

~~THE~~ THE ENERGY AGENDA OF THE U.S. OFFICE OF EDUCATION *

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I

A decade ago Arnold Toynbee observed that we have conquered nature, and that now our great unfinished task is to conquer self.

He said that humanity is our most formidable enemy today. We ourselves are more formidable than wild beasts, our oldest foe; and more formidable than disease, which, for the most part, we can now control.

The time has come, Toynbee said, for humanity as a whole to unite against the common enemy in itself. The great irony of our time is that humanity may be destroyed, not by its madness, but by its carelessness -- by its wanton disregard for its special relationship to the planet earth.

Catastrophes of course are not uncommon. We have, since humanity first stirred itself, faced wars, disease, hurricanes, and flood. These calamities have struck; they have taken their toll; and they have departed, leaving us to rebuild ourselves.

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I'd like to suggest that the crisis of which Toynbee spoke -- our use and misuse of nature's resources -- is a disaster of a different kind. Unlike flood or hurricane, it is a dilemma we have made ourselves. Unlike disease, there is no miracle drug which can provide an easy cure. And unlike war, there is no armistice in sight.

The energy crisis we confront today will be with us for as far ahead as we can see. It may fade away from the headlines from time to time, but it will remain a crisis that -- whatever our good intentions, whatever our appeals to technology -- simply will not go away.

For two hundred years, we have believed that man's initiative and ingenuity could build a humane civilization from nature's resources. We've witnessed the miracle of production and construction. We've praised human ingenuity and scientific knowledge for this progress -- we've given very little credit to the raw materials of our earth or to the several hundred million years required to produce the fossil fuels we've used to power this civilization.

But whether this new kind of crisis becomes a catastrophe is largely up to us. In explaining the urgency of his national energy plan, President Carter noted that "with the exception of preventing war, this is the greatest challenge our nation will face during our lifetime." And he added, "It will be a test of our basic political strength and ability. But we have met challenges before and our

...tion has been the stronger for it. That is the responsibility that we face -- you in the Congress, the members of my Administration and all the people of our country. I am confident that together we will succeed."

Today our earth has begun to show signs of the strain of sopping up the wastes of our constantly accelerating energy use.

We are running out of known resources of gas and oil -- the fuels that represent almost three-quarters of the energy upon which the U.S. economy depends. Both resources have begun an accelerated decline. The world supply will begin to fall in little more than a decade. This is a physical fact, a physical problem.

Suddenly, we are beginning to discover that exponential growth is not forever possible in a finite world. This is undeniable, no matter how badly we may want it to be otherwise.

Like all systems that have been jolted out of their inertial pathways by some massive interruption, the total human system is calling on all its parts to find new energy sources that will enable us to continue solving all our societal problems by more growth.

But to seek new sources of energy in order to build even more sprawling and random additions to our urban jungles, and to fuel our luxuries, seem sadly unrelated to the true nature of our problem.

It is true that alternative forms of energy may help us cope as our oil and gas gauges plummet toward zero. But to think that

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~~the~~ chief task of a world with dwindling resources is to hunt for new resources to exploit is myopic vision at its worst.

It makes a false assumption. It presumes that our present style of life can continue. It leaves unchallenged the idea that our centuries-old energy binge must roll ahead. It rests on the idea that our obsessions with endlessly expanded production insatiable consumption, and carefree waste and pollution can be fed indefinitely.

Here's my point. The energy crisis we now face will require not only new technology, but new values and new attitudes as well. We must change our habits of consumption. We must approach self indulgence with a new perspective -- an understanding that we are members of a human community, with a common plight and a common fate. And all of this is closely tied to our nation's schools and colleges.

Specifically, I believe energy, environment and education are linked together in three fundamental ways:

First, this nation's schools and colleges are major consumers of energy. They, like the rest of society, must learn to cut back on consumption.

Second, education must train individuals with the technical know-how to lead us toward a conserving society. New careers require new educational preparation.

Third -- and perhaps most important -- we must embark on a revolution in values. Our schools and colleges must confront today the realities of the 21st century, and begin to focus on the perspectives and attitudes that will be critical in ensuring our global survival in that era.

Each of these tasks -- conservation, training, and curricular change -- represents a major challenge to our educational system. With the right leadership and vision, I believe we can succeed.

II

Our nation's schools alone consume 11% of the heating and cooling fuel in this country, yet it has been estimated that almost half the energy they consume is wasted, because school buildings were constructed without regard to energy conservation. There are 79,000 elementary schools in the United States. The most conservative estimate available indicates that at least 50% of them need major retrofitting.

