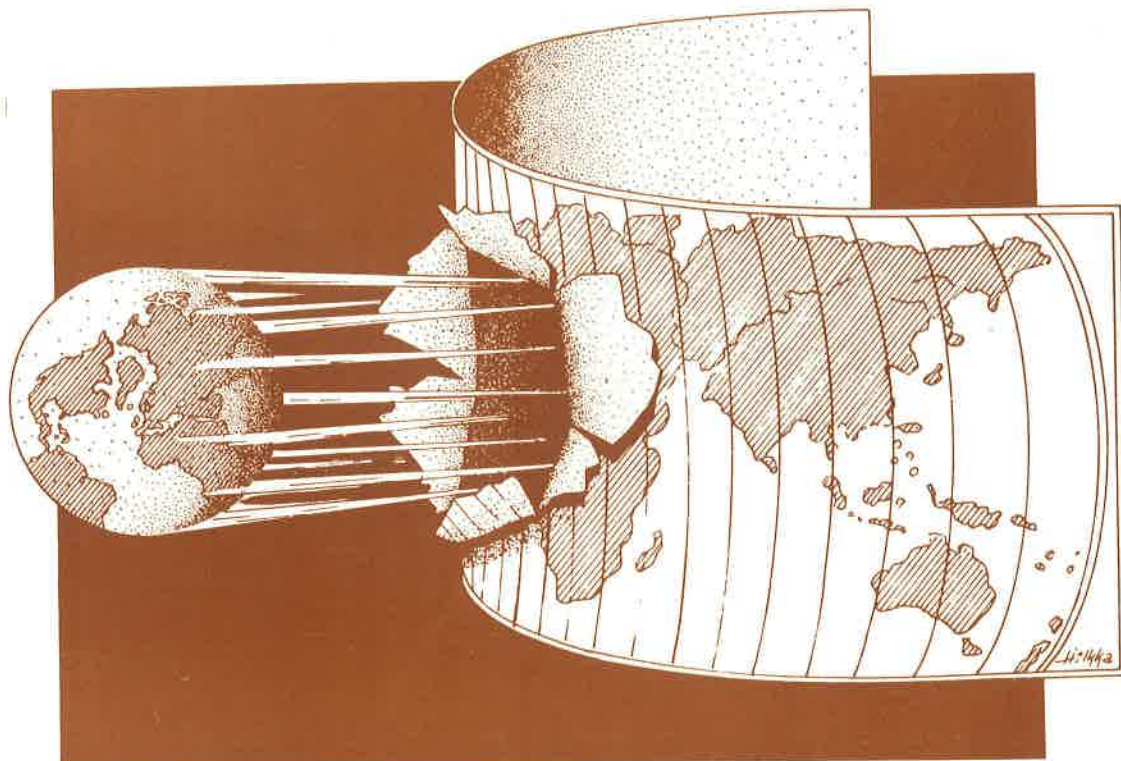


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Education for the Global Perspective

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Brown	Fuller	Rifkin	Seguel
Cortes	Hanvey	Roberts	Torney-Purta

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SECTION I: GLOBAL PERSPECTIVES

Perspective Consciousness

by Robert G. Hanvey

...The recognition or awareness on the part of the individual that he or she has a view of the world that is not universally shared, that this view of the world has been and continues to be shaped by influences that often escape conscious detection, and that others have views of the world that are profoundly different from one's own...

Few of us in our lives can actually transcend the viewpoint presented by the common carriers of information and almost none of us can transcend the cognitive mapping presented by the culture we grew up in. But with effort we can at least develop a dim sense that we have a perspective, that it can be shaped by subtle

influences, that others have different perspectives. This recognition of the existence, the malleability, and the diversity of perspective we might call perspective consciousness. Such an acknowledgement is an important step in the development of a perspective that can legitimately be called global.

Excerpted from **An attainable global perspective** by Robert G. Hanvey. The complete monograph may be ordered from Global Perspectives in Education, Inc., 218 East 18th Street, New York, NY 10003. Price, \$1.50. Publications catalogue of curriculum materials is available.



Journal Overview

by Dorothy I. Seaberg

Educating for a global perspective is far more than a passing educational fad. Just as Sputnik triggered the curriculum reform of the 60s, alarming world developments unfolding in the 70s and early 80s are pointing to the significance and necessity for a new approach in education--one that may be called "global." Indeed, how to infuse the "global perspective" is likely to be the pervading curriculum concern among thoughtful educators for the remainder of this century. But what to do is the question.

Many problems face us. That we are living in an interdependent world enmeshed in complicated and intertwining global systems--economic, geopolitical, social and environmental--is becoming abundantly clear. There is general alarm over the condition of the earth's biosphere, the foreseeable depletion of oil reserves, the unbridled population explosion and its accompanying food shortages, world-wide creeping inflation in the midst of recession and unemployment, threatened economic collapse among nations, growing gaps between the rich and the poor--the "haves" and the "have not," the world wide military buildup and the withholding of basic human rights from the majority of humankind, especially in the underdeveloped world.

The Club of Rome's 1972 publication, Limits to Growth, and the Global 2000 Report to the President (1980) are but two recent sobering documents pointing

up the imperative need for correctives which must take place within the next 50 years if spaceship earth is to survive the 21st century. Actions taken today will inevitably affect the future. And actions taken locally ultimately have global ramifications.

There is no clear agreement in the educational sector as to what we can or should do to help our young citizens cope with the fullness of living in an interdependent global age. A thrust that is receiving attention (and federal funding) is one called "education for international understanding." The hope of this movement is that with improved international understanding our country will be better able to compete in the world market place, stay afloat economically and in the long haul keep up front and on top as a world leader. Education for international understanding, then, is seen as necessary for U.S. survival. But educators concerned about species humankind, world wide, see the international understanding approach as too limiting and are taking a broader view. They see the problem as one of educating for the survival of spaceship earth and for responsible living in an interdependent global age. They are thus opting for the new curricular movement, "global education" or "educating for a global perspective."

If teachers accept this broader concept--educating for a global perspective--as a matter for their serious concern, what should they do? Where should they turn for guidance? Global education demands the development of understanding, capacities and sensitivities that go beyond the mundane and routine business that is usually associated with citizenship education in the schools. Overworked teachers usually grasp for gimmicks when they feel a new curricular pressure; but what they need

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most of all, in educating for a global perspective, is a sophisticated understanding of what it means to live within the global system and to become a thoughtful participant within it.

Robert Hanvey in his landmark essay, "An attainable global perspective" (1976), called attention to five dimensions of a global perspective for which the school could educate: perspective consciousness (the idea that different peoples and cultures see things differently and may prefer different choices), state-of-the-planet awareness, cross-cultural awareness, knowledge of global dynamics and awareness of the importance of human choice. These five rubrics serve as fundamental organizers for developing a global curriculum.

Global educators are not saying that the citizen should necessarily deny self-interest or nation-state interest out that everyone should have the ability to bring to bear a multiplicity of perspectives when making decisions that affect other people and that ultimately may have global ramifications. What appear to be harmless self-interest choices may come home to roost in outcomes we may not have bargained for. We need to be more aware of alternatives facing us and the possible consequences of the choices we make.

It is the purpose of this issue of Thresholds in Education to provide background information and viewpoints that will help educators realize what a global perspective means. This is a necessary and prior step to examining methods for infusing the curriculum with a global point of view. A further purpose of this issue is to project the possibilities for a stabilized global system in the future. Do we have a hopeful future? If so, wherein does the hope lie? Do these visions provide goals for global education? Do they give us cause for optimism and will to overcome? Do they suggest values that should be sought? This journal issue, then, organized around three themes, Perspective Consciousness, State-of-the-planet Awareness and Stabilization of the World System provides a purview for global understanding.

Lee Anderson with his analytical article on "The historical and intellectual context of global education" sets the tone for Theme One. Carlos Cortez follows with a provocative article, "The dilemma of perspective: Obstacle or avenue to global thinking?"

Anderson credits three developments--the long term globalization of the world's social structure, the decline of western civilization's world dominance and also the decline of US hegemony (or dominance) in the modern era--as giving rise to the global education movement. These developments came to a fateful juncture in the 70s accompanied by a paradigmatic shift in thinking from a societies-in-isolation view to a world-system perspective. The latter movement--the world system paradigm for making sense of the world--provided the necessary intellectual climate for the global education movement to take root.

Cortez, using the Malvinas/Falkland (Falkland/Malvinas) Islands crisis as an example, illustrates the difficulty but also the necessity for going beyond national or cultural perspectives to a transnational perspective if a peaceful world order is to be achieved. According to Cortez, five impediments get in the way of global thinking: nationalism, territoriality, international flow of goods, international flow of ideas and ethnicity. Cortez develops the notion that one can be both a nationalist and a globalist if the national perspective is not permitted to blind one from seeing the legitimacy of other perspectives. The understanding of multiperspectives and the ability to

grapple with their many ramifications should be the goal in global thinking. To be globally educated one must have the ability to address national, international and transnational perspectives and hold them in judicious balance.

Lester R. Brown's article abstracted from Building a sustainable society (1981) provides the context for Theme Two, state-of-the-Planet Awareness. Brown overviews the planetary threats that must be resolved if our present civilization is to continue to exist--the erosion of soil, the deterioration of biological systems, the rapid depletion of oil reserves. All three of these threats adversely affect food prospects to the extent "that the food problem may unfold during the 80's as dramatically as the energy problem did during the 70s." World-wide inflation and military build-up are two additional problems that call for a reordering of priorities. According to Brown, time is the most critical element in transitioning to a sustainable society with the course of transformation being set well before the 80s end.

Brown's article is complemented by Kathleen Courrier's "Global environmental issues: Making the right connections" and Jeremy Rifkin's Entropy: A new world view. Courrier points to the critical need for global cooperation with respect to "global commons" issues--problems affecting the oceans, the atmosphere and genetic diversity or species extinction. "These problems call for new forms of diplomacy if not supranational agencies," she warns. Courrier further asserts that "the most important conceptual shift of the last decade has been a move away from environmental defense toward the wiser use of the environment." Global education should address itself to this shift in emphasis.

Rifkin uses the entropy law of thermodynamics--the measure of the amount of energy no longer capable of conversion into work once energy is transformed from one state to another--not only to show the need for developing renewable sources of energy but also to point out the economic consequences of a petroleum-based economy. Linking the thermodynamics law to economic theory, Rifkin states that "inflation is ultimately a measure and a warning signal of the entropy state of the environment...In terms of thermodynamics efficiency, productivity would be better measured by the entropy produced per unit output, making conservation a necessary goal for the economic good--not speed of production and increased GNP." The lesson Rifkin drives home is that "the gross national product becomes more accurately the gross national cost, since every time resources are consumed, they become unavailable for future use." The renewable energy base, then, is necessary for solving the economic problem on a global scale.

Judith Torney-Purta concludes the planetary problem section of the journal with her article "International human rights: The global concern for human values." Pointing out that the US constitution is the only human rights document our students discuss, Torney-Purta argues that serious consideration needs to be given to a study on international human rights as proclaimed by the Universal Declaration of Human Rights if students are to be prepared for citizenship in a global context.

The third and most extensive group of articles, written by futurists and futuristic thinkers, speak to the prospect for a stabilized world system. Is stability possible? If so, how might stability be achieved? What changes are we likely to see? Can the individual initiate change? If so, how?

The writers for this section are optimistic in their outlook and generally agree that stabilization is possible. It will come about, they say, through a transformation in society. The consciousness education movement and new scientific theories concerning the nature of evolution and change lend credence to this view.

R. Buckminster Fuller gives a design for an all-win world in "Humanity's final exam." He believes that a "design science revolution" will bring a sustained standard of living for all humanity that will be higher than has ever been experienced before. But "integration of all humanity's vital interests around Planet Earth involves doing away with the 150 sovereign states, wherefore world revolution is at hand," predicts Fuller. Unless all win, humanity will fail its final exam.

Willis W. Harman's "The global perspective, the inner wisdom, and the ideas of progress" complements Fuller's article. Harman sees industrial society "reaching the end of its tether and transforming itself into a significantly different society." His scenario for a workable global order is premised on the idea that human consciousness will transcend ego boundaries and national boundaries. Global peace will result from a fundamental agreement around the globe on the basic nature of human strivings and ultimate goals. Harman sees five characteristics standing out in the new world order: (1) an ecology of culture in which diversity is honored; (2) a prevailing belief system affirming the profound meaningfulness of human existence; (3) an ecological ethic embracing the interdependence of all beings; (4) an adequate way of dealing with global issues; and (5) a decentralized society.

Hazel Henderson, in "Global economics" reaffirms some of Rifkin's concerns of a petroleum-based economy as she points to the failure of the old, energy and resource-intensive industrial system. She sees a refreshing sign in what she calls "the emerging counter-economy" of neighborhood co-ops and small enterprises, of self-help, mutual aid, barter, exchange and reciprocity as a means toward economic stabilization.

Duane Elgin sees a new lifestyle emerging that he calls "voluntary simplicity" or "living in a way that is outwardly simple and inwardly rich." Elgin contends that a lifestyle of voluntary simplicity could transform western values and bring about a shift in consump-

tion patterns, institutional operations and national policies. According to Elgin, voluntary simplicity could become the grassroots answer to global problems of dwindling resources, environmental contamination and economic duress.

Thomas Robert's discussion of the "Global perspective in a consciousness context" complements Schwartz's article "Scientific theories suggest a light at the end of the tunnel." The theories of Kuhn, Prigogine, Pribram, Bohm and Land that Schwartz discusses are stimulating for global educators to contemplate. These new-age scientists proclaim an "exciting new image of routine human potential far exceeding present imaginings." Their theories suggest that the upheaval we are experiencing in our time is a harbinger of a new age and a necessary precursor of rebirth and new life. Roberts, an educational psychologist, foresees that by tapping into the multi-faceted states of human consciousness through the educational process, human beings will be able to maximize greater mental power than has ever been thought possible heretofore. Consciousness education, then, suggests a plausible means for helping humankind take the "visionary leap in perception" that will lead to greater enlightenment or a higher order of human involvement.

Rodney M. Borstad has provided "thoughts to ponder" in a collage of futuristic quotes and has also supplied a selective bibliography for the discerning reader.

Both editors recognize that this issue of Thresholds in Education is only a first step in addressing the topic of global education. Nevertheless, the thoughtful reader, who is already alert and uneasy about current national and world affairs, will find this journal issue speaking to his/her concerns; and the uninitiated reader, we are certain, will find much to ponder. In any case, it is our sincere hope that the journal selections will provide a threshold to new understandings and fresh mental linkages to those who would be global educators.



The Historical and Intellectual Context of Global Education

by Lee F. Anderson

The decade that has just ended--the 1970s--witnessed the development of a social/intellectual movement commonly called global education. The participants in this movement are promoting a variety of educational changes. Some seek to expand instruction about areas of the world traditionally neglected in American education; namely, Asia, Africa and Latin America. Many of the participants in the global education movement are primarily concerned about upgrading foreign instruction. Still others seek to enhance multicultural education. Other participants focus upon improving instruction in world history and world geography. And there are many who seek to build a global perspective into all areas of the curriculum.

Why should the 1970s have given rise to the global education movement? What is it about the decade that intensified pressure to globalize American education? It is this matter that I address in this paper.

All social movements are mothered by social change and fathered by intellectual change. Global education is no exception. Let us look first at the social changes that are generating the pressure to globalize American Education.

Social Changes Spawning Globalization

The decade of the 1970s witnessed the conjuncture of three powerful trends in the social structure of the world. The most longstanding of these was the continuing acceleration of a trend that characterizes all of modern world history (post 1500). This is the tendency for the social structure of the world to become progressively more globalized. This trend is a product of the first, second, third and nth order consequences of the three dominating developments in modern world history: European expansion, the development and extension of capitalism, and the rise and diffusion of modern science and technology. Singularly and in interaction these three events have served to globalize every facet of the world's social structure:

- Historically, the millenia-long era in which the history of the world consisted of separate and isolated regional history has given way to an era of global history.

- Geographically, many of the isolating effects of geographical and social distance on human affairs have been dramatically reduced by the

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development of global systems of transport and communication.

- Economically, the world's many once separate economies have been incorporated in varying degrees and ways into a single global economy.
- Politically, the modern European state system has diffused to the rest of the world creating for the first time in history a single worldwide inter-state system. This is now rapidly becoming transformed into an organizationally heterogeneous global political system in which traditional boundaries between domestic and international politics are being eroded.
- Sociologically, expanding interactions among societies and increasing cultural congruence between societies have given rise to a global culture coexisting in uneasy relationships with the world's traditional array of distinctive local, national, and regional cultures.
- Ecologically, the activities of the human species are increasingly impacting on the planet's global ecosystem, and at the same time, limits inherent in this system are increasingly constraining human activities.
- Demographically, changes in the geographical distributions, along with trends in the social composition of human populations, are increasing the number of individuals who are deeply implicated in an expanding network of transnational institutions, social processes, and ecological relationships.
- Psychologically, there is an expanding global consciousness evidenced in a growing cognition of the unicity of the earth's ecosystem, the unicity of the human species, and the unicity of the sociosphere.

The long-term trend toward a progressively more globalized world social structure has interacted throughout the 20th century with another powerful trend. This is the decline of Western civilization's dominance of the world's social structure. As every school child learns in the early modern era Western civilization began a centuries-long progress of expansion. 1914 was the high point of this expansion. On the eve of World War I Europe, Europe's former and wholly Europeanized colonies, and Europe's current colonies comprised 85% of the earth's land surface. But also by 1914 the revolt against the west was under way. Throughout the century this revolt has intensified. Most of the world has been decolonized. Ancient cultures long suppressed under an overlay of Western civilization are undergoing a renaissance and a process of self-assertion. Non-western nations have joined the rank of the world's major political and economic powers. By the 1970s it had become amply

evident that the era of Western domination of the world was ending.

It is doubtful that the two trends I have spoken of--the long-term globalization of the world's social structure and the decline of western civilization's dominance of that structure--would have given rise to the global education movement were it not for a third development that dates of the decade of the 1970s itself. This is the decline in the United States hegemonic position in the world system.

Hegemony exists in the world system when one state simultaneously dominates world production, commerce, finance, and politics. Ever since its inception in the 16th century the modern world system has cycled between hegemonic periods and non-hegemonic periods. The Netherlands was a hegemonic power during the 17th century. The era of Dutch hegemony was followed by a long non-hegemonic period. Then in the first part of the 19th century Great Britain emerged as a hegemonic power. British hegemony lasted until the last quarter of the century when another non-hegemonic era began. This one lasted until the 1940s when the United States emerged from World War II as a hegemonic power. From 1945 to the 1970s the United States clearly dominated world production, commerce, finance, and politics. But the era of Pax Americana proved to be very short lived. By the late 1960s and early 1970s it became increasingly clear that the era of American hegemony was ending. (For a discussion of the decline of US hegemony see Anderson and Anderson, 1982). The decline in the United States' share of world manufacturing, the decline in the value of the American dollar in world markets, the American defeat in Vietnam and its embarrassment in Iran are among the many indicators of declining US hegemony.

