the main questions involving man's relationship to the environment. It is designed in modules, so that the outlines could be used by a number of professors in various courses. Thus, "The Myth of Technology," could be used in an economics, business, anthropology, sociology or engineering course. Each unit states the objectives and gives a general outline of the

unit and there is an extensive separate bibliography which is designed to accompany each unit. They are flexible so that teachers can adapt them to their own uses quite easily, and there is an adequate treatment of value and attitude questions. With some adaptation, this material could be a valuable resource for secondary level teachers.

A useful publication is one by the National Education Association, in cooperation with other groups, called "Man and His Environment." It is little more than a loose collection of concepts, lesson suggestions and questions which can be used with "Environmental Study Areas" of the National Park Service or with privately sponsored nature centers or areas. It attempts to be interdisciplinary, and there are some good suggestions for teachers. It is inexpensive and is a good basic book.

An outstanding example of student-oriented materials are those produced by the Earth Sciences Curriculum Project. Called "Environmental Studies," the materials consists of a packet of 15-20 activity cards which are built around certain themes. For instance, a card called "Opposites" has as the action: "Make a list of opposite word pairs and then go outside and find objects in your environment that represent the word pairs." There are more suggestions on each of the cards, such as "Find things that represent similar ideas, attitudes, beliefs," and a brief idea for

the teacher of what the activity is designed for. Other than this, there is little structure to the materials -- no particular sequence, no time limit and no "expected result." The outcome from the materials depend a great deal upon the activity of the students and the cards encourage this kind of creativity. There is a general theme, which is exploring our own environment, but they show that there are many ways to do this. Of all the materials currently produced in environmental education, these are the most interdisciplinary and include art, music, movement and physical education as well as English, math, social studies and the sciences. There is a heavy emphasis on having the students examine their emotional responses to the activities in addition to the content of what they have done. The "Environmental Studies" materials are an interesting alternative to most of what is produced at the present and deserve special attention because of this.

C H A P T E R V I
REPRESENTATIVE CURRICULUM MATERIALS FOR "EDUCATION
FOR GLOBAL SURVIVAL" AND SUMMARY

In the previous chapters, we have examined some of the separate elements of the global survival curriculum: the concepts associated with a "Spaceship Earth" view of the world; the content that is related to this view, which translates the global concepts into specifics for the curriculum; and the processes of "Education for Global Survival." In this chapter, we shall consider how these various elements are related to each other and how they provide a framework for designing curriculum materials.

First, we will look at the relationship between the global survival concepts and the Stewart categories. Second, we will examine the relationship between the concepts and the content, discussed in Chapter Three, and a list of curriculum objectives adapted from the Becker Report on international education. Third, some examples of original curriculum materials will be presented and their relationship to the concepts and content will be illustrated. The chapter will conclude with a brief discussion of some of the implications of a global survival curriculum for education.

Relationship between curriculum concepts and Stewart categories. In Chapter Two we examined some of the basic

concepts related to the global survival curriculum. We saw that the "Spaceship Earth" image and the global systems concept serve as integrating ideas. The specific concepts which we dealt with in the chapter were: variety and similarities; evolution and adaptation; finiteness; continuity and change; competition and cooperation; life cycles; communication; systems and patterns; interaction and interdependence; and ethnocentrism and egocentrism. In Chapter Four some categories for examining the value and attitude questions were presented. Although these were first presented separately, there is a relationship between them which provides a framework for designing curriculum materials. Table I, which follows, illustrates some of these relationships.

TABLE I
 RELATIONSHIP BETWEEN GLOBAL SURVIVAL CONCEPTS
 AND STEWART CATEGORIES

<u>Curriculum Concepts</u>	<u>Stewart Category</u>
Variety and Similarities	Man is changeable
Evolution and Adaptation	Man part of nature of some hierarchy Man is changeable Man should accept natural order Linear time
Finiteness	Goods are limited Goods are unlimited World stuff expansive World stuff restricted
Continuity and Change	Man is changeable Concern with "doing," progress, change Man should modify nature
Competition and Cooperation	Man apart from nature or from any hierarchy Man part of nature or some hierarchy
Life Cycles	Non-linear time Organic orientation
Communication	(none directly applicable)
Systems and Patterns	Man part of nature or some hierarchy Organic orientation
Interaction and Interdependence	Organic orientation Man part of nature or some hierarchy
Ethnocentrism/Egocentrism	Man should modify nature Man apart from nature of from any hierarchy

Relationship between objectives, the concepts and content. There is another more complex set of relationships which now begin to appear between the concepts presented in Chapter Two, the content of Chapter Three and a set of specific objectives. These objectives are presented in a typology which outlines many of the major objectives of a global survival curriculum. The outline (see Appendix D) is an adaptation of a similar one included in a major study of international education undertaken by James Becker and the Foreign Policy Association for the U.S. Office of Education.¹ This report is probably the most complete summary of the present state and future possibilities for international education that has been written. A shorter version of this report was published under the title International Education for Spaceship Earth. Both of these have had a significant influence upon the design of this work.

Table II shows some of these relationships.

¹James M. Becker, An Examination of the Objectives, Needs and Priorities in International Education in U.S. Secondary and Elementary Schools - Final Report (New York: Foreign Policy Association, 1969).

TABLE II

RELATIONSHIP BETWEEN GLOBAL SURVIVAL CONCEPTS,
THE CURRICULUM CONTENT AND BECKER OBJECTIVES

<u>Curriculum Concepts</u>	<u>Curriculum Content Areas</u>	<u>Becker Objectives</u> (by outline #s from Appendix 2)
Variety and Similarities	<ol style="list-style-type: none"> 1. Environment De-terioration 2. Cross-Cultural Communication and Conflict 3. Population 	<ol style="list-style-type: none"> I. B. 1. a and b. I. B. 2. a. and b. I. B. 3. II. B. 1.-3. III. A. 2. V. A.
Evolution and Adaptation	<ol style="list-style-type: none"> 1. Population 2. Cross-Cultural Communication and Conflict 3. Environmental De-terioration 	<ol style="list-style-type: none"> I. A. 2. b. I. B. 5. a.-k. I. B. 6. III. A. 3.
Finiteness	<ol style="list-style-type: none"> 1. Resources 2. Population 3. Environmental De-terioration 	<ol style="list-style-type: none"> I. B. 5. 9. I. B. 5. e. I. B. 5. b. I. E. 4. e. II. B. 2
Continuity and Change	<ol style="list-style-type: none"> 1. Environmental De-terioration 	<ol style="list-style-type: none"> I. B. 7. I. C. 4. c. and d.
Competition and Cooperation	<ol style="list-style-type: none"> 1. War, Peace and World Order 2. Cross-Cultural Communication and Conflict 3. Resources 	<ol style="list-style-type: none"> I. B. 5. j. I. C. 3. a.-e. I. C. 4. a. V. E.

TABLE II CONTINUED

<u>Curriculum Concepts</u>	<u>Curriculum Content Areas</u>	<u>Becker Objectives</u>
Life Cycles	<ol style="list-style-type: none"> 1. Environmental De-terioration 2. Population 	<ol style="list-style-type: none"> I. A. 2. b. I. B. 2. a.
Communication	<ol style="list-style-type: none"> 1. Cross-Cultural Communication and Conflict 2. War, Peace, and World Order 	<ol style="list-style-type: none"> I. B. 5. a.-d. I. C. 1. a.-c. I. C. 3. a.-e.
Systems and Patterns	<ol style="list-style-type: none"> 1. Environmental De-terioration 2. War, Peace and World Order 3. Resources 	<ol style="list-style-type: none"> I. A. 1. a.-c. I. A. 2. a. and b. I. B. 4. b. I. C. II. A. II. C. 1.-3 V. D.
Interaction and Inter-dependence	<ol style="list-style-type: none"> 1. Environmental De-terioration 2. War, Peace and World Order 3. Cross-Cultural Communication and Conflict 	<ol style="list-style-type: none"> I. B. 5. k. I. C. 1. a.-c. I. C. 2. II. C. 1. V. C.
Ethnocentrism/ Egocentrism	<ol style="list-style-type: none"> 1. Cross-Cultural Communication and Conflict 2. War, Peace and World Order 	<ol style="list-style-type: none"> I. A. 1. a.-c. I. B. 1. a.-b. I. B. 5. a.-d. IV. D. 1.-6. V. A. and D.

Representative Curriculum Materials

The curriculum materials. This is not a complete curriculum. To design and produce materials for such a curriculum is a massive undertaking in time and money. Thus, what is presented here are only examples of what could be done in a larger effort. These materials are not "teacher-proof" as some materials claim to be. As Silberman points out in his Crisis in the Classroom² the idea of teacher-proof materials is both unrealistic and insulting to the teacher. Some, it appears, would also like "student-proof" materials. A student's own individual response to the materials is an important part of the process of learning. No matter what the intended lesson, there will be a great deal of unintended learning which will take place.

While there are many other materials that could be created, there is also a wealth of material which already exists and can be adapted to the purposes of the curriculum. Many of the materials discussed in Chapter Five are excellent sources for individual lessons and learning experiences. The creative teacher should be able to choose from the existing materials and develop his or her own activities which relate to the global survival theme.

The materials in this chapter are all original and

²Charles S. Silberman, Crisis in the Classroom (New York: Random House, 1970).

were developed in the process of writing this work. They take into consideration the critique of the materials reviewed in Chapter Five and deal with some of the issues discussed in Chapter Four. To this writer's knowledge, there are no specific materials at the present time which deal with the concepts or content of global survival in exactly this way.

Preceding each of the sections there is a brief introduction, which provides a rationale for the inclusion of the materials. Following the materials themselves, in some cases, there is an analysis of the use of these materials in various situations. Keyed to many of the materials are a variety of suggested teaching methods. Appendix E presents a list of resources for "Education for Global Survival."

The materials, which are designed primarily for upper high school and college level, are:

Case Studies for the Classroom

- (1) Reversing the Flow of a Soviet River
- (2) Defoliation in Vietnam
- (3) Malaria Control in Malaysia
- (4) Family Planning in Colombia
- (5) Water and Wales
- (6) Oil and the Chaco Dispute

Simulation Games for the Classroom

- (1) Population-Resources Simulation
- (2) "Triage" Simulation

Teacher-Training Exercises

- (1) Interdisciplinary Exchange
- (2) A Critical Incident

INTRODUCTION TO CASE STUDIES

The case studies in the following section are one illustration of the translation of the global survival concepts into curriculum materials. Here we have chosen the case study, a technique developed and perfected by the Harvard Business School. The case study approach has been adopted by others for classroom use, most notably by Newmann and Oliver.³ Also, there are few case study materials presently available which are specifically built around the global survival concept.

These case studies have been developed from original source materials. The particular subjects were chosen with three criteria in mind: their relevance to the global survival curriculum; their potential for combining one or more of the areas of concern of global survival (e.g., resources and war/peace); and their geographical distribution. This last was an important factor for there is much more available concerning the United States than concerning other countries.

Cases are introduced by several major purposes. Following the case study itself, there are a number of questions which are suggestions for discussion. These questions should not be limiting but should be seen as ways to start the discussion. At the end of the case study materials are

³Fred M. Newmann and Donald W. Oliver, Clarifying Public Controversy: An Approach to Teaching Social Studies (Boston: Little, Brown and Company, 1970).

some teaching methods and suggestions. While a case study is most often used for inquiry learning, through reading and discussion, there are a number of ways they can be varied for the classroom.

CASE STUDY

REVERSING THE FLOW OF SOVIET RIVERS

Major Purposes:

- (1) to examine the specific aspects of a large water-control project
- (2) to examine the environmental effects of such a project
- (3) to examine the effects upon the present resources affected by the project
- (4) to examine the non-economic effects of reversing the flow of the Soviet rivers
- (5) to examine a complex issue from several different aspects
- (6) other _____

The Case Study

In 1961, the Soviet Union issued a plan for a major project to reverse the flow of rivers in the central part of the country. This bold and ambitious scheme would, upon its completion, direct waters from the northward-flowing Pechora and Vychegda into the southern-flowing Kama, a major tributary of the well-known and economically-important Volga.

This plan for transferring water on a massive scale is enormous in a number of respects. No other feasible project for controlling nature involves such vast construction and cost figures. Ust-Voya dam will require 20% more soil than the present largest one in Fort Peck, Montana. Two and one-half times more excavating than was done for the Panama Canal will be required for the connecting canals, and special dredges will have to be constructed for this work. The reservoir created by the dam will be the largest artificial body of water in the world. Cost figures on the project are difficult to assess because of what some feel are poor estimates and a desire to keep the estimated cost

low to impress decision makers. At the minimum, the project will cost over 500 million new rubles (approx. US \$450 million). There is a whole complex of considerations -- economic, cultural, political and environmental -- beyond the purely technical ones in such a large transfer of water. And there has been a full-scale debate within Soviet professional circles concerning the project and its effects.

The Plan: The proposal, which with modifications has finally been approved by official circles, was first put forward by the Leningrad Affiliate of the Hydro-Planning Institute (Gidroproyekt) in a memorandum to the Ministry of Electric Stations dated June 17, 1955. It was revised in the intervening years, and the most recent information shows the project would involve the erection of:

- (1) an earthen dam on the upper Pechora near Ust-Voya. No water release facilities are planned so the flow of the upper section of the Pechora would be cut off.
- (2) an earthen dam on the lower Pechora near the entrance into the Izhma River. The major purpose of this dam is to offset the flow loss caused by the Ust-Voya dam. The reservoir caused by this dam will curtail river navigation. A sizeable power station of one million kilowatts is also planned.
- (3) an earthen dam on the upper Vychegda near the village of Ust-Kulom. A small power station (47,00 kilowatts) will also be built.
- (4) an earthen dike on the water divide between the Nibel and Izhma Rivers to prevent flooding of an extensive low swampy area near the Ust-Volga section.
- (5) an earthen dam on the upper Kama near Solikamsk. A power station of 700,000 kilowatts, water release facilities and navigation locks are also planned.
- (6) two canals to connect reservoirs on the Pechora, Vychegda and Kama into a single body of water.

Project Criticism. Debate in the Soviet Union over the relative benefits and disadvantages of the project has continued since its inception. On one hand, the engineers and other technically-oriented professionals have strongly supported the scheme and have produced feasibility studies

strong in cost-benefit calculations and technical-economic justifications. But there is an already large and growing body of non-engineers in the USSR who have raised serious questions about the environmental, ecological and other side effects of such projects. They have made a strong case for delaying construction until these "other effects" can be studied.

Two Soviet geographers, S.L. Vendrov and N.I. Shiskin, have been most articulate in their criticism of the Kama-Vychehda-Pechora (K-V-P) project, and have focussed on the size of the proposed reservoir and the result of modifying the natural characteristics of the Pechora River. The total area of the reservoir would be 15,500 square kilometers. This flooding of such a vast area would inundate much of the best agricultural land in Komi Assr, causing economic, as well as social hardships, on the people of the region. They are heavily dependent on the flood plain for milk, meat, potatoes, and vegetables. Supporters of the plan reply that the lost land is to be compensated for by opening new lands in the nearby unflooded areas. Shiskin and other experts counter by pointing out the cost figures of the Gidroyeket are erroneous and that the resettling will cost four to five times more than the estimates.

Of greater importance than the agricultural "loss" would be the flooding of a portion of an important gas and oil producing region. A conservative estimate is that 160 billion cubic meters of gas and 179 million tons of oil would be inundated. Although the flooding would not make the extraction of these natural resources impossible, it would be much more expensive because of the special equipment and techniques that would be necessary. There is also the danger of water pollution from leakages and spillages connected with the extraction activities.

