Twentieth David Dodds Henry Lecture: A Society of Learning: A Vision for the Future of the University in the New Millennium by James J. Duderstadt

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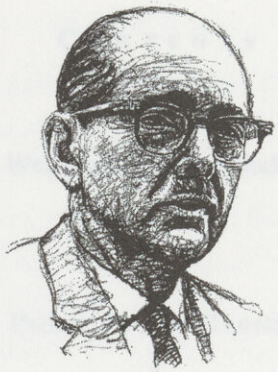

DAVID DODDS HENRY

President, University of Illinois
1955-71

The David Dodds Henry Lectures in Higher Education are endowed by gifts to the University of Illinois Foundation in recognition of Dr. Henry's contributions to the administration of higher education, including his career as president of the University of Illinois from 1955 until 1971. The lectures are intended to focus upon the study of the organization, structure, or administration of higher education, as well as its practice. Selection of persons to present the lecture is the responsibility of the chancellors of the two campuses of the University. Presentation of the lectures is alternated among the Chicago, Springfield, and Urbana-Champaign campuses.

Contents

Welcome

Good afternoon and welcome. Back in 1972 when this lecture series was initiated, the nation was embroiled in an uncivil discussion of its foreign policy. The worst of campus disorder, however, was over, and university presidents everywhere were turning their attention to more traditional matters. Today's speaker was happily ensconced on the engineering faculty at the University of Michigan at that time. David Dodds Henry who had held this university together with his will and wisdom during these troubled times had retired from the University of Illinois presidency a year earlier and had been honored for his outstanding leadership with the gift of a lecture series that we are hearing today. Clark Kerr, the dean of modern American university thought, set an auspicious beginning as the inaugural speaker, and since then there has been an impressive array of higher education thinkers here to talk with us.

Each Henry Lecturer, and there have been 19 spread over 27 years, brings his or her unique perspective to the broad topic of higher education. Today's lecturer, as those who have gone before, bears witness to a defining belief of David Henry himself. And that is that higher education administration is itself a genuine and legitimate endeavor. "It is," he said, "a specialty whose study is as exacting in knowledge as medicine, as central to effective operation as law, and as sensitive to human relations as government." Sixteen years of insight, wisdom and sheer endurance during very difficult times combine to make David Henry one of this country's best known and most highly regarded chief executives.

The Board of Trustees at the University of Illinois and the Foundation created this lecture series to honor him and now his memory. I believe today's speaker will continue our good habit of inviting important men and women who have important things to tell us. Dr. James Duderstadt is president emeritus and university professor of science and engineering at the University of Michigan. He is also director of the Millennium Project, a research center concerned with the future of higher education. He is a Yale graduate and earned his Ph.D. in engineering science and physics from the California Institute of Technology. He joined the faculty at the University of

Michigan a year later, became dean, then provost and finally in 1988, he was appointed president, a post he held until mid-1996. He has had a distinguished academic career including election to the National Academy of Engineering, the American Academy of Arts and Science, Phi Beta Kappa, and Tau Beta Pi. The evidence of his commitment to his profession and public policy is through board work with the National Science Board, the Executive Council of the National Academy of Engineering, the Committee on Science, Engineering and Public Policy of the National Academy of Sciences, and the Nuclear Energy Research Advisory Committee of the U.S. Department of Energy. His address today is entitled "A Society of Learning: A Vision for the Future of the University in the New Millennium."

James J. Stukel
President
University of Illinois

Preface

In the twentieth David Dodds Henry lecture, James Duderstadt explains that American universities are experiencing a paradigm shift in the nature of both learning and scholarship. This shift will require a serious reshaping of the way universities operate. Several forces are changing the environment in which universities function. These forces include: an age of knowledge in which knowledge is a key strategic resource; expansion of new information technologies to reshape the way we think, learn, and communicate; concern about environmental threats to the planet from population growth and invasive human activities; globalization of the American economy; and significant demographic changes that have drastically altered our social and cultural fabric, posing significant issues and possibilities.