In the 1970s these three developments--the long-term globalization of the world's social structure, the decline of Western civilization's world dominance, the decline of US hegemony--came together. The fateful conjunction of the three trends gave rise to the global education movement. For a wide variety of reasons related to this conjunction it became increasingly clear to a growing number of Americans that we must seek to substantially improve America's education about the modern world system in which American society is inextricably embedded. Our traditional linguistic incompetence has become increasingly disastrous. The absence of large numbers of Americans with well developed cross-cultural awareness is clearly dysfunctional. Our widespread ignorance of the history, geography, and sociology of the modern world system is making us the subject of contempt and the object of manipulation. In the absence of a widespread rudimentary understanding of the ABCs of the contemporary planetary condition, we are increasingly impotent in protecting self-interest and promoting the realization of humane values.

"World-System" Paradigm--An Intellectual Shift

Social movements are never the product of change in social structure alone. They always reflect intellectual changes as well. Global education is clearly a case in point. This movement has been fed by a paradigmatic shift that is under way in the intellectual architecture of historical and social scientific scholarship. Traditional social scientific and historical scholarship is dominated by what can be termed a "societies-in-isolation" paradigm or perspective in the world's social structure. This paradigm

depicts the world's social structure to be a collection of largely self-bounded, autonomously developing, and only marginally related societies. Clearly, there is interaction between the societies making up this collection, but no basic structures transcend societies and no larger social system encompasses them. Differences between societies, as well as historical change within societies, derive from sources internal to societies.

While it is still the prevailing paradigm in history and the social sciences, the societies-in-isolation perspective on the world's social structure is coming under increasing criticism and growing challenge. Immanuel Wallerstein's work (1974, 1979, 1980) in sociology and the work of global historians such as L. S. Stavrianos (1971, 1981), Geoffrey Barracough (1962, 1967), and William McNeill (1963) are two highly visible examples, which have been developing in each of the social sciences, of challenges to the societies-in-isolation perspective.

Out of the growing criticism a new paradigm is emerging. Perhaps this can be best labeled a "world system" paradigm. This newly emerging paradigm depicts the social structure of the contemporary world to be a global system possessing its own structures, processes, dynamics and patterns of historical development. Societies are situated and encompassed by this larger transcending world system and are affected by its systemic features as well as by a society's relative location within the structure of the world system. Major sources of variance between societies, as well as major sources of social change within societies, are seen located in the structures, dynamics, and processes characteristic of the world system as a whole rather than simply within individual societies.

When the world's social structure is viewed from this paradigmatic perspective, then the basic unit of social analysis becomes the world system in contrast to individual societies. While societies lose their epistemological status as the basic unit of social analysis, they do not cease to be objects of inquiry. But because they are integral parts of a larger whole, societies must be examined within the context of the larger world system to whose influence they are subject.

The shift that is under way in historical and social scientific scholarship from a societies-in-isolation paradigm to a world system paradigm provides a basic intellectual foundation for the global education movement.

Summary

I began by noting that the past decade witnessed the growth of a social/intellectual movement that has come to be called global education. In this paper, I have argued that the global education movement is the product of both social and intellectual change. Specifically, I argued that in the 1970s a conjunction of three profound changes in the world's social structure occurred. This conjunction is generating increasing pressures to globalize American education. At the same time a paradigmatic shift is under way in history and the social sciences. The prevailing societies-in-isolation paradigm is giving way to a new world system paradigm. This shift provides an intellectual foundation for the growing efforts to globalize American education.

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The Dilemma of Perspective: Obstacle or Avenue to Global Thinking?

by Carlos E. Cortes

On April 12, 1982, military forces from the Republic of Argentina took control of one of its possessions, the Malvinas Islands. On that same day, Great Britain suffered the military invasion and occupation of one of its possessions, the Falkland Islands. Coincidentally, these two possessions were the same piece of land.

This event--the Malvinas-Falklands dispute or Falklands-Malvinas dispute (hereafter referred to as the South Atlantic Islands dispute for purposes of neutrality)--illustrates the problem of perspective, a dilemma that impedes the development of a global way of thinking. Using this dispute as both a case in point and an analytical springboard, I will address five of the many perspective-based issues that can be, but do not have to be, obstacles to global thinking:

- 1) nationalism
- 2) territoriality
- 3) international flow of goods
- 4) international flow of ideas
- 5) ethnicity.

Nationalism

Nationalism is alive and well and living in England and Argentina, as well as in Pakistan, Nigeria,

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Jamaica, the United States, and other points north, south, east, and west. It has played a pivotal role in the South Atlantic Islands dispute.

Argentine nationalism provided the basis of support for President Leopoldo Galtieri, when he ordered Argentine military forces to take over the Malvinas. It unified the nation behind Galtieri even though, at the time, he faced grave internal crises, including much opposition to his government. Yet when England recaptured the islands two months later, frustrated Argentine nationalism turned inward against Galtieri, forcing him to resign.

British nationalism afforded Prime Minister Margaret Thatcher the option of responding by sending a task force to recapture the Falklands. England had long recognized the difficulty (maybe the eventual logistical impossibility) of keeping the distant Falklands (8,000 miles away) and she had been trying to negotiate a settlement with Argentina. But when Argentina invaded, British nationalism generated the momentum and support for the recapture of the Falklands. As in Argentina, nationalism prevailed, despite the terrible human and economic costs for both nations and the probable long-range futility of the entire venture.

Given the continuing intensity of nationalism around the world, what are the implications for globalism? Is nationalism necessarily antithetical to attaining a global perspective? Is the disappearance

of nationalism a prerequisite for global thinking? I think not.

You can be both a nationalist and a globalist. You can love your country and still believe in global sisterhood and brotherhood. Your heart may pound as your nation's flag is being raised after an Olympic Games victory, but that does not preclude friendship and respect among international competitors. You can support (or criticize) your nation's position on an issue, while at the same time recognizing that other nations have their own valid (at least to them) perspectives and internal differences of opinion.

But nationalism can be an obstacle to global thinking, particularly if it becomes hypertrophied into national ethnocentrism. It can be an obstacle if the fervor of your national perspective blinds you to the realization that it is, nonetheless, a perspective, and that other nations and peoples have perspectives, too, even if you disagree with them. Being global, in other words, involves multiperspective, not ethnocentric, thinking.

National ethnocentrism can restrict or preclude the understanding or even recognition of another person, group, or nation's perspective. When national perspectives become viewed as truth itself, rather than as perspectives, then multiperspective and, therefore, global thinking becomes impossible. A first step, then toward attaining global thinking is imperative--recognizing your nation's perspectives as merely some of the many possible perspectives and attempting to understand (although not necessarily agree with) the perspectives of other nations.

Territoriality

One offspring of ethnocentric nationalism (as contrasted with globally-conscious nationalism) is vested territoriality--the vision of national territory and boundaries as somehow being natural, eternal, or even inevitable. The South Atlantic Islands dispute is an example of vested territoriality.

Argentine children grow up studying world geography which includes the Malvinas as part of Argentine territory and learning Argentine history in which the Malvinas are Argentine Islands which are temporarily occupied by a foreign nation. British children grow up studying world geography which includes the Falklands as a part of British territory and learning British history in which the Falklands are a British possession. Such tunnel visions of territorial righteousness impede the search for a global perspective.

Yet boundaries and territorial imperatives, like nationalism, do not necessarily preclude global thinking. You can stoutly defend your territory and boundaries while recognizing that those boundaries are, in a sense, a national perspective resulting from a human-forged historical process. National territories and boundaries do not simply exist. They become. People created them, often at the expense of other nations or peoples. Therefore, it is only natural that other nations or peoples might have different perspectives on that territory or those boundaries. And, as with any human imposition, these are all vulnerable to historical change.

When territoriality causes people to ignore the fact that boundaries and possessions are a national perspective, global thinking becomes impossible. Ergo, a second step toward global thinking is apparent--recognizing that nations and boundaries are human creations and are neither natural, inevitable, nor

inevitably eternal phenomena. Rather territory reflects national and group perspectives that have been successfully implemented. Therefore, both a nation's control and its dimensions are subject to efforts to effect change, possibly by force.

International Flow of Goods

National phenomena, such as ethnocentrism and territoriality, exist in a state of tension with transnational ones. Two examples of such transnational phenomena are the flow of goods and the flow of ideas.

The desire to maintain economic and commercial continuity often supersedes nationalism and territoriality, even in time of war. This occurred during the South Atlantic Islands controversy. While brave young British and Argentine lads killed each other and while taxpayers of the two nations dug deeply into their already well-drained pockets to support the war effort, for some people it was business as usual. British airliners continued to land and take off at Buenos Aires airport. While Britain and some other Common Market nations placed a trade embargo on Argentina, banks did not foreclose on loans. War, yes. Too much interfering with long-range economic ties, no. It's a matter of perspective.

And the South Atlantic Islands dispute does not qualify as unique. Although national leaders glibly verbalize platitudes about economic theory, international economic decisions are usually based on the perspective of self-interest--that which is good for us, or some of us, from our perspective. Multinational corporations usually place profits above global needs or national interest. In the United States, the Reagan administration launched a clarion call for an arms build-up against the Soviet menace, but at the same time lifted the Carter-imposed grain embargo against that menace. While current US government leaders extol "the magic of the free market economy," they insist that Japan "voluntarily" reduce automobile exports to the United States, so that US automakers can recapture more of the market. Other nations throw up tariffs and quotas on imports and restrictions on foreign investment, while at the same time they cultivate more favorable climates in other nations for their own exports and investors.

Perspective, then, dominates beliefs and decisions regarding the international flow of goods. Growing global economic interdependence is inevitable. Reactions to global interdependence are not. There is a third step toward global thinking, then--grappling with the complexities of global economic interdependence, but at the same time recognizing national and interest group perspectives on international economic relations (Mathieson, 1982).

International Flow of Ideas

What about the flow of ideas? Most of us know very little about what is happening in the world, at least from first-hand evidence. What we know--or think we know--depends upon the information to which we have access. For that information, we rely primarily on the mass media.

The South Atlantic Islands dispute proved to be a media nightmare, particularly during the military confrontation. Reporters in England and Argentina had to rely mainly on government informants or official government handouts as the basis for their interpretations, which they passed along to the world. Much of the wartime "news" consisted of analyses and compari-

sons of British and Argentine official reports. It turned out that both nations took advantage of the situation to mislead and manipulate the news media for their own purposes.

The Argentine people later learned that their government had sometimes fed them false information, via the press, to provide them with the illusion of military victory, which later became the reality of military defeat. The British people later learned that their government had done likewise, to smokescreen actual British military plans and activities. Moreover, when the respected, government-owned British Broadcasting Corporation television network (as well as some other elements of the British press) attempted to provide some balance in its Falklands analysis, Prime Minister Thatcher criticized it for not presenting Britain's case "with sufficient vigor" (Tuohy, 1982). These cases illustrate the importance and fragility of the international flow of ideas, as well as the need for readers, viewers, and listeners to maintain a constant critical stance toward all "news." These instances also demonstrate how nations seek to control, manipulate, or at least influence the flow of ideas as a matter of national policy.

Protagonists in the flow-of-ideas debate tend to fall into two broad camps--the free flow-ers and the national restrictionists. The free flow-ers composed mainly of the United States and the Western European nations, generally champion the open flow of news and information across national boundaries, as well as relative freedom of press and reportage throughout the world. They contend that world citizenry needs to be well informed for rational decision-making.

But the free flow-ers are often more restrictive than they would like to think. Those who control the channels of information--such as the wire services, wealthy publishing chains, and powerful television and radio networks--can control people's minds. Foreign correspondents can virtually determine what the rest of the world learns about a country. Wire services, major publishers, TV production companies, and movie studios can immerse a nation in their points of view. When these points of view come mainly from a Western perspective, theoretical "free flow" becomes de facto "Western control" (Schiller, 1976).

The restrictionists advocate alternatives which they regard as more realistic: more government control of information for the national welfare; restraints on foreign correspondents to make sure they do not subvert the national or regional image; restriction (sometimes censorship) of the internal press to make sure that it contributes to the national good; and the development of Third World regional news services to combat Western distortions and spread Third World perspectives.

Concerning the global flow of ideas, theory and reality often come into conflict. The free flow of ideas may be ideal in theory, but the realities of economic power and technological control often obstruct that flow. Control of the flow of ideas--governmental, economic, or technological--leads to the presentation and manipulation of perspectives, such as the selling of national ideologies, cultural beliefs, or world visions. No facile slogans like "freedom of the press" or pious pronouncements about "the national interest" can resolve the global issues raised by the flow of ideas. A fourth step toward global thinking follows, then--recognizing the complexity of the global flow of ideas and grappling constantly with all news and ideas as perspectives.

Ethnicity

Subnational factors, as well as transnational ones, also provide a type of dynamic tension and complicate the issue of perspective. Ethnicity and cultural diversity exemplify these complexities. Ethnicity intersected with the question of national identity on both sides of the South Atlantic Islands controversy. Scots, Welsh, and Nepalese Gurkhas fought for England; Italian Argentines and other ethnics fought for Argentina.

British Argentines provided a notable case of the confluence of ethnicity and national identity. Argentina has long had a love affair with things British. Many Argentine buildings, schools, restaurants, suburbs, and even soccer teams proudly boast British names. For more than a century British people have invested and settled in Argentina.

When the current controversy exploded, 100,000 people of British ancestry were living in Argentina. Some 17,000 of these had come to live only temporarily on government assignments or on business, but most were second or more generation Argentines of British descent. Overwhelmingly the latter declared on the side of their nation of birth, Argentina, not their ancestral nation, England. Ethnic pride marched hand in hand with national pride. Without surrendering pride in their ethnic heritage, British Argentines remained loyal to their country, Argentina.

Ethnicity and national identity have not always functioned so integrally, particularly when ethnic irredentism has conflicted with existent territorial realities. Many Armenian nationalists call for the reestablishment of a homeland in territory now held by Turkey. The "liberation" of ethnic people held within the borders of another nation has historically led to, or at least provided excuses for, aggression, as during the dismemberment of Czechoslovakia in 1938-1939.

Diversity, based on ethnic (sometimes tribal) affiliation, has often been a source of intranational complications. Throughout post-World War II Africa, the incompatibility of national boundaries and traditional tribal territoriality has created tensions which have sometimes resulted in violence. The issue of French Canada has provided a constant challenge to national and local Canadian leaders, resulting, among other things, in the creation of official national bilingualism. During World War II, the United States placed people of Japanese ancestry in internment camps, two thirds of them being United States-born Japanese Americans.

Global thinking, therefore, involves an understanding of ethnic and cultural perspectives, as well as differing perceptions about ethnic people. At times, as during the South Atlantic Islands dispute, national perspectives have superseded ethnic ones. At other times, ethnic perspectives have triumphed over national ones. More commonly, they have maintained a dynamic coexistence. A fifth step toward global thinking then emerges--the careful analysis of the multiple interrelationships of culture, ethnicity, and nationhood.

Conclusion

Global thinking demands an understanding of multiple perspectives and the development of the ability to grapple with their many ramifications. It demands the addressing of transnational perspectives,

such as orientations toward the global flow of goods and ideas. It demands the addressing of national perspectives, such as nationalism and territoriality. And it demands the addressing of intranational perspectives, such as ethnical and cultural diversity.

The attainment of global thinking does not entail the disappearance of perspective. It necessitates learning to recognize and understand it. It includes dealing with the way that perspectives impel people to otherwise incomprehensible actions, and analyzing how perspectives may restrict the ability of people, yourself included, to think in global terms.

At a more ideal level, global thinking means striving to move beyond intellectual understanding and empathy to what anthropologist-philosopher Magoroh Maruyama (1970) has labeled **transpection**--getting into another person's (or nation's) head in order to try

to believe what the other person believes, and assume what the other person assumes. . .to learn a foreign belief, a foreign assumption, a foreign perspective, feelings in a foreign context, and consequences of such feelings in a foreign context.

Jonathon Swift said, "It is useless to attempt to reason a man out of a thing he was never reasoned into." Maybe so. But the understanding of perspectives--even "unreasonable" ones--can help us forge ahead toward the goal of global thinking.

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SECTION II:

GLOBAL ISSUES: PLANETARY AWARENESS

Building a Sustainable Society: The Global Challenge

by Lester R. Brown

One of the major centers of Mayan civilization recently made the news, a thousand years after its collapse. This belated attention came when *Science* carried a detailed article in late 1979 analyzing the society's long-term evolution and eventual downfall

Lester R. Brown heads Worldwatch Institute, a Washington-based research group established in early 1975 to analyze global problems. This article was abstracted from Brown's timely Worldwatch Institute book, Building a sustainable society (W. W. Norton, 1981) and is used by permission.

(Deevey, 1979). Using the latest techniques of paleo-ecological research, scientists determined that the number of Mayans in the lowlands of Guatemala had expanded continuously over 17 centuries, beginning about the time of Homeric Greece in 800 B.C. Doubling on the average of every 408 years, the population by A.D. 900 had reached five million with a density comparable to that of the most agriculturally intensive societies of today.

At this agricultural, cultural, and architectural peak, the civilization suddenly collapsed. Within decades, the population fell to less than one-tenth of

what it had been. An analysis of core samplings from two lake beds in the area hints at the reason for this abrupt decline. As population pressure increased, soil erosion gradually accelerated. The topsoil was being washed into the area's lakes, draining the cropland of its productivity and one of the world's early civilizations of its sustenance.

The members of the joint research team from the University of Chicago and the University of Florida who made these discoveries observe that population-induced environmental stresses had become intense during the centuries preceding collapse. They report that the area was almost wholly deforested by A.D. 250. Deforestation and mounting pressure on croplands then led to the loss of topsoil and the gradual decline of the land's productivity. In passing, the research team points out that the environmental havoc so discernible from our current perspective may not have been perceptible to the "managerial elite or their economical advisors" (Deevey, 1979).

These new findings make us look twice at the root causes of the collapse of other early civilizations. The fall of the societies located in the Tigris and Euphrates River Basin had long been attributed to outside invaders. Yet more recent information indicates that the Mesopotamian civilizations, too, may have been the victims of cumulative environmental stresses that eventually reduced food supplies and undermined their economies (Jacobsen, 1958).

Threats to Contemporary Civilization

If environmental stresses undermined earlier civilizations, whose population doubling times were measured in centuries, what is their impact now when population is expanding at nearly 2% per year, and in many countries the rate is 3% or more (United Nations, 1979). The ultimately disastrous rate of increase among the Mayans appears almost leisurely in comparison.

Does this comparison suggest that the Mayans' legacy is our own? That our "managerial elite" is blind to the environmental signs of our times? And what are these signs?