Critics of the project also point out the subtle environmental and ecological consequences of the damming and flooding of such large areas. Both Vendrov and Shiskin have carried out interesting experiments to determine the effect on climate in the surrounding regions. They reached the conclusion that (1) the climate of an area nearly four times the size of the reservoir would be affected (2) that there would be a negative affect upon agriculture because of a heat loss due to the reservoir during the growing season. The rise in ground water produced by the reservoir would also result in the destruction of surrounding forests equal in size to the reservoir itself. Vendrov has called upon the project designers to calculate the cost of the destruction of natural resources and to state how they are to be compensated for.

Modifying the natural condition of the Pechora has been a focus for additional criticism of the project. The Gidroproyekt claims a reduction in flow will not adversely affect conditions below the reservoir. Critics point out that this kind of radical change will cause an increase in the salt content and in the temperature of a portion of the river. This could have a distinct affect upon the feeding and spawning of fish, an important economic resource for the people in the area. In addition, the diversion of water could affect the local economy through the delay of spring shipping and log-rafting, since the warmest waters would take longer to reach the frozen area below the Ust-Voya dam. A third objection to the diversion of the Pechora is that the river would virtually be cut off for 229 kilometers, thus affecting the important whitefish industry in the area covered by this shut-off.

The damming of the Pechora could have even more serious consequences. Unless locks are built at the dam site, which is both costly and improbable, transportation costs will become more expensive and complicated. The fishing industry would also be affected, through damage to the runs of the Atlantic salmon and the whitefish. While measures to offset these disadvantages have been proposed, such as hatcheries, fish ladders and the increased production of non-migratory fish species, the compensating measures would possibly be more expensive than the economic damage caused.

Project Support. Defenders of the project answer with an impressive group of benefits which the K-V-P project would bring. For years, the Soviet government has been concerned with providing more water to the arid Southern regions of the USSR. Adding more water from the Pechora and the Vychegda to the southern-flowing Volga would free eight to ten billion cubic meters of water for agricultural uses and would irrigate 2.5 million hectares of land. This amounts to a 17% increase in the flow of the Volga, now the only other source for these purposes. The economic consequences of this would be important for the people of the region.

The supplementary power which would also be produced by the project would justify the large capital investment. The growing needs of industry in the region demand an increase in electrical output, and the planned stations would produce eleven billion kilowatt-hours. This would eliminate the need for future construction of some thermal production power plants, thus saving five million tons of standard fuel annually.

The major reason for the project, however, is to

stabilize the water level of the Caspian Sea. For some years, the level of this largest inland sea in the world has been lowering, thus destroying spawning grounds, increasing the salinity of the water, and making harbors more shallow. If the sea level were stabilized, the estimated saving for the period 1970-2000 would be 563 million new rubles. The greatest beneficiaries would be fishing and maritime transportation industries.

The project designers have emphasized the importance of the creation of a deep water transportation route into the northern European part of the Soviet Union. A large portion of this area would be opened up to economic development, making it more accessible for a variety of industries. Large-scale logging and related industries of wood processing would be established near the reservoir. (Critics have pointed out that these operations -- especially the processing plants -- would create a serious water pollution problem in the area, could cause the death of all fish life in a portion of the reservoir, and could add to the pollution problems already extant in the Kama and Volga rivers, as well as the Caspian Sea.)

Additionally, the cost of the transportation of raw materials from northerly regions to the major industrial areas will be reduced. A yearly saving of ten to twelve million new rubles for transporting wood from Siberia would be one result. The other economic benefits would be facilitating the shipping of high-grade coal from the Pechora fields, since at present it is carried by rail into other parts of Russia, where it is converted into coke or burned in thermal power stations.

Two other benefits are claimed by project designers. The first is improved sanitary conditions on the Mama-Volga river system. Since the major part of the water release from the K-V-P project is planned during the Volga and Kama low periods, this would improve the flow and ameliorate the serious pollution now present in the rivers. Secondly, fishing would almost certainly become an important new industry for the area. Of course, the water pollution which critics have charged will occur could offset these two benefits.

[Adapted from "Soviet Plans to Reverse the Flow of Rivers: The Kama-Vycheгда-Pechora Project" in Thomas R. Detwyler's Man's Impact on Environment (New York: McGraw-Hill Co., 1971), pp. 302-18.]

Questions

1. Why is such a water-control project necessary?
2. Who seems to have the best argument: the critics or the supporters of the project? Why?
3. If you were a state planner, how would you explain the necessity for the project to your superiors? To the critics?
4. How can you balance out the benefits and the costs of the K-V-P project? Is more information necessary?
5. If this project was proposed for the United States, what would your position be? Why?
6. What are some of the possible social effects of the project mentioned in the case study? What are some other you can think of?
7. How important does the fishing industry appear to be to the area affected by the project?

Teaching Suggestions

Case Study:

The case study can be used as is. The students would first read the case study and then discuss the major issues. The facilitator could focus the discussion on some of the suggested questions, or could guide it as he wished. Further investigation of some of the factors would be a probable outcome of the discussion.

Map Study:

Students could use the information in the case study and do further research to make a comparative map study. The first map would show the various features as they are now, and then what they would be if the project was carried out. The students would make a series of maps which would show topographical, social, economic, political and other factors affected by the project.

Role Play:

Students would play the roles of members of a fishing cooperative in the area of the Pechora River. They have heard about the project and by word of mouth have found out that the fishing industry will suffer because of the dams and the reduced flow of the river. They are trying to decide in the meeting what course of action to take regarding the project.

Role Play:

Students would take the roles of members of the Gidroyeket presenting their case to the Supreme Soviet. They believe that the Supreme Soviet is favorably inclined but cannot be sure. They know that their reputations -- and jobs -- depend in part on their performance, so it is important that they do a good job. They have gathered a lot of information and have arguments clearly thought out. The members of the Supreme Soviet will first hear the case and then decide what to do next.

Individual Project:

Individual students could do a comparative study of some of the major water control projects (TVA, Aswan Dam, Volta River Dam, etc.). They would look at some of the effects of these projects -- economic, ecological, political, social -- to see what lessons could be learned. Different students might work on different aspects, and then put together a single report.

CASE STUDY

DEFOLIATION IN VIETNAM

Major Purposes:

- (1) to examine the specifics concerning effects of various defoliation techniques in Vietnam
- (2) to examine the relationship between armed conflict and its environmental effects
- (3) to examine the relationship between the environmental defoliation and the future use of resources in defoliated areas
- (4) to examine the social consequences of military actions
- (5) other _____

The Case Study

One of the consequences of the war in Vietnam has been the large scale defoliation of wide areas of the southern part of the country. The defoliation efforts undertaken by the United States military were primarily for two strategic military purposes: (1) to give greater visibility for the aerial bombings and (2) to make more difficult the concealment of enemy placements and movements.

South Vietnam is approximately the size of New England. The area which has been defoliated by various means is between 5 ½ and 6 ½ million acres, roughly an area larger than the size of Vermont and Rhode Island combined. In all, one acre in six of the nation has been defoliated. This has been accomplished through three main techniques: (1) massive aerial bombardment, leaving in its wake large craters; (2) the use of giant heavy-duty tractors to bulldoze large swaths alongside major transportation routes and contiguous areas of countryside, forest and jungle; and (3) heavy use of herbicides, applied aurally and extensively over areas of heavy vegetation.

Aerial bombardment. The heavy bombing of large areas of South Vietnam has continued for at least the last five to six years of the war. Although exact figures are difficult to obtain, one estimate has it that some seven and a half million craters have been formed by the bombs. Each bomb dropped produces a hole 20-50 feet wide and 5-20 feet deep depending on the conditions of the soil. Bombing has been carried out in the heavily cultivated area of the Mekong Delta; the intensively cultivated mountain valley in northern portions of South Vietnam; mangrove forest; evergreen hardwood forest northwest of Saigon; and in the Da Nang-Quang Ngai area. This includes most of the types of vegetation in Vietnam

The effects of these bombings have been varied. In cultivated areas such as the Mekong Delta, the craters are permanently filled with water, probably because they penetrate the water table. This water, in some cases has been used for irrigation, and this could be a continuing beneficial aspect of the formation of the craters. In other cases, fish have moved into the craters during the monsoon season, and some craters have been reported to have yielded good catches. There is the possibility that an extensive fish culture effort could be established in the craters that do not become arid during the dry season.

The bombings have also devastated large portions of what used to be rice growing areas. Some farmers have begun to grow rice in between and near the craters; but in areas that had formerly been large paddies, new strains of grasses and reeds had taken over, making rice cultivation difficult or impossible. Furthermore, regarding the effects on agriculture, farmers do not like to plow in the bombed areas because shrapnel cuts buffalo's hooves, causing infection and the danger of plows detonating unexploded weapons. The logging operations which had previously taken place in the bombed areas have been greatly reduced. Many trees have metal fragments in them, which damage saws and increase the possibility of tree infection, thus reducing the value of the timber. It is difficult to estimate the value of the loss of timber through bombing and bulldozing, but one estimate has been set at \$40 million.

The water filled craters also provide optimum breeding conditions for mosquitoes and other disease carriers. The possibility of an increase in malaria and other related diseases could well be related to the craters, although no studies have proven this as of yet.

Bulldozing. The bulldozing done in Vietnam has been carried out by giant tractors equipped with sharpened Rome-

plow blades. Bulldozing began on a small scale in 1965 and was devoted primarily to the clearing of roadsides and other lines of communication to discourage enemy ambushes. By 1968, most of the major roads in the central half of South Vietnam had been cleared for 300-600 feet on each side. In addition, large tracts of land off the road have been cleared -- an estimated 750,000 acres by 1971. In some cases chemical herbicides were later applied to maintain the strips in a treeless condition.

The effects of such large scale clearing are numerous. When bulldozing is done in the more hilly terrains, erosion can be a severe problem. With whole forests eliminated, the heavy rains characteristic of the area can produce damaging flash floods. With the land clearing comes the regeneration of a weed called congon grass (*Imperata*) and shrubby bamboos, both of which make rapid reforestation almost impossible. In addition, wildlife habitats are disrupted or destroyed, with the resultant effect on the entire ecology of the area. Large areas of rubber trees have been bulldozed; approximately 1% of South Vietnam's total rubber resources destroyed, at an estimated value of \$26.4 million. And there are social effects such as corrupt province chiefs who have circumvented the strict South Vietnamese forest controls on timber cutting by claiming military necessity and then selling the cut timber for personal profit.

Bulldozing has, on the other hand, cleared large areas of land mines which are an ever-present danger to military and civilian personnel. Some of the timber which has been cleared can be salvaged and used for firewood and charcoal manufacture. And some of the bulldozing has been expressly for the purpose of creating new agriculture areas, though the craterization often makes this difficult.

Herbicides. Widespread use of herbicides in South Vietnam was discontinued in 1971. The area that had been sprayed up to that time is larger than the state of Vermont, or close to 10,000 square miles. There has been no precedent for the massive use of herbicides in a tropical environment, and thus no way to determine the full extent of the long-term damage.

Defoliation was carried out through aerial application of three types of herbicides: 1:1 mixture of 2,4-D and 2,4,5-T called Agent Orange in military terminology; a 4:1 mixture of 2,4-D and picloran (Agent White); and small amounts of dimethyl arsenic acid (Agent Blue). Agents White and Blue have been most widely used; the use of Agent Orange was discontinued in 1970. When the herbicides are applied to an upland forest, the leaves drop off after two

to three weeks, and the trees remain bare for several months. When refoliation occurs, one out of ten trees fails to survive and repeated applications would raise this number. In some areas, as many as 50-80% of the trees have been killed and close to 6½ million board feet of timber plus fuel wood, charcoal wood and other forest products have been lost.

One observer (Westing, Natural History) of the use of herbicides in Vietnam has noted the effect on the general ecology of the region: "Herbivorous insect, bird and bat populations are bound to decline markedly and with them, their pollinating function, which is so important in a tropical forest where individual plants of the same species are usually widely scattered. In the replacement community, particularly following multiple herbicidal attacks, the original set of animal populations will be replaced by a less diverse set."

In the mangrove swamp area, which is a breeding and nursing ground for a variety of ocean fishes and crustaceans, more than one-quarter have been killed. One application of the herbicides in these areas kills all plants growing there, and for some reason the plants do not regenerate. Some areas sprayed years ago still have no green upon them. Food webs have been disrupted, if not destroyed; and the effects upon a variety of fish and other marine life, dependent upon these sources, is still unknown.

Summary. There is a good deal of disagreement over the effects of defoliation in all its forms in Vietnam. Many feel irreparable damage has been done and others believe that the tropical climate will help the regeneration of plant life and the restoration of accompanying animal life. Some point out the case of Krakatau, the Pacific Island, that was completely destroyed by a volcano in the late 1800's. Within several years vegetation had already developed. What many recommend is more study of the effects on all aspects of the country -- plant, animal, geologic, climatic and human.

[Adapted from "Defoliation in Vietnam" by Fred H. Tschirley in Thomas R. Detwyler's Man's Impact on Environment (New York: McGraw-Hill Co., 1971), pp. 532-46.

"Ecocide in Indochina" by Arthur H. Westing in Natural History, Vol. 80, No. 3, March, 1971, pp. 56-61.

"Craters" by E.W. Pfeiffer in Environment, Vol. 13, No. 9, November, 1971, pp. 3-8.

"Leveling the Jungle" by Arthur H. Westing in Environment, Vol. 13, No. 9, November, 1971, pp. 9-12.]

Questions

1. What have been the harmful effects of defoliation?
2. What have been the beneficial effects of defoliation?
3. Which of the three techniques of defoliation seem to have been the most successful?
4. Do you feel the defoliation was necessary?
5. If you had been a presidential advisor in the 1960's would you have recommended defoliation in Vietnam for military purposes?
6. What are some social effects of the defoliation which have not been mentioned in the case study?
7. Do you feel "irreparable damage" has been done to the country?
8. Are there any measures that should or can be taken to reverse the effects of the defoliation?
9. How would you assess the "other costs" associated with the defoliation activities, especially those involving future use of resources?

Teaching Suggestions

Case Study:

The case study can be used as is. The students would first read the case study and then discuss the major issues. The facilitator could focus the discussion on some of the suggested questions, or could guide it as he wished. Further investigation of some of the factors would be a probable outcome of the discussion.

Individual Research:

Students would investigate some evidence of defoliation in their own local environment. One example would be a highway project that removed trees and disturbed the land. The students could use environmental impact statements as one source of information. A report would be written at the end of the project.

Debate:

The class could debate the question that there is a moral responsibility for the United States to restore, as much as possible, the land to its former condition, or make reparations for the damage done. Following the debate, students would write letters to their Congressmen stating their position.

Individual Projects:

Students would make a graph of the ecological effects of defoliation in Vietnam. They would begin with the land as it was in 1960 and then year by year until the defoliation efforts stopped. From this point, students would project the time it would take (1) to restore the land or (2) for the land to restore itself naturally.

CASE STUDY

MALARIA CONTROL IN MALAYSIA

Major Purposes:

- (1) to examine aspects of malaria control in Malaysia
- (2) to examine the arguments for and against chemical control of malaria-carrying mosquitoes
- (3) to examine the implications of other forms of malaria control
- (4) to examine the relationship between the environmental effects of malaria control and population
- (5) to examine the relationship between social effects and malaria control
- (6) other _____

The Case Study

Malaria has been at the top of the list of health problems through the world for centuries. For instance, some have attributed the decline of the medieval civilization of Ninfa, near the Pontine marshes of Rome, to the debilitating effects of malaria. Likewise a flowering civilization of Ceylon is considered to have been destroyed by the ravages of malaria. And it is only in the last fifty years that malaria has been, for most practical purposes, eradicated from most sections of the United States.