Powerful forces are influencing higher education in many ways, ranging from the accepted value of a higher education degree to increased competition with universities from a variety of sources. These forces pose two contrasting futures for higher education in America. One future is market-driven wherein shifting societal needs, rapidly evolving technology, and for-profit commercial forces redirect higher education toward mediocrity. A second, more positive future, is suggested by a somewhat different culture of learning wherein traditional institutional forms evolve and adapt to offer learners a rich array of high quality and affordable learning opportunities.

Duderstadt clearly prefers the second scenario of evolution and adaptation, and he develops this in more detail though a provocative vision of learning at the center of the higher education enterprise. This is captured in Duderstadt's reformulation of a learning society as a "society of learning." In this perspective, he provides an intriguing view of the future of higher education. In its transformation, the changing needs, realities, and technologies that will continue to emanate in our society will supplant the traditional influences regulating the university. In Duderstadt's view, the status quo is no longer an option. A significant reorganization of higher education must emerge, one that will respond to the needs of a knowledge-based society.

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A Society of Learning: A Vision for the Future of the University in the New Millennium

James J. Duderstadt

President Emeritus

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The University of Michigan

Ann Arbor, Michigan

As we prepare to enter the new millennium, it is appropriate that we consider the future of one of society's most enduring institutions, the university. The university remains one of the most extraordinary and important social institutions of our civilization. For a thousand years, it has not only served as a custodian and conveyor of knowledge, wisdom, and values, it has transformed the very society it serves, even as social forces have transformed it in turn. Yet, during most periods, change in the university has proceeded in slow, linear, incremental steps—improving, expanding, contracting, and reforming without altering our fundamental institutional mission, approach, or structure. The old saying that progress occurs in a university one grave at a time is sometimes not far off the mark. Today, however, we do not have the luxury of continuing at this leisurely pace, nor can we confine the scope of changes under way. We are witnessing a significant paradigm shift in the very nature of the learning and scholarship in America and worldwide, which will demand substantial rethinking and reworking on the part of our institutions.

Perhaps the unique characteristic of higher education in America has been the strong bond between the university and society. Historically our institutions have been shaped by, drawn their agenda from, and been responsible to the communities that founded them. Each generation has established a social contract between the university and the society it serves.

Early in our nation's history, the Federal Ordinance of 1785 defined the public role of the university in sustaining a young democracy. A century later, the land grant acts (i.e., the Morrill Act of 1862, the Hatch Act of 1887, and the Smith-Lever Act of 1914) stimulated the states to create public universities. The purpose of these universities is to broaden educational opportunities to include the working class, to help develop the vast natural resources of the nation through programs such as agricultural extension and engineering experiment stations, and to make public service and engagement key features of their academic programs.

In the decades following World War II, the federal government extended this social contract to broaden the opportunities for a college education through a series of actions such as the GI Bill, the Higher Education Acts, and federal financial aid programs such as the Pell Grants. During this period, higher education expanded from its traditional role of educating the elite for leadership roles to providing mass education. Yet another form of social contract evolved in the post-war years to address the research needs of the nation through a partnership wherein the federal government supported faculty investigators to engage in research of their own choosing in the expectation that significant benefits would accrue to American society in the forms of military security, public health, and economic prosperity.

Today, an array of powerful social, economic, and technological forces are driving change in both the educational needs of our society and

the institutions created to respond to these needs. It is time once again to reconsider both the nature of the university in the new millennium and the social contract that may evolve between the university and the nation.

There are many ways to classify the powerful forces driving change in our society, but let me do so in the following way:

Today we are evolving rapidly into a post-industrial, knowledge-based society, just as a century ago an agrarian America evolved into an industrial nation. Industrial production is steadily shifting from material- and labor-intensive products and processes to knowledge-intensive products. A radically new system for creating wealth has evolved that depends upon the creation and application of new knowledge.

In a very real sense, we are entering a new age, an age of knowledge, in which the key strategic resource necessary for prosperity has become knowledge itself, that is, educated people and their ideas. Unlike natural resources, such as iron and oil, that have driven earlier economic transformations, knowledge is inexhaustible. The more it is used, the more it multiplies and expands. But knowledge is not available to all. It can be absorbed and applied only by the educated mind. Hence, as our society becomes ever more knowledge-intensive, it becomes ever more dependent upon those social institutions, such as the university, that create knowledge, that educate people, and that provide them with knowledge and learning resources throughout their lives.

