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EDUCATION AND AMERICA'S FUTURE

Financial Executives Institute

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University of California

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I'm delighted to be here and very much appreciate your invitation to speak.

Most people think of universities as places of scholarly learning, communities of students and teachers engaged in advancing knowledge and transmitting the culture from one generation to the next. Not so familiar is the other side of the coin, the fact that American universities today are also business operations in their own right, thanks to the size and diversity of what they do.

My own institution, the University of California, for example, enrolls 160,000 students on nine campuses and employs 135,000 people; manages three major Department of Energy Laboratories for the Federal government, one of which is in New Mexico and is that state's second-largest employer; owns and operates five teaching hospitals and various specialized clinics; sponsors some 150 major laboratories, centers, institutes, and bureaus on its campuses and in other locations throughout California; manages bookstores, dormitories, and restaurants; publishes several hundred journals and scholarly books each year; sponsors a wide

variety of theatres, art galleries, and museums; and enrolls 1200 of its students in over 70 foreign universities in 40 different countries. And of course we dabble in athletics, too; with nine campuses, I always have at least one team that is winning, at least most weeks.

University expenditures for fiscal year 1987-88, including the Department of Energy Laboratories we manage, were \$7.5 billion; excluding the Labs, they were \$5.5 billion. This means that if we were an industrial company, we would rank 57th among the Fortune 500. On the list of diversified service companies--the less well-known Fortune 100--we would rank third. I mention these matters so that you will have a fuller appreciation of our need to be very much in the world, to engage in its daily life and myriad complexities in spite of the very special role universities play in our society, essentially the same one they have played for 900 years, at least in Western civilization.

This morning I wish to share with you some thoughts about education and its role in our nation's future. My views about education and America's future begin from a simple premise: the future is going to be very different from the past. That fact carries enormous implications for both business and education. If we take as our starting point America's economic and global position after World War II,

one gains a more appreciative sense of these prospects.

As the curtain rang down on the Second World War, virtually all of Europe and the USSR were in ruins. Japan was an occupied nation, physically and psychologically exhausted. China was engaged in a bloody civil war. The economies of the West and of the East had for the most part been devastated by a war of unparalleled destructiveness. The United States was virtually the only major industrialized nation in the world to emerge physically unscathed by the war and possessing more self-confidence after the war than at its start; and it emerged as the international power to be reckoned with, economically, politically, and militarily. American policy implicated every facet of world politics and the world's economy. American goods and American know-how set the standards for world trade. At the end of the Second World War, the United States accounted for roughly 40 percent of world GNP.

What was it that gave this country its scientific, technical, managerial, military, and economic edge? Among the forces at work, obviously, was the uneven playing field after World War II, which gave us an enormous advantage, as I have already mentioned. But other forces were also at play: a government that fostered freedom of expression, freedom of action, and creativity much more than most, and interfered in

people's lives less than most; an economic system that rewarded risk and encouraged productivity; a society that cared more about what one could do than about who one was, and that made mobility--geographic, social, and economic--a ways of life for no small percentage of the American people.

And beyond all of this, there was the G.I. Bill--surely one of the most inspired and, in retrospect, one of the shrewdest investments this country ever made. For hundreds of thousands of returning G.I.s, it was the ticket to their future; in a very real sense it was also the ticket to the nation's future as well. A high proportion of the persons serving in senior positions in government, universities, boardrooms, laboratories, and the Congress since the 1950s were those who came of age during World War II, used the G. I. Bill to finance their university or college education, and subsequently provided the country with the scientific, technological, business, educational, and political leadership that has made such a difference to the nation's affairs, right up to the present day.

That amazing generation fought history's most awesome conflict and then returned to make the American economy the most productive in history. Education was not just the means for providing them with social and economic mobility; it was also the means by which this country assured for

itself a reservoir of educated, trained, and skilled intelligence to help consolidate its position after the war.

But what about the future, as the nation contemplates a passing of the torch from one generation to the next in the 1990s?

The U.S. is no longer the unquestioned economic and political arbiter of world affairs that it was in 1945. By 1986 our 40 percent of world GNP had fallen to 24 percent. Seventy percent of U.S. goods and services are now in direct competition with those of other countries. And as our balance of trade problems make clear, we have little reason for complacency about our ability to compete in the international marketplace, not to mention the scale of our nation's debts, both Federal and state, local and private, and what others in Third World countries owe us.