Surely, soil erosion is one. Even though world food output has more than doubled since 1950, that impressive increase has entailed land abuse so severe that fully one-fifth and perhaps as much as one-third of the world's cropland is losing topsoil at a rate that is undermining its long-term productivity (United Nations, 1979). In Washington, the Department of Agriculture reported in early 1981 that the inherent productivity of 34% of U.S. cropland is now falling because of the excessive loss of topsoil (USDA, 1980). A widespread global phenomenon, soil erosion remains a problem that few countries have been able to address effectively.

The global cropland base is also threatened by the conversion of agricultural lands to other uses. In the mid-western United States, shopping centers stand where only a few years ago corn grew. West Germany is losing 1% of its agricultural land to urban encroachment every four years (OECD, 1976). In southern China, factories are being built on land that for generations yielded two rice harvests annually.

Each year, urban sprawl, village expansion, and highway construction claim several million acres of prime cropland, while land hungry farmers push cultivation onto ever more fragile soils. We can now see, as perhaps the Mayans could not, the double-edged

effect of population growth on the cropland base. Population increase simultaneously generates a demand for more cropland and creates pressure to convert the cropland to other uses. Wherever population growth is rapid, this double-edged effect can quickly lead societies into crises.

In addition to the threat from soil erosion, a second major threat is the unsustainable relationship that has developed between our contemporary civilization and the biological systems that support it. Our economic system depends heavily on forests, grasslands, and oceanic fisheries for lumber, firewood, paper, meat, milk, butter, cheese, leather, wool, seafood, and numerous lesser commodities. Together, these three natural biological systems provide not only most of the animal protein in our diet but energy and raw materials as well.

Unprecedented demand for these commodities, the products of postwar affluence and record population increases, now exceeds the carrying capacity of biological systems in many parts of the world. Overfishing, overgrazing, and deforestation have become widespread. As demand exceeds the sustainable yield of biological systems, we begin to consume the productive resource base itself, engaging in the biological equivalent of deficit financing.

The third clearly identifiable threat to contemporary civilization is the potential depletion of oil reserves before alternative energy sources are developed. Most of the readily accessible, remaining reserves of oil will be consumed within a few decades, but development of new sources of energy to power the economy is far behind schedule. We live in a petroleum culture that is fast running out of petroleum.

Each of the three threats to civilization--the erosion of soil, the deterioration of biological systems, and the rapid depletion of oil reserves--adversely affects food prospects. Environmental stresses that affect the food system threaten to undermine our contemporary global civilization as they did earlier, local ones. In the absence of immediate attention to these threats, the struggle to make it from one harvest to the next may become a global preoccupation.

Indeed, there are signs that the food problem may unfold during the eighties as dramatically as the energy problem did during the seventies. The parallels are disturbing. Just as countries everywhere had become addicted to imported oil by the early seventies, so they have become dependent on imported grain by the early eighties. Just as the world had come to depend heavily on the Middle East for oil, so it now depends overwhelmingly on North America for grain. The final parallel is perhaps the most disturbing. Just as Middle Eastern oil is being depleted, so too are North American soils. At the existing intensity of cultivation, every ton of grain exported leads to the loss of several tons of topsoil.

These stresses and strains are shaping the world economy of the early eighties. Inflation threatens to become uncontrollable. There is no immediately foreseeable limit on the price of oil. World food reserves are at a near record low. Mounting international debt threatens the viability of the international monetary system. Inflationary fears are shifting capital away from productive investment to speculation in gold, farmland, grain, oil, and real estate.

In the United States the response to the economic stresses is to talk about the need for reindustrialization. "Supply-side" economists argue

that incentives to expand production will bring back the rapid growth, low inflation, and full employment of yesteryear. They believe that reduced taxes for corporate investors and accelerated investment depreciation schedules will do the trick. Unfortunately, these remedies deal with the symptoms of our problems, not their causes.

If economists persist in treating only the symptoms, there is little hope that civilization can be sustained. If we cannot arrest the excessive erosion of soil from our croplands, how can we feed ourselves in the years ahead? If we cannot preserve the natural biological systems that underpin the global economy, how can we preserve the economic system on which our livelihood depends? If we cannot conserve the remaining reserves of oil until alternative energy sources are developed, the fate that befell the Mayans eleven centuries ago may be ours as well.

What separates us from the Mayans, of course, is our understanding of our environment and our predicament. We know we are on an unstable path. The Mayans may not have recognized the threats to their society, but we see what threatens ours. We also know that there are no simple technological fixes. Wrong responses can themselves spawn new threats to civilization. Attempts to replace oil with nuclear power will lead to weapons proliferation, political instability, and possibly self-destruction. Excessive dependence on coal as a transition fuel could lead to a buildup in atmospheric carbon dioxide and changes in climate that would make it impossible for our grandchildren to feed themselves.

Meeting the Global Challenge

Intertwined though they are, each of these threats to society requires a different policy response. If soils are to be preserved, millions of farmers the world over will have to change their agricultural practices, in most cases abandoning quick-return practices for more sustainable ones. Protecting the biological support systems will require regulating the harvest and, it follows, regulating demand either through higher prices or rationing. To maintain a steady supply of safe energy, governments, corporations, and individuals will need to invest heavily in renewable energy resources. Creating a sustainable society will require fundamental economic and social changes, a wholesale alteration of economic priorities and population policies.

The magnitude of these changes is scarcely in question. Every facet of human existence--diet, employment, leisure values, politics, and habits--will be touched. As the transition proceeds, new skills will be needed and old skills will become obsolete.

Population distribution, too, will be altered as economic activity gravitates toward sources of renewable energy. Just as early industrial society evolved in close proximity to coal mines, new industrial centers will develop around concentrations of renewable energy--hydroelectric power sites, geothermal fields, wind farms, heavily forested regions, and regions of abundant sunlight. Geographically, economic activity will be more diffuse and less centralized, in keeping with the broad-dispersal of renewable energy sources.

Of the many dimensions of the transition to a sustainable society, the most critical is time. Because we are at the turning point in resource management, the course of the transformation will be set well before the eighties end. Unlike the earlier energy

transitions which were relatively leisurely, the shift from oil to sustainable sources of energy must be compressed into the next few decades.

Mounting worldwide inflationary pressures indicate that the transition is already behind schedule. Yet, despite rising food prices and the other signs of the lag, there is reason for hope. China has halved its population growth rate in less than a decade. The United States reduced its daily oil imports over 30% within a two-year span. Here and there, the transition to a sustainable society is getting under way.

Redefining National Security

As national governments begin to focus more explicitly on the transition to a sustainable society, many will find traditional concepts of national security challenged. Since World War II, "national security" has acquired an overwhelmingly military character. Underlying this definition is the assumption that principal security threats come from other countries. Yet, the threats to security may now arise less from the relationship of nation to nation and more from the relationship of humanity to nature.

The erosion of soils, the deterioration of the earth's basic biological systems, and the depletion of oil reserves now threaten the security of countries everywhere. Ecological stresses and resource scarcities have already given rise to economic stresses--inflation, unemployment, capital scarcity, and monetary instability. Ultimately, these economic stresses will translate into social unrest and political instability.

Regrettably, nonmilitary threats to a nation's security are much less clearly defined than military ones. Because the processes that ultimately lead to the collapse of biological systems are gradual and cumulative, they are too seldom given much thought until they pass a critical threshold and disaster strikes. For this reason, it is easier for government councils for developing countries to justify expenditures for the latest model jet fighters than for family planning, which could alleviate the population pressures that are leading to the deterioration of their croplands.

Unfortunately, few governments are capable of weighing traditional military threats against those of ecological and economic origin. In part, this is due to an information gap. While reams of data cross the desks of national political leaders and their advisers, little of it has to do with the health of the earth's ecosystem. Indeed, we have only recently begun to perceive the consequences of ecological insecurity, much less measure and monitor them.

Assessing and understanding these new threats to national security will challenge the information-gathering and analytical skills of governments. While intelligence agencies are organized to alert political leaders to potential military threats, there is no counterpart network for warning of the collapse of a biological system. Nations must begin to build such networks and to find people who can draw on many disciplines to analyze the information they provide. At present, few individuals are trained to assess a diversity of threats, much less to translate such an assessment into policies for allocating public resources in a way that maximizes national security.

By focusing on military threats to security, governments not only deflect attention from less obvious and more dangerous threats. They may also make an effective response to new, nonmilitary threats more

difficult. The military can absorb the budgetary resources, management skills, and scientific talent that are needed to respond effectively to the emerging nonmilitary threats, and few countries have enough investment capital available to finance the arms race and to transform the petroleum-based economy to a solar-based one. Ultimately continuing to spend heavily on new weapons systems rather than on new energy systems may itself become a threat to the security of nations. Ironically, as Isaac Asimov pointed out nearly ten years ago, "the world may no longer have enough oil to wage a large-scale conventional war" (Asimov, 1975). There may no longer be enough liquid fuel to operate both tanks and tractors.

For governments everywhere, the economic slack is disappearing, the choices are narrowing. A vast amount of scientific talent is needed to develop the energy resources to replace oil, to devise resource-management techniques that will protect the earth's biological systems, and to develop agricultural practices that will protect soils. The all-out mobilization that these circumstances call for entails, among other things, shifting part of the world's scientific talent now employed in the military sector to the energy sector.

In the late twentieth century, the key to national security is sustainability. If the biological underpinnings of the global economic system cannot be secured, and if new energy sources and systems are not in place as the oil wells begin to go dry, then economic disruptions and breakdowns are inevitable. In effect, the traditional military concept of "national security" is growing ever less adequate as nonmilitary threats grow more formidable. The purpose of national security deliberations should not be to maximize military strength, but to maximize national security.

Reordering Priorities: A Global Necessity

Achieving a sustainable society will not be possible without a massive reordering of priorities. This in turn depends upon political action by individuals and by public interest groups; much of it

may come from the bottom rather than the top. If we fail, it will not be because we did not know what needed to be done. Unlike the Mayans, we know what must be done. What we will soon discover is whether we have the vision and the will to do it.

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Entropy: A New World View

by Jeremy Rifkin

Traditionally scholars have relied on world-view laws of Newtonian mechanics and Cartesian logic to understand the major fields of knowledge. Today, the general concern over energy renders such explanations

This article was digested from Jeremy Rifkin's book, Entropy: A new world view (Bantam Books, 1980) by Deborah S. Hutton. Mr. Rifkin works with the foundation on Economic Trends based in Washington, D.C. He was selected by "The President's Commission on the Agenda for the 1980's" to provide economic testimony on future options for the US economy.

inadequate, and it appears that better starting points for understanding all fields are the laws of thermodynamics and the related concept of entropy.

Many economists, for example, are unable to see beyond supply side economics based on Newtonian notions of supply and demand. Their theories ignore the irreversible flow of resources from available to unavailable states resulting in dwindling supplies and increasing demand. Similarly, many educators generally believe that the learning process does not exact a price, but only adds to the value and order of the world. Scientists now realize that information

gathering and the storage of knowledge do require the expenditure of energy. Education and economics alike must pay the entropy price.

In the past, scholars have equated entropy with the final heat death of the solar system, so distant an eventuality as to be of no concern. Most lay people have accepted this view. In reality, however, it is necessary to begin focusing attention on entropy as an historical process rather than a final state. That is, as a result of entropy, our current world matter-energy base, that of fossil fuels and specific metals, is being depleted and we are being forced to make a change to a new matter-energy base. This article will discuss two areas in which entropy or the problem of dissipated or non-renewable energy is a major concern--economics and education.

Part I: The Entropy Law

How many times have you heard the folklore phrases "You can't get something for nothing" or "It does no good to cry over spilled milk?" If you have seen them verified time and again, then you know about the first and second laws of thermodynamics.

The first law is the Conservation Law which states that while energy can never be created or destroyed, it can be transformed from one form to another. The amount of energy in the universe has been and will remain fixed from the beginning to the end of time.

If the Conservation Law stood alone, then we could reuse energy repeatedly and there would be no resource problem. But that's not the way the world works. The second law of thermodynamics, the Entropy Law, states that every time energy is transformed from one state to another, a penalty is exacted. Entropy, the penalty, is a measure of the amount of energy no longer capable of conversion into work. "Available" or "free" energy becomes "unavailable" or "bound" energy.

The sum total of all available energy in the world which has been transformed into unavailable energy is increasing inexorably toward a maximum. Pollution, though thought by many to be simply a by-product of production, is really unavailable energy. Waste, then, is dissipated energy and pollution another name for entropy.

The laws of thermodynamics apply to material as well as to energy. Earth material can neither be created nor destroyed. It can only recycle itself. However, during recycling, the entropy penalty again is exacted. Earth material entropy is continually increasing and will ultimately reach a maximum.

While more efficient recycling is going to be essential for the economic survival of the planet, there is no way to achieve anywhere near 100% reprocessing. Recycling requires the expenditure of additional available energy and materials in the collecting, transporting, and processing of used energy and materials. This, of course, further increases the overall entropy of the environment.

All living things must struggle to suck available energy from their surroundings. We human beings, however, have extended our capabilities by creating all sorts of tools such as machinery, roads, homes, languages, and institutions. With energy as our culture base, power ultimately belongs to whoever controls the tools and thus controls the energy flow line.

As we have noted above, through the course of history, when the particular matter-energy base being used by a society becomes depleted, as is happening to our existing base of fossil fuels and specific metals

then a change is forced to a new matter-energy base. The new base becomes the context for the development of a new set of technologies, institutions, values, and world views.

Part II: A Thermodynamic Approach to Economic Theory

The industrialized nations are approaching an historical entropy watershed. At every stage of the energy flow line, disorder is increasing. The technological and institutional transformers of energy are becoming more complex, concentrated, specialized, and vulnerable to breakdown.

Beyond the initial cost of matter-energy consumption, external costs must be paid. "External costs" refer to the unanticipated expenses arising from the secondary effects produced by a particular product, process, program, or service. If these costly side effects were tolerable and absorbable, as claimed by politicians and economists, then technology could claim to violate the second law, that every time energy is transformed from one state to another, its power to do work is dissipated. The truth is, technology creates a temporary island of order at the expense of greater disorder in the surroundings. When technology has failed or has produced unfortunate side effects, the solution has been found in the application of new technology to cover up the mistakes of the old, much like dousing a fire with gasoline. Problems have proliferated faster than solutions.

Technology is not an independent force; rather, it is a transformer of energy, developing in reaction to qualitative changes in the energy source. Eventually, diminishing returns will set in all along the energy flow line. A critical point is reached when the existing "type" of technology can no longer sustain the level of energy transformation that society has come to depend upon. At this time, a society devotes more effort to readjustments in existing technologies than it does to new ideas. As the energy entropic watershed is reached, the old technological forms are either radically changed or allowed to simply atrophy. Even a casual examination of the technological and institutional changes that took place when society moved from a wood to a coal and then to an oil energy base bears out this observation.

Inflation is tied directly to the depletion of our non-renewable energy base. The closer entropy moves toward a maximum, the more costly are the transformation and exchange of energy and management of the resulting disorder. Inflation then, is ultimately a measure and a warning signal of the entropy state of the environment. The consumer is charged increasingly higher prices for basic necessities and the wage earner's real purchasing power fails to keep up with the rising cost of living.

Not exempt from the increasing costs of disorder, the taxpayer has to pay for the lion's share of cleaning up and disposing of massive wastes generated by the energy flow and for the economic and social disorders that evolve. More tax money must be demanded and diverted to provide for benefits such as welfare, related functions such as crime control and public health, and an increase in all standard governmental bureaucracies.

Clearly, classical economic theory cannot solve the growing crisis facing the world's economies. While disagreeing on the market mechanism, capitalist and socialist economists do agree that the overall economic environment is never depleted and that the resource base is inexhaustible. John Locke, a sage from an

earlier era, believed that everything in nature is waste until it is transformed by human labor into something of value, to be exchanged or consumed in society. In contrast, the laws of thermodynamics demonstrate that all transformation creates waste. By turning the first and second laws of thermodynamics upside down, modern economic theory misinterprets the basis of all economic activity, the simple truth that value (in the form of matter-energy resources) ends in waste.

Capitalist and socialist systems alike define productivity in terms of speed per unit output. The increased speed of economic conversion uses up more energy than is essential to make the product. "Haste makes waste" is an age-old adage that reflects an intuitive understanding of the entropy law. In terms of thermodynamics efficiency, productivity would be better measured by the entropy produced per unit output. Making conservation a necessary goal for the economic good--not speed of production and increased GNP. However, economists who ignore these laws will neither devise nor use measures of entropy per unit output.

While economists generally recognize that a society cannot continue to consume faster than it produces, they remain ignorant of the fact that the ultimate balancing of budgets is not within society, but between society and nature. Although complete recycling is thermodynamically impossible, society must attempt to decrease the rate of dissipation of energy--energy that cannot be reconverted into work. By minimizing the use of non-renewable resources and by using up renewable resources only as fast as they can be replenished without inflicting severe damage to the ecological cycle, it is possible to minimize the deficit between consumption in society and production in nature.

From an entropic view, money is actually a form of national debt, representing a lien against the total physical wealth of the community which an individual is free to exchange for actual physical wealth in the future. While the laws of thermodynamics set ultimate limits to the amount of physical wealth that can be generated, there is no limit to how much money can be produced and circulated with the resulting risk of escalating debts.

Based upon the assumptions of absolute repeatability and reversability of all universal mathematical and mechanical processes, capitalist and socialist systems glorify high energy production, promoting an even greater consumption of the finite store of resources of the planet. The entropy law, however, tells us that all physical reality unfolds in only one direction and that there is no such reversability in the physics of our world. The gross national product becomes more accurately the gross national cost, since every time resources are consumed, they become unavailable for future use. If all future generations for the next 100,000 years could somehow bid for the oil our generation is using up, our material "progress" would be revealed as simply an illusion!

Part III: A Thermodynamic Approach to Education

Applying the second law of thermodynamics to education yields equally instructive insights. The way a typical student crams for an exam is not unlike the way an ear of corn is prepared. In both instances, a massive expenditure of energy results in a slight entropy decrease in the product (in the student's case, the amount of knowledge retained) at the expense of a

greater increase in the entropy of the environment. With the corn, the entropy increase in the overall environment is called environmental pollution. As will be noted below, the dissipated energy that accumulates in the student's environment may be called social pollution.

Our learning is generally thought to add to the value and order of the world we live in. On the contrary, cybernetics and modern information theory teach that information gathering and the storage of knowledge require the expenditure of energy and an increase in entropy.

Historically, human mental development has removed the human mind progressively farther from the reality of the world. The more stages in the mental process, the greater the complexity, abstraction, and centralization, resulting from and resulting in greater dissipation of energy and disorder.