The disease is caused by a number of species of the Anophales mosquito, which breeds in marshy, wet areas. In the years prior to World War II in the United States, the primary control of the disease came through the reduction of breeding habitats, which reduced the number of mosquitoes, and thus the number of people who could be infected with malaria. Following World War II, modern, synthetic insecticides appeared and radically altered the mosquito control practices. Chemicals such as DDT (others include malathion, parathion, EPM, fenthion and trade name insecti-

cides such as Abate, Vapona, Dibrom and Dursban) are cheap, strong and effective in killing the mosquitoes. They have long-term residual action and are easy to use.

In recent years, however, there have been criticisms that the chemical approach does not really do the job. In 1946, DDT was widely used against a particular pasture mosquito in central California. Within three years, the mosquito had developed a resistance to DDT and the chemical was no longer effective. In the next twenty-five years, a whole variety of chemical sprays were used, so that the mosquitoes have become immune or multi-resistant to all common public health mosquitocides. This has broader implications for the use of mosquito control chemicals, especially for malaria eradication programs for tropical and sub-tropical countries. The World Health Organization's committee on insecticide research reported that 38 species of Anopheles were resistant to Dieldrin, while DDT resistance has been recorded for fifteen species. There is little question that DDT and related insecticides can reduce the amount of human disease, but its ability to eradicate malaria in certain geographical areas is still a question.

Malaysia has long been involved in malaria control and eradication efforts. In the early 1900's a few coastal towns on the Malay Peninsula had a major outbreak of malaria. With a combination of jungle clearing, drainage, filling and diking, there was a marked reduction of the disease in these towns. Over the intervening years these techniques were developed and refined further, so that most people living in cities, towns and agricultural estates were protected from malaria. Most of the important unprotected populations were in the outlying villages, which were hard to get to and where non-chemical control efforts were costly. With the development of organic residual sprays, the Malaysians could control the disease in those areas by spraying the walls of dwellings, which was a cheaper method but not necessarily more effective.

A trial program of chemical control of malaria was set up in the mid-Fifties. While there was a considerable reduction of adult mosquitoes found in houses, there seemed to be little effect on the larvae. The group experimenting with this method pointed out that even if control had been extended to a wider area, the transmission would not have been entirely interrupted. As one project member stated: "It is evident that as a public health measure for rural areas in Malaysia, malaria control by either drugs or insecticides, once started must be continued. Otherwise after several years of control the people will have lost most of

their immunity, but the parasite and vector will still be present, and if control is then stopped for lack of funds or some other reason, there would be a grave risk of epidemic malaria."

An additional consideration is that chemical control is a barrier to the disease which is erected outside of the treated group; the community has little part in the decision to use the chemical control and it is unrelated to specific environmental factors. Thus, the country, is only tenuously connected to the cultural patterns of the village. For example, there was a large cutting of jungle trees, which produced optimum breeding conditions for malaria-carrying mosquitoes. A major epidemic followed, involving several thousand people and causing numerous deaths. One way in which the disease is controlled is through the resistance Malaysians have built up. There is no question that a high mortality rate is present in those areas where the mosquito breeds, but it is also true that the society is able to tolerate this death rate and still survive. The reduction of malaria without concomitant improvements in other parts of Malaysian lives is not necessarily beneficial.

There are also those who feel that historically, social and economic conditions have played a large part in the control and reduction of malaria. With increased prosperity, the incidence of malaria declines. In a highly organized agricultural community, for instance, water systems are attended and controlled. Irrigation procedures, water storage, river regulation, urbanization, the location of towns, animal husbandry, housing and illumination at night all are indications of high economic and social conditions. Supporters of this point of view cite examples of medieval Rome, Ceylon, Palestine and the United States as proof. The tying of malaria control to these factors changes the argument to a different ground.

On the other hand, Malaysian government officials, World Health Organization workers and others concerned point to the high mortality rates in the outlying areas of Malaysia. From an economic point of view, not to mention the humanitarian aspects, the control of malaria is crucial to the further development of the country. It is an expensive and time consuming process under most conditions, and in spite of the help the country has been receiving, there is still much to do. The quickest and simplest way is to use chemical pesticides which relieve the misery of thousands and become an important factor in helping these people become productive members of the new nation. To not use known, effective reduction techniques would be morally inconceivable as well as politically inexpedient.

[Adapted from "The Control of Malaria" by Richard Garcia in Environment, Vol. 14, No. 5, June, 1972, pp. 2-9.]

Questions

1. What does the experience with malaria control in California prove? How does this affect Malaysia?
2. If you were a public health specialist working in Malaysia, what would you do about malaria?
3. If you were a biologist working with the public health specialist, what would your position be?
4. What are some of the "natural" ways of controlling the spread of malaria?
5. What is your reaction to the statement that "society is able to tolerate this death rate and still survive?"
6. Are there any arguments for not controlling malaria in Malaysia?
7. Is disease something to be controlled, or should we let "nature take its course?"
9. Why is there less incidence of malaria in the more heavily populated areas than the rural areas?

Teaching SuggestionsCase Study:

The case study can be used as is. The students would first read the case study and then discuss the major issues. The facilitator could focus the discussion on some of the suggested questions, or could guide it as he wished. Further investigation of some of the factors would be a probable outcome of the discussion.

Interview:

Students could go out into the local community and investigate what kind of pesticides are being used and what their effect is upon the ecology of the area. Students could talk with store owners, farmers, housewives, gardeners and nurseries, and public officials. They would report their findings to the class and write up their reports for class comment.

Role Play:

An extensive role play could be devised which involved the Malaysian government and the World Health Organization. The Malaysian government could be questioning the use of pesticides for the control of malaria, and the WHO officials would take the stance that their teams have found a major epidemic of malaria has broken out. Students taking the roles would have to do some prior research to find out factual information about past epidemics, the mortality rate and the possibility of pesticides being able to control the epidemic. The group would have to come to some conclusion at the end of the meeting.

Written Exercise:

Students would have to pretend they are officials in the Malaysian Ministry of Public Information. They have been given the task of writing a speech for the Minister explaining why the government has decided to not use pesticides to control an epidemic which has broken out in the rural areas of the country. There have been numerous deaths and the people are demanding to know what the government is going to do.

CASE STUDY

FAMILY PLANNING IN COLOMBIA

Major Purposes:

- (1) to examine the efforts at family planning in Colombia
- (2) to examine the social and cultural factors affecting family planning
- (3) to examine the political factors which have affected family planning in Colombia
- (4) to examine the relationship between Colombia's experience and those in other countries
- (5) other _____

The Case Study

Although Colombia is a strong Catholic country, it was natural for Llera Restrepo, the president of Colombia from 1966-1970, to campaign in 1966 on a platform strongly supporting birth control programs. The results of the 1964 national census had just been published, and the figures demonstrated a leap in the country's population that would cause deep concern for even the most optimistic. Since the last census in the early 1950's, the population had increased by six million youngsters to over seventeen million people. Because of improved health and living conditions, there were as many Colombian babies being born -- and surviving through infancy -- as in France, a country with three times Colombia's total population. All in all, the situation was dismal. As one Bogota newspaper editor wrote, "Our long nightmare has now become a reality."

In the midst of this, many Colombian women were trying to deal with an unbearable situation in the best way they could. The wealthier and more educated women took the pill. The poorer mothers often took drastic steps: abandonment of children, abortion and even murder -- all of which were in direct conflict with their traditional behavior, where mothers

are respected for the care they take of their children. A 1959 study estimated thirty thousand children in Bogata were abandoned and four times that amount in surrounding areas. In addition, one-third of the 25,000 cases admitted to a major maternity hospital in Bogata were due to complications following poorly-done abortions. And homicide has ranked unusually, and suspiciously, high among the five to fourteen age group.

With Resterpo's election came first, a recognition of the population problem and then, new initiatives to do something about the miserable situation many Colombians found themselves in. One group, the Association of Medical Faculties (ASCOFAM) concentrated on research, producing educational booklets and on training doctors in family planning. When some of the leading doctors realized the size of the social problem, the group expanded its original narrow focus of standardizing training and certification to include a Population Division. Another group, the Association Pro-Bienstar de la Familia Colombian (Pro-Fam), was more concerned with immediate action. After beginning with a single clinic, it had 35 doctors working part-time in sixteen urban clinics, helping 81,000 Colombian women with advice and contraceptives by 1969.

The task for both of these groups was much harder than was expected. There seemed to be a thousand reasons why a comprehensive family planning program wouldn't work. Obstetricians felt they would be out of a job if the campaign succeeded. Few of the doctors in the 370 government health centers had ever had any training in contraceptives. And most difficult, but somehow least paid attention to, was the strength of male attitudes against birth control and contraception. In a country where machismo, or male-ness, is a strong cultural value for men, the thought that a man's wife would be fitted so she would not become pregnant and have offspring was insulting and offensive. One doctor told the story of a man who came to the clinic with a pistol, threatening the life of one of the clinic doctors because his wife had been fitted with an IUD. It took two hours to calm him down and in the process do some education.

While the figures may be somewhat suspect because of the difficulty of data-gathering in Colombia, the trend in the ten years from 1957-1967 seemed to indicate a significant reduction in the birth rate -- from 40.14 to 34.79 per thousand. The largest drop of 3.8 per thousand took place after 1963, but even with this significant decline the absolute number of babies born in 1967 was about a hundred thousand more than in 1957.

Then, in July, 1968 Pope Paul announced in his encyclical that "... it is an error to think that a conjugal act which is deliberately made infecund and so is intrinsically dishonest could be made honest and right by the ensemble of a fecund conjugal life." Because of the Church's position, it became increasingly difficult for leaders in government and non-government positions to continue to be honest in their public statements and private acts. Yet, the government a year later had regained whatever momentum in family planning that had been lost. To placate the conservative groups in the Church, the government passed laws against fathers who abandoned, and otherwise failed to maintain, children they had sired. In addition, it signed a major agreement with the Pan-American Health organization for maternal and child welfare clinics.

A major task before the government, ASCOFAM and Pro-Familia is to make family planning such an essential part of Colombian life that when a Conservative president takes over (under an agreement set in 1958 with the National Front), there will be no question that Colombian women want a vigorous family planning program. This will make any Conservative president and administration, when pressed by elder churchmen, extraordinarily reluctant to attempt to cut off funds and divert personnel from the efforts.

The real question that remains, however, is what the reaction of those hundreds of thousands of Colombian campesinos in the rural areas will be. This will in large part determine the success or failure of the campaign. Changes are taking place in Colombia. Modern buildings, up-to-date dress and all the other recognized touches of modernity stand side-by-side with older ways. But in the country side, strong values associated with machismo and with the church will take many years to change. How strong is machismo? How unquestioning is religious devotion? How much time is there?

[Adapted from "Family Planning in Colombia: A Case Study" by Clyde Sanger in Quentin H. Sanford's The World's Population (Toronto: Oxford University Press, 1972), pp. 225-34.]

Questions

1. What are some of the cultural factors which have affected family planning in Colombia?
2. If you were a Colombian woman, what would you have done before the instituting of family planning efforts? What if you had been an uneducated woman?
3. How do you think the government was able to take actions in the face of such strong opposition from the Church?
4. What do you think the economic effects of family planning will be upon the country?
5. If you were working in a rural community with the campesinos, how would you deal with the issues of birth control and family planning?
6. How could those working with family planning use machismo as a positive force rather than a negative one?
7. What do you think will happen when a Conservative president takes over?
8. Is the population problem in developing countries that people are having more children or that more children are surviving?

Teaching Suggestions

Case Study:

The case study can be used as is. The students would first read the case study and then discuss the major issues. The facilitator could focus on some of the suggested questions, or could guide it as he wished. Further investigation of some of the factors would be a probable outcome of the discussion.

Group Project:

A group of students from the class could produce a "photonovella," a comic-book type of publication that uses photographs rather than cartoons.

These are popular in Colombia and are widely read. The students could pretend they are working with the population organizations and want to produce a novella that would deal with some of the issues of family planning. One group could do the writing and the other could take the photographs. The rest of the class could be the intended audience, when it is finished, and give their reactions to the publication.

Individual Project:

Students could develop an advertising campaign for the family planning agencies, and including songs, posters, and written materials that might be used in such an effort. The emphasis would be on rural distribution so the students would have to keep this in mind. These might form the basis for a series of presentations to other classes in the school.

Role Play:

One student could role play a progressive priest in Colombia talking to some of the campesinos in his parish who are asking him about the Pope's encyclical. The priest has supported birth control and family planning efforts until the present time, but is now in a quandry. The campesinos have many questions about what his position is and what they should do, especially since some of the women have been attending special classes at the local health center.

Group Project:

A group of students would play the roles of directors of ASCOFAM or a similar organization. They are concerned about their failure to reach the male population and are trying to devise ways to inform them about family planning and birth control methods. They want the men to support their wives, some of whom have been coming for information.

CASE STUDY

WATER AND WALES

Major Purposes:

- (1) to examine the effect of the flooding of valleys in Wales
- (2) to examine the relationships between the development of resources and economic development
- (3) to examine the relationships between resources and cross-cultural conflict
- (4) to examine the social factors involved in the plans to flood portions of Wales
- (5) other _____

The Case Study

The small country of Wales has a long history of conflict with its larger neighbor, England. Battles in the olden days were over rights to the land and its resources, and this is still the case today. The latest battle has taken on a new twist, however; instead of keeping land from falling into the hands of the English, Welshmen are now just trying to keep their heads -- and their land -- above water.

Ever since the early days of the Industrial Revolution, the British government has flooded valleys and built a number of reservoirs and dams in the Welsh highlands to provide water and power to Welsh and English cities. The most recent dam, built in 1966, caused enough of a furor that the Welsh Minister of Agriculture in the British government stated that he did not propose "to consent to the drowning of any village communities in mid-Wales." In spite of this promise, the government has gone ahead with plans to flood two more valleys.

One of the sites is the Senny Valley in the Southern foot hills of the legendary Cambrian mountains. The reservoirs that would be built would provide water for the Welsh

capital of Cardiff. The other dam would inundate the Dulas Valley, a beautiful place fifty miles to the north where salmon spawn in the autumn and wildflowers grow alongside the river banks. Inhabitants of both areas have set up a storm of protests, especially since the water will cross the border and be used by English in nearby cities. A resident of the Dulas Valley region has said: "We may be Welsh peasants, but if it comes to barricades, no Water Board men will get in here. These reservoirs are eroding the traditional Welsh way of life. We must resist the rape of our valley."

The building of the reservoirs could indeed be the end of the beautiful green of central Wales -- and of the remaining people who live there. Already small-scale farming is a declining industry in all of Britain, and especially Wales. Many farm families have been forced off their land by the encroachments of the National Forestry Commission and by the central government's emphasis on larger and more economically-viable farms. The population in the area that would be flooded has dropped to one-tenth of the total Welsh population, although the area covers one-third of the entire country. Rail service has been discontinued, and bus service has dropped off, further isolating many of the communities. Many Welshmen, as a result, blame the government in London for the area's decline.

The British government insists that it has the right to build the reservoirs and that it is only trying to meet the needs of the larger centers of population, both in Wales and England. There are extensive resettlement programs associated with the dam projects, and government officials point to this as evidence of their willingness to help compensate people in the area for any loss they may suffer. In their frankest moments, though, these officials see the Welsh as being stubborn and failing to see the larger picture and the benefits that will come to them and their fellow countrymen.