As these trends play themselves out, the United States will find itself increasingly just one nation among many--first among equals, perhaps, and certainly still the world's most productive nation, at least for the short-term, foreseeable future. But our relative position will be different. The leadership the United States has exerted over the past 50 years, bringing some measure of stability to the world economy and a real if uneasy peace, will be shared with other

nations to a greater extent than would have been imaginable even 20 years ago. It is unlikely that any single nation will ever again be as predominant in world affairs as the United States was after World War II.

What all this points to is a sea change that has occurred in America's place in the world. Economically, the globe has become more interdependent: as this audience will especially appreciate, it is getting harder and harder to buy American even if one sets out aggressively to do so, given that the production of a car can involve workers in four or five countries before the final product rolls off a U. S. assembly line. The discrete national markets with which we have long been familiar are becoming less and less relevant to what actually happens in the global marketplace. Economic decisions made in Tokyo or London or Paris reverberate in New York, Chicago and Los Angeles, Singapore, Hong Kong, Beijing, and Moscow, as this audience will especially appreciate.

But it is not just the economy and our markets that are more global in their workings: the creation and flow of knowledge itself are increasingly international. Revolutionary advances in communications and travel have brought the world closer together than ever before. Harlan Cleveland points out that "a quarter of a century ago, computers and telecommunications began to converge to produce a combined complexity, one

interlocked industry that is transforming our personal lives, our national politics, and our international relations"--and, I would add, our universities as well. Students and faculty alike can and do travel with unprecedented ease and communicate across international boundaries with a speed and regularity that are as astonishing as they are routine.

What we are seeing, in short, is a world that is at once more interdependent and more reliant upon information, knowledge, and trained intelligence, and seeking to come to terms with the forces of modernity, i.e., the technological revolution, modern science, and the industrialization of labor. This is the great transformation that is remaking our lives, whether we recognize it or not. As a result, we live in a world in which education takes on a significance and a meaning without historical parallel.

How is the U.S. doing in education? I will discuss both the nation's schools and its universities. First, the schools.

The nation's schools have been in decline for over a quarter of a century, and it has been only in this decade that we have come to hold out some hope for reversing this trend.

Fortune magazine recently observed:

As a major contributor of tax dollars to public education, corporate America is getting a lousy return

on its investment. Not only are schools today not preparing kids for jobs, they aren't even teaching them to read and write. In the U. S. 30% of all high school students--one million teenagers each year--drop out before graduating. Most are virtually unemployable. Of those who do graduate, many do not have the problem-solving skills to function in an increasingly complex information society.

A year or so ago, to mention another example, the Wall Street Journal ran an article about the New York Telephone Company and the exam it gives entry-level employees. At the beginning of 1987, New York Telephone administered the exam--a 50-minute test of basic reading and reasoning skills--to 21,000 applicants. Only 16 percent passed.

And that is not an isolated example. According to one estimate, productivity losses caused by poorly educated workers, along with the costs of remedial training, add up to a price tag of \$25 billion a year, costs borne for the most part by American business. Moreover, the Department of Labor has warned of a growing mismatch between the skills of young people entering the workplace and the jobs of the future. Many of those jobs will demand higher levels of reading and writing ability and greater analytical and reasoning skills than the jobs of the past.

Seven years ago I chaired the National Commission on Excellence in Education, whose 1983 report, A Nation at Risk, pointed to an alarming decline in the performance of our

schools and our students. That report warned of a rising tide of mediocrity in the nation's schools and of a tolerance for shoddiness in many walks of American life that put at risk our once unchallenged preeminence in commerce and industry, and our hopes for the education and economic well-being of the next generation. "If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today," we said in that report, "we might well have viewed it as an act of war."

In the five years since the appearance of A Nation at Risk, we have made some significant beginnings and taken important steps towards improving the schools and the preparation of their students. Much more needs to be done--a subject to which I will return in a moment.

As far as higher education is concerned, America's new circumstances present a different set of challenges. At the undergraduate level, recent national reports have raised questions about the quality of instruction in our colleges and universities, especially at the lower division level. Although it is difficult to generalize about a higher education system that embraces more than 3,000 colleges and universities, the new--and, I should add, cyclical--interest in undergraduate education presents us with an opportunity to examine what we teach our students and why, and how we can do

a better job of it. My own institution, the University of California, has embarked on an intense and committed effort to improve undergraduate education, particularly in the crucial first two years of study. Other institutions are doing the same. Some good will come of this.

