

# Some Thoughts on Sustainability

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*One of the penalties of an ecological education is that one lives alone in a world of wounds. Much of the damage inflicted on land is quite invisible to laymen. An ecologist must either harden his shell and make believe that the consequences of science are none of his business, or he must be the doctor who sees the marks of death in a community that believes itself well and does not want to be told otherwise.*

—Aldo Leopold, *Round River* (1953)

**M**ost people are keenly aware that neither individuals nor their government can long allow dollar expenditures to exceed income, yet this principle is usually (and perhaps conveniently) ignored when applied to utilization of natural resources. This strange inconsistency assumes enormous importance in any strategy that might be devised by conservation biologists and other concerned citizens in attempting to bring the United States and other developed nations into a mode of sustainable resource use.

Although it is surely prudent to be honest with ourselves in such matters, there is little comfort to be gained by acknowledging the enormity of forces which, in the pursuit of short-term financial advantage and stockholder satisfaction, will actively and steadfastly oppose any major effort to limit use of natural resources. An example here is provided by the reluctance of the timber industry and timber-dependent communities to restrict operations on old-growth forests, although they are keenly aware of the finite nature of the old-growth resource.

All one need do to become a realist in this respect is to review daily stock market reports in a major newspaper.

The various corporations listed (and there are thousands) primarily operate to achieve maximum corporate profits, with relatively little thought being directed to the long term. It is ironic how, at this stage of societal evolution, we find ourselves torn between two of our most basic motivations: greed and self-preservation. In contemplating our future in this respect, one may be either optimistic or pessimistic, depending upon one's mood at the time. On bad days there is a real tendency to assume that there is no hope, and that we had just as well "chuck it all." Then, upon a moment of sober reflection, we recognize the total unacceptability of such a po-

sition. This may prove to be the greatest challenge yet faced by humankind, and we have no reasonable alternative but to try our best. The stakes are just too high to do otherwise in a matter that will so profoundly affect all future generations.

Further complicating the issue is economic competition between nations, a number of which build economic activity around a principle of "Maximize profits in the exploitation of a resource and, when that resource is gone, shift to something else." Examples of this may be found in the attitude of Japanese industry toward tropical rainforest destruction and commercial exploitation of whales, or our own attitude toward old-growth forests. The problem of achieving sustainability obviously transcends international boundaries and becomes global in nature.

Because of the huge amounts of money involved, and the ability of money to influence the political process, it stands beyond the realm of probability to expect meaningful sustainability legislation to be enacted by the U.S. Congress or, for that matter, any world legislative body. Rather, it will need to begin at the grassroots level. Public education, therefore, assumes a role of enormous importance.

The nature and direction of public education is of course of paramount importance here.

When I began my career in fishery science 40 years ago, society looked to science as a means of solving both societal and technological problems. This, however, has turned out to be a two-edged sword. Science has indeed produced many advances for the ben-

efit of humankind, but in so doing has elevated developed nations to a bloated standard of living that obviously cannot be continued and expanded indefinitely. This is especially true when viewed in light of the explosion of worldwide population, which is expected to double again by the midpoint of the 21st century. Ironically, we now find ourselves turning, not to scientists, but to philosophers in an effort to evolve a value system within the developed nations that will allow us to be satisfied with less consumption as we work toward implementing a sustainable future. Again, the process will not be an easy one. At this writing (late September) commercial television is already gearing up for Christmas advertising, with a primary target being young children. Once established, an escalating standard of living becomes extremely difficult to change. If a reader should question this statement, think for a moment how *you* might react to a reduction in *your* standard of living or a change in *your* lifestyle, then try to anticipate the reaction of the average American citizen, the great majority of whom are not finely tuned to resource and environmental issues.

During the recent past three excellent and highly relevant books have come to my attention and have served to sharpen my thinking relative to sustainability. They are: *The Death of Industrial Civilization* by Joel Jay Kassiola, *Envisioning a Sustainable Society* by Lester W. Milbrath, and *Ecological Literacy: Education and the Transformation to a Postmodern World* by David W. Orr, all components of a State University of New York Press Series in Constructive Postmodern Thought. The latter two

volumes speak extensively of the role of education in achieving our goals. Orr (1992, p. 84) states the problem succinctly:

I see no prospect whatsoever of building a sustainable society without an active, engaged, informed, and competent citizenry. The environmental movement is almost without exception one in which citizens forced governments and large economic interests to do something they were otherwise not inclined to do. It is quite literally a democratic movement, but it will not necessarily remain such without an unwavering commitment by educational institutions to foster widespread civic competence.