Our rapid evolution into a knowledge-based society has been driven in part by the emergence of powerful new information technologies such as computers, telecommunications, and high-speed networks. Modern digital technologies have increased vastly our capacity to know and to do things and to communicate and collaborate with others. They allow us to transmit information quickly and widely, linking distant places and diverse

areas of endeavor in productive new ways. This technology allows us to form and sustain communities for work, play, and learning in ways unimaginable just a decade ago. Of course, our nation has been through other periods of dramatic change driven by technology, for example, the impact of the steam engine, telephone, automobile, and railroad in the late nineteenth century, which created our urban industrialized society. But never before have we experienced a technology that has evolved so rapidly, increasing in power by a hundred-fold every decade, obliterating the constraints of space and time, and reshaping the way we communicate, think, and learn.

So too, the rapid advances in understanding, modifying, and perhaps even creating living organisms from the microscopic level of molecular genetics presents our society with unprecedented opportunities and challenges. With the completion of the Human Genome Project scheduled for next year, we are rapidly developing the capacity not only to identify and address the causes of many of the diseases plaguing our society, but also perhaps to even modify the genetic structure of the human species itself.

Stephen Jay Gould refers to so-called punctuation points in the evolution of biological species, when gradual evolution suddenly experiences a discontinuity, perhaps induced by an external event (e.g., the extinction of the dinosaurs possibly caused by meteor impact). Of course, we came very close to just such a punctuation point during the present century with the nuclear arms race. Recent films have suggested that mankind could be extinguished like the dinosaurs by a meteor impact or a plague such as an airborne form of Ebola or the AIDS virus.

Technology could also create just such a punctuation point in the evolution of the human species in the century ahead. For example, if

computing power continues to increase at its present pace, the $1,000 laptop computer in 20 years will have the power of the human brain. It will, however, be so tiny as to be almost invisible, and it will be connected by a vast global communications network to billions of other computers. By the late twenty-first century, we may succeed in developing machine intelligence to levels comparable to or exceeding that of human intelligence. Genetic engineering also poses great challenges, particularly as we use it to improve or create new life forms, perhaps even stimulating the next major evolutionary phase of the human species itself.

There is a far more probable punctuation point faced by our civilization, and that involves our habitat, Spaceship Earth. There is mounting evidence that the growing population and invasive activities of humankind are now altering the fragile balance of our planet.

The concerns are both multiplying in number and intensifying in severity: the destruction of forests, wetlands, and other natural habitats by human activities; the extinction of thousands of biological species and the loss of biodiversity; the buildup of greenhouse gases such as carbon dioxide and their possible impact on global climates; and the pollution of our air, water, and land.

With the world population now at 6 billion, we are already consuming 40 percent of the world's photosynthetic energy production. Current estimates place a stable world population at 8 to 10 billion by the late twenty-first century, assuming fertility rates continue to fall over the next several decades. Even at this reduced rate of population growth, we could eventually consume all of the planet's resources, unless we take action. Today, because of this overload of the world's resources, over 1.2 billion of the world's population live below the subsistence level, and 500 million live below the minimum caloric-intake level necessary for life.

It could well be that coming to grips with the impact of our species on our planet, learning to live in a sustainable fashion on Spaceship Earth, will become the greatest challenge of all to our generation. This will be particularly difficult for a society that has difficulty in looking more than a generation ahead, encumbered by a political process that generally functions on an election-by-election basis, as the current debate over global change makes all too apparent.

There is another aspect of this increasing global interdependence. Whether through travel and communication; through the internationalization of commerce, capital, and labor; or through the arts and culture, the United States is becoming increasingly linked with the global community. The world and our place in it have changed. A truly domestic United States economy has ceased to exist. It is no longer relevant to speak of the health of regional economies or the competitiveness of American industry because we are no longer self-sufficient or self-sustaining. Our economy and many of our companies, spanning the globe, are truly international and are intensely interdependent with other nations and other peoples.