One theme running through much of this initiative is the need better to prepare our students for an increasingly interdependent world, in other words, the world in which they will be living and working during the last decade of this century and the early ones of the next. A more adequate knowledge of other countries, other cultures, other peoples, other languages will be a necessary part of the basic intellectual equipment young people will need to take with them into the marketplace and into the voting booth. This is true not only because the world is, for Americans, becoming a smaller and smaller place, but also because of the dramatically changing nature of our own society, which is becoming increasingly diverse in ethnic and racial terms owing to new patterns of immigration and birthrates. We will need to learn more not just about the diversity of our economic trading partners and their societies but also about the changing demographics in our own country. Education has a critical role to play in this task, and we are not yet fully playing it.

Universities have another important contribution to make. In a world economy driven by new knowledge, and not just the application of what is already known, the ability to generate new ideas and knowledge is, in a way, a contemporary form of new capital. Research universities are especially rich sources of that capital. Revolutions in agriculture, in information technology and systems, in system designs, in medicine, and in biotechnology, for example, are changing our world, as our next speaker will make clear. These breakthroughs have been possible mainly because of fundamental research performed in our nation's universities and the taking of this research, sometimes by the faculty members themselves and sometimes by others, into the marketplace.

But we are not at the moment investing sufficiently either in our ability to generate new knowledge or in the training and education of those who need to be making these discoveries. The national need for graduate-level scientists and engineers, for example, greatly outstrips the supply; and it will become a major problem for the country as a significant percentage of such people, now productively engaged in these endeavors, retire in the 1990s. For example, 40 percent of the faculty of my university will retire by the end of the century. One government estimate projects a potential shortage of up to 700,000 American scientists and engineers

by 2010. It is, in my view, an overly optimistic estimate--or a too-conservative one, depending on how you express it.

University research facilities and instrumentation have deteriorated alarmingly in recent decades, to the point that they are almost always inferior to those available in industry. As many concerned university presidents have pointed out, it is impossible to do the science of the future with the instruments of the past.

The nation will be well-advised to deal with the educational problems I have briefly outlined here. Otherwise, we can look forward to a very different future from that which faced the returning G.I.s at the end of World War II. On that we can count. Then, the future stretched out rich in promise and opportunity. Now, if we fail to address this problem, the only future we can look forward to is one of greater economic struggle and deeper social and political divisions, sapping the nation's capacity to remain a vibrant and cohesive society as well as a vital force in world affairs over the coming critical decades.

The corporate community has been, and must remain, a vital part of this debate, actively involved in helping the nation to come to terms with its educational needs. And I will conclude my formal remarks by calling to your attention one

example of cooperation between the business and academic communities in tackling some of the problems I have described.

The Business-Higher Education Forum consists of roughly 40 chief executive officers of major American corporations and 40 presidents of colleges and universities. Its purposes are to identify, review, and act on selected issues of mutual concern, to bring these issues to the attention of the public, and to encourage cooperation between the corporate and educational communities. In the past, the Forum has addressed such questions as international economic competitiveness, education and training, and global interdependence. I am currently chairing the Forum.

Just a few weeks ago the Forum issued a report entitled American Potential: The Human Dimension. That report, prepared by a task force co-chaired by Don Petersen of Ford and Frank Rhodes of Cornell, calls attention to many of the issues I have discussed this morning: the need to bolster the performance of our students and our schools and to invest in our research capacity--in short, to make the most of our precious human resources. The nation does not lack ideas about how to bolster American competitiveness, we concluded, or convincing evidence about the critical role education can and must play in that endeavor. What we have lacked is a

consensus on how to proceed. Accordingly, the report argues that it is time to come to agreement and get on with the task. And the Forum calls on the President-Elect of the United States to make the development of our nation's human resources a first-order national priority, just as the G.I. Bill of over 40 years ago reflected a national decision to invest in the potential and in the education and training of our World World II veterans.

The Forum intends to follow through on the issues we have highlighted and the recommendations we have made. This commitment is expressed in the form of a newly founded standing committee of the Forum and an allocation of resources from the Forum to sustain the committee's work over the next five years. Many of the companies represented here either have contributed to the effort or will be doing so as their chairman and/or CEOs are Forum members.

In the world of the future--complex, interdependent, less amenable to American purposes and desires--we have no guarantee that the reservoir of talent and skill we need will be available to us, as it was in the years following World War II. No guarantee, that is, except our own willingness to do something about it. And we can do something about it. In the words of the Forum's report:

The success of the broad American experiment can be attributed, in every age, to the intelligent development of our human resources and to the application of ingenuity and industry to the problems at hand. . . . The continuing task facing the United States is the wise use of these strengths in confronting the developments of the modern world.

The members of your association have a role to play in their respective corporate communities. Your voices are influential in the affairs of your companies, and I hope that they will be heard on behalf of the needs and issues to which I have briefly made reference here today. Thank you.