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Pages 1 to 7, inc. of this issue of the Reprint Mailing is devoted to the following transcript of the presentation made by Congressman George E. Brown, Jr. at the symposium ECOLOGY: IN SEARCH OF A NEW ETHOS, sponsored by Laucks Foundation on October 30, 1989, at the University of California, Santa Barbara.

THE CROSS PRESSURES OF ECOLOGY AND TECHNOLOGY:  
THE POLITICAL DIMENSION

by

George E. Brown, Jr.

Let me start out by quoting Paul Valery in an article he wrote fifty years ago called, "Freedom of the Mind". He said, "Whatever may be the origin, the cause of its curious divergence, the human species has set out on an enormous adventure, whose aim and end it does not know and whose limits it imagines it can ignore." Fifty years later, we are at this meeting to examine the present and future course of that enormous adventure and whether we can continue to ignore the limits which nature, or God, has set on it. As has been indicated, I have spent a good deal of my time in Congress working on the impacts that technology and technological change have had on society. I have made my humble attempts to improve on that process. I have spent more than twenty years seeking to improve our process of technology assessment in Congress, and I continue to serve on the board of directors of the organization which we call the Office of Technology Assessment. And I make lots of speeches at conferences like this one trying to do something about alleviating the impact of modern technology. Unfortunately, this effort has not really changed the world all that much. It hasn't improved the global environment; in fact, you can say that just the opposite has occurred.

Last week I participated in a little social event in Washington, at which some of the organizers of Earth Day twenty

years ago were present. Some of you are old enough to remember Earth Day twenty years ago. They were planning the observance of an anniversary for next spring. It was a rather nostalgic meeting. There was still a lot of hope, but there was a very keen awareness that in the past twenty years the health of our global ecology has grown massively worse, by every index by which it can be measured. Nor do we have in sight any evidence that this curve of global despoliation will make a turn for the better. Most of the world's leaders are now aware of the global ecological catastrophe in process and are making the proper statements to assure their constituents of their concern. Margaret Thatcher, in a speech to the British Royal Society last fall, put it better than most of our national leaders, when she said, and I will quote from her speech to the Royal Society: "For generations, we have assumed that the efforts of mankind would leave the fundamental equilibrium of the world's systems and atmosphere stable. But it is possible that with all these enormous changes--population, agricultural, use of fossil fuels--concentrated into such a short period of time, we have unwittingly begun a massive experiment with the systems of this planet itself."

Mrs. Thatcher recited the usual litany of global ecological change now so familiar to almost all of us, and then stated her government's policy, and again I quote: "The Government espouses the concept of sustainable economic development. Stable prosperity can be achieved throughout the world, provided the environment is nurtured and safeguarded. Protecting the balance of nature is therefore one of the great challenges of the late twentieth century and one in which, I'm sure, your advice [referring to the Royal Society] will be repeatedly sought."

Unfortunately, you can find similar statements from George Bush, Mikhail Gorbachev and most of the other leaders of the world-- free world or non-free world. Yet when confronted with a choice between continuation of the present path of economic development, with all of its environmental despoliation, and a change in the course of development involving less destruction, continuing the present path of development wins every time. Not only with the political and corporate leaders, such as Mrs. Thatcher and others I can quote, but with the mass of the people in every country. And I say this with full awareness of the growing strength of the "green" parties in many countries around the world. When the mass of the people are confronted with the choice, in terms in which they're generally presented--jobs or better environment--they go for the jobs.

We are dealing today with the subject of technology and its impact on the environment. As I say, this is today the stuff of global politics. But we must be wary of defining the issue too narrowly. The unfettered and uncritical use of technology can destroy the global environment. The same kind of use, uncritical and unfettered, can also destroy human society in the event of another nuclear war. It can also change the nature of global

society; it can reduce freedom, equality, justice and hope for the majority of people on the planet. This is the theme I was hoping we could hear from Ivan Illich [who was unable to attend the meeting], because he has probably said as well as anyone else I know of today what the mechanization of society does to human beings.

Long before the current wave of concern for the effects of technology on the global environment, there was serious concern for what technology was doing to work, to religion, to education, to social structure, and to human goals and human values. Jacques Ellul, the French lawyer-philosopher who wrote The Technological Society in the early fifties, (and his book is widely quoted) described the way in which an autonomous technology is in process of taking over the traditional values of every society, without exception, subverting and suppressing those values to produce at last a monolithic world culture in which all non-technological difference and variety are mere appearance.