As we have been throughout our history, we continue to be nourished and revitalized by wave after wave of immigrants coming to our shores with unbounded energy, hope, and faith in the American dream. Today, America is evolving into a "world nation" not simply with economic and political ties, but also with ethnic ties to all parts of the globe.

From this perspective, it becomes clear that understanding cultures other than our own has become necessary, not only for personal enrichment and good citizenship, but also for our very survival as a nation. Ironically, the contemporary American university is a truly international institution. It not only reflects a strong international character among its students, faculty, and academic programs, it also stands at the center of a

world system of learning and scholarship.

Yet, despite the intellectual richness of our campuses, we still suffer from the inherited insularity and ethnocentrism of a country that for much of its history has been protected from the rest of the world and has been self-sufficient in its economy—perhaps even self-absorbed. We must enable our students to appreciate the unique contributions to human culture that come to us from other traditions—to communicate, to work, to live, and to thrive in multicultural settings whether in this country or anywhere on the face of the globe.

When Americans hear references to the demographic changes occurring in our nation, we probably first think of the aging of our population. An equally profound demographic phenomenon, however, is the increasing diversity of American society with respect to race, ethnicity, and nationality. Women, minorities, and immigrants now account for roughly 85 percent of the growth in the labor force, currently representing 60 percent of all of our nation's workers. The full participation of currently underrepresented minorities and women is crucial to our commitment to equality and social justice, as well as to the future strength and prosperity of America. Our nation cannot afford to waste the human talent, the cultural and social richness, represented by those currently underrepresented in our society. If we do not create a nation that mobilizes the talents of all of our citizens, we are destined for a diminished role in the global community and increased social turbulence. Most tragically, we will have failed to fulfill the promise of democracy upon which this nation was founded.

The growing pluralism of our society is one of our greatest challenges as a nation. The challenge of increasing diversity is complicated by social and economic factors. Far from evolving toward one America, our society continues to be hindered by segregation and non-assimilation of

minority cultures. Courts and legislative bodies are now challenging long-accepted programs such as affirmative action and equal opportunity. Our social pluralism is also, however, among our most important opportunities. It gives us an extraordinary vitality and energy as a people. As both a reflection and a leader of society at large, the university has a unique responsibility to develop effective models of multicultural, pluralistic communities for our nation. We must strive to achieve new levels of understanding, tolerance, and mutual fulfillment for peoples of diverse racial and cultural backgrounds on our campuses and beyond. It has also become increasingly clear that we must do so within a new political context that will require new policies and practices.

For almost half a century, the driving force behind many of the major public investments in our national infrastructure has been the concern for national security in the era of the Cold War. The evolution of the research university, the national laboratories, the interstate highway system, our telecommunications systems and airports, and the space program were stimulated by concerns about the arms race and competition with the Communist bloc. Many of the technologies that we take for granted, from semiconductors to jet aircraft, from computers to composite materials, were originally spin-offs of the defense industry.

In the wake of the extraordinary events of the last decade—the disintegration of the Soviet Union, the reunification of Germany, and the major steps toward peace in the Middle East—the driving force of national security has been weakened by superpower confrontation and by terrorism and regional ethnic conflict. Much of the motivation for major public investment has also weakened. Peace has not freed up new resources in the post-Cold War world for investment in key areas such as education and research. Instead, the nation is drifting in search of new driving imperatives.

Although there are numerous societal concerns such as economic competitiveness, national health care, crime, and K-12 education, none of these has yet assumed an urgency sufficient to set new priorities for public investment.

We generally think of higher education as public enterprise, shaped by public policy and actions to serve a civic purpose. Market forces, however, also act on our colleges and universities. Society seeks services such as education and research. Academic institutions must compete for students, faculty, and resources. To be sure, the market is a strange one, heavily subsidized and shaped by public investment, resulting in prices that are always far less than true costs. Furthermore, as prices such as tuition are largely fictitious, so also is much of the value of education services based on myths and vague perception (i.e., the importance of a college degree as a ticket to success or the prestige associated with certain institutions). Ironically, the public expects not only the range of choice that a market provides, but also the subsidies that make the price of a public higher education less than the cost of its provision.