Today we are bombarded with information. Advertising, the mass media, and our educational system are assaulting us with thousands of messages every day. Already, the information and communication institutions, enormous fiefdoms, are exerting tremendous power over our lives. This so-called information revolution translates into a massive expenditure of energy and ever increasing costs.

The computer and microchip "revolution" provides a classic case of deception. Initially impressive arguments support how much more can be done with much less. Material and energy costs for the individual computer have decreased while performance has increased astronomically, thus decreasing the entropic effect of each computer. The effect of the computer revolution, in totality however, has been to increase dramatically the overall entropy of this world. Further, it should be remembered that computers are tools by which society can more efficiently and quickly collect, exchange, and discard energy.

As computers proliferate into every conceivable social function, society necessarily becomes dependent upon their workings for its survival. Computerization may make processes seemingly "efficient," but in reality, the computerized society becomes increasingly complex and vulnerable to system breakdown. The human being becomes hostage to the technology.

The more information that is made available to us, the less well informed we become. Decisions become harder to make, and our world appears more confusing than ever. Psychologists refer to this state as "information overload," a neat clinical phrase behind which sits the entropy law. A little information can be absorbed, retained, and exploited, but the rest accumulates as dissipated energy or waste. This social pollution results in an increase in mental disorders of all kinds. Predictably, our society has devised a set of techniques to handle every imaginable human disorder, not realizing, as happens with technological problems, that the additional information infusion only creates even worse disorders.

Nowhere has the effect of the information revolution proven more deleterious than in our educational system. Many educators and parents are asking why children are learning less when schools are equipped with more sophisticated teaching aids of all kinds and a professional and specialized staff of teachers. In addition, the oppressive "techniquing" of education has greatly increased the energy flow-through and has resulted in problems ranging from increased learning disabilities to acts of vandalism and violence.

Factors outside the school also contribute to student information overload. The TV is perhaps the

number-one culprit. Five or more hours a day of nonstop one-way information flow is bound to weaken seriously the child's ability to concentrate and absorb information.

Unendingly, new techniques are devised by the media, the educational industry, and the information sciences to speed up, compress, and shove ever more bits of information down our throats in hopes that enough will stay down long enough to be of some marginal economic or social value. Never once do they consider that the source of the increasing disorder rests with the very transformers that are directing the massive energy flow and increasing the entropy of the environment in the process.

Conclusion

The laws of thermodynamics provide an overarching scientific framework for all physical activity in the world. Entropy itself is neither good nor evil. It is just a description of how the physical world unfolds. Entropy, and the decay and disorder accompanying it, is an inevitable result of the unfolding of life itself. Even our personal lives, from birth to death, obey the entropy law.

We may interact with the entropic flow in such a way as to maximize entropy in all its aspects, and many feel that we are doing just that today. Or, we may minimize entropy, employing our knowledge of the first and second laws of thermodynamics to discover and use new matter-energy bases in new ways. That is, as an anthropomorphic concept, entropy helps define the physical rules within which the game of life unfolds. But how that game is played is determined by the values, visions, whims and caprices, ideologies and "isms" that emanate from the human mind as people interact with each other and the environment.

The energy problem is a particularly pressing focus for the application of the entropy law as our energy resources appear to dwindle rapidly. The broader social possibilities for us if we take seriously the entropy law as applied to energy are hopeful. The profound recognition of our own mortality should propel us to consider using every experience in life judiciously, with respect and reverence. The energy problem should prove no exception.



Global Environmental Issues: Making the Right Connections

by Kathleen Courrier

The physicist's desideratum that "everything is connected" has become the environmentalist's too. During the 1970's--called the Environmental Decade in the US because of the passage of such landmark laws as the Clean Air Act, the Endangered Species Act, the Federal Land Policy and Management Act, the Clean Water Act, and the National Environmental Policy Act--the links between one type of environmental problem and another became clear. So did the connection between environment, health and economic prosperity: The Council on Environmental Quality confirmed that pollution and other ecological assaults cost far more to clean up or undo than to prevent or reverse.

Globally, the same rules hold. But global environmental problems are not merely local or national problems writ large. Wide national differences in income, cultural values, legal traditions, population pressures, biological and mineral endowments, political organization, climate, research and technical capacity make it difficult to reach a common understanding of environmental issues, much less to decide which are most important, what needs to be done, and who pays. In short, our environmental destiny is linked to the

prospect of international cooperation.

This need for global cooperation is especially critical with respect to the emergence of "global commons" issues--problems affecting the oceans, the atmosphere, and genetic diversity. The formation of acid rain, the destruction of the ozone layer, the deterioration of the food base through pollution and overfishing, and species extinction represent problems that one or two nations can cause but not solve. Much like the arms race, these problems call for new forms of diplomacy, if not new supra-national agencies.

Consider the case of acid rain, a "transboundary" pollutant created when nitrates and sulfates (mainly from fossil-fuel burning power plants and oil refineries) make their way into the atmosphere. Acid rain may injure or kill forests, food and fiber crops, aquatic bacteria needed to recycle nutrients, and fish. As yet, acid rain is a regional problem, geographically confined primarily to Northern Europe, upper New England, and Eastern Canada. But its economic impacts have global implications as the Canadian and Scandinavian forest losses made clear. So does the linkage of these atmospheric concerns to other issues on the negotiating agendas of key industrial nations. Even though the true dimensions of the problem remain speculative it has already strained US--Canadian relations.

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While the overwhelming need is to act effectively upon what is known, it is equally important to acquaint policy-makers and ordinary citizens with environmental issues, to create global research networks, and to fill in gaps in our knowledge of the environment. Indeed, amid battles over national environmental policies, 1982 has been a year of reflection on the global environment.*

Perhaps the most important conceptual shift of the last decade has been a move away from environmental defense toward the wiser use of the environment. For many, "national resources management" has supplanted the term "environmentalism." More than semantic, this change signals the growing recognition that natural resources are the basis of economic wealth and that ecological and economic goals need not conflict, although short-term and long-term economic goals in some cases do. In more practical terms, pollution clean-up has given way to efforts to curb the formation of pollutants. As Indian environmental analysts Margaret and Asit Biswas recently wrote in Third World Quarterly, "the main emphasis now is on how to treat the disease and not on individual treatments to reduce its many symptoms."

Another important perceptual change is the realization that poverty may be even more environmentally disruptive than pollution. People for whom survival itself is each day's work cannot be expected to get excited about soil erosion or deforestation, much less the extinction of whales. Indeed, most environmental abuse in poor countries is not innocent, but desperate --the hopelessly poor villager knows that using saplings for firewood is spending his meager patrimony and the land-poor Guatemalan farmer knows that mountain soils on steep slopes will erode if planted with conventional food crops. But what is the choice? Unless dire poverty is eliminated, hopes like those of UNEP's director Mostafa Tolba for "development without destruction" seem groundless.

Putting critical social concerns aside, what are the most pressing biophysical complaints today? And are they changing?

Water quality and availability are improving in some respects but falling in others. The ecological integrity of such once-polluted water bodies as the Great Lakes has been restored in the last decade. And fears that the sea would die proved wrong. Shortages of water, however, are growing. (The United Nations named the eighties the International Drinking Water Supply and Sanitation Decade in order to call attention

to the impending critical shortages of domestic water.) Some resource analysts have also warned that lack of water could force farmers here and abroad who now depend heavily upon irrigation to return to dryland farming--a surefire recipe for agricultural productivity losses. Other mounting water problems include the deterioration of coastal zones and contamination caused by the improper disposal of hazardous substances.

Air quality, which pollster Louis Harris has called "the sacred cow" of American environmental issues, also is better in some respects but worse in others than it was ten years ago. Besides the increasingly serious threat of acid rain, the prospect of damaging the radiation-screening ozone layer also abides, long outliving useful media coverage of the dangers of jet fumes and aerosol cans. According to Eckholm (1982), even a 5-10% decline in ozone warrants action since skin cancer, damage to plants and some aquatic species, and climate alteration could occur as a result. Another atmospheric threat is the "greenhouse effect," assessed by the Council on Environmental Quality and National Academy of Sciences as one of the world's premier environmental problems. Global temperature increases due to ozone depletion and the build-up of carbon dioxide in the atmosphere could upset world agriculture and melt enough polar ice to flood coastal cities.

Land use has become an especially pressing environmental issue as the population-generated pressures for increased food production and the search for energy supplies intensifies. According to Maryla Webb and Judith Jacobsen of Carrying Capacity, Inc., the United States could lose 19% of its current crop-growing capability by 2000 to land degradation and development, a sobering fact considering that any hope for meeting rising demands for food over the short term must be predicated on rising US surpluses. In poor countries, cropland losses to erosion are far more serious, though loss of agricultural land to other purposes poses problems in industrialized and unindustrialized countries alike. Overall, the Global 2000 study indicates that arable land will increase by only 4% by the year 2000, so most of the need for additional food will have to come from high yields, which in turn have come principally from the application of machines and chemicals highly dependent upon oil and gas. The question here is whether food production can continue to rise if the price of petroleum does.

Forests, the "world's lungs," are in considerable jeopardy as of 1982. Each year, a forested area equal in size to half of California disappears, and stocks of commercial timber are projected to decline 50% per capita over the next two decades. The supply of firewood, which half the world uses for household fuel, is also rapidly diminishing. While tree planting and woodlot maintenance have become the focus of many recent economic development efforts in poor nations, lack of affordable fuel substitutes there and high demand for forest products in affluent countries combine to frustrate widescale reforestation efforts. By official US estimates, fuelwood demand will exceed fuelwood supply by about 25% before the turn of the century.

Hazardous substances and the dangers they pose came into the fore during the 1970's with several well-publicized episodes of poisoning, Love Canal among them. An environmental problem of only partially known dimensions and unknown consequences, the disposal of dangerous substances is nevertheless a global issue. Most obviously, toxic substances adrift in the atmosphere or afloat in the seas are no respecter of national boundaries. Other questions are raised by the

*Exactly ten years after the benchmark UN Conference on the Human Environment was held in Stockholm to set the environmental agenda for the decade, the United Nations Environment Program released an anniversary report in conjunction with the conference held in Nairobi this year. The World Environment 1972-82 sums up environmental conditions and prospects while a companion paper charts the progress made in realizing the 100 or so recommendations set forth in Stockholm ten years ago. UNEP also commissioned environmental analyst Erik Eckholm to weave these materials and his own perspective into a lively book for a bored audience. Along with the Global 2000 study released by the Council on Environmental Quality in 1980 and the Conservation Foundation's newly published State of the Environment, 1982, these works establish that both the environment and environmental thinking have changed measurably over the last decade, each directly influencing the other.

attempts of industrialized nations to "export" wastes for disposal to sparsely populated poor countries and by the proposal that the United States should collect and store the world's nuclear wastes since it is a responsible and politically stable member of the so-called "nuclear club" and has comparatively highly developed storage technology.

Species extinction doesn't have the "time bomb" quality that makes chemical wastes and pollutants so frightening. But the loss of the earth's genetic heritage--and thus its biological potential--could have far-reaching economic effects as well as an incalculable impact on the world production of food, drugs, industrial chemicals, organic pesticides, and a host of other classes of products with natural bases. Exterminated willfully for food, feathers, fur, hides, meat, and sport, and inadvertently through the destruction of habitat, species will continue to die out prematurely until the size and number of protected areas is greatly increased, resource exploitation is regulated to minimize habitat destruction, and poor countries are compensated for financial losses incurred to save species of known or potential interest to the whole world.

Taken together, these trends and conditions spell an end to any lingering hopes that the environment will somehow cleanse itself and recover unaided from injury. But that naive hope gave way years ago to systematic efforts to combat pollution and increase knowledge of the biosphere.

More serviceable than hope is an educated understanding of the global environment and where we stand now. By most accounts,

- Some threats have abated, others intensified.
- The resource pressures exerted on the biosphere by population increases and extreme poverty have been identified but not reduced.
- Scientific knowledge has increased but not enough to permit the consensus needed to justify serious financial commitments to environmental health.

- Pollution-control technology has improved but its importance in wise resource management has diminished relative to that of care and maintenance.
- Long-term environmental trends are now being identified, but short-term economic and political concerns continue to take priority.
- International awareness of many problems has increased, though international efforts to cope with them have so far fallen short of the mark.

Clearly, the imperative now is for scientists and educators to connect the facts and for global policymakers to link word to deed.

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International Human Rights:

The Global Concern for Human Values

by Judith Torney-Purta

Two concerns are prominent among educators today. The first is to meet the problems and challenges associated with the increasingly global character of society. The other is to deal with a crisis of values among American students--a feeling that common core values (e.g., honesty and respect for truth, empathy and respect for human dignity) have faded from the

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agenda of the schools. The study of international human rights represents a focus for addressing both of these concerns--an exciting approach to the consideration of values in a global context.

Human rights is not merely a subject for debate by high government officials. Students receive an exposure to human rights in a national context when they study the US Constitution. Unfortunately, however, the only documents that students hear discussed are the articles which guarantee freedom of religion or the press. Indeed there is evidence from a National

Assessment of Educational Progress survey (1976) that a substantial proportion of students believe that we are the only country in the world which has a written constitution or a concern about rights such as these. Further, it seems that students often develop an overly personalized view of human rights from their limited study; freedom of the press means "I can read the newspaper that I want," and does not reflect an understanding that newspapers are free to publish material which may contradict information provided by official government sources.

The Universal Declaration of Human Rights, passed unanimously by the United Nations in 1948, is the basis for the study of international human rights. Its 30 articles include civil and political rights (e.g., the right to a fair trial; the right to freedom of speech and assembly) and economic, social, and cultural rights (e.g., the right to a standard of living adequate for the health and well-being of one's family; the right to education). Countries which belong to the United Nations have accepted the obligation to respect these rights. The Universal Declaration is a statement of the rights which human beings all over the world believe they should have simply because they are human beings--not because they live in a certain region or have a certain level of wealth or education. People in other countries of the world treat the Universal Declaration (and the associated Human Rights Covenants) as essential to their aspirations for dignity and justice. Students in some other countries are as familiar with the Universal Declaration as they are with their own Constitution.

The existence of the Universal Declaration of Human Rights has been a powerful force in holding governments accountable for the way they treat their citizens. No government likes to be known as a violator of human rights. It is sometimes argued that something else (often national security) is more important than human rights, but no official is proud to announce that his government violates the rights of its citizens. The spotlight of international public opinion can often help individuals who have experienced imprisonment without trial (or similar violations). Each year the procedure for dealing with human rights' complaints in international organizations is strengthened. The struggle for human rights is an important force in the world today, shaping many aspects of our nation's foreign policy as well as the reaction of other nations to us. Well informed students can expect to have many opportunities in their adult lives to contribute to that struggle.

Yet the curriculum of American schools appears to pay little attention to the topic of human rights. In a recent survey conducted by the Council on Learning and the Educational Testing Service, American College students showed serious misconceptions of human rights on half of the items testing knowledge of that topic. Only about half of the respondents knew that the United Nations was the source of the Universal Declaration (substantial proportions, even of able students, attributed it either to the League of Nations or to Amnesty International). More than three quarters of the freshmen overestimated the number of human rights treaties which the United States had ratified. A substantial number of students thought that apartheid was merely personal prejudice--not the existence of laws separating races. These students, however, showed a high level of support for good human rights practice; more than 75% of them agreed with items such as the following: "Political freedom is a basic human right and no government should be permitted to abridge it";

"No government should deny access to basic education to any of its citizens." In contrast, less than 20% agreed with the following statement, "It is none of our business if other governments restrict the personal freedom of their citizens."

A consideration of the human rights recognized by the international community can serve as a basis both for programs of global education and for values education. In global education, there is a tendency for programs to become somewhat fragmented: a unit on hunger, some lessons on the structure of government in India, a unit on war, a few lessons on language and culture. The Universal Declaration of Human Rights can provide an organizing focus for such programs. One can begin by introducing students to the Declaration itself and helping them find examples of violations of rights or the conflict between rights either in newspaper articles or from everyday life. The Declaration can provide a context for integrating the study of a diverse set of global education topics--adequate food as a social and economic right; the constitution of India as it guarantees civil and political rights; the connection between respect for human rights and the promotion of lasting peace; the use of language by minority groups in a country as an example of a cultural right. The curriculum is no longer a miscellaneous collection when such an organizing focus is available.

There are some rather new curriculum guides which can help the teacher who wishes to use the Universal Declaration as an organizing focus (Ferguson, 1981). More than 20 activities for human rights education suitable for classrooms at all levels are also reviewed in a chapter of a book for teachers on implementation of the 1974 (UNESCO Recommendation on Education for International Understanding and Human Rights (Torney-Purta, 1982). Concrete ways to implement human rights education (including the use of children's literature) may be found in International Human rights, society and the schools published with support from the US National Commission for UNESCO as part of US implementation of the 1974 UNESCO Recommendation (Branson & Torney-Purta, 1982).

Educators such as Freeman Butts have recently expressed alarm at the erosion of civic values in the United States (Butts, 1980). He argues that individualism has become corrupted to mean "I can do whatever I want without concern for others." Privacy has become corrupted to mean "No one can ask me to explain my behavior." A consideration of international human rights can also provide a starting point for developing a list of common core values to which education can contribute. Charles Frankel, in one of the last papers written before his untimely death, noted that the existence of universal values could be demonstrated by an empirical examination of commonalities across culture--in the existence of common wants and needs as well as universal concern for certain aspects of human dignity. He concluded that there is a "short list" of basic common values which are genuinely felt everywhere or almost everywhere.

Other countries, (Canada and West Germany to name only two) and regional organizations (such as the Council of Europe) have recently developed extensive value education programs based on "short-lists" of such human rights, on an overriding concern for the promotion of respect for human dignity and on the need to prepare students for life in democratic society (Churchhill, 1981; George, 1981; Dinsdale, 1980; Stobart, 1979).

International human rights has received dramatic new attention in the media during the past five years. The study of human rights likewise deserves greater attention in the schools if students are to be prepared for citizenship in a global context. As an integrating focus, this topic has a unique potential for giving a solid basis of content to global education programs and a potential for enriching the discussion of values education in many areas of the curriculum.

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SECTION III: STABILIZING PLANET EARTH: PROSPECTS FOR THE FUTURE

Quotations to Ponder

by Rodney M. Borstad

There was a time when the seas seemed endless and the skies vast enough to swallow any of the mistakes and errors of man. The world used to be big and men could afford to be small. Now the world is small and men must be big.

Elliot Richards

The survival of the world now depends on our ability to listen to each other and to learn from the experience of others.

Robert Theobald

Dr. Rodney M. Borstad, Professor of Education, Northern Illinois University, has been active in the Futures field for many years. Dr. Borstad has delivered papers at the First Global Conference on the Future in Toronto in 1980, at the National Science Teachers Convention in Chicago in 1982, and at the Fourth General Assembly of the World Future Society in Washington, D.C., in 1982. Presently Dr. Borstad is president of the Illinois Association for Supervision and Curriculum Development.