In medieval times, Owen Glendower led the Celts against the English invaders. When defeat seemed imminent, Glendower and his men retreated to the hills and fought their final battles for freedom. Although they lost, legend has it that Glendower and his men still sleep in the Cambrian mountains that form the Senny, Dulas and a hundred other Welsh valleys, buckled in armor and swords on their knees ready to do battle again. Not a few Welshmen believe that the time has come.

[Adapted from "How Green Was My Valley" in Newsweek, April 6, 1970, p. 48.]

Questions

1. Is the British government justified in flooding the Welsh valleys?
2. If the flooding is carried out, who should be able to use the water? To whom does it belong?
3. What are some of the factors which would cause the British and Welsh government to decide to carry out the flooding?
4. How do you react to the statement of the resident of the Dulas Valley?
5. Is the issue water or are there larger issues involved?
6. How are the proposed flooding and economic development related?
7. If you were a member of an independent study commission and had visited Wales, what course of action would you recommend?
8. Would the proposed resettlement programs help alleviate some of the problems raised by the Welsh opponents?

Teaching Suggestions

Case Study:

The case study can be used as is. The students would first read the case study and then discuss the major issues. The facilitator could focus the discussion on some of the suggested questions, or could guide it as he wished. Further investigation of some of the factors would be a probable outcome of the discussion.

Written Project:

Students would produce a Welsh newspaper that would include editorials, letters to the editor, news stories and man-on-the-street interviews. Each student in the class could participate in the project, and then it would be distributed to other classes for their reactions. Part of the

project would be the analysis of the students' writing for bias, clarity, etc.

Debate:

Students would play the role of members of the British House of Commons where a parliamentary debate is going on over the water projects in Wales. Various students would take different sides; for, against and those in the middle. Some could play the Prime Minister and the different Cabinet members involved. At the end, a vote would be taken on whether or not to proceed with the plans.

Media Presentatio:

Students would produce a television show on BBC. The show would be a documentary presenting both sides of the issue. If there were video-tape facilities available the students could use these to make the show more realistic. If not, they could use photographs and do the show live for the class or school.

Written Project:

Students would write a fictionalized account of some one individual who would be affected by the flooding of the valleys. For instance, it could be the story of an elderly person who had farmed in the Dulas Valley for all of his life.

CASE STUDY

OIL AND THE CHACO DISPUTE

Major Purposes:

1. to examine a particular armed conflict in terms of causes and results
2. to examine the influence natural resources have on political decisions
3. to examine the influence of geography upon political and economic affairs
4. to examine the possible interpretations of events by observers
5. to examine the ways of justification or particular actions in international diplomacy
6. other _____

The Case Study

The conflict for the Chaco Boreal, a large area bordering Bolivia and Paraguay, has been described as "the most senseless war in history," but the fact is that there were substantial stakes involved. For three years a bloody and costly war raged between these two South American countries over what appeared to some as a stretch of relatively worthless swampland and jungle. To others, it was a valuable area of land, rich in resources both above and below the surface of the earth. While the issues to many observers were unclear, to the belligerents they were very clear -- and worth fighting for.

The Chaco Boreal covers about 115,000 square miles -- nearly twice the size of Paraguay itself. The northern part is covered by a large, dense tropical forest which is generally unsuitable for settlement, but has large quantities of the quebracho (ironwood) tree which is used by the leather tanning industries. In the central and western sections, however, there are large tracts of savannah which

which are ideal for agriculture and stock raising. Before the war began in 1932, the Chaco region provided close to one-third of Paraguay's public revenues, contained one-third of all the country's livestock, nearly half of the railway lines and was the location of the most important industrial plants, which extracted the tanning substance from the quebracho logs. In all, it provided a fourth of Paraguay's exports.

In contrast, there was little development of the Bolivian-controlled portion of the Chaco region. There were a few small settlements and military posts, but little else. The lack of proper transportation was the most important obstacle to the development of the Chaco. In the adjoining Oriente, the more fertile agricultural and mineral region of eastern Bolivia, cattle thrive on the extensive grasslands and there are thousands of square miles of tillable soil. The foothills of the Andes in this area are rich in oil and other minerals. Yet, this region had not developed adequately, primarily because of the need for cheap transportation. Although there had been several attempts to build a railway between the major cities of Santa Cruz in the Chaco and Cochambamba in the altiplano, none were successful; and the towering Andean cordillera continued to be a barrier to the markets of the altiplano area, where three-fourths of the Bolivian population was concentrated. Bolivia began in the 1920's, then to look toward other routes to move her goods.

To Bolivia, the most logical route was a railway or highway across the northern portion of the Chaco to the Paraguay River at Bahia Negra. From here, ocean-going vessels would be able to traverse Brazil to the Atlantic. Thus, Bolivian access to the Paraguay River, and the Atlantic Ocean, became crucial. And since Bolivia had lost her major Pacific port in a previous conflict, an ocean outlet was even more of a necessity.

But many observers of the dispute feel the real issue was the rich oil fields which lay in the Oriente and Chaco regions. In 1924, a French explorer and engineer announced the discovery of vast oil deposits in this area. Not long afterwards, the Bolivian government granted concessions to various international oil interests, including Standard Oil of New Jersey, for the exploitation of the oil found in the two areas. Standard Oil soon afterwards drilled several wells and built two small refineries. The only marketing outlet at the time was through a railhead at Yacuiba, in the southern Chaco, and then across Argentine territory to Buenos Aires. The tariff imposed on the oil was so high, however, that such a route was impractical. To further

complicate matters, the Argentine government refused to allow Bolivia to construct a pipeline through its territory to the Parana River. Thus, the most feasible way to get the oil out of the Oriente and Chaco fields was a pipeline through the Chaco to Bahia Negra.

In some circles, Bolivia and Paraguay were regarded as pawns in a game played between Standard Oil and Royal Dutch/Shell. Shell, it was claimed, was supporting Bolivian interests against all rival oil companies, and Standard Oil in particular. This is substantiated in part by Shell's financial guarantees which enabled Bolivia to buy arms from a British firm. As one commentator said:

"Petrol is the invisible cause of the Chaco War. Let us stop talking of the Bolivian-Paraguay question being one of frontiers, of an outlet to the sea and other sentimental nonsense given as an explanation of the cause of the war. This is a war of despoilation, of brutal conquest which Bolivia has waged against Paraguay thinking, with their German General (Kundt), that in a few weeks they could possess themselves of an immense territory, one of the richest oil-fields in America."

There is no question that the most practical solution to the problem of marketing the oil in the Chaco region would have been a pipeline across the area to the Paraguay River, despite the statement of Walter C. Teagle, president of Standard Oil during the time, that his company "has no present or future plans or necessity for laying pipelines into or across the disputed territory."

But the Paraguayans continued to believe that the pipeline would be built and saw that oil coming through a territory under their control would be a source of revenue for the country. The prospect of major sources of income for oil-rich fields, on the other hand, undoubtedly led Bolivia to press her claims and demand from Paraguay access to the region and a river port.

As in any land-based dispute, both Paraguay and Bolivia felt they had legitimate and legal claims to the area. Paraguay produced evidence of discovery, colonization and possession. Bolivia countered with arguments of her own based on historical evidence and extensive legal briefs. In the diplomatic negotiations which preceded the war, Paraguay offered settlements which were refused by Bolivia, who then made proposals of her own. Bolivia was, in general holding out for more territory and a better port on the Paraguay River. The emotionalism in both countries

throughout these negotiations ran high and frantic steps, through conferences and diplomatic channels, were taken in the late Twenties and early Thirties to avoid what now seemed to be inevitable. At the last minute Argentina suggested the dispute be submitted to arbitration, which both countries refused to do. Bolivia ominously stated that while no agreement had been found at the conclusion of the last round of talks, "the dispute would be settled ultimately, if no armed aggression occurred." In June of 1932, Bolivian troops raided a Paraguayan outpost and this officially signalled the outbreak of a war that had smoldered for many years.

The issue of the pipeline, along with the promise of further exploitation of oil resources in the Chaco Boreal, provided an incentive for both Bolivia and Paraguay to use armed force to support their legal claims to the entire region. In the end, Bolivia was beaten by Paraguay, both suffered large losses of valuable manpower in the three year war (Bolivia's losses: 52,397 killed; 4,264 died in captivity; 10,000 deserters; Paraguay's losses: approximately 36,000 killed), and all parties found that the oil claims -- and resources -- were greatly exaggerated.

[Adapted from J. Valerie Fifer, Bolivia: Land, Location and Politics Since 1825 (Cambridge, England: Cambridge University Press, 1972), pp. 205-237.

William R. Garner, The Chaco Dispute: A Study of Prestige Diplomacy (Washington, D.C.: Public Affairs Press, 1966), 21-55.

Ronald Stuart Kain, "Behind the Chaco War" in Current History, August, 1935, pp. 468-474.]

Questions

1. Which of the two countries, Bolivia or Paraguay, seemed to have the more substantive claim to the area?
2. What are the ways the countries could have settled their differences other than war?
3. How would you balance the oil issue against the need for an outlet for other goods from the Oriente?
4. What other choices did each of the countries have to solve the territory and transportation problem?
5. Does it seem like a "senseless war" to you?
6. How much national pride do you think might be involved in the dispute?
7. How do you feel about the commentators statement of the causes and Teagle's position?
8. If you had been a Bolivian in the 1920's, how would you have felt about this issue?
9. If you were a negotiator for the League of Nations, how would you have suggested to resolve this issue?

Teaching SuggestionsCase Study:

The case study can be used as it is. The students would first read the case study and then discuss what is and what is not included in the case study. The facilitator could focus on some of the questions that are suggested, or guide it as he wished. Further investigation of some of the factors would be a probable outcome of the discussion.

Role Plays and Situational Exercises:

A number of role plays and situational exercises can be devised from this situation. Students can play oil company officials, Bolivian and Paraguayan government officials, residents of the

Chaco and Oriente areas, foreign diplomats etc. There would have to be additional research done on the various roles and the positions taken. Students could take one role first, and then switch with another student to begin to see how various individuals viewed the issue differently.

Simulation:

Simulations could be devised from this incident. One could be a League of Nations conference with all parties involved in the dispute attending. The simulation could be as involved as was desirable. Actual documents could be used and some of the issues involved in the real dispute would be the basis for discussion.

Critical Incidents:

Since the case study itself is broad and general, separate critical incidents exploring in more depth certain aspects of the case study could be written. These critical incidents would be used by the class for discussion and could also be turned into role plays and situational exercises.

INTRODUCTION TO POPULATION-RESOURCES SIMULATION

This simulation is an effort to combine two of the areas of the global survival curriculum: population and resources. The simulation was first designed for grade-school age children and later modified for use with undergraduate university students. While the concepts which the simulation present are fairly simple, the questions which can be raised after the simulation are not.

This example requires more preparation and materials than some of the others, although nothing elaborate is required. The participants are asked not only to become involved intellectually, but also physically, especially when the crowding begins in the year 2000. The re-distribution of the wealth of the United States is an opportunity for some important ethical and value questions to arise. While the content of the simulation is clear enough from only the playing, the discussion of the figures used for the distribution of "food," the relative crowding, and the placement of population on the different areas provide real evidence of the content.

SIMULATION GAME"POPULATION - RESOURCES" SIMULATIONMajor Purpose:

To demonstrate the relationship between population growth and consumption and distribution of resources

To demonstrate the distribution of population in the world

Materials:

Map, floor maps of the continents, "Tootsie Rolls" or other tokens

Physical Setting:

The game should be held in a space large enough to accommodate movement and give some simulation of the division between the various continents. Ideally, the outline of the continents would be drawn on the floor, so the participants would have a sense of identification with a particular continent.

Process:

Participants are acquainted with the layout of the continents on the floor. With an age level which is not familiar with the geography, this would provide an opportunity to do some map study with the exercise.

Participants are told that they will be assigned to various parts of the world to represent the population as it is presently estimated in the world. They should be divided as accurately as possible and the table below shows how a class of thirty students can be divided.

The leader distributes the tokens according to the chart below. The United States should be held until last. It will become obvious with this dis-

tribution that the United States has far more food and resources than other parts of the world.

Following this distribution, the group should be told that we are in a time machine and are traveling to the year 2000 to see what the population will be like then. The rest of the class is divided according to the chart and the remaining resources are distributed.

When this has been completed the leader should step out of the process and the participants should deal with this new situation to see if they resolve the inequity. When the exercise has continued for a sufficient amount of time, the leader should stop it. Discussion of the exercise should revolve around population, resources, distribution, the effects and the feelings the participants had during the game.

1968 DISTRIBUTION TABLE 2000

	ACTUAL POP.	% of WORLD	STUDENT DIST.	RESOURCE DIST.	ACTUAL POP.	% OF WORLD	STUDENT DIST.	RESOURCE DIST.
North America	222 million	6	1	many	354 million	6	1 + 1	many
Latin America	268 million	8	2	1 each	638 million	10	2 + 2	1 additional to 1968 pop. 1 to 2000 pop.
Asia	1.9 billion	54	8	1 each	3.5 billion	57	8 + 9	1 additional to part of 1968 pop. 1 to part of 2000 pop.
Africa	333 million	10	2	1 each	768 million	13	2 + 2	1 additional to 1968 pop. 1 to 2000 pop.
Europe	455 million	13	2	2 each	527 million	8	2 + 1	2 additional to 1968 pop. 2 to 2000 pop.

SOURCE: John McHale, World Facts and Trends (New York: Collier Books, 1971), p. 35.

Analysis. The "Population-Resources" simulation has been used in several situations. One was with a mixed-age group at the Conway Elementary School during their Enrichment Program in the winter of 1971. The simulation was an introduction to a cross-cultural unit, where students learned about a different part of the world each day.

Maps were drawn on large pieces of paper and placed on the floor and a certain number of students volunteered at random for each of the continents. After they had taken their places on each of the areas, I then distributed some small Tootsie Rolls as food. The students in the United States received a handful, while those in the other areas received only one or two, easily illustrating the idea of a maldistribution of resources and food. We then pretended to go to the year 2000, the students were assigned to areas, and "food" was distributed again. The U.S., of course, ended up with a pile of "food." When this happened, the students in the U.S. were clearly happy but also bothered. I asked them what they might want to do, and they decided to divide some, but not all, of their wealth with the people in the other continents. They still wanted to hoard what they had. I asked the students in the other world areas what they thought should be done with the "extras" and their replies ranged from share to sell.

An additional factor in this simulation was the space on the floor. Because of the way in which the continents

were drawn, it was difficult for students to fit onto their continent. Thus, by the year 2000, some students who were assigned to Asia could not get on the continents, or were so crowded they could not move.

In the second example, this simulation was used in an undergraduate education class at the School of Education, University of Massachusetts, as part of their examination of some of the global survival curriculum concepts. It was one way to introduce these concepts and at the same time demonstrate a classroom method. The game was run as in the Conway example, but because of the physical setting, the continents were folding chairs arranged to form closed areas. When the time came for the re-distribution of the "food," the students in the United States were somewhat reluctant. The rest of the class felt they should give some of their "food" to the other students, and finally the U.S. students agreed. However, when they distributed their "food," they threw the pieces of candy to the Asian, Latin Americans, and Africans, in a way remarkably resembling throwing scraps to a dog. The first reaction was that this was just a playful gesture, but after several times, it became obvious that this was revealing an attitude that the students had toward the others. Following the game, this and other aspects of the game were discussed.

The experiences proved that the simulation could work with different age levels. At first, I felt it was only

appropriate for the younger students because of the simplicity of the game. However, after using it with undergraduate students, I decided that it was appropriate for almost any group, if the leader was careful to gear the discussion to the level of the participants. A second reservation which I had about the simulation, and continue to have, is that the mechanics of the game centers upon a leader, especially in the distribution of resources. This seems to imply that there is a "Great Provider" or a single person who makes the decision of how food and resources are to be distributed. In reality, however, this is not true; it depends upon the individual countries and the people in the countries.