He states the problem of attaining sustainability as one not only requiring a massive educational process, but also one requiring a change in our educational system. This is a concept with which I fully agree (Pister 1992) if we are to produce leaders capable and willing (in the words of Aldo Leopold and reiterated by Orr) to “think at right angles” to their particular specializations. To accomplish this will require a broadening of undergraduate curriculum to encompass a diversity of educational input, lest our educational institutions remain essentially technological factories producing missiles without guidance systems.

Perhaps a personal anecdote might serve to expand upon this point. When I enrolled in A. Starker Leopold’s curriculum in Wildlife Conservation at Berkeley more than 40 years ago, I found that it was included within the College of Letters and Science. Fortunately for me (although I could not really comprehend its signif-

icance at the age of 19), I was required to spend virtually the entire first two years taking courses in English and speech, philosophy, music, economics, foreign language, history, and other broad disciplines, most of which seemed utterly worthless to me at the time. When I registered my concern over this, Starker arranged an appointment for me with the Dean of Letters and Sciences, Alva R. Davis. Perhaps in his late 60s at the time, he listened thoughtfully to my sad tale of woe and responded essentially as follows: “I understand what you are saying. I have heard the same story many times before. But trust us. We (speaking for his colleagues in the humanities) have been in the business of refining the educational process for thousands of years. We think we have a good idea of what produces an educated person, and we feel it’s more important that your education here at Berkeley make your life than your living.”

Even at the tender age of 19 I could understand the message Dean Davis was trying to convey. His wisdom had much to do with the fact that I am writing this essay, and in retrospect it is clear that my exposure in early years to a broad humanities curriculum was paramount in establishing the values that have since directed my life, values that tell me unequivocally that sustainability in the long run is vastly more important than short-term material gain. Starker (Aldo Leopold’s eldest son) was a chip off the old block. I was taught early on to “think at right angles” to my area of specialization. The different drummer I began to hear more than 40 years ago now has me (in retirement) writing es-

says concerning the need for sustainability, whereas many of my colleagues from university classes produced essentially in the two decades following World War II are dead (either literally or figuratively) or playing out their remaining years in tour buses or golf courses. Studies in ecology or environmental philosophy were essentially yet unheard of, and consequently many graduates of that era are finding it very difficult to accept, or to fully understand, such relatively new concepts as conservation of biological diversity.

But identifying or attributing educational shallowness to a particular era of history has its shortcomings. Inertia is universal and not restricted to a particular age group. When my former freshman chemistry professor, Joel D. Hildebrand, reached the age of 100 (he published more than half of a tremendous legacy of scientific papers following "retirement" at age 70), he remarked to a reporter that he had read a dictum that little creative work can be expected from a person after the age of 35. He continued that this is surely true, because very few persons do anything creative even before 35! When I communicated my best wishes to him on the occasion of his first 100 years, he responded with a note penned in the margin of a *Science* reprint which described his latest paper, published just before his 100th birthday in 1981, concerning the state of hydrogen in liquid metals. But Hildebrand's science was only a part of his life. He was an advocate and outstanding example of the benefits of a subject-oriented liberal education which allowed his vision and values to expand well beyond his field of spe-

cialty. He could speak authoritatively in the fields of music, art, and literature as well as on molecular interactions in solutions.

Equally important to the educational process (and definitely a part of it) is the inculcation of a value system which minimizes emphasis on material gain. I once read that a person's wealth is best measured by those things which he is content to be without. Socrates put it this way: "He is richest who is content with the least, for content is the wealth of nature." At this time of year (fall) we find our mailboxes jammed with mail-order catalogs all competing for whatever discretionary funds we might have available. Some of the items offered are truly amazing, along with accompanying rhetoric designed to intimidate the reader into the belief that the neighbors will really look down their noses at you if you do not own a Swiss-manufactured gong for your front room (\$795); a \$1,450 replica of an 1890s popcorn cart; a \$2,995 authentic, restored Coca-Cola cooler; or a \$4,000 pedal-powered model of a World War II fighter plane for your children to show off to their friends—a strange and tragic way to show one's love for a child! "As the twig is bent, so grows the tree"—and society!

But as in virtually all situations in biology and in many in society, the future is perhaps best judged by the strength (and values) of the youth, in our case *Homo sapiens*. We may gain much hope from the optimism, fresh thinking, and idealism of our emerging generations.