-- The Federal Energy Administration has estimated that if only 30% of the nation's elementary and secondary schools were to become energy efficient through renovation and winterization, then 25 million barrels of oil could be saved each year.

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-- The Department of Commerce has indicated that with no capital modification at all -- simply by changing operating methods -- schools can reduce their energy consumption by 5 to 25%.

-- With minor capital modifications, involving very small expenditures, another 25 to 35% could be saved.

In 1972-73, the schools spent \$1 billion on energy. In 1976-77, the bill was over \$2 billion. This amounted to \$19.81 per student in 1972, and, last year, \$41.60.

In late 1976 projections told us that the cost of gas, coal, and electricity would increase 20 percent annually through 1980. Thus, in a little over three years, most fuels and electricity will cost double what they do today.

School districts will have no choice but to find more and more ways to conserve energy. Some will establish full- or part-time "energy coordinators," and energy conservation teams. They will develop energy management plans and conduct school energy audits. They will adopt good plant maintenance practices, including preventive maintenance. And they will ensure that new construction is designed and built to save energy.

III

But schools and colleges, of course, are more than physical plants. They also provide the knowledge and skills necessary to embark on careers.

What new professions do we need today, and will we need even more by the end of the century? The process of refurbishing suggests one kind of skill now in demand: the ability to give new life to old buildings. Maintenance workers will have to have their skills upgraded. Architects and city planners will need to learn new techniques of design. If coal is to be a short-term solution in our transition to a conserving society, then we will need to train professionals in new mining technology. We will need environmental experts capable of monitoring the public interest in that industry. Solar and wind energy generators remain a dream and a promise; we need the personnel who have the skills to translate that promise into reality.

Universities, it seems to me, must focus their great research capacity on the problems of pollution, and find effective ways to clean our air and clear our waters. Is it too much to expect that, in time, we might have non-polluting cars, non-polluting energy, and non-polluting detergents? To be sure, we are already making some progress in this direction. This is encouraging, but we still have a long distance to go.

We must search for ways to use our science and technology, not to promote endless growth and unproductive opulence, but to enable us to breathe clean air, to drink pure water, to conserve our natural resources. In other words, we must learn to live like

which can no longer be ignored with impunity.

IV

Schools must conserve. They must contribute to the training of workers in the new energy and environment fields. And they must do more: they must teach our children and ourselves about the wider nature of our energy dilemma, and must equip our society with the understandings necessary to remake our society in the light of that dilemma.

I realize full well that what I am advocating is that wrenching occurrence known as "changing human values," a psychic event that is often as cataclysmic as the earthquakes and volcanoes that change the real territory.

We must start at the simplest level: awareness. A recent Gallup poll suggests that, if Americans were taking an examination on the energy problem, many of them would flunk. Only half the public -- 52% -- knows that America must import oil to satisfy its current energy demands. And of those, only a third -- 17% -- have an accurate idea of how much petroleum the United States imports. Today three out of ten college-educated citizens think that the United States produces enough oil for its present needs. Most Americans just don't know or don't realize how big those "needs" actually are: while we make up a mere 6% of the world's population, we consume a third of its energy.

But awareness alone is not enough. I submit that all of us in education must constantly stress the need to understand and to respect the unity of life -- a unity within which the energy problem can be seen as one part.

In the late 1960s we began to notice that something was happening to our natural world -- the world of physical/biological systems like air and water and wildlife -- and we called it "the environmental crisis." We responded to it in the educational community by developing a fragment we called "environmental education," and we tacked it onto our institutional machine like a bumper strip and congratulated ourselves on a good job.

Just the other day we began to notice that our human world -- the world of societal systems like economics, government, industry, and even education -- was in trouble. It was running out of the energy fix it requires to keep it developing along traditional growth lines. The immediate reaction was to run out and invent yet another fragment and call it "energy education."

This time I have high hopes that we can resist the fragmented approach. With the so-called "energy crisis," enough of the pieces of our real problem have been identified that we can at last begin to see the whole picture. Our many problems are one problem -- they are of a piece, and they cannot ever be "solved" in the sense of arriving at some Utopian conclusion. They are the problems of complex systems in constant motion, and

approaches to solutions must take the same dynamic path -- must be able to shift to new modes as the problems shift.

For the first time in the conscious history of mankind, we are becoming aware of the many pieces of our puzzle, and they add up to one interrelated system -- the complex web of human culture and society with all its interrelated parts, and the physical/-biological world within which the human-built world is embedded.