INTRODUCTION TO "TRIAGE" SIMULATION

The "Triage" simulation has been developed from a suggestion from the Ehrlich's book Population, Resources, Environment. In their chapter on the international implications of what has been discussed previously in the book, they mention the "triage,"³ which is a system in military medicine for using the limited resources of a field treatment station to care for those most urgently in need of attention. While the idea applied to developing countries is a drastic one, and one which is not likely to be adopted, it presents in sharp relief some of the issues involving development and the distribution of resources.

There are many ways, of course, the concept could be presented. I have chosen the simulation because of the possibility for greater involvement of the students or participants, and the greater reality a simulation lends to the discussion of the idea. The exercise is designed so there is involvement of a small portion of the class at first, in the Special Commission, and then participation of the entire class in the General Assembly. The structure of the simulation is not exactly accurate, according to the structure of the United Nations, but to do so would unnecessarily complicate the exercise and perhaps obscure the

³Paul R. Ehrlich and Anne H. Ehrlich, Population, Resource, Environment (San Francisco: W.H. Freeman Co., 1970).

central idea.

An especially important part of the "triage" is the value question it immediately raises. Members of the Special Commission and the General Assembly are in the position of deciding the life and death of a number of countries in the world, and this brings to the fore a multitude of questions which would be dealt with following the exercise.

SIMULATION GAME

"TRIAGE" SIMULATION

Major Purpose:

To introduce the idea of various levels of development and the distribution of resources

To present students with a hypothetical, but real, problem to deal with

To give students a feeling for the world wide implications of development

Materials:

Roles and other simulation materials

Physical Setting:

A room with a table and chairs.

Process:

Before beginning, explain that this is a simulation of a United Nations Special Commission which has been appointed to consider how to divide money and resources necessary for world development. The commission has studied a variety of proposals, and this is one particular one of many.

Participants should volunteer to be one of the five countries in the exercise: United States, U.S.S.R., Lybia, India, Pakistan. The individual roles are distributed to the volunteers and a copy of the "Triage Exercise" sheet is given to everyone. Participants then take their seats at the table and begin the discussion of the issue. Their purpose is not to come to a conclusion but discuss the various alternatives implied in the triage plan and the implications of such a step.

Following this discussion, which can take between 20-30 minutes (the time will depend upon the discussion and amount of time available to the class), the leader should stop the discussion. He should then distribute the General Assembly description sheet to the entire class. At this point the

class becomes the General Assembly and they adopt roles which they have decided upon beforehand. The students should have chosen their countries several days earlier and done some research on what their countries position will be.

In the next part of the exercise, the students will debate in General Assembly the report of the Commission and what the implications of it might be. At the end of the debate which might continue for several days, a vote will be taken on the advisability of such a move. The vote will include all of the General Assembly.

TRIAGE EXERCISE

It is 1972 and you are now a member of a United Nations Special Commission authorized to recommend a course of action on the allocation of the limited amount of American food aid as the world food situation worsens in the 1970's. The proposal before this body is that of the "triage." ** Under this plan the world nations would be placed into one of the following categories: (1) those who will undergo the transition to self-sufficiency without enormous aid from the United States; thus, food aid should be withdrawn in favor of countries with greater needs (2) those who may become self-sufficient if the U.S. gives massive food aid to tide them over and (3) those who are so far behind in the population-food game that there is no hope that American food aid could see them through to self-sufficiency; thus, those would receive no more food. Sitting on the Commission are countries from each of these categories, the United States and the U.S.S.R. Your task is to come to some resolution on the "triage" proposal and how the limited United States food aid supplies can be allocated.

** The "triage" concept is borrowed from military medicine. When casualties crowd a dressing station to the point where they cannot be cared for by the limited medical staff, they are placed in three categories. The first are those who will survive regardless of treatment; the second are those who can be saved only if they are given prompt treatment; and the third are those who will die regardless of treatment. When medical aid is severely limited, it is concentrated on the second category and the other two are left unattended.

GENERAL ASSEMBLY

You are a member state of the United Nations General Assembly. You will have to make a decision on the advisability of the "triage" system for food allocation on the basis of the arguments and discussion of the Special Commission that has been formed. You will hear the discussion as it takes place and this will form the basis for your discussions. You will be allowed to use only the arguments used by members of the Special Commission, and you will not be allowed to inject any new ones of your own. Thus, you will have to listen very carefully to the discussion. Fortunately for you, there is simultaneous translation. At the end of the Special Commission meeting, you will then begin your discussion and have a limited amount of time to come to a decision. You will not be allowed to consult with your government, although your government's position is known to you. (You should decide what that position is.)

UNITED STATES

You are the representative from the United States to the Special Commission. The debate over food aid has raged among all levels of your government, in Congress and the press, among agriculturalists and industrialists. It has become the moral issue of the decade. Your government has not made a definite policy decision on the "triage" system, but you know in your conversations with the President, the Secretary of State and others that it is being seriously considered. The government has already made official and unofficial statements to prepare the world and the American people for the possible adoption of the "triage" system. There are not only moral questions but also obviously economic, political and social considerations which must be kept in mind. You have a very tight rope to walk.

LYBIA

You are the representative from Lybia. You have been invited to sit on this Special Commission because your country will probably become self-sufficient without food aid from the U.S. or the U.S.S.R., mainly due to your large oil reserves. You have heard through official and unofficial sources that the United States, and perhaps the U.S.S.R., is considering supporting and adopting the "triage" system for food allocation. If this should happen, you would receive no more aid. While you could get along without it, you will have to spend enormous amounts of money on importing food, since there is very little agriculture in your country. Politically, you must think of your other "Third World" members, India and Pakistan, on the Commission.

PAKISTAN

You are the representative from Pakistan. You have been invited to sit on this Special Commission because your country is an example of how prompt and judicious food aid might avert disaster and help you become self-sufficient. You have been getting some food aid from both the U.S. and the U.S.S.R. and some strides forward are beginning to be seen. You know through official and unofficial sources that the United States, and perhaps the U.S.S.R., is considering supporting and adopting the "triage" system for food allocation. Your country stands to gain from this system, and thus you would support it, although you must consider what the political effect of such a decision might be on your neighbor, India, who you have heard through unofficial sources may not receive any aid at all because she falls into the third category.

INDIA

You are the representative from India. You have been invited to sit on the Special Commission because your country is an example of some of the most serious food problems in the world today. You have learned through official statements from the U.S. government, unofficial "leaks" and U.N. corridor gossip that the United States, and perhaps the U.S.S.R., are seriously considering supporting and adopting the "triage" system for food allocation. Both countries have been allies in the past and there have been many pledges of friendship, aid and support. You are obviously distressed by the implications of the adoption of such a policy and must persuade the Commission not to adopt this course of action.

U.S.S.R.

You are the representative from the U.S.S.R. on the Special Commission. You are faced with somewhat the same problem as the United States: a limited amount of food for aid and the necessity to decide how to allocate it. While the "triage" system has been proposed as a new system for the U.N., your country has informally been operating on some of the principles of the plan for sometime; you just haven't called it that. You have instructions from your government not to make any commitments, but not to close any doors either. While you may not have to decide this year in your own governmental circles, next year may be a crucial one. You don't want to raise any false hopes, but you don't want to lose potential allies either. You are in an especially difficult situation because of your repeated expressed commitment to the nations of the "Third World" and especially those countries sitting around the table with you today.

COUNTRIES GROUPED BY LEVELS OF HUMAN
RESOURCES DEVELOPMENT

Level I, Underdeveloped

Niger
Ethiopia
Somalia
Tanganyika
Afghanistan
Saudi Arabia
Ivory Coast
Liberia
Kenya
Nigeria
Haiti
Senegal
Uganda
Sudan

Level II, Partially Developed

Guatemala
Indonesia
Lybia
Burma
Dominican Republic
Bolivia
Tunisia
Iran
People's Republic of China
Brazil
Colombia
Paraguay
Ghana
Malaya
Lebanon
Ecuador
Pakistan
Jamaica
Turkey
Peru
Iraq

Level III, Semiadvanced

Mexico
Thailand
India
Cuba
Spain
South Africa
Egypt
Portugal
Costa Rica
Venezuela
Greece
Chile
Hungary
Taiwan
South Korea
Italy
Yugoslavia
Uruguay
Norway

Level IV, Advanced

Denmark
Sweden
Argentina
Israel
West Germany
Finland
U.S.S.R.
Canada
France
Japan
United Kingdom
Belgium
Netherlands
Australia
New Zealand
United States

SOME CONTRASTS BETWEEN RICH AND POOR IN 1965
AND
"BEST-GUESS ESTIMATES" FOR THE YEAR 2000

	Rich Fourth		Poor Half	
	(1965)	(2000)	(1965)	(2000)
1. Total population (thousands)	908,148	1,300,000	1,858,548	3,500,000
2. Average per capita GNP (\$U.S.)	1,912	5,000	105	300
3. Total GNP (million \$U.S.)	1,732,311	6,500,000	195,566	1,000,000
4. Average GNP per capita growth rate 1960-1965	4.3%	3%	1.4%*	3%
5. Average energy consumption per capita (kilos. of coal equivalents)	4,746	14,000	260	1,000
6. Public health expenditure per capita (\$U.S.)	51	300	1	3
7. Public health expenditure as percentage of GNP	3%	6%	1.1%	1.1%
8. Physicians per million population	1,506	2,000	165	300
9. Infant mortality rate per 1,000	25	20-25	82	60
10. Life expectancy (females at age 0)	74	90?	43	55
11. Annual population growth rate	1.3%	1%	2.1%	2%
12. Enrollment in higher education per million population	14,944	20,000	1,976	3,000
13. Total scientific journals	28,045	50,000	1,945	5,000
14. Public education expenditure per capita (\$U.S.)	103	350	3	12
15. Public education expenditure as percentage of GNP	5.5%	7%	2.9%	4%
16. Percentage adults literate	99%	99%	39%	75%
17. Primary and secondary public school enrollment as percentage of age group	88%	90%	41%	55%
18. Calories per capita per day	2,947	3,000	2,088	2,500
19. Total energy consumption (million metric tons of coal equivalents)	4,310	18,200	493	3,500
20. Total military expenditures (million \$U.S.)	109,194	380,000	11,658	60,000
21. Military expenditure per capita	121	300	6	19

SOME CONTRASTS BETWEEN RICH AND POOR (continued)

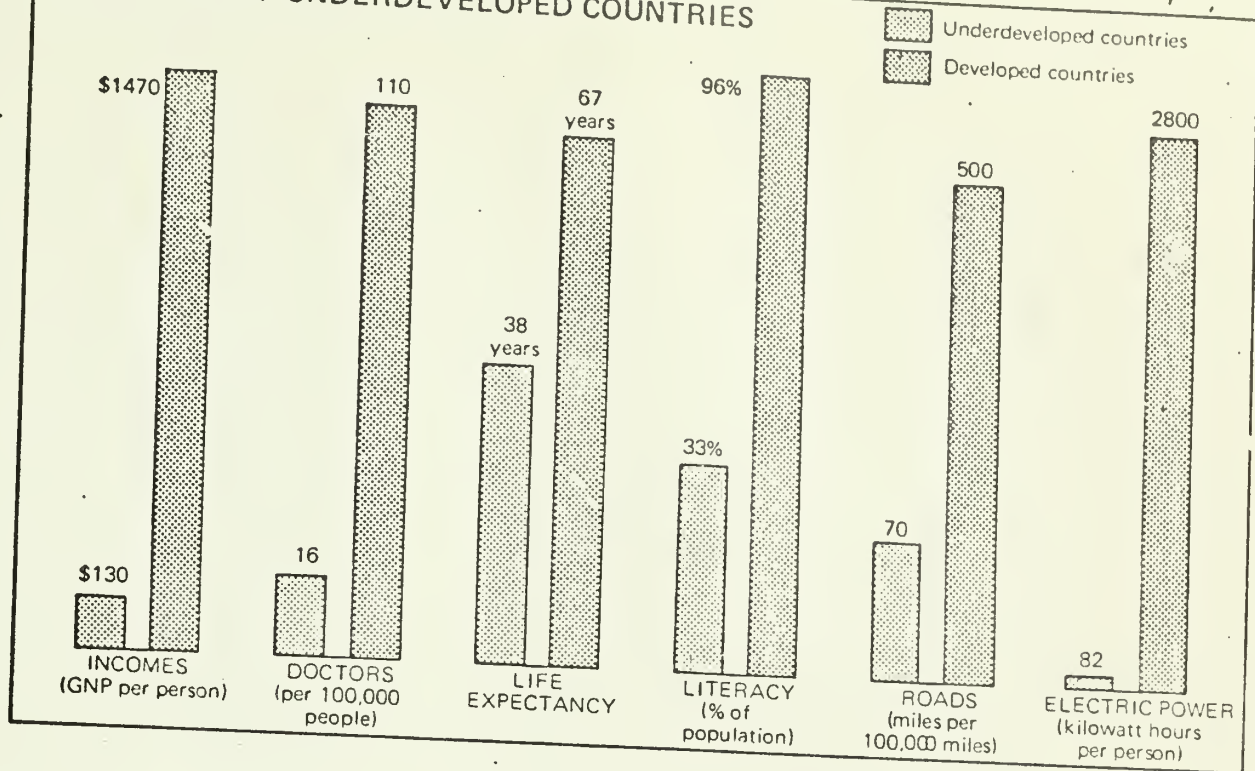
	Rich Fourth		Poor Half	
	(1965)	(2000)	(1965)	(2000)
22. Military expenditure as a percentage of GNP	5.9%	5.9%?	5.9%	5.9%?
23. Nuclear warheads (1971)	100,000	100,000	100	5,000
24. Foreign trade as percentage of GNP	19.8%	25%	14.3%	15-20%
25. Deaths from domestic political violence (1960-1967)	643	?	801,737	?
26. Percentage of population in cities over 100,000	38%	40%	9%	25%
27. Radios per 1,000 population	440	1,000	14	100

*No data for China.

Fig. 31. Source: Bruce M. Russett, Yale University.

Some of the "best-guess estimates" for the year 2000 represent projections of recent rates of growth. Others reflect "ceilings" or otherwise modified growth rates. Still others reflect likely shifts in preferences (e.g., toward more health and education expenditures).

HANDICAPS OF UNDERDEVELOPED COUNTRIES



[From John McHale, World Facts And Trends (New York: Collier Books, 1972).]

Analysis: The "Triage" exercise has been used in a variety of situations, but the two discussed here are the most important. The first is an undergraduate methods course taught at the University of Massachusetts School of Education in the Fall of 1971, and the second is with the students in the International Career Training (ICT) program at the Experiment in International Living in Brattleboro, Vermont.

The exercise was used in the methods course to illustrate the relationship between population, resources, and the decision-making process. At the time it was used at the School of Education, the exercise was in the developmental stages, with the roles and structure less complete than when it was used with the ICT program. Students were selected for roles in advance, but were not given their instructions until the class period. Their only information was the roles themselves and the instructions sheets for the exercise; they did not have "background" material. The students played the roles adequately, but it was difficult for them to imagine themselves in the position of a delegate to the United Nations. They felt they had inadequate knowledge about the "triage" proposal or the countries they were representing to be effective delegates. Many of those who were members of the General Assembly also felt this way. Those who played the General Assembly were not representing any specific country and their involvement was low. Thus, they played a limited part in the decision making process,

and they deferred to those who had sat on the Special Commission.