Dozens of others in both the United States and Europe including Illich--and some people in this room--have written similar critiques. E.F. Schumacher, well known to several of us here, has made the point that, in the first instance, it is society which defines and develops technology. After that initial phase, it is increasingly technology which defines society. That is the nature of the world that we have today. It is a world made miraculous and marvelous for some. For others, it's a world of hunger and poverty. For all, it is a world in which human dreams, aspirations and values are increasingly shaped by the technological tools that we use. And for all, it is a world of increasingly serious environmental and natural resource problems resulting from the unplanned application of technology.

Is there any room for optimism, after this litany of gloom? Possibly, a very small glimmer. That glimmer comes from the very fact that there is today a global awareness of how badly we have failed, and a global awareness that there are no solutions which do not involve every country, every society and ultimately every person on earth. We now are aware of that. We know that it gets back to each of us as individuals, and then to every level above that. We must now subject technology to the true measures of sustainability, which, at the very minimum, means measuring its contribution to truly human values and to leaving this planet to our children in a condition better than it is today.

A dialogue on these issues is reflected in a growing body of literature today, some of it of high quality. Major news weeklies feature the global ecology. An entire recent edition of Scientific American was devoted to these issues. Professional journals in law, medicine and theology contain articles about "responsible" or "ethical" or "sustainable" technology, that seek to develop the proper definitions for these terms. There are scientific and economic resources available to deal with the problems which confront us. Current agricultural technologies are adequate to produce enough food for the world's population.

Tomorrow's technologies, such as biotechnology, will further expand that capability. The economic resources of the world today are also adequate to deal with problems, even those as serious as the crushing Third World debt. The missing element is the political will to bring the resources of these two sectors--the economic and the technological--into proper focus.

One of the best observations recently on this situation has come from an unlikely source. In a speech before the Foreign Policy Association in New York a few weeks ago, Soviet Foreign Minister Edward Shevardnadze observed, and I'm quoting from him, "...radical, bold steps are needed. A kind of New Deal, a transition to a policy that would draw the developing countries into the scientific, technological and information revolution. It will be necessary to overcome a certain psychological barrier, to go beyond national concerns and to start thinking in global terms." As he observes, the challenge facing us in the political area is to recognize the reality that we have created a global community which is bound together by our technological and economic relationships. In the world of technology and economics, we have moved far beyond our outdated political perceptions and arrangements.

Politics is sometimes, at its best, the practical application of ethics. In political decisions, we are called upon to balance the needs of all citizens. We're expected to rise above the narrow needs of our constituencies and set policies which will benefit the entire nation and even the globe. We are supposed to consider the short-term gain against the long-term prosperity and sustainability of our system. However, only rarely do the narrower, more immediate political pressures get set aside in favor of the ethical considerations of a global or long-term nature. And in most countries, especially those with free market economies, the future is rarely given equal bidding with the present in the marketplace. We speak of the self-correcting mechanisms of the marketplace, or believe the arguments of scientists who speak of value-neutral technologies. All of this has to change if we are to achieve a political future which will take full advantage of technology for all mankind and provide for every person the opportunity to become a part of the future we create together. How do we achieve this?

What is needed at this juncture in the course of human history is a fundamental, worldwide reappraisal of the role of technology in our lives. We need to ask ourselves, "What is it we want from technology?" Our goal should not be simply to create more complex contraptions or to satisfy every materialist urge. We should not simply strive to improve our standard of living or generate new economic growth for their own sakes, I might say. We need to remember, as Capra observes in the book The Tao of Physics (which I still like to read once in awhile): "Those who accumulate more and more money in order to increase their wealth

will end up being poor. Modern industrial society which is continuously trying to increase the standard of living, thereby decreasing the quality of life for all its members, is an eloquent illustration of this ancient Chinese wisdom." He was quoting from the Tao in the first line.

We no longer have the luxury of ignoring the fundamental consideration of sustainability. Are today's technologies satisfying the needs of today's developed societies without diminishing the prospects for satisfying the needs of those in less-developed countries, or for future generations? That's what sustainability means. Clearly, what we are doing today is not sustainable. The concept of sustainability must be global and will thus involve some very painful trade-offs for developed countries. We will have to divert scarce domestic resources to other countries to enable them to reach the first step toward sustainability, which is food self-sufficiency. If we are successful, this will cause economically important overseas agricultural markets to disappear. This may cause temporary disruption for grain traders in developed countries and place political pressures on national governments, pressures which must be resisted.