In the past, most colleges and universities served local or regional populations. While there was competition among institutions for students, faculty, and resources—at least in the United States—the extent to which institutions controlled the awarding of degrees, that is, credentialing, gave universities an effective monopoly over advanced education. Today, however, all of these market constraints are being challenged. The growth in the size and complexity of the postsecondary enterprise is creating an expanding array of students and educational providers. Information technology eliminates the barriers of space and time and new competitive forces such as virtual universities and for-profit education providers enter the marketplace to challenge credentialing.

The weakening influence of traditional regulations and the

emergence of new competitive forces, driven by changing societal needs, economic realities, and technology, are likely to impel a massive restructuring of the higher education enterprise. From our experience with other restructured sectors of our economy such as health care, transportation, communications, and energy, we could expect to see a significant reorganization of higher education, complete with the mergers, acquisitions, new competitors, and new products and services that have characterized other economic transformations. More generally, we may well be seeing the early stages of the appearance of a global knowledge and learning industry in which the activities of traditional academic institutions converge with other knowledge-intensive organizations such as telecommunications, entertainment, and information service companies.

This perspective of a market-driven restructuring of higher education as an industry, although perhaps alien and distasteful to the academy, is nevertheless an important framework for considering the future of the university. Although the postsecondary education market may have complex cross-subsidies and numerous public misconceptions, it is nevertheless very real and demanding. It has the capacity to reward those who can respond to rapid change and punish those who cannot. Universities will have to learn to cope with the competitive pressures of this marketplace while preserving the most important of their traditional values and character.

We must recognize the profound nature of the rapidly changing world faced by higher education. The status quo is no longer an option. We must accept that change is inevitable and use it as a strategic opportunity to control our destiny, while preserving the most important of our values and our traditions.

To borrow a phrase from Dickens, it does indeed seem like the best

of times and the worst of times for higher education. Universities are increasingly seen as key sources of the new knowledge and educated citizens so necessary for a knowledge-driven society. After two decades of eroding public support at the state and federal level, today we see signs of a commitment to restore investments in higher education.

Yet there is great unease on our campuses. Throughout society we see erosion in support of important university commitments such as academic freedom, tenure, broad access, and racial diversity. Even the concept of higher education as a public good is being challenged, as society increasingly sees a college education as an individual benefit determined by values of the marketplace rather than the broader needs of a democratic society. The faculty feels increasing stress, fearing an erosion in public support as unconstrained entitlements grow, sensing a loss of scholarly community with increasing disciplinary specialization, and being pulled out of the classroom and the laboratory by the demands of grantsmanship.

Some have even deeper fears, as illustrated by the following quotes:

> Thirty years from now the big university campuses will be relics. Universities won't survive. It is as large a change as when we first got the printed book.
> (Peter Drucker)

> If you believe that an institution that has survived for a millennium cannot disappear in a just a few decades, just ask yourself what has happened to the family farm.
> (William Wulf)

> I wonder at times if we are not like the dinosaurs, looking up at the sky at the approaching asteroid and wondering whether it has an implication for our future.
> (Frank Rhodes)

So, are we facing yet another period of evolution? Or will the dramatic nature and compressed time scales characterizing the changes of our time trigger a process more akin to revolution?

To be sure, most colleges and universities are responding to the challenges and opportunities presented by a changing world. They are evolving to serve a new age. But most are evolving within the traditional paradigms, according to the time-honored processes of considered reflection and consensus that have long characterized the academy. Is such glacial change responsive enough to allow the university to control its own destiny? Or, will the tidal wave of societal forces sweep over the academy, transforming the university in unforeseen and unacceptable ways while creating new institutional forms—cyberspace universities, global learning networks, for-profit learning assessment corporations—to challenge our experience and our concept of the university?