All of us need to be optimists about our ability to solve human problems on this planet.

Gordon Cawelti
Executive Director
Assn for Supervision &
Development

We need a profound reshaping of education if mankind is to survive in the sort of world that is fast evolving. In all human affairs, the speed of change seems constantly to accelerate and the complexity of relationships to multiply.

Edwin O. Reischauer

Unless we find better ways to educate ourselves as citizens, we run the risk of drifting unwittingly into a new kind of dark age--a time when small cadres of specialists will control knowledge and thus control the decision-making process.

Fred M. Hechinger

We grew up in schools that taught us that we 'knew' something when we had facts memorized, when from our minds we could recall information on an examination. Now, however, 'to know' no longer refers to facts stored in the memory, but access to facts.

Parker Rossman

Microcomputers will change education similar to that resulting from the introduction of the printing press 500 years ago... The new 'basics,' in which computer literacy will surpass reading as the top priority, will focus on improving the quality of human life.

Nolan Estes

If we do not learn from history, we shall be compelled to relive it. True. But if we do not change the future, we shall be compelled to endure it. And that could be worse.

Alvin Toffler

We are used to thinking that the causes of the present lie in the past. But in a very real sense, the causes of the present may lie in the future.

Glenn T. Seaborg

We do our students a great disservice if we provide them with a curriculum that emphasizes only the past or only one version of the future.

Violet Allain

The years ahead will be years of opportunities for the telecommunications business, for the electronics business, for the data processing business--the industries that, taken together, we call the 'information industry.'

Charles L. Brown

Change must be accepted...when it can no longer be resisted.

Victoria Regina

Schooling and education have done relatively little to prepare us for the emerging information society...to achieve this goal will prove to be education's greatest task and its most important responsibility as the 10th century winds down and a new millennium begins.

Harold G. Shane

The production of information values and not material values will be the driving force behind the information society.

Yoneji Masuda

Whatever you can do, or dream you can, begin it. Boldness has genius, power and magic in it.

Goethe

Our society has freed many individuals from long hours of toil, but has done little to prepare them for an abundant life. This fact is often referred to as 'the greatest modern paradox'...Like many products of human creativity, leisure possesses possibilities for good and for bad. Leisure is a key which unlocks the best and the worst in human beings. Whether leisure in America becomes a blessing or a curse will depend a great deal on the quality of educational programs designed to help the people in our society learn to deal wisely with leisure. The educators of the 1980s have no responsibility more challenging than the provision of skills, knowledge, and appreciation that will enable the members of our society to engage in leisure that is an enriching and ennobling experience.

Sharon Hunt

The world we create is the world we imagine: The present ugliness of our culture results from our failure to conceive, and implement, a more human and humane global society.

Robert Theobald

We are not going to be able to operate our spaceship Earth successfully nor for much longer unless we see it as a whole spaceship and our fate as common. It has to be everybody or nobody.

R. Buckminster Fuller



Scientific Theories Suggest a Light at the End of the Tunnel

by Robert Schwartz

Thanks to a cluster of new scientific theories, it is now possible to fathom that the bad times we're going through are actually very good times. The theories, largely unreported in the American press, are affirmative, simple, and mind-freeing. They include insights like these:

1. Everything that lives is in a constant state of movement and change. Periods of stability are only relative and are less worth studying than the process of change which is always going on beneath any momentary calm.
2. Everywhere, a period of decline is merely a cyclical phenomenon which leads back to rebirth and new life.
3. This death and rebirth seems always toward growth, toward a higher-and-higher Darwinian level, beyond mere survival and into levels of greater complexity and sophistication.
4. As higher levels are reached, there occurs an acceleration of change: the death and rebirth of organizations, societies, and lifestyles happen at an ever-faster rate.
5. The pace would probably be fatal, except for one additional theory: our image of what it means to be a human being is giving way to an exciting new image of routine human potential far exceeding present imaginings.

All this implies an accelerated evolution, but such acceleration is natural and it's a lot more stable and predictable than those temporary fixed points we used to think of as "real." We've spent all our time studying cocoons rather than the caterpillar-to-butterfly process which endlessly repeats itself throughout nature at ever-higher levels.

That's the heart of four of the most exciting new theories to emerge. Each one touches on it, but not until they are abridged and synthesized, as this brief article will attempt to do, does it become clear that there is affirmative structure and rationality underlying what has so far seemed to be one of the most unstructured and irrational periods in modern history.

And now, the theories!

Thomas Kuhn

Thomas Kuhn's theory (*The Structure of Scientific Revolutions*, 1973) is a simple, enlightening tool to understand how change occurs in scientific thought. The scientific community, at any point in time, shares a common worldview, a reality concept, a paradigm. The dominant paradigm at each scientific period (for instance, Newton's Law) provides the basic structure for scientific thought and experimentation and permits great leaps forward in discovery. But eventually, when there are more unsolved problems than discoveries, a possible new paradigm begins to emerge that challenges the existing one. The new paradigm, if it is accepted, succeeds with the unsolved problems--in truth, the ideas supporting the new paradigm cannot even be explained or articulated in the language of the old

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paradigm. In a paradigm shift, a change of vision is more important than a series of small new ideas.

There is growing belief throughout the thinking community that it may be time for a new social paradigm. Toynbee, the historian, observed that all 26 civilizations in history have perished because they guarded the paradigm which once made them famous far longer than they should have and eventually cracked from the rigidity which accompanied their refusal to yield to new concepts. Our present obsolete institutional forms and rituals appear to be unable to absorb the flood of new knowledge available to them. A leap to a new level of perception is needed to enable us to realize our thinking and forge a new and more enlightened framework or paradigm.

Ilya Prigogine

Ilya Prigogine (1977 Nobel prize winner) theorizes that living things, always unstable even in good times (because of their searching, self-aware, self-organizing upward journey) will occasionally go into extreme fluctuation and perturbation and appear to be falling apart. This period of transition is a necessary activation of growth to a higher level. The living thing then re-jiggles itself into new combinations and permutations for ever-higher, ever-newer levels of development. Decline is the actual harbinger and stimulant of change to a higher order! The greater the turbulence the greater the jump to a higher order.

Karl Pribram and David Bohm

Prigogine's idea is complemented by the ideas of two other thinkers, Karl Pribram (Stanford University, College of Medicine) and David Bohm (University of London). Pribram's view of the brain is that of an endlessly fluctuating medium, capable of perturbing itself into higher-order realms. The brain is like a hologram, a form of lenseless photography which uses laser beams. The hologram reconstructs apparently meaningless swirls as three-dimensional pictures and it can reconstruct the whole picture from any fragment of the apparently meaningless swirls. The brain as a holographic instrument may be able to reconstruct the apparently meaningless swirls of the universe (as conceptualized by Bohm) into our current paradigms of time and space. The brain appears to be a many-dimensional instrument at ease in more than the three-dimensional world in which we now live. Both Pribram's brain and Bohm's universe exhibit some of Prigogine's requirements for an evolving self-organizing system.

George Land

George Land's theory (the last of our thinkers to be examined) absorbs the ideas of Kuhn, Prigogine, Pribram and Bohm. The main purpose of all life, he says, is toward growth, toward higher and more complex levels of individuality and organization. Crystals, living organisms, religions, nations and supranational organizations all show the same simple-three stage progression always repeated at higher levels: 1) self-oriented and accretive. 2) replicative, endlessly duplicating what works for it and, 3) shared problems and rewards. All organisms go into disharmony and back to the first stage when they have used up their support

environment at the second stage. The industrial world was successful at stage two in raising the standard of living, of research, and of education. But that world has begun to use up its environment and go into disharmony--two signs that its time is nearing an end. There appear to be several higher-order yearnings trying to wedge themselves into the present industrial world: 1) a more human scale of interaction instead of the dehumanizing large-scale kind found in industry, 2) wholeness instead of fractionality as experienced by specialized workers in giant mega-systems, 3) new goals such as Gross National Purpose or Gross National Pleasure instead of Gross National Product and, 4) human needs for caring and nurturing unsatisfied in the hard, antagonistic, competitive industrial world.

The new theories, says Land, are making each of us into an agent of not only change, but transformation. Indeed, we must grow or die!

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The Global Perspective, the Inner Wisdom, and the Ideas of Progress

by Willis W. Harman

One of the choices one can make when confronted with a state of illness is to view it as an opportunity to learn. (As the most obvious example, a man discovering he has cardiovascular disease or peptic ulcers may use the occasion to learn to modify his approach to stress.) So modern society, faced in recent years with a plethora of intertwined global-level dilemmas, has the opportunity to learn that this is no accidental confluence of miseries but a crisis calling for profound change. The problems of environmental degradation, threats to the planetary life-support systems, and depletion of critical resources; the grotesque insanity of the nuclear arms race; growing problems of unemployment, underemployment, and alienation; widespread hunger, rampant population growth, and widening gaps in income distribution; the irrational nihilistic currents that have swept the world in the past half century; are all symptoms of the underlying malady.

In the case of individual illness what may have looked like part of the problem--e.g., inflammation and fever--turns out with more understanding to seem instead manifestations of the healing creative life force. Analogously, we can see around us groups of energetic people, social movements, intentional communities, aberrants and dissidents, creating and fumbling their way to the new age and sometimes viewed by their neighbors as a boil on a person's skin, more as an irritant than a wholesome attempt to expel the poison.

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Transformation. Anyone?

To use another biological metaphor, we appear to be going through a social metamorphosis. When an insect larva enters this mysterious period of metamorphosis an amazing thing happens. Certain cells which had previously been indistinguishable from the surrounding cells, begin to behave quite differently. Each of these special cells, termed "imaginal cells" multiplies to form a colony of cells which grows until it creates a piece of the emerging adult insect. Meanwhile the intervening tissue disintegrates, and in time, with no violence or disruption, the caterpillar has smoothly transformed into a butterfly. The social experiments, intentional groupings, appropriate-technology, voluntary-simplicity and informal-economy movements may be the "imaginal cells" of the trans-industrial society.

Alvin Toffler, in The Third Wave, uses yet another metaphor. He identifies three cultural "waves," each of which tends to transform global society. The first was the agricultural wave which started thousands of years ago in the Middle East with the invention of agriculture, and slowly displaced nomadic and hunting-and-gathering lifestyles with farm-and-city civilizations. The second, the industrial cultural wave, traveled much more rapidly. Starting in Western Europe only a few centuries ago, it spread until it too has affected all but a few backwater areas with its paradigm of characteristic values, beliefs, modes of thought, institutional forms, and managing techniques. But now, says Toffler, we see signs of a "Third wave" of revisioning and re-valuing which again will transform the world's beliefs, values, and institutions.

Other authors too have written about "the coming transformation." Toffler's description of it is somewhat idiosyncratic; probably a more balanced and

accurate view could be obtained by mixing well one part each of Toffler, Marilyn Ferguson (The Aquarian Conspiracy), and Theodore Roszak (Person-Planet: The Creative Disintegration of Industrial Society).

The idea of industrial society reaching the end of its tether and transforming itself into a significantly different society is not a new thought. Sorokin and Toynbee had written in this vein half a century ago. British historian Arnold Toynbee is remembered for having written about the coming and inevitable decline of industrial civilization; somehow it seems to have escaped notice that he also spoke of the "Transfiguration" that was possible. Sociologist Pitirim Sorokin in an imposing analysis of transformations of societies had concluded before Toynbee that industrial society with its predominant and increasing emphasis on "sensate" values (materialistic, rational, agnostic, positivist, utilitarian, hedonistic) ineluctably becomes unstable and will transform to something different--most felicitously, to a society with more of a balance between sensate, outer-directed values and inner-directed (intuitive, spiritual, holistic, ecological, quality-of-life) values.

Lewis Mumford, too, wrote (in The Transformations of Man) of the coming transformation of industrial society. He pointed out that there have only been a few fundamental transformations in the history of Western civilizations, the last two being the end of the Middle Ages and the end of the Roman Empire. (Neither of those exactly qualifies as a smooth, non-disruptive "metamorphosis.") Mumford's conclusion, that we seem to be approaching another such transition, was based in part on the critical observation that the hallmark of a fundamental, thoroughgoing societal transformation appears to be the challenging of the basic premises on which the society is based--premises regarding the ultimate nature of human values and goals, of the human spirit and its relation to the universe. Such a shift in basic premises is evident in the "New Age" movements and also, as we shall discuss shortly, in some developments within the scientific community.

Plausibility of the Transformation Scenario

This picture of a "third wave" or transformation of industrial society is made plausible by the simultaneous "pull" of a new vision and the "push" of the dilemmas of advanced industrial society. This "push" is not merely the awareness of the global problems; it is the growing awareness that those problems arise from further continuation of the very trends that in the past have brought control over the vicissitudes of nature, e.g., freedom from want, comfort and wealth, expansion of choices. Such problems are inherent in the extrapolation of Western industrialized culture, and show how fundamental a change is required to resolve them satisfactorily.

Viewed from the Third World vantage point, these trends are seen to have benefited the industrialized countries and contributed to the distresses of the poorer societies. For this reason, these developing countries have insisted upon, first, the need for a "New International Economic Order," and then in recent years increasingly on the need for some alternative concept of development which is not just playing catch-up with the richer countries. Planetary restraints alone make this catch-up a losing game. The planet could not stand six or eight billion people living in high-consumption society at the present U.S. level.

Thus in recent years we have seen in parts of the Third World indications of a counterpart to the "New Age" movements in the industrialized countries. These calls for "another development" have been in the first instance a recognition that wholesome human development is not likely to come about through encouraging the discarding of the native cultural roots and substituting an alien (Western industrialized) culture. There is an emphasis on preserving cultural integrity, fostering human over economic development, and encouraging self-reliance at all levels of the society. Building on cultural roots implies in all cases (and this is not always said) building on spiritual roots. In the new movements we see a refusal to go along with the older acceptance of Western culture as better; and a refusal to accept the idea that Western materialistic science has "disproven" the spiritually based premises of the native culture.

The new vision of a global future is emergent, not clearly defined and articulated. Whether this vision is found in the "New Age" movement of the free enterprise First World, or in the fainter alternative development thrust of the Third World (or indeed in the even less visible new-age currents of the planned-economy Second World, especially in Eastern Europe), the vision tends to include the following characteristics:

- A cooperative, ecological ethic
- A high valuation of quality of life, quality of relationships, inner-directed values--and a correspondingly lowered emphasis on instrumental (economic and status) values
- policy of "thinking globally, acting locally"
- Decentralization; repersonalization; celebrating diversity
- Material frugality, spiritual richness
- Affirmation of life; of individuals in themselves.

The Industrial-Era Paradigm

It is helpful to try to see these characteristics more precisely in terms of their relationship to the broader society and historical context. The industrial period is fundamentally a consequence of the secularization of values at the end of the Middle Ages in Western Europe. The basis for the values that guide societal institutions as well as individual lives shifted at that time away from the traditional religious foundations to a more utilitarian and pragmatic base. The new values fueled the impetus toward geographical exploration and colonization; also toward science, industry, and eventually science-based high technology.

Four key basic premises of the industrial period will help make the point:

- Material progress is the road to the promised land.
- Manipulative rationality (economic and technical) is the most effective mode of logic.
- Science, or knowledge tested by its ability to predict and control, is the most reliable form of knowing.
- The highest good is the social and material well-being of the individual.

Totally discrepant with the premises of the Middle Ages, these four propositions seem so eminently reasonable it is hard to imagine when they might not have been so. It is much harder to imagine that we might evolve to some future society with which they would again be discrepant; hard to imagine that

present-day science might come to be viewed as a parochial form of knowledge shaped by the manipulative ethic of industrial society, and the predominance of economic and technical logic viewed as a somewhat barbarous archaism.

These four premises did very well by us for a while. The first two led to the industrialization of production, with the consequent rise in the material standard of living. The second and third led to modern science and high technology. The fourth led to democratic government and the free-enterprise system.

But as these premises became progressively more dominant, and the transcendental premises underlying humane, ecological, and spiritual values became relatively weaker, there arose a host of problems which have become all too familiar. These problems arise, in part at least, from pathogenic forms of the very same premises--e.g., humanity's destiny is to control nature; the road to social progress lies in continuous expansion of the gross output; prediction-and-control focused science will provide solutions for social problems.

To repeat, since the point is so important, the global problems of the future are contributed to, or brought about, by extension of the same trends that brought largely unquestioned benefits in the past. Because the basic premises underlying these trends are internalized in everyone of us who grew up in Western society, we will find that any real re-examination of them produces considerable personal discomfort. That is to say, coming to a new perception of our situation, or a "new consciousness," is a very different process from changing one's mind on the basis of rational argument.

A Lasting Cultural Change

In the past decade or so we have all become aware of an acceleration in the number of people going through their own personal transformations and changes in "consciousness." In the United States these transformations tended to be characterized by different emphases for men and women, for Blacks, Chicanos, and Native Americans. Different sorts of people had trouble affirming and claiming different aspects of themselves. In a similar way, the self-identify crises of persons in the recently decolonized Third World took a different form from those of affluent youth in the industrialized countries. Recent survey data in the US suggests that perhaps a fifth to a quarter of the adult population have gone through some such personal transformation involving re-examination of their personal belief-and-value systems at a fairly deep level.

Two recent developments in the past half century relate to these cultural changes and suggest that the beliefs transformation phenomenon may be more widespread and long-lasting than one might otherwise think. One of these developments is in the scientific area and the other is in comparative religion.

Serious studies in comparative religion are a relatively recent phenomenon. Probably the most fundamental finding in this area is that the world's spiritual traditions display a multiplicity of diverse exoteric, or public, forms, but in their inner-circle esoteric forms tend to reduce themselves to the same "perennial wisdom." As Aldous Huxley describes this "perennial wisdom," it "recognizes a Divine Reality substantial to the world of things and lives and minds...finds in the soul something similar to, or even identical with, Divine Reality...places man's final end in the knowledge of the immanent and transcendent God

of all Being." The full implications of this finding may not be immediately apparent. After centuries of interreligious conflict of the most bitter and violent kind, we discover that mankind was basically fighting over diverse expressions of what turns out to be a fundamental unifying experiential truth.

But, we may ask, don't these interreligious conflicts now fade into relative insignificance compared with the new way of understanding human experience--the advance we call empirical science? Science, after all, is publicly validated, experientially derived knowledge, replacing the diversity of opinions that account for the various religions.

Here the second momentous development, namely the emergence of research on human consciousness, is relevant. Only in the past decade or so has a significantly large number of scientists, in fields as diverse as experimental psychology, cultural anthropology, psychobiology, theoretical physics, and parapsychology, begun to come together to create a coherent field of inquiry into human consciousness, an inquiry which links the experimental approaches that have characterized most of past science together with the more introspective approaches of modern psychotherapies and phenomenological explorations.