Based on this and other experiences with the exercise, some changes were made. The roles were made clearer, there was additional "background information" for the Special Commission and the General Assembly, and a greater role was given for the General Assembly. In the Spring of 1973, the exercise was used with the ICT program. This was a group of 20 participants, all of whom had had overseas experience with the Peace Corps, private organizations, church groups, etc. Most of them were in their mid-to late-twenties. In general, this group was more involved, assumed their roles with greater authority, and seemed to learn more from the exercise. All of the participants who formed the General Assembly took on roles of various countries. After the Special Commission had come to a tentative conclusion, the General Assembly "debated" the issue. Almost all participated in the discussion, and many played their roles to the hilt. For twenty to thirty minutes, there was much discussion about the merits of the proposal, and then the "Delegate" from Afghanistan called all the "Third World" nations to a caucus. Quickly the group broke into two sub-groups: the "have" and the "have-nots." Some Latin American nations stayed with the "haves," because they felt they would only lose if they went with the "Third World." There was much discussion within these two groups. They found that it was

as hard to come to a decision in their sub-groups as it had been in the large groups. They also found that the "Third World" countries were virtually powerless when they began to think of specific steps they could take. The "haves," on the other hand, were discussing various ways they could counter the "Third World" and keep on top. The discussion in this unplanned situation dealt with exactly the issues the exercise was designed to highlight.

In the analysis of the game afterwards, the participants felt one of the major effects of the simulation was to illustrate the complexity of the problems they would be faced with as they worked in "developing" nations. As one participant said: "I didn't realize how naive I was!"

INTRODUCTION TO INTERDISCIPLINARY EXCHANGE

This role play was developed for use with both pre-service and in-service teachers. There is little material presently available which provides both of these groups with an opportunity to apply some creative problem-solving techniques to an interdisciplinary situation. The exercise requires a minimum of materials and preparation, yet the quantity of and quality of ideas which it generates is significant.

The role play has been used so far only as a brainstorming device. It would be interesting to continue the process for several other sessions, until the group has discussed the implementation of some of the ideas in a real situation. At that point, many other factors such as money, other resources, school administration etc. would come into play. The group would then move from an idea group to a problem-solving unit.

The role play, of course, can be adjusted as desired. The roles could be specifically spelled out, rather than the free-form role in this situation. The number of people can be changed also: the suggested "cast" was designed to give a good representation of all areas commonly found in the present high school.

TEACHER TRAINING EXERCISE

INTERDISCIPLINARY EXCHANGE: A TEACHER-TRAINING TECHNIQUE

Major Purpose:

To increase the interdisciplinary exchange of teachers.

To help teachers create ideas for teacher global survival materials in a variety of classrooms.

Materials:

Name tags, blackboard or other writing space.

Physical Setting:

Participants should sit in a three-quarter circle in front of the writing space. Name tags with subject areas, should be displayed clearly before the participants.

Process:

The participants are told they are the faculty of a high school which has decided to adopt the global survival curriculum concept as part of its educational program. At present, the faculty has no constraints on what it can do. Questions of resources, money and people will come later. (If it is an in-service situation, teachers should assume roles in subject matter areas different from their own.)

The participants sit in a group around the blackboard, which will be used to record their ideas. They should be told this is one of their first meetings, so they are just beginning to think of ideas which could be used. As in brainstorming, every idea at this point is valid. Participants may, if they wish, build upon another's ideas. They should concentrate on these basic concepts:

Interdependence
Man-Nature Relationships
Integration
Ethnocentrism/Egocentrism

The participants are given names and roles to play:

Ms. Stevens	Math
Ms. Price	Math
Mr. Smith	English
Ms. Harvey	Social Studies
Ms. Phillips	Social Studies
Mr. Henry	Science (Physics)
Ms. Carpenter	Art
Ms. Thomas	Music
Mr. Anderson	Science (Botany)
Mr. Harrigan	English
Mr. VanMeter	Science (Chemistry)
Mr. Jackson	Physical Education
Ms. Edwards	Physical Education

The leader puts on the board the various discipline categories: science, math, English, social studies, art, music, physical education. These will be used to list the ideas which the groups will consider. A typical list might look like the one on the following pages. (This list was developed by a series of undergraduate education classes. In these physical education and the specific sciences were not included as in this model.)

The exercise should continue for 20-30 minutes or until the leader feels the group has enough ideas for the present. At the end of the exercise, the participants should examine the process they have just been through. One of the purposes of the exercise is to introduce to a group made up of different disciplines the idea of cooperative work on a common theme. Participants should examine this process and comment upon it. They should also discuss how they felt in the exercise -- constrained by other people, free to offer new ideas, indifferent, etc.

Science

1. living science
2. topography and history
3. assign plot of ground for study
4. negative and positive effects of man on nature
5. food technology -- what people eat & struggle for food
6. underwater resources -- aquaculture

Social Studies

1. start with other cultures
2. world view simulations
3. comparing histories
4. compare cultures customs
5. spelling bee game on geography
6. classroom as micro-community
7. human species unit
8. examine artifacts as levels of technology
9. inter-tribal communications
10. weather and peoples adjustment - housing differences
11. meals from other countries
12. celebrate country holidays

Math

1. relate to science
2. history of math
3. using other examples in problems

Art

1. African and South American art (how related to nature)
2. natural dyes
3. illustrating a polluted scene
4. pop art creation dealing with different life styles
5. pictures of endangered species
6. architecture - making homes from different materials
7. visit dumps, used car lots
8. oil paint and water experiment
9. make pinate
10. kite making

Music

1. introduction to different kinds of music
2. build own instruments
3. using night sounds, whistles from grass, shells to compose music
4. environmental sounds
5. sounds of factories etc. compare with whales, cars, etc.
6. write song about pollution
7. study different types of music
8. instruments from different countries
9. music from various countries to set mood while students are drawing
10. rhythm -- water, earth, Africa

English

1. play about man and nature
2. current issues books for reading (Rachel Carson)
3. food and dances
4. history of language derivation of words
5. universality - Family of Man
6. write poem on animals becoming extinct
7. folktales of various countries
8. NASA broadcast
9. write letter to astronaut
10. letter to the editor

Other

1. role play a trial situation about big company accused of pollution
2. role play people from different countries
3. hold a dance in a closet then outside
4. study different types of dance
5. movie or a play about the U.N.
6. modern dance expressing unity of man or the disunity of something
7. nature costumes
8. make up plays about other countries
9. difference in gestures, non-verbal
10. how different objects are valued in different countries (cows, motorcycles, jobs, etc.)
11. sporting events
12. difference in crimes
13. how problems are treated
birth control
marriage age
drugs

Analysis. The interdisciplinary teaching role play has been used in several undergraduate School of Education courses to develop a specific outlook on interdisciplinary study. Many students have never had the experience of brainstorming in a small group, and fewer still have ever considered the ways in which various disciplines can work together in a school system.

It was my assumption that few students would actually participate in this exercise. Either it would seem too abstract, or they would have few ideas. The opposite was true of almost every group that did it. The number and quality of the ideas were satisfying and even more gratifying was their ability to see how the various disciplines might work together. In one class, for instance, over one hundred ideas were generated in a space of 20-30 minutes. While the techniques have not yet been used with in-service teachers, my assumption is that it would work as well, if not better, with those who had had teaching experience. This experience implies that often teachers are not given the opportunity to really try to generate ways of interdisciplinary study. What would happen in practice, of course, is a different question.

INTRODUCTION TO TEACHING-TRAINING CRITICAL INCIDENT

Many teachers graduate without considering some of the basic realities of working in a system or a classroom. It is true that certified teachers have practice teaching experience, but often, in practice teaching, the students do not deal with some of the more difficult situations which arise. This critical incident is an example of how, short of being a full time teacher, a student might face some of the questions which would be raised with the adoption of a global survival curriculum.

The critical incident focuses not only upon the content of what is going on in the class, but also the process that the teacher is using. Often the difficulties that teachers confront from parents and administration are not so much with the content of what is being taught but the way in which it is being taught. In this incident, the students would have the opportunity to discuss whether or not, if the teacher had tried other ways of presenting the materials, he would have run into the same problems.

It, of course, also raises the question of the content which is taught in the class. Most students can see the political implications of discussing the Vietnam War in the class, but do not see that even when the teacher is trying to be fair and present many different sides of the same issue, he or she may have difficulties. The situation, while being hypothetical, is real enough to be believable.

TEACHER TRAINING EXERCISE

CRITICAL INCIDENT

Major Purpose:

To illustrate some of the practical problems which might arise in implementing part of the global survival curriculum

Materials:

Situational exercise

Physical Setting:

Room with chairs arranged in a circle

Process:

Participants are given the situational exercise and asked to read it. The leader should begin the discussion by asking participants to first comment on the facts included in the situation, then express their feelings on how they feel the teacher has handled the situation.

After the discussion, or during if appropriate, the group might devise a situational exercise, so members would be able to play some of the roles mentioned in the incident.

Well, what do I do now? I've been trying to do something different in my social studies classes to try to break the monotony of traditional textbooks. Don't get me wrong! I'm not a radical, but I do think that some things ought to be changed, especially the way kids learn to view their world and nature. In one of those education courses I took at the University last year we talked about ways to relate the classroom, people in it and the total environment. Also, I really want to help kids learn individually!

So I decided to try some new methods. I started with a simple role play and lately I've done some simulations. And I even let kids bring some board games, that related to our studies, into the class (like Risk and Dirty Water).

I really was excited by a new atmosphere in the class, but have I had problems! The principal keeps commenting on the chaos and noise in my room. Other teachers have asked me about some of the activities and then said that such activities must be "fun" and easier for me as a teacher to prepare. Some parents are worried about why the kids don't have homework. And even the kids themselves are skeptical. They really seem to get into the activities in class but then some ask what they're learning and if we're going to finish the book like the other classes. I'm really getting discouraged; I don't seem to have any support at all.

The last straw was a model disarmament conference that we held in class last week. Every student had done some reading on questions of war, peace, arms control, and role of military in different societies. I had gathered together materials from World Law Fund, the United Nations, the U.S. Arms Control Commission and other organizations with similar concerns. Each student chose a country to represent. So we spent several days listening to various arguments on all sides. I was really pleased that the kids were getting a chance to express their own values and to look toward the future. But again complaints! Several parents called to ask why I brought this topic up in class. "Kids are too young to understand the necessity of war" said one father. One mother wrote a note saying that her child came to school to learn from the teacher, not to waste time talking about ideas with other kids who don't know any more than he does.

Anyway, I'm discouraged to say the least. Contract renewals come up soon and the principal has already spoken to me about more order and "respect for learning." I'm ready to quit! But I want to make changes. I believe in what I'm doing. Can I play the game? What should I do?

Relationship of content, concepts, and curriculum materials. Each of the materials have been developed with the concepts, content and process in mind. We have seen earlier in this chapter how these are related to each other and to the Stewart categories and the Becker objectives. Table III demonstrates the relationship between the concepts, the content areas and the curriculum materials. The table shows the relationships for the case studies and the simulation games, but not the teacher-training exercises, since they do not easily fall into these categories. The table should be referred to as the reader is examining the materials.

TABLE III

RELATIONSHIP BETWEEN THE GLOBAL SURVIVAL CURRICULUM MATERIAS,
THE CONTENT AREAS AND THE CONCEPTS

<u>Curriculum Materials</u>	<u>Content Areas</u>	<u>Curriculum Concepts</u>
Case Study - Reversing the Flow of a Soviet River	<ol style="list-style-type: none"> 1. Resources 2. Population 3. Environmental Deterioration and Economic Development 	Interaction and Interdependence Systems and Patterns Evolution and Adaptation
Case Study - Defoliation in Vietnam	<ol style="list-style-type: none"> 1. Environmental Deterioration and Economic Development 2. War, Peace and World Order 3. Cross-Cultural Communication and Conflict 4. Resources 	Interaction and Interdependence Evolution and Adaptation Competition and Cooperation Communication
Case Study - Malaria Control in Malaysia	<ol style="list-style-type: none"> 1. Environmental Deterioration and Economic Development 2. Population 2. Resources 	Evolution and Adaptation Life Cycle Variety and Similarities
Case Study - Family Planning in Colombia	<ol style="list-style-type: none"> 1. Population 2. Cross-Cultural Communication and Conflict 	Life Cycles Interaction and Interdependence Communication Evolution and Adaptation

Curriculum Materials

Case Study - Water and
Wales

Case Study - Oil and
the Chaco Dispute

Simulation Game - Popu-
lation-Resources
Simulation

Simulation Game -
"Triage" Simulation

Content Areas

1. Resources
2. Environmental De-
terioration and
Economic Develop-
ment
3. Cross-Cultural
Communication and
Conflict

1. War, Peace and
World Order
2. Cross-Cultural
Communication and
Conflict
3. Resources

1. Population
2. Resources

1. Resources
2. Population
3. Cross-Cultural
Communication and
Conflict

Curriculum Concepts

Finiteness
Interaction and Interdependence
Ethnocentrism/Egocentrism
Communication

Finiteness
Communication
Systems and Patterns
Ethnocentrism/Egocentrism

Finiteness
Ethnocentrism/Egocentrism
Systems and Patterns
Competition and Cooperation
Communication

Finiteness
Interaction and Interdependence
Ethnocentrism/Egocentrism
Competition and Cooperation

SUMMARY

In the preceding pages we have seen the development of a concept for a global survival curriculum; a brief explication of the five content areas; and a discussion of the relationship between process and content and the role of values and attitudes in the curriculum. Finally, we have examined some materials which illustrate some of the elements of "Education for Global Survival."

There have been some common themes throughout this work which should be reemphasized. We have made a strong case that students and teachers should learn a new view of the world, one which emphasizes its wholeness and integration, rather than its separateness. The "environmental crisis" has lent an urgency to this new view, but we know from many other sources that this is a legitimate way to view the world. While there may be some arguments to the contrary, learning and teaching about our globe as an entity is of great importance for this and future generations.

Teaching about the whole earth implies certain things about the curriculum. A curriculum that stresses integration and wholeness in the world of nature and human affairs should reflect these very principles. The concept, content and the process of the curriculum should relate to one another. As there is a message in the content, there is also a message in the process, and often these messages are

the same. To ignore this relationship, or to not make it clear to teachers and students, would be overlooking the point of an integrated curriculum.

The content of the global survival curriculum focuses on issues rather than specific disciplines, such as sociology, physics, or linguistics. While their knowledge and experience must be brought to bear upon these issues, the curriculum, in order to be integrating, must not be divided into separate disciplines.

The content also encompasses some difficult and highly complex issues. The answers to the questions raised by these issues are not simple; and when we consider one or more together, we find that this complexity increases almost exponentially. It may be that we not only need a new view of the world, but we also may need a new way of thinking, a way depending on integration and dealing with complexity rather than the reductionism that has often been taught in schools. This implies not a new type of education for students but also for teachers, who are intimately involved in the guiding of learning and thinking processes.

The factual information represented by the five content areas is crucial for anyone responding to the challenges they present. Feeling good or bad about the problems is not enough. Personal action, whether it be political, economic, educational or social, must depend in part on facts and in part on feeling. The knowledge represented by the five con-

tent areas, or any one of the five areas, should complement the value and attitude questions in any global survival curriculum efforts.