On that point I have a quotation from the last publication of UNCTAD, (United Nations Conference on Trade and Development), a United Nations organization that deals with trade and agriculture, which pointed out that we were shipping wheat to tropical countries which couldn't grow wheat, and in the process of doing so, we were destroying their capability of continuing to grow their own native sources of carbohydrates and other foods. And, in order to do that, of course. American farmers were expanding their production of wheat on submarginal lands, and in the process, we were ruining both the American environment and the structure of societies in the tropical areas of the world. That's a perfect example of a non-sustainable technology, and it can be multiplied many times over.

If we are to adopt the concept of sustainability, we also have to reconsider one of our most fundamental attitudes toward the development and application of technology--which is the use of technology to dominate and change nature. As Aldo Leopold observed in A Sand County Almanac, "By and large our present problem is one of attitudes and implements. We are remodeling the Alhambra with a steam shovel and are proud of our yardage. We shall hardly relinquish the shovel, which, after all, has many good points, but we are in need of gentler and more objective criteria for its successful use." How do we develop this concept of sustainability and gentler and more objective criteria for the use of technology? How do we in politics develop support for policies which incorporate a longer and broader perspective? How do we help our society overcome what Mr. Shevardnadze called "a certain psychological barrier?"

We may be making a start at conferences like this. Key

opinion leaders need to begin to explore the ethics of the technology which shapes our world. As Holmes Lawston said in a recent article, "Anyone who releases power in the world has an ethical responsibility." The leaders of our society must be made aware of the political realities which endanger a global community which has been joined by technology. They must be convinced that transnational technology and economic arrangements can be very easily disrupted by global political instability. We must begin to instill in these leaders a sense of the interconnectedness of our global society and to seek to develop a sense of enlightened self-interest. Enlightened self-interest would not have American wheat farmers ruin American farmland to destroy the society of a tropical country by providing them with wheat to meet their very real hunger needs, when we could help them through a better quality of casabas, for example. And we're not doing that.

This means that researchers must take social needs into account much earlier in the process of developing new technology. A promising discovery which replaces farm labor with technology may have minimal adverse effects in the United States today, where only two percent of the population is engaged in farming. It would have had much greater effects 50 years ago. But what about the population in a developing country which has mostly rural and farm residents and no way to absorb those surplus workers which this new agricultural technology would displace? Does this mean that the scientists faced with the adverse consequences of a technology which might improve food production should give up? Is the individual scientist responsible for all the world's woes? Of course not! But we should develop a system of assessing these technologies much earlier than we currently do, so that we can plan for the change and help those who will be displaced.

We must create a mechanism through which we can join together to systematically evaluate the needs and resources of the globe as a whole. We need, through such entity, to evaluate and discuss emerging technologies and plan for their application. We need to anticipate any serious adverse impacts and build those into the technology's development. We also need to begin to speak of North-South technology exchange rather than technology transfer and recognize the valuable resources which developing countries possess.

I won't belabor one of the examples of this which I had here, but I'd just like to mention that today there is a growing concern about the depletion of global genetic resources. Most of these genetic resources are in the so called "developing" world. And we very badly need those in the developed world, and we're beginning to see that. It would be to our advantage to give adequate recognition to the value of these resources in our dealings with the developing nations of the world. We're a country whose entire stock of native plant genetic material is

limited to a few things like sunflowers, blueberries, and a few other minor crops. It's amazing to me that we cannot see the importance of international dialogue on this matter of exchanging germ plants and resources, which are, after all, part of the common heritage of mankind.

Success in the development of a transnational mechanism to evaluate transnational technologies would be hard to come by. It means the developed countries must be willing to share certain decision-making processes with those affected by those decisions--something that we don't even do here in the United States with our own people. But if we do not adjust, non-aligned country resentment can emerge in any number of other kinds of activities. There are a number of important international conferences in which the Third World holds the majority of the votes, and one of those, which has been a great interest of mine for a number of years, is the so-called World Administrative Radio Conference, which allocates radio spectrum and orbital slots for satellites. And the Third World, if treated unfairly with regard to things like genetic resources, might very well decide to insist on certain fundamental rights with regard to the assignment of radio frequencies and orbital slots, which would really screw up our global television system in this country.