As these inquiries have proceeded--into biofeedback and self-regulation, imagery and creativity, intuition and altered states of consciousness, relationships between mental states and wellness or illness, placebo effect and powers of imagination, perception and hypnosis--it becomes clear that the nature of human consciousness in all its dimensions, as disclosed by scientific inquiry, is not fundamentally in conflict with the "perennial wisdom" of the world's spiritual traditions. That is not to say that the "perennial wisdom" is, or ever will be, scientifically demonstrated; it is only to note that our various probes into the nature of reality complement, not contradict one another.

A Workable Global Order

Think what it could mean for world understanding and the potentiality for global peace if we came to agree, around the globe, on the basic nature of human strivings and ultimate goals--in the way we have already come to agree on the knowledge of the physical and biological sciences. The latter agreement was necessary for the development of modern technology; the former is essential to a global society that honors both the universal strivings of humankind and the diverse ecology of cultures which express, each with its own emphases, that unity of purpose.

Some future historian may well observe in retrospect that the single most essential factor contributing to lasting global peace was this agreement, around the world, on the fundamental nature of human beings and their relationship to the whole. Through the invention of weapons of mass destruction humankind had been on the brink of destroying civilization. Through a lusty technology and industry, and obliviousness to their true relationship to the earth, they had been on the brink of severely impairing the habitability of the earth. But then, through this global change of mindset, the world began to rebuild human society in a way that was sustainable and equitable--a way based on that previously rare kind of unconditional caring for one another and for the earth that comprised one of the many definitions for the word Love.

What is the nature of this workable global order in which our future historian lives? From our vantage point of 1982 it is difficult to discern very precisely. Whatever other characteristics of that global society turn out to be important, five stand out:

1. There is an ecology of cultures of varied form; around the world diversity is honored. As a climax forest gets its resilience from the diversity of trees and shrubs that make it up, so the human population of the globe creates a resilient society through the diverse strengths of a variety of cultures. Implied is a modification of the dominant Western industrial culture which displays such a strong proclivity to overwhelm and subvert nonindustrial cultures.

2. There is a prevailing belief system, compatible with the "perennial wisdom," affirming the profound meaningfulness of human existence. Material "progress," economic growth, and equitable redistribution of wealth are not enough. People need a context that lends meaning to human lives; a "life work" guided by deep intuition, rather than a job in the economy; a sense of cultural identity, of being part of a group that is meaningful to one and of feeling one's life is making sense.

3. There is an ecological, cooperative ethic that recognizes the individual's interdependence with all beings. Loving, sharing, cooperation, generosity, are cultural norms--not implying perfect human beings, but characterizing that behavior which is expected on the whole. There is a keen sense of planetary stewardship besides, of common responsibility for protecting the earth's life-support systems and the welfare of our fellow creatures.

4. There has developed an adequate way of dealing globally with global issues. There is not an overall world government with highly centralized power. Instead there are separate networks which are granted legitimacy to employ power in their own sphere to manage the atmosphere and the oceans, critical resources, disposal of toxic chemicals, control of weapons of mass destruction, etc.

5. While there are a few large organizations, in the main the society is fairly decentralized. A multitude of autonomous small organizations, articulated and coordinated by bonds of mutual trust, characterize public, private, and voluntary sectors (the three being roughly equally important).

Concluding Observation

To summarize, the above argument began with the most obvious thing one sees in a global perspective, namely the worsening dilemmas. Examining the possibilities of satisfactory resolution, we explored the plausibility of a scenario in which there is a profound transformation of industrial society, involving a basic reconceptualization of the idea of "progress" which has been so dominant during the industrial period. In a parallel movement in the Third World, an increasing number are proposing a reconceptualizing of "development" as something as different from "economic development" as ends are from means. The "perennial wisdom" esoteric core of the world's spiritual traditions is seen to play a key role in the evolution of the trans-industrial society. The transition period will be approached with much less anxiety if there can be some idea of what to expect on the far side of the transition. We have hazarded a guess as to salient characteristics of the society of the new age.

Some of the details in the above argument may turn out to be wrong; it would not be surprising. But the main point does not depend on specific details. It is that the global perspective cannot be separated from the inner perspective; nor people from institutions; nor the deepest desires of humans from the current idea of progress. They are all parts of one whole.



Global Economics

by Hazel Henderson

The stresses of the 1980's on both industrial and Third World nations, as they cope with the global transition to sustainable energy and resource-based economies, will force a major rethinking of the traditional economics of world trade.

Most current economic theorizing is still based on the experience of Britain, France and other colonizing countries which in the 17th century sought raw materials and markets in order to extend their trade and empires. Adam Smith's view of the benefits of "free markets" introduced the world to the idea of comparative advantage: i.e., Smith assumed that it

benefits all nations to specialize in producing those goods and services for which they are best suited and then trade these goods and the raw materials for their production in a world marketplace.

This 200-year-old comparative advantage pattern allowed for huge increases in total world production of manufactured goods and services, distributed rare raw materials, created nations' special patterns of economic development and the growth of global linkages via transportation and communications, and opened the door to many new possibilities for cultural exchange and global awareness. Yet events in the 1980's will force economists of all stripes to overhaul theories of unalloyed advantages of continually increased world trade based on their concepts of global economic efficiency.

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From Adam Smith to Global Chaos

We see rising evidence today of the social costs the aforementioned world trade system is generating. We see the growing impossibility of managing any nation's domestic economy, as they all ride the globally-interactive "roller-coaster" of world trade and monetary systems. No government can hope to keep adjusting anew each morning as the world's currency exchange markets open. These domestic stresses are symptoms of time lags and mismatches between economists' theories and the computer-speed movements of global currency, banking transactions, and capital combined with the slower-paced physical changes of redeployment of workers, policy machinery, and the real-world problems of structural inertia which economists' models ignore. Thus we see new debates in many nations on how to adjust to these rapid destabilizations: U.S. agony over its auto and steel industries; Denmark's hard choices over protecting its agricultural and dairy industries; Poland's indebted socialist government deferring to advice from Western, capitalist bankers; and Third World countries reeling from staggering debt loads, dependency on imported oil, plus the ubiquitous crises of trade and payments imbalances.

These local destabilizing effects of the existing world trade and monetary systems can no longer be grasped or debated in obsolete economic terms, where some idealized "global efficiency" (quantified and equilibrated by prices) is presumed to be the shared goal. This narrow economic view of "efficiency" (in purely money terms, whether dollars, yen, francs or rubles) ignores substantial political, social and ecological costs. This abstract "world marketplace" game--which addresses only "effective demand" (i.e., demand expressed in money terms) and ignores human need, structural barriers, cultural, social and ecological costs--will achieve its hypothetical goals of "global economic efficiency" only by disordering every local society and ecosystem on the planet. Such are the pitfalls of economics, a discipline which still dismisses these costly realities as "externalities," and is based on frictionless, theoretical concepts quite out of phase with the messy real-world problems of actual production, workers, institutional bottlenecks, declining resource quality and the massive structural transition required for the renewable-resource based economies of the future.

* * * * *

None of these issues lend themselves to old economic formulas. Neither can they be discussed under catch-all slogans such as "reindustrialization," which suggests little more than backing into the future looking through the rearview mirror, while begging the question of which sectors to subsidize, bail-out, let stand or fall in the world trade arena. Most leaders will continue to be pressured to bail out the "dinosaur industries" of the past, based on unsustainable resource--and energy--intensity, rather than to capitalize the future economy, which has no vested interests or constituency except the young and future generations.

Future economies may foster increased domestic tranquility and self-reliance, smaller enterprises, more bartering and regionalism and require less dependence on export-led, GNP-measured "economic development." Capitalizing the renewable-resource based economies of the future may at the same time help solve the social costs of today's world trade instabilities, since the economies of the dawning Solar Age will also

require a closer fit with local cultures and skills, as well as local resources and ecosystems.

* * * * *

I expect that what I have been calling "the emerging counter-economy" of neighborhood co-ops and small enterprises, of self-help, mutual aid, barter, exchange and reciprocity, will continue to grow in 1982. It will keep growing in all industrial countries simply because both political and corporate "leaders" have visibly begun to lose control of these societies. This loss of control stems from overcentralization, exploding bureaucracy, and excessively abstract forms of management and governance, using too many highly-averaged statistics that no longer fit a real world case or region, and are merely statistical illusions--for example, the Gross National Product, "average" inflation, unemployment, investment, etc. It is because of such insane levels of abstraction that the whole arrogance of macro-economic "management" of any "economy" has bogged down in information overload, bottlenecks, and colossal planning errors-- both in USA, Canadian, and Western European "economies" which are capitalistic and those in Poland, the Eastern bloc, and the USSR. For it is the old, energy and resource-intensive industrial system itself that is failing.

So we see the grassroots, "counter-economies" growing everywhere in all these malfunctioning industrial societies, because they are the local "safety-nets" and the most reliable bridges to the more sustainable, ecologically compatible future based on renewable resources. Citizens in all these countries no longer trust big government, big business, or any of the old authority figures and institutions, because they are so visibly failing to manage our affairs or deliver goods and jobs, while most of their currencies are inflating and their old industries stagnant. People are simply recalling the power they once delegated to these authorities in what I call a spontaneous devolution of power and a rise of a new localism. We read in a major news magazine a few months ago that this burgeoning "underground economy," where everyone can still go back to the country, or call on relatives on the farms, is the reason that Italy works surprisingly well even while the statistics look grim. We learn from reports out of Poland that even the official currency, the zloty, is spurned in favor of barter or the new "currency": cigarettes.

It is only when we begin to look at real productive work through this new set of spectacles that we can begin to see that the world's non-monetized sectors are actually more important than the smaller, cash-based, monetized sectors which have grown out of them and rest upon them. It is now becoming clear, as the world's monetary systems go into crises, that these crises are precisely because the "funny money system" has mistaken money for real wealth, productivity and human well-being. It has thus begun to cannibalize the very subsistence productivity on which it rests.

Thatchernomics in Britain and Reaganomics in this country will fail visibly in 1982, because it will be clearly revealed that all monetarism and supply-side economics can do is to continue with this process of cannibalizing the social system, the resource-base, and the environment in order to make the funny-money Gross National Product numbers look as if they are growing. They both make the typical error of all the one-eyed economists--they imagine the production of goods and services can be accomplished without its other half: maintenance. Included is the maintenance of the social system, cohesive families, neighborhoods, community volunteering and organizing; the hospitals, schools,

training programs, and the raising and parenting of children (the most important activity in any society).

The naivete of supply-side economics, monetarism, and all other brands of economic "management" including socialist and planned "economies" will become more obvious in 1982, as we see that it is this very backlog of unacknowledged social costs that have been swept under the rug for so long and now must be paid that is the basic cause of inflation. Inflation, in fact, is

the sum of all the factors and social costs that economists left out of their accounting. So I expect that 1982 will be the year when economists and their narrow doctrines of "economic management" will be defrocked and when we will finally ask a socially healthy question from the grassroots: "Will the Real Economy Please Stand Up?"



Voluntary Simplicity: Toward a Way of Life that is Outwardly Simple, Inwardly Rich

by Duane Elgin

The world is profoundly changing, that much seems clear. We have entered a time of great uncertainty that extends from local to global scale. The reasons for this uncertainty seem numerous, compelling and well-known to each of us--the needs of impoverished millions in developing nations; the needs of future generations; the needs of our deteriorating global ecology; our own needs for a balanced, satisfying existence; the needs for a peaceful global society.

Our traditional institutions and leaders appear so bogged down trying to cope with our faltering institutions, so enmeshed in crisis management, that they have no time to exercise genuinely creative leadership. And among thoughtful people the awareness is growing that the Western industrial nations themselves are approaching the "end of an era."

These pressing circumstances and this uncertainty have forced many of us to bring these large issues to the level of ourselves as individuals and to begin to ask difficult questions about the way each one of us lives our life; will my present way of life still be workable when my children grow up? How might our lives be different? Am I satisfied with my work? Does my work contribute to the well-being of others--or is it just another source of income? How does my level and pattern of consumption affect other people and the environment? What are my responsibilities to the other members of the human family who are living in grinding poverty? What is my purpose in life?

And more pointedly, people are beginning to ask questions like: How am I to take charge of my own life? Am I responsible for what I do? What can I do, as one person, together with other persons, to make a difference? Are there small changes that I could make

in my own life that with many others making similar changes, would result in a large difference in the well-being of others?

If you have pondered these questions, and have begun to seek answers to them in your daily life you are not alone.

During the decade of the 1970's, a quiet revolution has been stirring at the grass roots level of virtually every Western industrial nation. People from all walks of life, teachers, factory workers, lawyers, farmers, students and many more, have been experimenting with alternative ways of living that touch the world more lightly, more gently, more compassionately--a city dweller plants his first intensive garden; a suburban family begins to shift its diet away from meat and highly processed foods; a student joins a consumer-owned food store; a lawyer learns carpentry as an alternative profession. The people who are undertaking these seemingly small experiments in simple living are "pioneers," blending the old way of living and the new into a more workable and meaningful alternative to the status quo.

This meaningful alternative way of living, embracing as it does both inner and outer dimensions of life, is known by a phrase provided by Richard Gregg as early as 1936--voluntary simplicity.

This way of living is rooted in how each individual experiences life. To live more voluntarily, and less automatically, means to encounter life more consciously, knowingly, deliberately. To live more simply is to encounter life, in consumption, communications, and work, more directly. Voluntary simplicity is rooted in an appreciation of LIFE, both the precious miracle of life in the vast universe and our finite experience of it. Gradually, the experience of being infuses the process of doing. Life-sensing and life-serving action become one integrated flow of experience. This simplicity of living, the unpretentious merging of common sense and compassion in the immediate circumstances of daily life, is vital to the well-being of the entire human family.

Though highly relevant today, this orientation in living is not a new social invention. For more than 2000 years the founders of the world's major spiritual traditions have taught that we are misdirecting our lives if we make the pursuit of material wealth and social status our overriding goal. Jesus, Buddha,

This article was abstracted by Deborah D. Hutton from Voluntary simplicity: Toward a way of life that is outwardly simple, inwardly rich and is used by permission. Duane Elgin is a former Senior Social Scientist at the Stanford Research Institute.

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Confucius, Mohammed, and many more have taught the sharing of one's wealth and life with others, the conscious choosing of a balanced path through life, the value of simplicity, clarity, and the balance between the inner and outer aspects of our lives. Not to be equated with poverty, voluntary simplicity is the intentional living in balance between the extremes of poverty and indulgence. Voluntary simplicity is consciously chosen, liberating, creative, and enabling. It has both beauty and a functional integrity. It is not "no growth," but "new growth."

Though voluntary simplicity as practiced by individuals may appear to be very modest in relation to the world's monumental problems, this kind of action represents an important beginning. A society cannot move toward greater frugality, balance, self-mastery and full participation any farther and faster than we, as individuals will support in our own lives. Who we are, as a society, is the synergistic accumulation of who we are as individuals. Small changes that seem significant in isolation can be great contributions when they are simultaneously undertaken by many. We may wait for someone else to guide us, but there is no one else. You are it. We are it. Each of us is responsible. We are the persons who, one by one, are going to have to work through this time of enormous challenge.

The context within which voluntary simplicity is arising is certainly not one of social tranquility and unending economic prosperity; rather it is a context of wrenching and pervasive change occurring at many levels at once--from personal to planetary. Among the more important factors that will determine the future are how we respond psychologically to this time of transition and challenge; how we employ the mass media; whether we begin soon consciously to develop alternative institutions at the grass roots level; and whether we can achieve a new social consensus, a common sense, through reciprocal learning with other cultures. To succeed, we must honor human unity while fostering human dignity. On the other hand, if we are not open to the process of global social learning, then global integration may, by default, be achieved by force. What happens in the next few decades will profoundly condition the future course of humankind's evolution.

We may begin by making voluntary simplicity relevant to our lives in the following ways:

1. Lowering our overall level of personal consumption.
2. Shifting our diet away from highly processed foods to more natural ones.
3. Participating in recycling, cooperation, and the boycott of products from unethical firms.
4. Developing self-reliance in life skills such as repairing, gardening, crafts.
5. Developing non-sexist patterns of relationship.
6. Participating in holistic health-care practices.
7. Using energy-saving ways to transit.
8. Seeking livelihoods that contribute to world well-being.

Some people have already started:

One man who strives for a life of voluntary simplicity is a 42-year-old trial lawyer living in the rural east; though he "plays the role" in court, he has changed to a smaller house, wears clothes longer, recycles and buys secondhand things when possible, bikes and hikes, and has fewer, but closer human relationships.

A 27-year-old single man living in a small city in the East is doing what Bucky Fuller calls "doing more for less"; he is trying to eliminate wasteful speech as well as costume, dietary habits as well as information addictions that do not further the evolution into a simple "non-complicated," not "noncomplex" life.

Also growing toward a life of voluntary simplicity is a 23-year-old married woman who lives in a small western city; she quit her 40-hour-a-week slavery and formed a 20-hour-a-week job that she loves, started growing food in the city and making compost, became conscious of what she ate and how she spent her money, learned how to sew, mend, and shop secondhand, and stopped eating meat.

Another "VS-er" is a widow 67 who lives in a big city in the West; she recycles cans, bottles, and newspapers, buys used and handmade things, furnishes her house frugally, and spends her money largely on books and classes of music, dance, therapy, and post-graduate courses in her professional field.

More than just a personal path of living, voluntary simplicity has a societal relevance. In addition to numerous tangible changes (political, economic, social, creative, practical) which would occur, three particular intangible adaptations are prerequisite: movement toward a life-sensing and life-serving cultural orientation; the transformation of television to allow active social learning and creative visualization of social alternatives; and the acknowledgment of love or compassion, rather than either force or law, as a necessary foundation for evolving toward some form of peaceful planetary society.

Voluntary simplicity, in addition, has global relevance. It is the opportunity of the affluent rather than the necessity of the poor. Nearly one billion members of the human family live in absolute poverty. Millions die from starvation and the disease that follows malnutrition. In the affluent nations, in stark contrast, surplus grain rots, crash diets abound and pets are fed better than Third World children.

The planet does not contain, however, the resources to permit all the world's people to consume at the levels of the affluent sector. What are needed are more efficient forms of growth, marked by simplicity, ecological integrity, recyclability and durability.

A revitalizing society based on the widespread choosing of lives of conscious simplicity offers no magic cure-all but it is a beginning. And that is the challenge--to begin the process of revitalizing our faltering civilizations.

Voluntary simplicity also represents a practical, down-to-earth integration of the historic learnings of both East (the Orient) and West (the Occident). A survey of the history teachings of both reveal that East and West are not competing views of reality, but rather are intensely complementary. Voluntary simplicity is a way of living that honors both the Eastern orientation (with its emphasis on self-mastery and more conscious living) as well as the Western orientation (with its emphasis on worldly mastery and full participation in the social and material affairs of life).