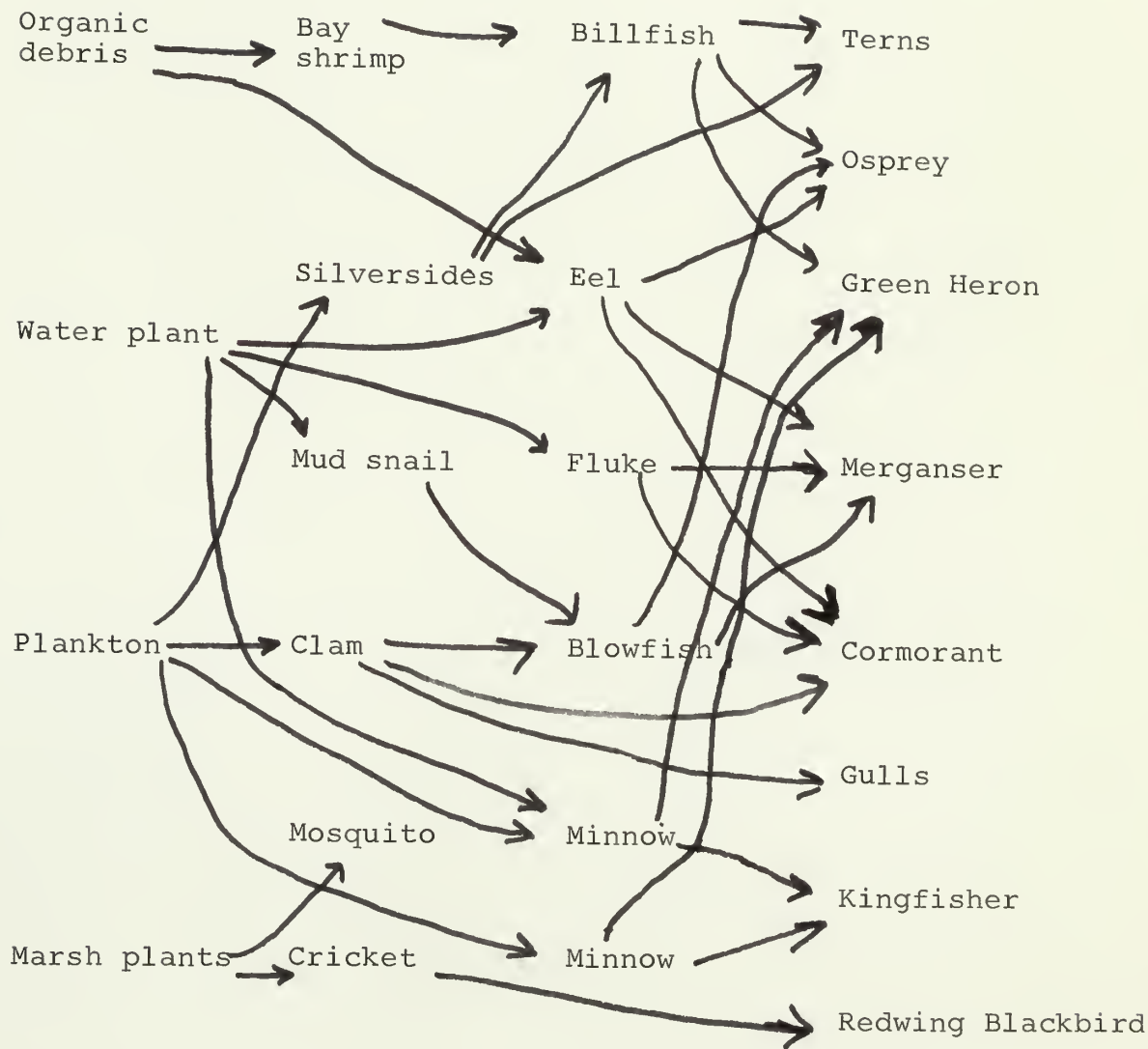
The value and attitude questions are not incidental. They are important and far-reaching. Schools, and other educational institutions, must begin to deal with the questions and their implications. Just as the curriculum is incomplete without the content areas, it is also incomplete without adequate attention given to an examination of an individual's and society's values and their attitudes toward the major issues. Individuals must also realize, however, the relationship between values and attitudes and their personal behavior. Without this important step, values and attitudes will continue to be an intellectual, rather than affective, subject.

Perhaps, the most important implication for "Education for Global Survival" is the relating of the curriculum to our life decisions. No matter what individuals may do or where they may be, the questions and decisions implied by a global survival curriculum will affect their and other human beings lives. In whatever educational setting this curriculum may be implemented, the relationship of its content, concepts and process to the individual must not be forgotten. This means not only an awareness of the issues, and the decisions which must be made, but also forming a

positive view of the world and the universe in which we live.

There are many practical problems which will arise if such a concept as "Education for Global Survival" is implemented on a large scale. The value and attitude questions alone are controversial enough to make any attempts at implementation difficult. Yet, the idea of global survival and the issues it addresses are of such far-reaching importance to this and future generations that educators must begin to face the problems of implementation and a significant step toward infusing education with a global survival curriculum.

A P P E N D I X A
A PORTION OF THE FOOD WEB OF A
LONG ISLAND ESTUARY



[Adapted from Ehrlich, Population, Resources, Environment, p. 158.]

A P P E N D I X B

March 23, 1971

Commissioner of Education
State Department of Education
Juneau, Alaska
99801

Dear Sir:

I am writing for your help in gathering materials relating to environmental education. As a Fellow in the Center for International Education, I am undertaking a world-wide study to investigate the nature and extent of educational activities relating to environmental education. Your assistance in providing the information requested below will be most valuable in assessing the role the United States is playing in this area:

1. What type of learning experiences (courses, units, etc.) do schools in your state provide?
2. Do you have copies of your curriculum in this area and if so, could you send me a copy?
3. Does your department publish any special materials for environmental education? If so, do you have copies you can spare?
4. Are there other types of environmental education occurring in your state outside of the formal school system? If so, could you provide me with the name of someone to contact?
5. If you do not have activities in environmental education at present, are you planning some in the future? Could you briefly describe them?

I realize that you must receive a number of requests for information, but because of the crucial importance of environmental problems, I hope you will assist me as much as possible.

Thank you for your help.

Sincerely,

Stephen Guild
Fellow
The Center for International Education

A P P E N D I X C

SURVEY OF STATE DEPARTMENT OF EDUCATION

ENVIRONMENTAL MATERIALS

STATE	LEARNING EXPERIENCES PROVIDED	COPIES OF CURRICULUM	DEPT. PUBLISHED MATERIALS	OTHER TYPES E/EE	FUTURE PLANS
Alabama	none	no	no	none	1. Interagency Council for Environmental Education 2. Writing a state plan
Alaska	Teacher education training	no	no	1 contact	1. Writing a state plan
Arizona	none	Preparing a Conservation Education Guide (1-8)	no	2 contacts	1. Hiring conservation education consultant 2. Investigating possible outdoor education centers 3. Environmental Education workshops during 1971-72 school year
Arkansas	none	Encourage use of "People and Their Environment"	Preparing Guidelines for elementary grades	none	1. Advisory Council for Environmental Education 2. Environmental Committees in 60 of the 75 counties 3. Workshops for student teachers and in-service teachers
California	Conservation Environmental instruction required in elementary and secondary school	Curriculum in process of being written	see question #2	4 contacts	
Canal Zone	Included in regular course materials in social science and sciences	no	no	several contacts	

STATE	LEARNING EXPERIENCES PROVIDED	COPIES OF CURRICULUM	DEPT. PUBLISHED MATERIALS	OTHER TYPES E/EE	FUTURE PLANS
Colorado	Individual school courses	none	Preparing materials	several contacts	1. Preparing state plan
Connecticut	Individual school course, outdoor education centers	none	Extensive curriculum guides prepared, other materials in process	several contacts	1. State plan being developed
Delaware	Multi-Discipline approach (k-12)	yes	not yet	no	1. Three major projects named 2. State-wide project planned
Georgia	no answer	no	no	1 contact	1. Georgia Environmental Education Planning Committee
Florida	Individual school course	none	Guidelines presently being written	several contacts	1. State plan being developed
Guam	no	no	no	none	1. Environmental Curriculum Task Force recently appointed
Hawaii	included in regular science and social studies courses - also ecology courses	none	a few materials	none	1. Legislature has appropriated money for environmental education
Idaho	Individual school activities	none	none	1 contact	1. Hope to employ a full-time staff member

STATE	LEARNING EXPERIENCES PROVIDED	COPIES OF CURRICULUM	DEPT. PUBLISHED MATERIALS	OTHER TYPES E/EE	FUTURE PLANS
Illinois	Mandatory for inclusion in public schools - focus on conservation	yes	series of booklets on conservation	2 contacts	1. Two full-time staff members working on environmental education
Indiana	greater emphasis in schools using current events as teaching material	none	some non-government projects	1 contact	1. Environmental education consultant
Iowa	no state wide consultant but variety of programs	none	none	4 contacts	1. Legislature has not appropriated money for this area
Kansas					
Kentucky	none	none	none	none	1. Preliminary plans to develop curriculum materials, but funding has been cut 2. State plan currently being developed
Louisiana	none specific incorporated in all areas	none	teachers guides for conservation and resources education	none	1. State-wide plan in developing stages
Maine	3 major programs	none, but makes available those developed by others	none	several suggestions	1. Preparation of a state plan beginning
Maryland	none	none	no	3 contacts	1. No answer
Michigan	Considered multi-disciplinary	Curriculum guide in outdoor education	Environmental education bibliography	none	1. General concern
Minnesota	Individual	Extensive guides prepared for		none	1. State plan being developed

STATE	LEARNING EXPERIENCES PROVIDED	COPIES OF CURRICULUM	DEPT. PUBLISHED MATERIALS	OTHER TYPES E/EE	FUTURE PLANS
Mississippi	Individual units and courses	none	none	List provided	1. Conservation Education Advisory Council
Missouri	Individual units and courses	none	none	none	1. Pre-service plan for teacher education being developed 2. Various courses being developed
Montana	No answer	none	Study guide being prepared	List provided	1. No answer
Nebraska	Integrated in curriculum-emphasis on health and science	Currently being developed	Some materials	No answer	1. Governor establishing special committee
New Jersey	Depends on local school system	none	none	none	1. Extensive master plan written
New York	Individual school course	none	several booklets of learning activities	none	
Nevada	Depends on school	Developing materials	none	several contacts	1. Initial planning efforts
North Carolina	Not required emphasis on interdisciplinary approach	Teachers Guide for <u>Environmental Education</u> published	Other curriculum materials produced - provides consultants to schools	none	1. Cooperative project with Maryland and Florida to develop and determine effective ways to service local units in environmental education

STATE	LEARNING EXPERIENCES PROVIDED	COPIES OF CURRICULUM	DEPT. PUBLISHED MATERIALS	OTHER TYPES E/EE	FUTURE PLANS
North Dakota	No answer	none yet	A variety of curriculum materials available	No answer	1. Guidelines and activities plan to develop outdoor education program
Ohio	Individual school courses	none	none	List provided	1. Task Force has been established
Oklahoma	Individual school courses	State-wide curriculum guide for environmental education being developed	Information sheets to teachers	Several contacts	1. No answer
Oregon	Individual school courses, outdoor programs, field trips	Developing new Handbook	Current handbook for conservation out of print	2 contacts	1. Not applicable
Pennsylvania	Individual school courses	none	Developing materials	none	1. No answer
Puerto Rico	none	none	none	none	1. Appointed person to develop environmental education activities
Rhode Island	Individual school courses	none	none	1 contact	1. Inservice workshops

STATE	LEARNING EXPERIENCES PROVIDED	COPIES OF CURRICULUM	DEPT. PUBLISHED MATERIALS	OTHER TYPES E/EE	FUTURE PLANS
South Carolina	Individual school courses	"People and Their Environment" series developed with help of Department of Education. Has been provided to all school districts in state		List provided	1. No answer
Texas	Individual conservation courses	6 being developed	Booklets and units provided	Several contacts	1. Developing state plan
Washington	Individual school courses	Being developed	Some manuals	2 contacts	1. "Nerve Center" plan for state
Wyoming	Varies with school	none	General goals provided	Several contacts	1. No answer

A P P E N D I X D

OUTLINE OF OBJECTIVES FOR

INTERNATIONAL EDUCATION CURRICULUM

I. The curriculum should develop students' knowledge or cognitive understanding of the world system.

This implies:

A. The curriculum should develop students' understanding of the earth as a planet. This implies:

1. Developing some comprehension of the place of the world system in cosmic space and time. This implies:

- a. Some understanding of the location of the earth in the cosmic system.
- b. Some understanding of the cosmological and geological histories of the planet.
- c. Some understanding of the differences and similarities between the earth and other planets (actual and imagined).

2. Developing some understanding of the earth as a set of physical systems that both condition and are conditioned by living systems and particularly man. This implies:

- a. Some understanding of the planet's contemporary geography and geology.
- b. Some understanding of the interactions between the planet's physical characteristics and the evolution of life, particularly man's bio-cultural development.

B. The curriculum should develop students' understanding of mankind as a species of life. This implies:

1. Developing a comparative understanding of man as one of many living systems. This implies:

- a. Some understanding of similarities and differences between living and non-living systems.

- b. Some understanding of similarities and differences between man and other living systems.
2. Developing an understanding of basic human commonalities. This implies:
 - a. Some understanding of man's common biological needs.
 - b. Some understanding of the functional needs of human societies and their component social and cultural systems.
 - c. Some understanding of similarities, analogies, or parallels in the historical experiences of different groups.
3. Developing an understanding of the sources of differences in human actions and life styles. This implies some understanding of human behaviors as being socially learned and culturally conditioned.
4. Developing some understandings of basic human behavior and social activities that are grounded in the behavioral sciences. This implies:
 - a. Some behavioral science-based understanding of particular human behaviors.
 - b. Some understanding of human beings as biological systems, as personality systems, as factors in social systems, as "products" of cultural systems, and as participants in systems of natural ecology.
5. Developing some understanding of major structural characteristics of the human species. This implies the development of some understanding of the phenomena summarized by the following kind of generalizations.
 - a. The human species is a racially diverse species.
 - b. The human species is a linguistically diverse species.

- c. The human species is a culturally diverse species.
 - d. The human species is an institutionally diverse species.
 - e. The human species is generally an economically depressed species, but with vast disparities in the wealth, education, health, etc., enjoyed by its members.
 - f. The human species is a politically uncen-
tralized (or stateless) species.
 - g. The human species is demographically a
rapidly expanding species.
 - h. The human species is an increasingly
urbanized species.
 - i. The human species is an increasingly
industrialized (mechanized) species.
 - j. The human species is an increasingly
violent species.
 - k. The human species is an increasingly
interdependent species.
6. Developing some "species-centered" or "globally-
focussed" understanding of major events, trends,
transformations, etc. in man's biological evo-
lution and socio-cultural development.
7. Developing some understanding of the process
and dynamics of socio-cultural change within
particular societies and within the human
species in general.
- C. The curriculum should develop students' understand-
ing of the international or global social system as
one level of human social organization. This implies:
- 1. Developing some understanding of the major
entities that comprise the contemporary inter-
national system. This implies:
 - a. Some comparative understanding of the
nation-states of the modern world.

- b. Some functionally oriented understanding of cross-national organizations both governmental and non-governmental.
 - c. Some understanding of the international status of the planet's polar regions, its oceans and outer space.
2. Developing some historical understanding of the nation-state system as one of many historical and imaginable forms of politically organizing the human species.
3. Developing some understanding of major social processes within the international system. This implies:
 - a. Some understanding of inter-nation conflict and conflict resolution.
 - b. Some understanding of inter-nation war.
 - c. Some understanding of inter-nation collaboration and integration.
 - d. Some understanding of inter-nation communications and transportation.
 - e. Some understanding of inter-nation trade, investment and foreign aid.
 - f. Some understanding of cultural diffusion.
 - g. Some understanding of the processes of inter-nation influence or power.
4. Developing some understanding of major international social problems. This implies:
 - a. Some understanding of the problems of controlling or managing inter-group, particularly inter-nation, violence and of creating institutions for the peaceful resolution of conflict.
 - b. Some understanding of the problem of controlling population growth.
 - c. Some understanding of the problems of "modernizing" developing societies.