One of the tragic by-products of our age has been the inevitable "breaking up" of knowledge -- and for this we have paid an awesome price. In our drive for progress, we have become specialists and have fragmented our efforts. In doing so, we have collided disastrously with nature and, indeed, with truth itself. In spite of its diversity, nature -- like all truth -- spins a marvelously unified web.

If this is so, how can perspective be maintained? How can "unity" be preserved? How can balance be restored? The answer seems to be, at least in part, in the way we educate ourselves and in the way we think about ourselves. We must see more clearly and understand more completely the unity of our world, not just in a physical sense but in a social sense as well. We must constantly remind ourselves that nothing is ever wholly destroyed, and that all of our moves on this planet -- whether physical or social -- are intimately interlocked.

I've sketched three ways that education can respond to the new realities made more dramatic by our nation's energy needs. Schools and colleges can be wiser energy consumers; they can provide the technological know-how and training for the new energy and environment professions; and they can develop curricula which put today's energy crisis within the context of our single, precious, incredible, common earth.

V

In all this, what can the United States Office of Education do?

I propose that the Office of Education establish an Energy/Education Action Center which will have as its mission the coordinating of all the various Federal Agencies' educational responses to the President's energy plan.

The three educational goals of the center will be

- the providing of information and technical assistance to schools and colleges as they move toward effective energy conservation;
- support in the training of new energy and environment professionals; and
- leadership and support in the development of new curricular materials focussed on the "three E's."

And in this effort the schools and colleges will be crucial. They will have to abandon the fragmented approach to knowledge and the shattered perspectives from which we examine our globe. They will begin to address themselves to the part of us that lives in a community and relates to other human beings. The schools will begin to ask what we have and hope in common, and from this common human agenda will derive a curriculum to highlight and strengthen the linkages among ourselves and with our common future.

On other occasions I have suggested that reading and writing -- as the fundamental tools for all communication and all learning -- should be part of a common core curriculum. But the "three R's" are not enough. Perhaps our schools and colleges need also to look more broadly at the earth that houses them and the society that depends on them. Perhaps they need to realize that the energy challenge will confront us all for the rest of our lives; that our environment is shaped by our patterns of energy consumption, and is passed on as a legacy to all of our children; and that our plight in this nation is determined also by our active, inter-dependent engagement with all nations.

Perhaps these three themes -- energy, environment, and engagement -- could also be keywords in our nation's education system. Our common core might perhaps extend beyond the traditional "three R's," and into these new "three E's" as well.

The Energy/Education Action Center will work closely with all units and interagency committees of government which are concerned with the education's response to the new energy realities. It will draw on the staff, resources, information, and good will of those units. Through the use of inter-Bureau teams, the Center will also bring together OE program personnel responsible for the scores of existing energy- and environment-related programs in the Office of Education in order to focus their work more effectively on the goals of conservation, training, and curriculum. We will direct available discretionary funds on these goals, and will develop plans to target new discretionary monies toward those ends.

Projects undertaken by the Center might include

- serving as an information and technical support clearing-house for all Federal Departments, Agencies, and committees with education programs in the energy conservation and transition areas;
- developing a media approach, including the use of educational television programming, to spread public awareness and disseminate technical know-how;
- encourage the development of new curricula addressed to our fundamental global inter-relatedness;

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- sponsoring curricular innovations and demonstrating programs at all levels of education;
- developing curriculum guides in fields like insulation and solar energy, and resource conservation;
- preparing a technical assistance plan to help schools conserve;
- installing a toll-free telephone line to provide immediate technical assistance and curricular guidance; and
- building effective links between the government and the private and non-profit sectors.

We hope to be a magnet for all Federal efforts in educating our nation toward responsible membership in a conserving, interdependent world. We hope to aid the major national educational associations as they confront the new energy realities. And we hope to be of service to the state departments of education and local school districts as they formulate their own plans of action.

VI

In the few months that I've been in Washington, I've been struck by the frequency with which people in the world of education refer ominously to "next winter" whenever they speak of

energy. Facilities and maintenance are important, to be sure, and restructuring must be part of our national conservation effort. But we must break free from the mentality that equates our "energy crisis" with last winter or next winter, or any winter, of our discontent. "Crisis" -- to return to its Greek root -- means "decision." Let us decide today to abandon our panic and siege mentality. Let us decide to see today's worries about gas and oil as the signal of a much more profound, much more transcendent problem in our relations with our globe and with one another. Only in that broader context, only in the context of who we are as a society, and what world we want our children to inherit, can anyone's energy agenda make sense.