Through East-West integration, voluntary simplicity can truly provide a global "common sense" or shared appreciation of life. The convergence of East and West (as symbolic of the meeting of the potentials of the entire family) is not simply additive in its consequences; it is multiplicative; it is synergistic.

Who we are as an entire family is much greater than who we are as the sum of isolated cultures.

It is when we move behind the numbing statistics of starvation, disease, environmental deterioration, and related sorrows of our world that we begin to change our lives. It is when we first taste, chew, swallow, and then digest into the bowels of our being the distress and suffering of life on this planet that we begin to change of our own accord. It is when we have a direct, felt understanding of the conditions of life for the larger human family that we are empowered to act in ways that are equal to the challenges we

confront. It is then that the reasonableness of E.F. Schumacher's statement, "We must live simply that others may simply live," strikes home.

Voluntary simplicity is not a fad, soon to go away. This way of life is a microcosm of the global convergence of the human family. In this living experiment are the seeds of new human frontiers that we have only scarcely begun to imagine and explore.



Global Perspective in a Consciousness Context

by Thomas Roberts

Thinkers today who urge the consideration of a global perspective as an important new idea almost invariably speak of the power of the paradigm. The paradigm, as Thomas Kuhn described it, is an overall pattern of thought so implicit in a culture as to be almost invisible to those who have it. Changes in paradigms in the past have occurred and have been chronicled. However, the mental activities which led to these changes have themselves been invisible, largely because of a lack of interest in those very mental activities. I refer here to states of consciousness (SOC).

The word "consciousness" in the psychology of consciousness means an overall pattern of psychological functioning at any given time. Waking, sleeping, and dreaming are states usually recognized by Western psychologists. Recent research on states of consciousness and the discovery of Eastern psychologies (which have histories of thousands of years of consciousness studies) have led modern theorists to the view that there are hundreds, perhaps thousands, of different states of consciousness.

Many current editions of psychology texts feature chapters on the psychology of consciousness, and there is renewed interest in the scientific study of ways to develop these states. These include certain aspects of biofeedback, many types of meditation, relaxation and imagery, mind drugs, hypnosis, and transpersonal states (going beyond the ego). By including data from subjective experience as well as objectively verifiable observation and by including all states of consciousness as well as our ordinary awake state, the psychology of consciousness offers psychologists, educators, and others interested in optimal human development a data base many times broader, much more diverse, and with a larger number of variables than cognitive or behavioral psychologies.

The failure to recognize the primacy of states of consciousness has been the major intellectual error of our times. Paradigms, and their related theories and concepts are almost wholly derived from our ordinary state's experience and cognition and are for use within it. If we are to provide for changes in major

paradigms by thinkers today we need to give explicit attention to the states of consciousness that are adjacent to our ordinary states because these adjacent states have much to do with how our thought originates and is influenced. Disciplines, paradigms, theories, concepts, thoughts, ideas, all our cognitive structures and mental processes seem to vary from state to state. What alternate forms of thinking exist in alternate patterns of mental functioning? What, if any, uses might they have for humanity? These questions deserve attention from the intellectual community.

Cognition and Consciousness

Ordinary thought asks first-level questions on specific facts, skills, concepts, attitudes and actions. Cognitive psychology asks higher order, second level questions. "Are there more efficient ways of thinking? Can one intentionally improve cognitive processes?" This approach focuses on better cognitive strategies and processes to manipulate information more efficiently; however, here too an unspecified and seldom recognized boundary condition is "within our ordinary SOC."

Consciousness studies ask third-level questions, e.g., "How does our ordinary state's cognition adapt to other states? Are there other kinds of cognition in other states? What role does cognition play in SOC's?" From a consciousness perspective cognition is one of a dozen ingredients which compose SOC's. From a cognitive perspective, different SOC's are among other things, radical reorganizations of information-processing systems. Different SOC's also include different "strategies" or organizations of perception, memory, emotion, and so forth. Learning to use these states' abilities is a form of advanced cognition we have largely ignored.

Research on meditation, biofeedback, dreams, psychoactive drugs, prayer, and other techniques of consciousness education indicates that by directing attention inward, one can learn to attend to concepts, processes, and states and to direct them. At each level (behavioral, cognitive, and SOC) the breadth of mental freedom increases.

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Consciousness Education

Before LSD drew my attention to state of consciousness as a variable, I accepted the usual cognitive goals of education: knowing more facts and learning to think better, avoiding fallacies, moving up Piaget's stages of intellectual development, finding more useful concepts and theories, matching theory with observations, and so forth. While I still value these worthy goals of education and research, I now see them in a wider context. From a consciousness perspective education takes on new meanings and increases in value.

First, education has focused almost entirely on developing the cognitive skills of our ordinary state. I am not suggesting that we change this, at least not yet. However, we should be aware that this is a policy decision, not a necessary "given." What learning awaits us in other states?

Second, human abilities and disabilities depend on broader patterns of overall mental functioning, states of consciousness. As one changes SOC's, certain skills are enhanced; others are diminished. Previously rare or unusual abilities, such as parapsychological abilities and the placebo ability, may be learnable by providing access to the states of consciousness where they reside. Likewise, a remarkable variety of human physical and mental disabilities seems to be best treated in different states of consciousness such as hypnosis, meditation, and psychedelic therapy. So-called "spontaneous remission," "miraculous" cures, and "therapeutic touch" all seem to be associated with changes in SOC. In institutions other than schools (and perhaps some day in schools) people may want to explore and develop other states and their abilities.

Third, I used to believe that abstract formal operations were the highest type of intellectual development. This may be true for our ordinary state; however, we should recognize that different (perhaps more advanced) forms of intellectual development with stages of their own may await us in other states.

Fourth, educators and psychologists define intelligence in ordinary-state ways. SOC possibilities include: 1) intelligence is the general ability to use a large number of mental patterns (state of consciousness), 2) intelligence is the ability to select and enter the most appropriate SOC for the task at hand, 3) intelligence is optimum use of a specific SOC. The last variety varies the meanings of "intelligence" from state to state.

Fifth, a contextual broadening is best described from a psychoanalytic perspective. This view sees secondary process thinking (rational, adult thinking) as optimal. It now seems to me that there is at least a tertiary process thinking, which consists of selecting one's overall pattern of mental functioning. This selection is a higher ability than learning to use any specific pattern or one of its resident abilities.

Liberal Education

As its name indicates, liberal education is an education for freedom, freedom from the accidental parochialisms of a student's locale, group, times, class, and so on. The mind attains the freedom to develop fully. This freedom is constructed by learning useful mental abilities and habits such as abstract thinking, clear reasoning, open-mindedness, and healthy skepticism. To accomplish this goal, liberal educators exercise their classes on the great ideas of major thinkers throughout humanity's history. Further, they acquaint students with disciplines across the spectrum of the arts, sciences, and humanities. Liberal educa-

tion is an excellent avenue for the development of a global perspective.

Liberal education expands from a consciousness view. To liberal education's objectives of mental freedom and refinement, consciousness education adds knowing about SOC's and their appropriate uses. The historic role of SOC's in the humanities, the arts, and the sciences is missing in current education, even as content. Although an occasional titillating exception such as Kubla Kahn, bacchanalia, or a maligned saint's misconstrued ecstasy creeps in, instructors use these more to enliven a class than to teach about the further SOC reaches of the mind. A truly liberal education should teach students about these neglected parts of ourselves and our civilizations, and should also give them rudimentary experience with selected states and their resident abilities. Enriched by a consciousness perspective, liberal education can extend freedom of the mind and mental refinement far beyond the parochialism of single-state learning and help students contemplate alternate paradigms.

We are largely hunter-gatherers of the mind. And the civilization of the mind has just begun. We trim and prune here and there. We espalier diverse facts with convenient theories. If we're lucky, an apple will bonk us on the head, alter our consciousness, and we'll get an idea. From a consciousness perspective, increased harvests depend on acknowledging thought's deep roots in other SOC's. A mind cultivator not only weeds the surface ideas, but also tends the conceptual and preconceptual soils.

Hope for attaining a global perspective today, as an emerging paradigm, appears to rest to a large extent on the possibilities for flexible, innovative, synergistic, and pragmatic thinking. Explicit attention to consciousness education, which, as its name implies, means attention to the relationships among human behavior, experience and states of consciousness, appears to offer the best avenue for such desired thought. A fuller understanding of the human mind and a richer appreciation of its diverse manifestations should help us to mobilize its incomparable power and strength for the task of forging a new perspective.

Figure 1

Three Levels of Education—A Consciousness Perspective

Third Level:

CURRICULUM: know about and develop all SOC's, including our ordinary SOC.

(consciousness) INSTRUCTION: dreams, imagery, biofeedback, advanced cognition, etc.

Second Level:

CURRICULUM: cognitive strategies for efficient information processing, skills, behaviors, etc.

(cognitive) INSTRUCTION: higher order questions, classification, etc.

First Level:

CURRICULUM: specific facts, concepts, attitudes, skills, behaviors, etc.

(behavioral) INSTRUCTION: methods, and materials, rewards and punishments, developmental stages.



Humanity's Final Exam

by Buckminster Fuller

In 1927, I set out deliberately to pay attention to the complete interrelatedness of everything. That is, instead of being a specialist, I decided to look at Spaceship Earth (a term that I invented in 1951) as a whole, at the total resources and total know-how, and to use them for the total success of all humanity.

In 1786, the Scottish poet Robert Burns said, "Oh wad some power the giftie gie us/To see ourself as others see us." To facilitate humanity's comprehension of its present status in Universe, what we need is a physical means of seeing ourselves as others see us. Burns' wish was partially fulfilled in 1969 when, for the first time, humans from our Planet Earth standing on the Moon took colored moving pictures of the Earth and dispatched the pictures back to us electromagnetically, to be seen over anybody's and everybody's properly-tuned-in television sets.

Most people would say that if you want to have the best map of the world, use a globe, the bigger, the better. The trouble with the globe is that you cannot possibly see all the world displayed on it at any one time. Without revolving the globe, you cannot read the names identifying the geographical data of more than one-quarter of the surface at a time. Because humans want to see their whole Earth at once, cartographic projections of the Earth's surface were developed. The Mercator Map is the most frequently used, and is as yet to be found in schools around the world. On it, Greenland is bigger than South America, North America bigger than Africa, when the contrary is in fact the case. There is no Antarctic continent, and the land on the left end of the map, in fact adjacent to that on the right end, seems to be 24,000 miles away. With only one exception, all the well-known cartographic projects either chop world data into a number of separately-viewed parts or produce badly distorted images. The lone exception is the Fuller Dymaxion Projection, designed to provide a satisfactory means for humanity to see correctly the entire surface of the world at one time. With the Dymaxion Map, humans can for the first time in history see their whole Planet Earth's geography displayed on one flat surface without any visible distortion in shape or relative size of any of its data, and without any breaks in the continental contours. The whole world can be seen simultaneously as one-world island in one-world ocean.

The Dymaxion Map is a powerful tool for a great world logistics game called the World Game which, using the total inventory of world-around resources and human trends and needs, explores ways to make it possible for every world human to enjoy the total Earth without interfering with each other, and without any human gaining at the expense of any other.

The general assumption of the great political and religious power structures is that a fundamental inadequacy of physical support for human life exists on our planet, that it has to be you or me, not enough for both. They are wrong. Because of the ever-increasing strength and performance per pound and cubic inch of

the new chemistries, metallic alloys and electronics, we now have the capability of producing and sustaining a higher standard of living for all humanity than has ever been experienced by any. This is not an opinion or a hope. It is an engineeringly-demonstrable fact. It can be done while phasing out forever any further use of fossil fuels or nuclear power, using only already proven technology and physical resources already mined, refined and in circulation. This physical success is inherently sustainable for all humanity and all its generations to come, and it can be accomplished in ten years through a design science revolution.

A design science revolution will develop artifacts so efficient that they will be adopted spontaneously by all humanity. It will result in an ever healthier, ever less environmentally-restrained, better informed and comprehensively educated, thoughtfully, spontaneously and cooperatively productive total humanity operating as an ever more mutually trusting and considerate world family, living in an ever more generous and less wasteful way at an ever more foresighted and comprehensively anticipatory level, ever more truly loving, classless, raceless human family, all engaged in local Universe information gathering and local Universe problem solving, this being the function which occasioned the inclusion of humans in the design of the Universe.

Evolution has accelerated into revolution. If it is a bloody revolution, with the bottom attempting vengefully to pull the top down, it will render humanity extinct. We will have failed our final exam. If it is a design revolution, joyfully elevating the bottom, all humanity will win.

There can be no planetary equity until all the 150 sovereign nations dividing our planet are abolished. We have today 150 supreme admirals and only one ship: Spaceship Earth. The 150 admirals, each in their stateroom, are trying to run their staterooms as if they were ships. The Starboard Side Admirals' League is trying to sink the Port Side Admirals' League, but if either were successful in sinking the enemy side, the whole ship would be lost.

The division of world political power into 150 sovereign nations is the consequence of thousands of years of contriving on the part of history's most powerful leaders, whose number one strategy has always been "Divide to conquer, keep divided to keep conquered." The prime vulnerabilities of humanity which make it subject to spontaneous self-dividing are those such as different speech patterns, skin colors, religions, social customs, class or caste systems, political preferences, and all varieties of troubles, suffering and discontent. The historical consequences of the aeons-ago-employed number one strategy accounts for the "natural" acceptance today by world peoples of the seemingly "God given" existence of 150 sovereign nations, as well as all the specialized categories of human activities.

It is highly relevant to the foregoing that in 1959, science incontrovertibly demonstrated that all the known anthropological and biological case histories of extinctions of tribes and species have been brought

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about by over-specialization resultant upon either willful or environmentally-induced inbreeding. We inbreed special capability by outbreeding general adaptability. Here lies the present chief peril of the human passengers of Spaceship Earth.

There is but one family of humans on Spaceship Earth. Ample food and growing capacity exist to feed every human, but the sovereign nations and their international-trade-balancing system prevent the distribution of food. We can live luxuriously entirely on our daily income of energy from the radiation of the sun and from gravity; the quantity of energy arriving as radiation from the sun aboard planet Earth every minute is greater than all the energy used by humanity in a year. But big government can see no way to collect taxes to run its bureaucracy if people are served directly and individually by their daily energy income, and money-makers cannot find a way to put meters between people and the sun and the wind.

Humanity will perish on this planet if the sovereignty of nations is not abandoned, and if world-around computerized time-energy accounting is not inaugurated immediately. World Game has demonstrated that the first step in the integration of the world is the closing of the gaps in the world energy system. This will effectively counter the peril of over-specialization of humans, and will be the beginning of omni-energy accounting for world economic management.

Up until 20 years ago, the limitation of deliverability of electric power by wire was 350 miles. To get greater mileage, you needed higher voltage, and the higher the voltage, the more problems with insulation and so forth. Due to the space program and the development of new materials, all kinds of new insulating capabilities came in and 20 years ago we came to what is called ultra high voltage and superconductivity; it then became practical to deliver power 1500 miles.

In the electricity generating game, industry is the biggest customer. You need a lot of standby power to meet the peak demand. In America, fifty percent of the time, fifty percent of the generating capacity is not being used. It was Wendell Wilkie who discovered that the next town over might have different peaks and

valleys in its use of electricity. Generating more power than is bought is pure loss. By integrating electrical networks with other towns, Wilkie discovered that what was not being sold locally could be sold elsewhere. Thus the extra generating capacity became part of the profit.

With a maximum range of 350 miles, you couldn't reach across time zones. With 1500 miles, not only could time zones in the United States be crossed, but we could reach Alaska and, from Alaska, across to eastern Kamchatka. The Russians had already been moving further and further eastward, putting dams in all their northern flowing rivers. With a range of 1500 miles, we could reach the Russian grid.

It was clear that if we integrated with them, we'd use the other half of our generating capacity, doubling our capacity overnight. Pierre Trudeau, former prime minister of Canada, is a friend of mine. When he was invited to Russia for his very first visit, I took my Dymaxion World Map and put the electrical grid on it. It showed that once Russia was reached, you could go south and reach China, go into Europe and Africa. We could hook up the whole Earth's power system. Trudeau took this to Brezhnev, who turned it over to his engineers, who reported back to him that it was feasible and desirable. The minute we put all humanity on the same electrical network, all problems and differences with money exchange will completely disappear. Energy will be the base, cost-per-kilowatt-hour will be it for everyone. Nothing is going to remove the political barriers faster than this.

Since I have learned that the economic success of all humanity is feasible, it is clear that Universe is trying to make humanity a success despite itself. Integration of all humanity's vital interests around Planet Earth involves doing away with the 150 sovereign states, wherefore world revolution is at hand. Either all lose, or all win.



In Summary

by Mary Louise Seguel

There is said to be an ancient Chinese curse, "May you live in interesting times!" Existence today is certainly interesting. During this editor's lifetime the world has experienced two major world wars and an unacknowledged third world war actually in progress; a major world depression and several minor ones; mounting evidence of dangerous world depletion of non-renewable energy and resource sources; mounting evidence of dangerous levels of air, water, and land pollution; political, social and economic crises as endemic throughout the world, together with the rise of world

terrorism; inflation and unemployment at unacceptable levels; and ultimately the final horrible threat, that of total nuclear destruction.

Although mature historical analysis of the last century shows that world leaders, by their policies and practices, were guiding the world society toward these very events, they were probably no more aware of their direction than were the masses of people being guided. Anne Hare McCormick was quoted as saying in the thirties, "Things are happening today that just can't happen!" She expressed well the ordinary person's recoil at events outside their acceptable frames of reference. That very frame of reference is being challenged today by thoughtful people, and the challenge serves as the theme of this issue. Although there are many who still protest that the old view is

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best, Marshall McLuhan has warned us of the perils of looking backward "in the rear-view mirror." The world view which served us well in the past appears to be dysfunctional today. What world view will replace the old one is, of course, not clear to those of us who anticipate change. History shows us that people who experience a major change have usually been unaware of the clear outlines of the change at the time. After the change has become well established they are no longer alive to care.

The outlines of Yeats' rough beast, slouching today toward Bethlehem, are shadowy and vague. Nevertheless we who are attentive to its coming hour can discern its presence. The best choice we have today is to think hard and productively about its nature and direction.

As noted above there are thinkers today who believe that the current crises are merely temporary dysfunctions of an essentially useful system and world view. They urge us simply to do better what we have always done. The editors of this issue have not presented this case, so well documented in many other sources. Rather, we have accepted the premise that the whole world is in the midst of a cultural transformation. This change may be viewed in several ways. A popular author, Alvin Toffler, in The Third Wave, suggests that two major transformations have preceded the one in process; e.g., the shift from a hunter-gatherer society to an agricultural one; and the shift from an agricultural society to the modern industrial one. A more esoteric writer, Teilhard de Chardin, views the world's evolution as proceeding from the biosphere, or man's biological life on the planet toward the noosphere, or man's intellectual and spiritual life. The contributors to this issue identify the coming cultural shift in the direction of a global paradigm. As Lee Anderson so aptly puts it, "The prevailing societies-in-isolation paradigm is giving way to a new world systems paradigm."