We have come to a fork in the road that might best be illustrated by imagining two sharply contrasting futures for higher education in America. The first is a rather dark, market-driven future in which strong market forces drive a major restructuring of the higher education enterprise. Although traditional colleges and universities play a role in this future, they are both threatened and reshaped by shifting societal needs, rapidly evolving technology, and aggressive for-profit entities. Together these drive the higher education enterprise toward the mediocrity that has characterized other mass media markets such as television and journalism.

A contrasting and far brighter future is provided by a culture of learning, in which universal or ubiquitous educational opportunities are provided to meet the broad and growing learning needs of our society. Using a mix of old and new forms, learners are offered a rich array of high-quality and affordable learning opportunities. Our traditional institutional

forms, including both the liberal arts college and the research university, continue to play key roles, albeit with some necessary evolution and adaptation.

Let us consider briefly each of these scenarios to better understand the challenges and opportunities characterizing the future of the university.

In recent years we have seen an explosion in the number of new competitors in the higher education marketplace. It is estimated that in 1998 the revenues of for-profit and proprietary educational providers were in excess of $3.5 billion and growing rapidly. Today, we are bombarded with news concerning the impact of information technology on the marketplace, from "e-commerce" to "e-learning" to "virtual universities" to "I-campuses," as MIT calls its Faustian bargain with Microsoft.

Many of these efforts target highly selective markets such as the University of Phoenix, which already operates over 100 learning centers in 32 states, serving over 50 thousand students. Phoenix targets the educational needs of adult learners whose career and family responsibilities make access to traditional colleges and universities difficult. By relying on highly structured courses, arranged in a form convenient to the student and taught by practitioners as part-time instructors, Phoenix has developed a highly competitive paradigm.

Other for-profit industry-based educational institutions are evolving rapidly such as Sylvan Learning Systems and its subsidiaries, Athena University, Computer Learning Centers, and the World Learning Network. These join an existing array of proprietary institutions such as the DeVry Institute of Technology and ITT Educational Services. Not far behind are an array of sophisticated industrial training programs such as Motorola University and the Disney Institute, originally formed to meet internal corporate training needs, but now exploring offering educational services to

broader markets. Of particular note here are the efforts of information services companies such as Andersen Consulting that are increasingly viewing education as just another information service.

It is important to recognize that although many of these new competitors are quite different from traditional academic institutions, they are also quite sophisticated in their pedagogy, their instructional materials, and their production and marketing of educational services. Some, such as Caliber Learning and the Open University invest heavily in the production of sophisticated learning materials and environments, utilizing state-of-the-art knowledge concerning learning methods from cognitive sciences and psychology. They develop alliances with well-known academic institutions to take advantage of their brand names (e.g., Wharton in business and MIT in technology). They approach the market in a highly sophisticated manner, first moving into areas characterized by limited competition, unmet needs, and relatively low production costs and then moving rapidly up the value chain to more sophisticated programs.

In the face of such competition, traditional colleges and universities are also responding with an array of new activities. Most university extension programs are moving rapidly to provide Internet-based instruction in their portfolios. University collaboratives such as the National Technological University and the Midwest University Consortium for International Activities have become quite formidable competitors. They are being joined by a number of new organizations such as the Western Governors' University, the Michigan Virtual University, and an array of university-stimulated "dot-coms" such as Unext.com and Versity.com that aim to exploit both new technology and new paradigms of learning.

The market forces unleashed by technology and driven by increasing demand for higher education are very powerful. If allowed to

dominate and reshape the higher education enterprise, we could well find ourselves facing a brave new world in which some of the most important values and traditions of the university fall by the wayside. Although the commercial, convenience-store model of the University of Phoenix may be a very effective way to meet the workplace skill needs of some adults, it certainly is not a paradigm that would be suitable for many of the higher purposes of the university. As we assess these market-driven emerging learning institutions, we must bear in mind the importance of preserving the ability of the university to serve a broader public purpose. Universities teach skills and convey knowledge. They also preserve and convey our cultural heritage from one generation to the next, perform the research necessary to generate new knowledge, serve as constructive social critics, and provide a broad array of knowledge-based services to our society, ranging from health care to technology transfer.

