No other social institution has been so consistently on the frontiers of innovation and change as American business and industry. The ramifications of the resulting technological developments for the educational system need to be examined. Knowledge is a "two-edged sword"—equally powerful for good or bad. Rapid technological development and the need to preserve humane values constitute a dual challenge for the educational system. To meet them, the system must provide more "continuing education." The myths that education is only for the young and that it happens only in school must be discarded. Continuing education should be able to integrate education into experience throughout a lifetime. We need to permit easier transition into and out of the academic community at many points in a person's life. The college students' cries for "relevance" often stem from the absence of a clearly defined life-mission. Experimental schools, community colleges, work-study programs, armed services training, and apprenticeship programs are only a few of the models into which continuing education could be cast. Educational systems must produce people who are skilled in techniques, yet sensitive to lasting human values. (DS)
I have a high regard for the imagination and perception you have shown in your past conferences, and I consider it a very great honor indeed to be able to share a few of my thoughts with you. A conference which examines the topic of "management and man in the computer age" can hardly be accused of evading one of the most critical debates of our time.

NOTE: Secretary Finch's Address will be delivered by Under Secretary John G. Veneman. The Under Secretary may depart from the prepared text, but it is authorized in its entirety.
In truth -- for all the strident rhetoric elsewhere in our society -- you at this conference represent the genuine innovators in America today. For it is a simple fact that nothing has been such a moving force for change -- nothing has so altered the face of the American landscape, the functioning of its government, and the life-styles of its inhabitants -- as the dynamism of American business and industry. In the whole course of our history, no other social institution has been so consistently -- consciously or unconsciously -- on the frontiers of innovation and change.

The dimensions of these changes, and the prospects for the future, are topics which your other speakers can and will address. For my own part, I want to discuss with you some of the ramifications of these developments for our educational institutions.

We are at the point in our history where we must quite consciously come to terms with the future -- as a problem. I am not speaking simply of the obvious problems such as control of nuclear weapons, the population explosion, or the mounting threat to the livability of man's environment. I speak rather of the whole climate of technological and social change which underlies each one of those developments.
The days are long gone when we could comfortably adhere to the enlightenment view that knowledge inevitably has beneficial effects on the health and happiness of mankind. Increasingly we have travelled full circle to the view of the ancient Greeks that knowledge is a two-edged sword, equally powerful for good or for evil. And we know that we may not be able to control the explosive effects of our knowledge.

More and more, man lives in a world and environment of his own making. We rely on a technological infrastructure of incredible sophistication for transportation, communication, consumption, and pleasure. But, by the same token, we become ever more vulnerable to unpredictable but massive breakdowns in this complex man-made world. On one level, we need only recall the Northeast power grid failure of 1966, or the helplessness of New York City in the face of a garbage strike last year.

On another, infinitely more complex level of values, we witness the resistance of significant portions of our population -- particularly our youth -- to human management by machines and computers. They resist what they see as the dehumanizing impact on their lives of bureaucratic techniques by computerized organization.
These two faces of the future -- the rapid and potentially uncontrollable pace of technological development, and the cry for humane values amidst these forces -- thus constitute a dual challenge to any educational system for the future. Even as we train people in the necessary skills and techniques of the "knowledge industries," we must devise educational systems capable of transcending narrow specializations and treating the needs of the whole man ... the nature of the whole society. This is not a new quest -- but, because of ever-increasing threats to human existence itself, it is now a desperately necessary one.

We can, at least, see dimly down the path. We know that the radical changes wrought by our technology will not cease. We know that knowledge itself will continue to expand and become even more compartmentalized. We know that, somehow, education must prepare our citizens now for jobs which do not yet even exist and for functions not yet dreamed of. We know that as our society becomes at once more complex and more vulnerable, we must become more self-conscious about the broader impacts of our personal, industrial, and governmental decisions.
And yet, amidst this explosive radical social change, we sense that our educational institutions have not been structured parallel to foreseeable social needs.

Your speakers today have almost uniformly urged that we need revitalized institutions -- new techniques, new styles of leadership. Let me travel part of the way down that road to suggest, in education, what this new system might look like -- indeed what I think it must look like -- if we are to educate, now, to cope with the future.

The educational system I have in mind is "continuing education." I do not conceive of it as an innovation so much as a deliberate alignment with reality. It is not a network of institutions so much as it is a widened concept of the learning experience.

To understand it fully, I think we have to discard two myths about education -- widely-held and pervasive in their impacts. The first myth is that education is something that just happens to kids, roughly between the ages of 6 and 22. The second myth is that education is something that happens just in schools.

The first myth -- that education is just for kids -- probably follows from existing patterns of elementary and secondary education, and from the fact that almost all children under 18 years of age are at least physically in
schools. (Whether they are really learning anything is, of course, quite another question.)

The educational continuum is looked on as the place where the growing up process happens. But years of schooling may actually and artificially extend the process. Keeping everyone in school until 18 or 20 ... and well beyond ... greatly prolongs adolescence, even at a time when our children are maturing, physically and mentally, at much earlier ages.

Prolonged adolescence creates inherent tensions between the adolescent's capacities and the things he is permitted by his society to do. It also creates an artificial view of the world because, unlike almost any other life experience, it subjects the youth continuously to the tight little circle of his age peer group.