The global paradigm referred to by Anderson is much more complex than appears at first glance. The naive thinker may feel that he or she is thinking globally, confusing global thinking with internationalism or the United Nations, or World Federalism, or multiculturalism. Globalism for many represents at first an interest in other cultures, often stimulated by visitors, films, and television specials or visits to other countries as tourists. Cultural interests are also sparked by the current absorption in one's ethnicity or roots, and the pressure from identifiable ethnic groups for recognition. The continuing vitality of the United Nations compels the consideration of international problems and solutions. The widespread concern for the environment has its international aspect and world refugees force attention toward the underdeveloped nations. Finally, the nuclear threat has galvanized peoples to demand mere survival, independent of their nationality, and has brought about a sort of global cohesion against the nuclear bomb.

These common responses are, from the point of view of a global perspective, fairly shallow and superficial. They represent a helpful first start, but even these simple responses prove to be not without their problems. As Carlos Cortes has so ably pointed out, ethnicity, for example, may conflict with nationality. Further, both ethnicity and nationality may be at odds with world peace and safety. When national rivalries are at a peak, ethnic differences, which in times of peace are merely odd and interesting, may suddenly become repulsive and fuel strong emotional responses. One solution, not suggested in this issue,

has been to homogenize the total world culture and there is much evidence that the westernization of the world is moving us in that direction. But ethnicity, represented by language, religion, custom, and tradition shows surprising vitality. The dilemma is how to harmonize ethnic differences and national goals with the basic survival and quality-of-life interest of the world population seen as a whole.

The concept of the nation-state deserves special attention by the beginner in global thinking since it appears to be so crucial to current thought on global unity. Nations are essentially a European concept, developed and diffused to the rest of the world largely during the last century. A proliferation of nations has resulted, the newest of which are prepared to live out histories of development similar to those of their older predecessors. Current problems and crises pose so many challenges today to the sovereignty of these nation-states, that only a few can be mentioned.

- multi-national corporations, whose profits and products rarely stay in the nation of location or are to the benefit of its citizens
- trade barriers, designed to protect national currencies, rather than to increasing a nation's or the world's real wealth
- exponential growth of nuclear weaponry to attack or defend in nation-state struggles
- developed nations who guard their relative advantages from being overrun by peoples from underdeveloped nation-states
- effects on world atmosphere, air, water, rainfall, and species maintenance by the industries of one nation, including effects felt by a neighboring nation only

The person today who attempts to think globally using the concept of the nation-state, struggles with these paradoxes, so well clarified by Willis Harman in this issue.

The United Nations is another example of a desirable response in a global direction which has encountered difficulties inherent in its very organization. Although the UN is a world forum, it is a forum of nation-states, whose very nature precludes real effectiveness in dealing with issues on a world basis. There are promising trends, such as the charter of the seas, attention to human rights, international symbol systems, child welfare and the like. Yet, national self-interest is supreme in such matters as economic welfare, ecology, and the threat of war.

New economic realities are also nudging people toward a global perspective, perhaps faster than they wish. Western shock at the use by underdeveloped nations with oil in their territory, of western methods of monopoly and price fixing, has forced a new view of western hegemony. Factory closings and unemployment as a result of successful market competition by other nation-states in such products as cars, media equipment, clothing, etc., have forced attention to the paradox of the free market. Domestic and multi-national corporations are blamed for stagnant industries, unemployment, evaporating fossil fuel stocks, and mineral wealth, and for environmental pollution. Huge national and international financial centers are being blamed for high interest rates, factory closings as the result of mergers, and for speculative purchases. The close ties between national and international corporations and banks have led many to conclude that merely withdrawing within national boundaries won't help. Willy-nilly, attention is being forced outward to confront current economic and financial realities.

The rising awareness of the integrated nature of the world ecology is demanding that our naive thinker consider relationships beyond nation-state borders. Pockets of world famine have alerted people to food shortages. The response has been to ship grain, but it is slowly becoming clear that famine is related to overpopulation. Just as the oil-rich nations will eventually run out of oil, so will the carrying capacity of the rich croplands eventually run out. Many people deplore the covering over of cropland with cement for cities and factories. Far too few people, however, are aware that American land still in use is losing its inherent productivity through loss of topsoil. As Lester Brown eloquently puts it, we will have consumed the productive resource base itself, the land, engaging in the biological equivalent of deficit financing.

Somewhere in our slowly developing awareness, the American conviction that we have a corner on virtue (based on our proud faith in democratic values) needs to be tempered by the realization that support for basic human values is world-wide. As Judith Torney-Purta reminds us, we have been guilty of attributing a kind of willful blindness to cultures whose ideas and practices seemed to us to be undemocratic, our touchstone for all human value. Our first disillusionment has come with the knowledge that our very prosperity and comfort has often depended on the deliberate withholding by other governments of fundamental human rights from their citizens in the interests of production and trade. We have slowly come to realize that other nation-states have ambitions to become prosperous too and in the international struggle to grab a fairer share from the more developed nations they have crushed basic human rights in their own. Although CARE packages, UNICEF contributions, and support for Amnesty International are small steps forward, we may have teaspoons on the one hand and ladlefuls on the other.

If the naive thinker has by now concluded that globalism is not as simple a concept as it first appeared, then this issue of Thresholds will prove timely. In many ways, ordinary people are attempting to think in new and sometimes painful ways about old patterns and concepts. To assist them, the thinkers represented in this issue are trying to apply some fairly sophisticated concepts and theories to current dilemmas. One of the most abstract of these ideas is the concept of the paradigm. The reader has surely concluded by now that a social paradigm, or perspective, or cultural cognitive map is a view of the world so ingrained as to be practically invisible to its holder. A social paradigm consists of those basic assumptions so much taken for granted as to constitute common sense unassailable by reason alone. Elements of the current paradigm of the western world include, but are not limited to, the nation-state, money as profit, the free market, profit as a measure of efficiency, energy-intensive, computerized technology, and centralized government and corporations. Although as Robert Schwartz has shown us the notion of a controlling paradigm has been borrowed from the history of science, anthropologists were also among the first to identify social paradigms. Someone once said that whenever you learn something new you feel as though you had lost something. New paradigms induce nostalgia for the old and there is an emotional attachment to one's world view which is very strong. There is hope, however, for those wedded to the current paradigm--since paradigms are formed by culture, they are malleable and can be re-shaped by the same culture which formed them originally.

Another idea dealt with at a fairly sophisticated level in this issue, is the notion of entropy. Recourse to renewable sources of energy is seen as a way out of an over-reliance on fossil fuels. Laudable as is this direction, we are also being forced to face the possibility that all energy use, even the renewable kind, pays a final price. The concept of entropy, so ably applied to industry and to our information system by Jeremy Rifkin, suggests that although all energy use implies decay and disorder, we have the choice of minimizing entropy. As Rifkin points out, we may have an obligation to future generations not to use up even renewable resources any faster than they can be replenished, since there is no reversibility in the natural world. This long-term concept of entropy is a difficult one to grasp, since the entropy involved in energy exchange is usually not easily seen. His application of entropy to information over-load is stimulating and exciting since it clarifies for many something has long felt intuitively. Dewey said many years ago that it is less important how much you know than how well you can use what you do know. The concept of entropy helps us to see that information over-load requires more energy to absorb information than is released in learning to use it.

In contrast to the dismal picture provided by the concept of entropy, is the buoyant hopeful message from Buckminster Fuller that our daily income of energy from the radiation of the sun and gravity is greater than all the energy used by humanity in a year! He prophesies that a design science revolution, demonstrable through engineering today, using only proven technology and known physical resources, could produce and sustain a higher standard of living for all humanity than has ever been experienced. He is in total agreement that sovereign nations run by big bureaucratic governments and perpetuating themselves through over-specializations of function will never be able to carry out such a revolution. Rifkin and Fuller are not really in conflict. Both suggest that our current way of using energy is wasteful and entropic, and both urge a revolutionary new way of energy use.

Another notion which proves unusually fruitful in thinking about economic, admittedly a difficult subject for most, is the twin polarities described by Hazel Henderson, e.g., the monetarized sector of a society and the non-monetarized sector. The monetarized sector, chiefly concerned with production and profit, is centralized, energy and resource intensive, based on non-renewable energy, organized for profit and accepting of major inequalities between advantaged and disadvantaged groups. The non-monetarized sector, whose main task is the maintenance of the social system on which the monetarized sector so heavily depends, consists of cohesive families, neighborhoods, hospitals, schools, training programs, community volunteering and organizing, and the raising and parenting of children. The monetarized sector levies unacknowledged and mounting social costs. Inflation, unemployment, evaporating fossil fuels and minerals, exploding bureaucracy, overcentralized government and big business are all, in one way or another, cannibalizing the social system itself, as well as the resource base and the environment. As Kathleen Courrier points out, "global commons" matters have an urgency today. Whether we can avoid the inevitable domestic disruption and social breakdown without violence and revolution is a current dilemma. Henderson points to the growing counter economics which serve as local safety nets and also as bridges to a more sustainable society in the future.

A final notion appears at first to contradict common sense. Most people regard being conscious as unitary. If one is not conscious, one is unconscious. Current attention to consciousness, however, suggests that there are many, not one, states of consciousness available to all of us, and that each state has unique strengths and virtues. We are learning that the ordinary state of consciousness is the one in which accepted paradigms are in actual operation, influencing thought and action. We are also learning that certain states of consciousness are more conducive to the flexible, innovative, synergistic and pragmatic thought which is required for changes in paradigms. These ideas are being tested in practice by theorists in the science of mind. At the same time, many people are learning to tap their own variety of states of consciousness in simple, everyday ways. They are experiencing biofeedback, meditation, relaxation and imagery, hypnosis and transpersonal states, parapsychological abilities, therapeutic touch, chanting and movement, to name only a few. This new explicit attention to the way the mind works is valuable, since the mind is the source and test of paradigms. As Thomas Roberts points out, the new skill which is emerging is the ability to select from a variety of states of consciousness the one most adequate for the task. One of those tasks will surely be to work out a new global paradigm.

An undertone of scepticism bordering on despair often colors current discussion of today's problems, whether local, national or world. Many people feel bewildered at the apparent discrediting of traditional wisdom and experience. and the truly giddy pace at which novelty seems to be entering their lives. Some are firmly retreating into past formulas. Many however, retreat instead into cynicism or a kind of nihilism. "There's nothing I can do about it! I'd better get mine while I can." Après-nous, le déluge. Yet, all around us are people who are doing something. These are not people who have deceived themselves into thinking that they alone can change the world, a not uncommon hope of many. Rather, they have adopted the slogan, "Do what you can; but be sure you do all that you can." Most are simply trying to live in new ways. They seem to have selected new ways simply because the new ways feel right. Some are following an old well-established American habit, expressed in the remark, "Put your money where your mouth is." If you profess a value, try to live by it. For the discouraged, these people provide living evidence that, even in an imperfect world, it is possible to begin to change habits and practices. As Duane Elgin has shown us, many testify that one new way leads to another. What began as a simple recycling project, shortly developed into membership in a food co-op. learning to cook and sew, beginning a garden, etc. People are discovering an active network of people living in new ways who were formerly invisible to them.

Further, a society depends for its continuance on the willing cooperation of the great number of ordinary people who support its fundamental values. The unwritten law is the cement holding a culture together, far more powerful than any explicit laws and statements. This notion found its expression in the sixties in the sentence, "What if they gave a war, and nobody came." A revolution is a fundamental alteration in the way people live, and revolutions don't have to occur suddenly overnight.

Awareness is a phenomena which a communication-ridden society is just beginning to understand. There is an exemplary story making the rounds of the informal

network about some monkeys on one of several isolated islands in the Pacific. This story reminds one of Schwartz's account of the emerging theories of science of mind. The evolutionary leap forward becomes believable as a natural event. The story goes that scientists who introduced sweet potatoes as food for the monkeys noticed that one or two began to wash off the sand in the stream to make the potatoes more palatable. For some time the scientists observed that this information was passed on slowly from monkey to monkey in the usual way. But when roughly a hundred monkeys had mastered the new skill, then suddenly all the monkeys on the island were using it. Even more remarkable, shortly all the monkeys in the archipelago were washing potatoes, even though there was no direct way by which the information could have been passed on. There may be some flash point in communication in a society, after which an awareness that for a long period of time was confined to a few suddenly makes itself felt by many. A global perspective is in need of the hundredth monkey. If the monkeys can do it, why can't we?



Recommended Books for Educators to Read

- Anderson, L. F. Schooling and citizenship in a global age: An exploration of the meaning and significance of global education. New York: Simon and Schuster, 1980.
- Barnet, R. J. The lean years: Politics in the age of scarcity. New York: Simon and Schuster, 1980.
- Becker, J. M. (Ed.) Schooling for a global age. New York: McGraw-Hill Book Co., 1979.
- Brown, L. R. The twenty-ninth day. New York: W. W. Norton Co., 1978.
- Brown, L. R. Building a sustainable society. New York: W. W. Norton Co., 1981.
- Clarke, A. C. Profiles of the future. New York: Harper and Row, 1972.
- Cornish, E. S. The study of the future: An introduction to the art and science of understanding and mapping tomorrow's world Washington, DC: World Future Society, 1977.
- Courrier, K. Life after '80: Environmental choices we can live with. Massachusetts: Brick House Publishing Co., 1980.
- Elgin, D. Voluntary simplicity: Toward a way of life that is outwardly simple, inwardly rich. New York: William Morrow and Co., Inc., 1981.
- Ferguson, M. The aquarian conspiracy: Personal and social transformation in the 1980s. California: JP Tarcha, Inc., 1980.
- Fuller, R. B. Critical path to an all-win world. New York: St. Martin's Press, 1981.
- Graves, N., Dunlop, O. J. & Torney-Purta, J. Teaching for international understanding. Paris: UNESCO, 1982.
- Harman, W. W. An incomplete guide to the future. New York: W. W. Norton and Co., 1979.
- Henderson, H. The politics of the solar age: Alternatives to economics. New York: Doubleday, 1981.
- Keys, D. Earth at OMEGA: The passage to planetization. Boston: Branden Press, 1982.
- Laszlo, E. A strategy for the future: The systems approach to world order. New York: George Braziller, 1974.
- Masuda, Yoneji. The information society as post-industrial society. Japan: Institute for the Information Society, 1980.
- Mische, G. & Mische, P. Toward a human world order: Beyond the national security straitjacket. New York: Paulist Press, 1977.
- McRobie, G. Small is possible. New York: Harper and Row, 1981.
- O'Neill, J. K. 2081--A hopeful view of the future. New York: Simon and Schuster, 1981.
- Rifkin, J. Entropy: A new world view. New York: Bantam Books, 1980.
- Satin, M. New age politics: Healing self and society. New York: Dell Publishing Co., 1978.
- Stokes, B. Helping ourselves: Local solutions to global problems. New York: W. W. Norton and Co., 1981.
- Theobald, R. Beyond despair: Directions for America's third century. New York: The New Republic book Co., 1976.
- Toffler, A. The third wave. New York: William Morrow and Co., 1980.

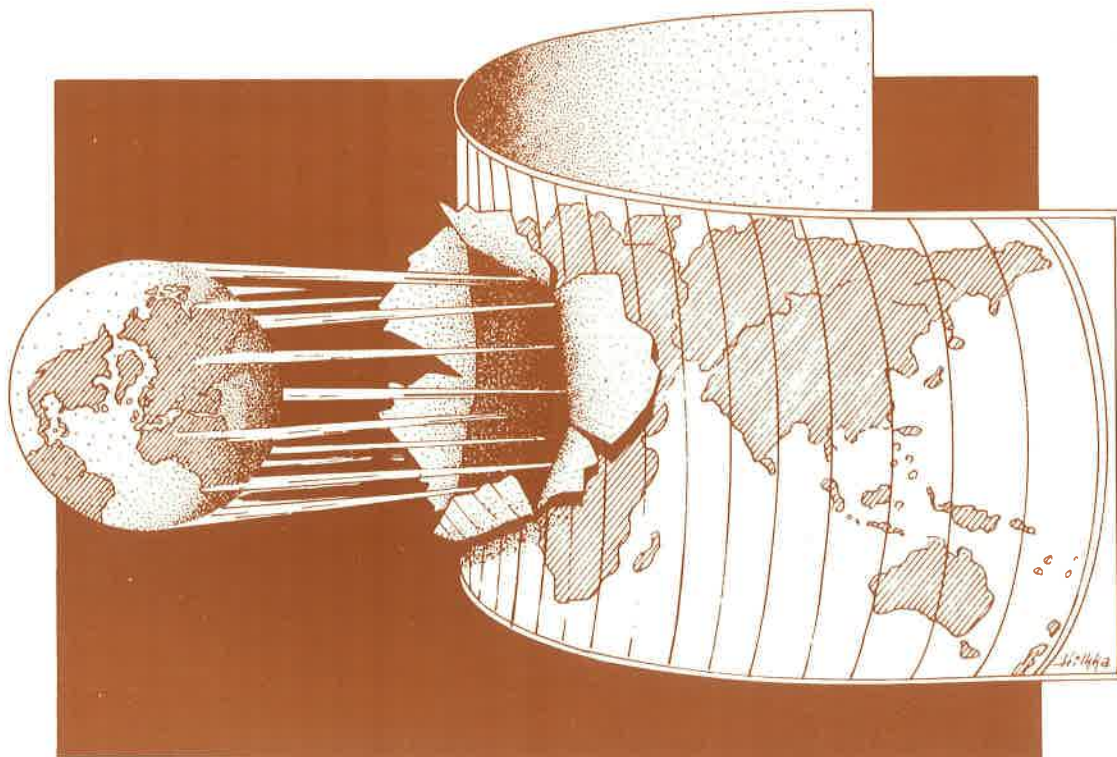


Microcomputer Software Fair

The College of Education at Northern Illinois University is sponsoring a Software Fair on Wednesday, April 27, 1983, 9 am to 4 pm in the Ballroom of the Holmes Student Center. The purpose of the Fair is to introduce teacher educators, teacher education students, teachers, and administrators to the software that is currently available for instructional purposes.

More than 50 exhibitors will demonstrate software throughout the day. There will be several series of demonstrations that will focus on instructional areas: social studies, mathematics, science, etc. At the same time there will be a mini-conference on topics related to computer education such as selection of software, criteria for selecting hardware, instructional strategies for using software with elementary and secondary students, etc.

There is no charge for participants. Teachers and administrators are invited to attend. Refer questions to Howard Swan or Pete West, College of Education Learning Center (815/745301241) or Louise E. Dieterle, Associate Dean (815/753-1949), College of Education, Northern Illinois University, DeKalb, Illinois 60115.



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