- d. Some understanding of the problems of controlling the social and psychological costs of rapid socio-cultural change, particularly technological change, urbanization, and the bureaucratization of social organizations.
 - e. Some understanding of the problems of controlling further deterioration in man's natural environments.
 - f. Some understanding of the problems of exploiting the resources of the world's ocean and outer space for the welfare of mankind in general.
- II. The curriculum should develop the capacity of students to view the world system as a whole, and particular phenomena within it, conceptually, comparatively, and globally. This implies:
- A. The curriculum should develop within students a perceptual or cognitive capacity to see or think of empirically concrete or historically specific phenomena (events, institutions, actions, etc.) as particular instances or cases within a larger class of analytically comparable phenomena.
 - B. The curriculum should develop within students an ability to compare two or more phenomena in a conceptually sophisticated way. This implies:
 1. An ability to conceive of two or more objects being compared in terms of both similarities and differences.
 2. An ability to recognize that one's relative perception of similarities and differences is influenced by the size and nature of the sample of objects being compared.
 3. An ability to think of differences as matters of degree rather than simply of kind.
 - C. The curriculum should develop within students a capacity to think of or imagine the world as a totality and to perceive particular phenomena holistically or within a global frame of reference. This implies:
 1. Developing a comprehension of the interrelatedness of the human species qua species.

2. Developing a comprehension of the interrelatedness of man as a system of life, and the planet earth as a set of interrelated physical systems.
3. Developing a comprehension of the world system as one sub-system within the larger cosmic system.

III. The curriculum should develop the capacity of students to make logically valid and empirically grounded analytical judgments. This implies:

A. The curriculum should develop within students a "realistic" attitude toward knowledge. This implies:

1. Developing within students an understanding of knowledge as a set of man-created hypotheses or images.
2. Developing within students the capacity to conceptualize phenomena in alternative ways.
3. Developing within students awareness of the influence of cultural setting and social situation on human knowledge, and particularly an awareness on their own perception and interpretation of the world.

B. The curriculum should develop within students an understanding of, and some skill in, the process of social scientific inquiry. This implies:

1. Developing within students some understanding of the process of inquiry.
2. Developing students' inquiry skills.

IV. The curriculum should develop the capacity of students to make rational, analytical, explicit and humane normative judgments or evaluations.

A. The development of a capacity to make rational evaluation implies: The curriculum should seek to develop individuals who are relatively free psychologically to hold attitude independent of personality needs and group norms.

B. The development of a capacity to make analytical evaluations implies: The curriculum should develop

the capacity of students to analyze normative disagreements in terms of semantic, perceptual and valuational sources of conflict.

C. The development of a capacity to make explicit evaluations implies;

1. The curriculum should develop the capacity of the students to explicitly articulate values in terms of which they believe given phenomena should be judged.
2. The curriculum should develop the ability of students to explicitly consider operational or behavioral meanings of values in terms of judgments to be made.
3. The curriculum should develop the capacity of students to explicitly consider the information that is needed to reach sound judgments about whether a given object does or does not possess the desired value qualities.

D. The development of a capacity to make humane evaluations implies:

1. The curriculum should develop within students modes of thinking that are relatively free from the influence of egocentric perceptions.
2. The curriculum should develop within students modes of thinking that are relatively free from the influence of ethnocentric perceptions.
3. The curriculum should develop within students modes of thinking that are relatively free from the influence of stereotypic perceptions.
4. The curriculum should develop within students modes of thinking characterized by moral or ethical complexity.
5. The curriculum should develop within students modes of thinking characterized by a capacity for empathic understanding.
6. The curriculum should develop within students modes of thinking characterized by a "world-minded" value orientation.

- V. The curriculum should develop the capacity of students to constructively adapt to the "realities of the human condition." This implies:
- A. The curriculum should develop students' sensitivity to, and emotional acceptance of, diversity in human actions, perceptions, cognitions, valuations, and social institutions.
 - B. The curriculum should develop students' acceptance of, and a set of socially responsible attitudes toward, technological and socio-cultural change.
 - C. The curriculum should develop students' sensitivity to and acceptance of the political and ethical implications of mankind's increasing interdependence.
 - D. The curriculum should develop students' capacity to experience multiple loyalties -- to perceive and feel themselves to be responsible members of sub-national, national, and cross-national groups.
 - E. The curriculum should develop students' capacity to emotionally tolerate the tensions of continued inter-group conflict and hostility.

[Adapted from Becker, An Examination of the Objectives, Needs and Priorities in International Education in U.S. Secondary and Elementary Schools - Final Report (New York: Foreign Policy Association, 1969).]

A P P E N D I X E
SELECTED RESOURCES RELATING TO
"EDUCATION FOR GLOBAL SURVIVAL"

The following guide to resources for "Education for Global Survival" offers a selected list of materials and sources of information which can be used by individual teachers and students. This is not meant to be a comprehensive list, but only representative of the range and type of materials presently available. Many of the guides list numerous other sources of materials.

Most of the topics are broken into three parts: the sources of materials (bibliographies, resources guides, etc.), organizations which publish relevant materials, and specific materials which can be used in the classroom.

General Resources

Resources

Environmental Education Materials Are Mushrooming: A Compilation of Materials for Environmental Education
National Education Association
1201 Sixteenth Street, N.W.
Washington, D.C. 20036

Education for the Improvement of the Environment
Massachusetts Teachers Association
20 Ashburton Place
Boston, Massachusetts 02108

Teaching for Survival (by Mark Terry)
Ballantine Books, Inc.
101 Fifth Avenue
New York, New York 10003

Big Rock Candy Mountain: A Learning to Learn Catalogue
 Portola Institute
 1115 Merrill Street
 Menlo Park, California 94025

SMEAC Newsletter
 Science Mathematics and Environmental Education
 ERIC Information Analysis Center
 400 Lincoln Tower
 The Ohio State University
 Columbus, Ohio 43210

International Education for Spaceship Earth
 Foreign Policy Association
 345 East 46th Street
 New York, New York 10017

"The Environmental Crisis" (entire issue)
Social Education, Vol. 35, No. 1, January, 1971
 National Council for the Social Studies
 1201 Sixteenth Street, N.W.
 Washington, D.C. 20036

"International Education for Spaceship Earth" (entire issue)
Social Education, Vol. 32, No. 7, November, 1968
 National Council for the Social Studies
 1201 Sixteenth Street, N.W.
 Washington D.C. 20036

The Journal of Environmental Education
 Dembar Educational Research Services, Inc.
 Post Office Box 1605
 Madison, Wisconsin 53701

National Association for Environmental Education (newsletter)
 P.O. Box 1295
 Miami, Florida 33143

1. "Education for a Global Society"
 2. "Teaching About Spaceship Earth"
 The Center for War/Peace Studies
 218 East 18th Street
 New York, New York 10003

"Global Dimensions in U.S. Education"
 "The University"
 "The Secondary School"
 "The Elementary School"
 "The Community"
 International Relations Program
 ISA Education Commission
 752 Comstock Ave.
 Syracuse, New York 13210

"Bringing the World Into Your Classroom" (Curriculum Series #13)
National Council for the Social Studies
1201 Sixteenth Street, N.W.
Washington, D.C. 20036

Man's Home
United Nations Sales Section
United Nations
New York, New York

"Futures Studies" (a film guide)
Extension Media Center
University of California
Berkeley, California 94720

"Data on the Human Crisis" (handbook and teacher's guide)
The Center for International Programs and Comparative Studies
The State Education Department
Albany, New York 12224

"America in the 70's" (a film guide)
Audio-Visual Center
Indiana University
Bloomington, Indiana 47401

Specific Materials

"Rescue in Space" (a simulation)
The Coca-Cola Bottling Co.
(obtainable from local bottling plants)

2. War, Peace World Order

Resources

Workbook To End War
American Friends Service Committee
160 No. Fifteenth Street
Philadelphia, Pennsylvania

Teaching About War and War Prevention
Foreign Policy Association
345 East 46th Street
New York New York 10017

To End War (by Robert Pickus and Robert Wiete)
Perennial Library
Harper and Row Publishers
49 East 33rd Street
New York, New York 10016

1. "Teaching About War Peace, Conflict, and Change"
2. "Education on War, Peace, Conflict and Change"
3. "The Human Person and the War System"
(all issues of Intercom published by)
The Center for War/Peace Studies
218 East 18th Street
New York, New York 10003

Teaching About War and Its Control
Center for International Programs and Comparative Studies
The State Education Department
Albany, New York 12224

"Ways and Means of Teaching About World Order"
World Law Fund
11 West 42nd Street
New York, New York 10036

"The Limits of War"
American Educational Publications
55 High Street
Middletown, Connecticut 06457

3. Resources and Their Distribution

Organizations

Resources for the Future
1755 Massachusetts Ave., N.W.
Washington, D.C. 20036

The Conservation Foundation
1250 Connecticut Ave., N.W.
Washington, D.C. 20036

International Union for Conservation of Nature and Natural Resources
2000 P. Street, N.W.
Washington, D.C. 20006

4. Population

Resources

"Population Education" (entire issue)
Social Education, Vol. 36, No. 4, April, 1972
National Council for the Social Studies
1201 Sixteenth Street, N.W.
Washington, D.C. 20036

1. "Population Education"
2. "Interchange" (population education newsletter)
The Population Reference Bureau, Inc.
1755 Massachusetts Ave., N.W.
Washington, D.C. 20036

"Sourcebook for Teachers on Environment and Population"
The Population Reference Bureau
1725 Massachusetts Ave., N.W.
Washington, D.C. 20036

1. "A Sourcebook for Population-Environmental Action"
2. "A Conceptual Scheme for Population-Environmental Education" (by Robert Stagner and Val Arnsdorf)
Population Curriculum Center
University of Delaware
Newark, Delaware 19711

"Teaching Notes On Population"
Foreign Area Materials Center
60 East 42nd Street
New York, New York 10017

Organizations

Planned Parenthood/World Population
810 Seventh Ave.
New York, New York 10019

The Population Council
245 Park Ave.
New York, New York 10017

The Population Institute
100 Maryland Ave., N.E.
Washington, D.C. 20002'

Center for Population and Environmental Education
University of North Carolina
Chapel Hill, North Carolina 27514

International Population Program
McGraw-Hill
Cornell University
Ithaca, New York 14850

Specific Materials

"Population" (game)
Urban Systems Inc.
1033 Massachusetts Avenue
Cambridge, Massachusetts 02138

5. Environmental Deterioration and Economic Development

Resources

"Man and Environment" (Revised Curriculum and Bibliography)
Miami-Dade Junior College
11011 S.W. 104 Street
Miami, Florida

"Education for Survival: Social Studies and Science
Curriculum Guide"
North Jersey Conservation Foundation
Morristown, New Jersey

"Miniature Environments - An Environmental Education Guidebook"
U.S. Department of the Interior
Bureau of Outdoor Recreation
Division of Information
Room 4241
Washington, D.C., 20240

"Man and His Environment"
National Education Association
1201 Sixteenth Street, N.W.
Washington, D.C. 20036

"Development: New Approaches"
The Center for War/Peace Studies
218 East 18th Street
New York, New York 10003

You Are An Environment (by Noel McInnis)
The Center for Curriculum Design
P.O. Box 350
Evanston, Illinois

"Survival Guide to Environmental Education"
Scholastic Teacher
50 West 44th Street
New York, New York 10036

1. "Development: Bridge to Peace"
 2. "A Guide to Films about Development"
 3. "Developmentology"
- American Freedom From Hunger Foundation
1117 H. Street, N.W.
Washington, C.D. 20006

"Ecology" (a film guide)
Extension Media Center
University of California
Berkeley, California 94720

"All Around You: An Environmental Study Guide"
 United State Department of the Interior
 Bureau of Land Management
 Washington, C.D. 20240

"Environmental Education in the Elementary School"
 National Science Teachers Association
 1201 Sixteenth Street, N.W.
 Washington, D.C. 20036

"Man's Control of the Environment"
 Congressional Quarterly
 1735 K Street, N.W.
 Washington, D.C. 20006

"Environmental Education: Instructional Activities K-6 and
 7-12"
 The University of the State of New York
 The State Education Department
 Albany, New York 12224

"Curriculum Overview for Developing Environmentally Literate
 Citizens
 Liberty Council of Schools
 Conservation Education Center
 Massachusetts Audubon Society
 Lincoln, Massachusetts 01773

"AIDS To Environmental Education"
 Hathaway School of Conservation Education
 Massachusetts Audubon Society
 Lincoln, Massachusetts 01773

"Selected Sources of Information and Materials for Environ-
 mental Education"
 National Referral Center
 Science and Technology Division
 Library of Congress
 Washington, D.C.

Organizations

The Conservation Foundation
 1250 Connecticut Ave., N.W.
 Washington, D.C. 20036

International Union for Conservation of Nature and Natural
 Resources
 2000 P. Street, N.W.
 Washington, D.C. 20006

National Audubon Society
 Educational Services
 950 Third Avenue
 New York, New York 10022

Oxfam-America
 1028 Connecticut Ave., N.W. Suite 922
 Washington, D.C. 20036

American Freedom from Hunger Foundation and
 Young World Development
 1717 H. Street, N.W.
 Washington, D.C. 20036

The Overseas Development Council
 1717 Massachusetts Ave., N.W.
 Washington, D.C. 20036

Specific Materials

"Environmental Studies" (activity cards)
 American Geological Institute
 P.O. Box 1559
 Boulder, Colorado 80302

1. AEP Ecology Program Series
2. "Ecology: Man Explores Life"
3. "Our Polluted World"

American Educational Publications
 55 High Street
 Middletown, Connecticut 16457

Eco-Fiction (edited by John Stadler)
 Washington Square Press
 630 Fifth Avenue
 New York, New York 10020

"People and Their Environment"
 J.G. Ferguson Publishing Co.
 Chicago, Illinois

I Am An Animal
 M.A.N.U.R.E.
 Box 385
 West Haven, Connecticut 06516

"Extinction" (a game)
 Sinauer Associates
 20 Second Street
 Stamford, Connecticut 06905

1. "Ecology"
 2. "Dirt Water"
 3. "Smog"
- Urban Systems, Inc.
1033 Massachusetts Avenue
Cambridge, Massachusetts 02138

Scholastic Earth Corps
Scholastic Magazine
50 West 44th Street
New York, New York 10036

"Make Your Own World" (a simulation)
The Coca-Cola Bottling Co.
(obtainable from local bottling plants)

6. Cross-Cultural Communication and Conflict

Resources

1. "Education on War, Peace, Conflict and Change"
 2. "Teaching About War, Peace, Conflict and Change"
- The Center for War/Peace Studies
218 East 18th Street
New York, New York 10003

"A Handbook of Structured Experiences for Human Relations
Training" (Volumes 1-4) (by William Pfeiffer and John
Jones)
University Associates Press
P.O. Box 615
Iowa City, Iowa 52240

"Adventure on a Blue Marble: Approaches to Teaching Inter-
cultural Understanding"
The Commission on Secondary Schools
Southern Association of Schools and Colleges
795 Peachtree Street N.E.
Atlanta, Georgia 30308

Specific Materials

"Body Talk" (a game)
Communications/Research/Machines/ Inc.
Del Mar, California

"Starpower"
Western Behavioral Sciences Institute
1121 Terry Pines Boulevard
La Jolla, California 92037

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