For this reason it may be wise to allow those who seek opportunities for wider experience to escape, temporarily, at an earlier age from a rigid and uniform system of education. Maybe we should encourage this escape. Otherwise, we create an inescapable and false discontinuity between education and work -- we foster the notion that education occurs prior to, and separable from, experience. We suggest that life is something students are preparing for, rather than something they already are living.
We know that the working life-span of human beings has increased dramatically in this century. We know, too, that people in the midst of productive careers wish to begin yet other careers where new challenges can excite their skills and their capacity to innovate. These are the people whom one magazine recently termed the "burnt out and the bored." Should they, too, not have the opportunity to alter their life style -- to train for and choose new careers?

This goes well beyond just ministering to the psychic needs of middle-aged suburbia. Our society has desperate manpower shortages in health care, in social work, in teaching -- in all the professional and paraprofessional disciplines. Rewarding work of incalculable social value awaits the person who chooses this path. Yet our educational system is not well geared to providing educational opportunities for this disparate age group. And if anything, our need for varied skills and new skills will increase dramatically in the last third of this century.

It seems obvious that education, ideally, is not something limited to the young and not defined by academic degrees. Yet the "diploma curtain" threatens to divide our society by separating those who are credentialed ... thus supposedly qualified for challenging work opportunity ... from those who are not.
We pay grave social costs for this kind of separatism. Historically, America has succeeded by attempting to maximize the use of all its human potential, wherever located. More important perhaps, in terms of future projections, we will need to utilize human potential in age groups much later in life.

The second myth to which I referred earlier was the myth that education is something that happens mostly in school after the age of five or six. We already have evidence in our Head Start program that this is not the whole story, not by a long shot. The skills learned by a child in his first five years -- the ability to walk, to eat, to talk, to conceptualize -- dwarf in importance almost anything else he will ever learn.

And early childhood, during the last two decades, has been subjected to the massive and revolutionary impact of television. It used to be that school awakened the child to his experience and an awareness of the wider world. But now literally thousands of hours of unstructured television inputs have been absorbed by the preschool child. And this has incalculable implications for the entire learning process. Dick and Jane can't hold a candle to the Mod Squad.
At the other end of our rigid educational continuum, we have learned that people who have had a life or work experience away from education often are better students than those who follow a rigid continuous educational program. We all remember how quickly those who condemned the G.I. bill after World War II ... an impairment to quality education they warned ... had to swallow their words. For the returning G.I. had a better sense of himself and his life mission than his younger peers -- and statistically, his superior academic work demonstrated this heightened sense.

I sometimes think that much of the discontent experienced by the college student generation -- much of the call for "relevance" -- stems in fact from an absence of a clearly defined life mission. Beyond the immediate benefits of the affluent society -- and beyond a deep sensitivity to the existence of social problems -- I sense that students of this generation do not possess varied models, ready at hand, for a career meaningful to them.

If this is really the case -- if they do not now aspire to traditional business and professional careers, "relevant education" is in many senses an impossible burden for any educational institution to deliver. There exists no model for them to measure "relevancy" against. How much better
it might be to permit easier transition into and out of the academic community at many more points in a student's life. How much better it would be were he able to measure his life goals and academic mission against concrete work experience in a chosen, but temporary, vocation.

I do not have an exhaustive inventory of institutional models into which "continuing education" should be cast. Far from it, indeed. Let's never fossilize a concept which should be open to the most daring sorts of experiments. But some developments are nonetheless suggestive. I think of education during the formative years, through family outreach, which Head Start is fostering.

I think of experimental schools which we hope to foster through seed-money research funds. I think of the whole program of career education which lies at the heart of our support for community colleges. I think also of work-study programs ... and the whole syndrome of cooperative education.

Other learning models are equally suggestive. Training in the Armed Services has transformed functional illiterates into highly skilled technicians. And industry also has far outstripped traditional educational systems in training programs that provide, simultaneously, skilled manpower for industry and commerce and rewarding careers for the disadvantaged.
Continuing education does not happen just in schools -- it happens in apprenticeship programs that do not lock trainees into dead-ends. It happens in libraries and in seminars. It happens when a company gives an executive or any other employee sabbatical years to refresh his energies and broaden his perspectives and abilities by travel or community involvement. It happens in sessions such as this one, indeed, and in the possibility of their expansion and replication for employees of all skills and levels.

Continuing education is all this, and more. It is an attempt to integrate education into enriched experience throughout a lifetime. It is inspired by the realization that better management systems, and new generations of computers, cannot address fundamental questions of human values in our man-made world. It is inspired, perhaps most of all, by the need for what you earlier have called "specialists in generalizing" -- or as I prefer to call them, "brokers" ... in fact the new renaissance men of our day.

These are men with a "feel" for the capacities of dozens of disciplines, in the effort to integrate all the pieces of our knowledge, and make decisions that may literally affect the life of our planet.
We need -- and it is yet uncertain whether we will find -- men who can foresee consequences, intended and unintended, of corporate and political decisions ... who can project their impacts to the total environment.

If there were one question which, in the spirit of this conference, I could address to you for your advice today, it would be this:

*How can we, in quantity and in depth, educate to produce the whole man -- the individual, skilled in techniques, yet sensitive to the lasting human values that measure the worth of our civilization?*

H. G. Wells wrote long ago that civilization has more and more become a race between education and catastrophe. The race may be unplanned -- even inadvertent -- but it is one on which our future, in every sense, quite literally depends.

It is not, though, a time for despair. If a nation had to take stock of its inventory of resources, it could take no greater comfort than the knowledge that its young people have a commitment to its future -- and an articulate concern for realizing the nation's high ideals in youth's own aspirations. We need that resource -- and I deeply believe that we have it today.

There is no other way our future can be constructed.