I hope that the debate and the dialogue which we are encouraging at this conference can continue. I will, of course, continue them in my work in the Congress, even though I feel tremendously frustrated at times. What encourages me is the philosophical concept that I began with, that the human race is on a grand adventure. We don't know where it's going. We hope that it will turn out all right, but nobody gives us a guarantee. This allegory, incidentally, is one of the oldest in human literature. It speaks to an eternal search for knowledge of the infinite. Because of the persuasiveness of this image, I have long been convinced that the search is worthy in itself. The struggle is worthy--in itself the journey. And it commands the best in all of us, whether, in the short run, we achieve success or enlightenment, or not.

In this spirit, let me conclude with what for me has been the oldest such quotation that I have been able to find. It's from the Rig-Veda about 3,000 years ago, and I like it. I don't know whether you will or not. It says, "That which gives sustenance to the universe and to ourselves, from which all doth proceed, and to which all must return, That thou art. In the golden days of thy earthly body, may the pure life of the spiritual sun shine forth, that thou may know the whole truth and do thy whole duty on thy journey back to the sacred sea."

And that captures the sense of journey which I think that we're all involved in, and the fact that it's a spiritual journey. And if we don't get that message before long, we probably won't solve the problems that face us.

## The Virtue of Conservation Education

At a recent gathering of D.C. environmentalists the prevailing wisdom held that the public could not be led to a survivable future with moral arguments, but only by those that appealed to short-term economic self-interest. This is a widely held opinion and one that raises a serious question for conservation educators. Is conservation primarily a technical subject with minor moral implications, or is it fundamentally about morality with technical aspects? If the former, then having equipped our students with a thorough grasp of the pertinent scientific disciplines, the technological basis of efficient resource use, and a bit of economics we may regard our duties as educators adequately discharged. If the latter we must do all of the above *and* enable students to think clearly about (what was once without apology called) virtue and motivate them to live accordingly. The difference between the two is partly that between reform and perestroika. It is a difference in whether one thinks that with the right technologies and prices we will make an orderly transition to the condition of sustainability, or whether we will make it, if we make it, by the margin of a gnat's eyebrow with the four horsemen in hot pursuit. On grounds of prudence and my reading of the evidence I am persuaded of the latter and hence of the need to think seriously about the relationship between sustainability and the human qualities subsumed in the word "virtue."

But what is virtue? Philosopher Alasdair MacIntyre (1981) believes that the modern world suffers from moral amnesia, the vague awareness

of a deficiency of virtue that we can no longer describe. To understand virtue he argues that we must return to its ancient roots for "the tradition of the virtues is at variance with central features of the modern economic order and more especially its individualism, its acquisitiveness and its elevation of the values of the market to a central social place."

As it was understood in the ancient world, virtue was founded on the bedrock of community. One's virtue was inseparable from one's life within a community. From this perspective, in MacIntyre's words, "The egoist is thus . . . someone who has made a fundamental mistake about where his own good lies." Robert Proctor (1988) has made the same point in a remarkable book, *Education's Great Amnesia*: "The ancients . . . conceptualized and experienced their humanity not as separation, but as participation in the whole order of being." Virtue was regarded, first, as an exercise in participation and fulfillment of the obligations of membership in a community that was embedded in a larger cosmic order.

A second aspect of ancient virtue was the quality of moderation, in Cicero's words, "the ability to restrain the passions and to make the appetites amenable to reason." Moderation as Aristotle defined it was the mean between extremes of excess and deficiency that could be defined by a person of practical wisdom. Virtue, for Aristotle, is chosen through the exercise of reason. "It is not possible," in his words, "to be good in the strict sense without practical wisdom, nor practically wise without moral virtue." In other words,

virtue is the result of choosing intelligently between extremes.

Third, for the Greeks and Romans virtue was never separated from politics and from participation in the civic life of the community. For Aristotle the cultivation of virtue was both a goal of politics ("to engender a certain character in the citizens and to make them good and disposed to perform noble actions") and a prerequisite for civic order, because no good community could be built by people without virtue. Modern politics has rejected that tradition, replacing authority based on virtue with scientific management and public relations.