I have a friend, Noah Moyle, who on June 13, 1992 presented a commencement address to his fellow

graduates at Davis (California) High School, entitled "Shaping a New World." Let me share some of his comments with you:

We are all artists and builders, shaping our individual lives, minds, and destinies. Always we must keep in mind the way we wish to turn out, to what shape and end we wish to grow.

I have a vision, a dream of our world, the earth. Clean cities glittering in clear, unpolluted air, the buildings melting seamlessly into ancient forest and well-managed fields. Electric trains and cars drinking energy directly from the sun as they hum quietly over the few roads and highways that still exist. The population is stable, and people have learned to be tolerant and patient, seeking happiness through knowledge each day in their long, peaceful lives. It would be the end of ignorance—a society based on sustaining itself and the earth for the future, for eternity. I can see it. I believe it can happen, and I urge you, my fellow DHS graduates, to think with me tonight, and listen to my thoughts.

I think we can all agree that our society, here in the United States, has been steadily declining in many ways over the years. Morality is an endangered species. Generations of kids are brought up in crowded cities of concrete, completely unaware of how the earth looks in its natural, wild state. This planet suffers under the strain of mankind. Ozone depletion. Brown, carcinogenic air. The rainforests, source of the world's oxygen—our breath—

being annihilated at a frightening rate. Population is screaming way out of control, and rising crime rates and violence even among youth tell of a deeply rooted cancer within the people themselves.

The meaning of human existence has become clouded, blurry. Everywhere we turn there is hate, pollution, and ignorance. People live long lives, seldom having to worry about premature death; yet, they are vaguely unhappy at the same time.

Once, human existence was simply a struggle to survive, to get enough food for the winter months, to have a child that endured past adolescence. That struggle was what gave meaning to people's lives. Then came the rush for industrial revolution—technology—and with that, the world we know today.

Technology has allowed for great advances in human knowledge and thought. Cultivation, vaccination, space-exploration—used wisely, technology is a powerful tool for furthering human understanding. Yet today we find that greed has perverted most of the positive reasons for which technology should exist. We have reached the point where our waste-bloated factories, pesticide-laden farms, and short-sighted timber companies are giving us far more irreversible damage than short-term comfort.

Any person who understands "nature" or "the wild" as the fundamental source of human inspiration and thought takes the term "technology" very, very seriously.

We all came from the wild. We thrive in it. It is our home. And each day, we see more and more pristine wilderness ground up underneath the razor-sharp cutting blades of machines. Machines designed to scrape the land into submission, to mold wilderness into grotesque subdivisions and gaudy shopping malls. Entire species go extinct, eliminated forever from the face of the earth, every day. We play God and decide what should live and what should die, irreversibly, forever altering the course of evolution.

And it is not enough that we have behemoth machines with which to mold the earth. We also have television, to plant powerful suggestions in the fertile soil of unused minds, to bludgeon individuality into oblivion. The craving for leadership most humans feel is now mainly satisfied by a glowing blue box which feeds off its own prescription of empty values and shallow morality. It is little wonder our current leaders are no better than glorified actors. It is little wonder so many “anti-utopian” authors write of television dominating people’s lives.

Yet, fellow graduates, on this night of our graduation from high school, as we dive headlong into summer and the great unknown, I tell you there is hope. We are young, idealistic. It is never too late to evoke change. And that is what the world needs now more than ever before. The earth, once a vast, slow sculpture of the forces of nature alone, is now being blindly carved by mankind. Just as we must

each work on the sculpture called “myself,” we must all together plan the sculpture called “The World.” We must gather a picture of our collective thoughts of how we wish the earth to be, of what kind of people we wish to become.

The creation of a human society which peacefully, harmoniously co-exists with all other life on the planet is our only chance for permanent survival as a world. The poet and former logger Gary Snyder has said: “Challenge the habitual modes of thought.” It is of dire necessity that we transform our present dim-sighted system of thought and action. Always keep in mind what you are sculpting, what shape you are giving yourself. When material gain is gone, you will still have the most precious of all commodities—your mind.

Together, with strong will and clear, patient vision, we can shape a new world. It is entirely up to you and to me, fellow graduates, fellow sculptors.

We may gain strength from the knowledge that there are many within Noah Moyle’s generation who share his thoughts and ideals. They can and will turn this nation around if “the establishment” will step aside and let them do it. Doing so will not be easy, but change to a sustainable society must and will be accomplished. Perhaps Max Planck (1950) said it best: “A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it.” And as I see it, the

sooner the better! Thank you, Noah, and your generation. Somehow I have the distinct feeling that you will do a much better job than we have!

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