In the ancient world virtue also meant the cultivation of qualities of courage, fortitude, honesty, restraint, charity, chastity, family, personal rectitude, integrity, and reverence. However imperfectly these were realized in practice, they provided the standard by which people judged themselves and the social order. The fact that this list sounds archaic to the modern ear is an indication of how far we have gone in the contrary direction. Modern societies are increasingly operated by and for that subsystem called the "economy," the same economy that, as Lewis Mumford once observed, converted the seven deadly sins (pride, envy, anger, sloth, avarice, gluttony, lust) into virtues after a fashion, and the seven virtues (faith, charity, hope, prudence, religion, fortitude, and temperance) into sins against gross national product. The dependence of the economy on sin is a fact only infrequently studied by economists. Sin, a contentious subject, has been replaced with the

more socially agreeable doctrine that all things are relative so that anyone's opinions or behavior are as good as those of any other, or at least not much worse. But lacking the qualities of virtue, can we do the hard things that will be necessary to live within the boundaries of the earth?

I think not, first, because people lacking a sense of community that undergirds the practice of virtue are not likely to care how their actions affect the larger world in any but the most superficial way. Can we expect rational maximizers of self-interest, who discount the future interests of their own children and grandchildren, to be moved by their kinship to bugs and biota? Not likely. Virtue as Aristotle and Cicero described it was founded on a kind of moral ecology (albeit one that excluded lots of people); an awareness of mutual dependence. Lacking this sense, people are not likely to care deeply enough to join the constituency for change that must finally think, live, and vote differently. People who regard their welfare narrowly are unlikely to support large scale social change when it costs something. Hence without a virtuous public that cares deeply about the protection and enhancement of life, there will be no constituency for hard choices ahead and for the policy changes necessary for sustainability.

Second, sustainability will require a reduction in consumption in wealthy societies and changes in the kinds of things consumed toward products that are durable, reusable, useful, efficient, and sufficient. This will come about by enough people choosing to consume less or by scarcity imposed by circumstances and enforced by authoritarian governments as Robert Heilbroner once predicted. It will not come about by putting band-aids on potentially terminal wounds, making plastics that are biodegradable for example. If we are not to turn the earth into a toxic dump or bankrupt ourselves by expensively undoing what should not

have been done in the first place, moderation must replace self-indulgence. The appetites, as Cicero put it, must be made "amenable to reason," which for us means making them less amenable to advertising and television.

Third, a great deal has been said about the potential for least-cost end-use analysis that hitches narrow economic rationality to the efficient use of resources with better technology. This is all to the good. But problems arise when that same economic rationality causes consumers to observe that least-cost is not the same as full-cost. For example, the fully informed consumer armed with least-cost reasoning would certainly choose to buy compact fluorescent light bulbs that have lower life-cycle costs than incandescent bulbs. But the same narrow economic rationality would cause them to refuse to pay higher utility costs to clean up nuclear wastes and decommission reactors used to generate the electricity that is used with greater efficiency. At this point economic rationality stops and virtue begins. Least-cost reasoning applies to those costs that must be paid now; full cost applies to those that can be put onto others or deferred to future generations. Only people who take their obligations seriously, people of virtue, would willingly pay the full costs of their actions or even demand to do so.

Fourth, it is implausible, as E. F. Schumacher once noted, that we can systematically cultivate pride, gluttony, lust, avarice, sloth, envy, and anger and remain intelligent. The seven deadly sins are sins in large part because they corrode the intellect. Virtue is a product of reason not of impulse, whim, and fantasy. Anything that destroys the capacity for reasoned choice promotes sin and a grosser national product. On a larger scale, does the deliberate cultivation of sin make us a dumber society? Aristotle would have thought so. And as we become dumber, more passive, and less mor-

ally adept, do we also become more tolerant of (or less capable of recognizing and being outraged by) malfeasance, arrogance, stupidity, and vacuousness by public officials? As officialdom becomes more corrupt, inept, and shortsighted can its management of the environment become better? Hardly.

All of this is only to say that in the struggle to restore a decent world, and one that is humane and just, virtue will count a great deal and utilitarians notwithstanding, people in the main are moved as much by considerations of right and wrong as by self-interest. Most people want to do good and given the chance will do it. At the same time the idea of virtue has been corrupted by political charlatans, electronic evangelists, and by our means of livelihood. The ancient concept of virtue accordingly needs to be dusted off, updated, broadened, ecologized, feminized, and reintroduced into the contemporary curriculum and from there into the mainstream of an increasingly cynical society. The conservation of nature is not just a technical subject. It is about morality, the distinction between right and wrong with room for subtleties in between. Clear thought about these categories of thought and behavior should be a primary aim of conservation educators.

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