Furthermore, our experience with market-driven, media-based enterprises has not been altogether positive. The broadcasting and publication industries suggest that commercial concerns can lead to mediocrity, an intellectual wasteland in which the lowest common denominator of quality dominates. For example, although the campus will not disappear, the escalating costs of residential education could price this form of education beyond the range of all but the affluent, relegating much if not most of the population to low-cost (and perhaps low-quality) education via shopping mall learning centers or computer-mediated distance learning. In this dark, market-driven future, the residential college campus could well become the gated community of the higher education enterprise, available only to the rich and privileged.

The Kellogg Commission on the Future of the State and Land Grant Universities proposes a vision for the future of education known as "a

learning society," a term implying socially inclusive learning opportunities for all of its members, including children, young and older adults, the elderly, the employed and the unemployed, the advantaged and the disadvantaged. In such a society, all students are educated to the highest levels they can reach, recognizing that everyone can learn, but that not everyone learns in the same way.

Such a society would value and foster habits of lifelong learning, ensuring that there are responsive and flexible learning programs and learning networks to address all students' needs. Of particular importance would be the use of emerging information technologies, capable both of enriching, distributing, and customizing learning opportunities. This vision would require new public policies that ensure quality of access to learning, information, and information technologies, recognizing that investments in learning contribute to overall competitiveness and the economic and social wellbeing of the nation.

While the Commission challenges our universities and our government leaders to envision such a "learning society" as a goal, the study raises many concerns, among them a current educational paradigm that emphasizes teaching rather than learning, the lack of a student-centered and customer-driven orientation to education in our institutions, the lack of extensive faculty involvement in distance learning and instructional technology, and the limited institutional flexibility to bring about the change.

Let me suggest that there may be another problem with this vision. The concept of "a learning society" may be too narrow. Although it is based on universal access, it also suggests that although the "society is learning," its individual members may not all be so benefited.

Perhaps we should turn the phrase around and consider instead a

"society of learning" in which opportunities for learning become ubiquitous and universal, permeating all aspects of our society and empowering, through knowledge and education, all of our citizens. Let me explain.

We have entered an era in which educated people and the knowledge they produce and utilize have become the keys to the economic prosperity and wellbeing of our society. Education, knowledge, and skills have become primary determinants of one's personal standard of living. Just as our society has historically accepted the responsibility for providing needed services such as military security, health care, and transportation infrastructure in the past, education today has become a driving social need and societal responsibility. It has become the responsibility of democratic societies to provide their citizens with the education and training they need throughout their lives whenever, wherever, and however they desire it, at high quality and at an affordable cost.

Of course, this has been one of the great themes of higher education in America. Each evolutionary wave of higher education has aimed at educating a broader segment of society, at creating new educational forms to do that—the public universities, the land grant universities, the normal and technical colleges, and the community colleges.

So what would be the nature of a university of the twenty-first century capable of creating and sustaining a society of learning? It would be impractical and foolhardy to suggest one particular model. The great and ever-increasing diversity characterizing higher education in America makes it clear that there will be many forms, many types of institutions serving our society. There are, however, a number of themes that will almost certainly factor into at least some part of the higher education enterprise:

- LEARNER-CENTERED Our universities, just as other social institutions, must become more focused on those we serve. We must transform

ourselves from faculty-centered to learner-centered institutions, becoming more responsive to what our students need to learn rather than simply what our faculties wish to teach.

- AFFORDABLE Society will demand that we become far more affordable, providing educational opportunities within the resources of all citizens. Whether this occurs through greater public subsidy or dramatic restructuring of the costs of higher education, it seems increasingly clear that our society-not to mention the world-will no longer tolerate the high-cost, low-productivity paradigm that characterizes much of higher education in America today.
- LIFELONG LEARNING In an age of knowledge, the need for advanced education and skills will require both a personal willingness to continue to learn throughout life and a commitment on the part of our institutions to provide opportunities for lifelong learning. The concept of student and alumnus will merge. Our highly partitioned system of education will blend increasingly into a seamless web, in which primary and secondary education, undergraduate, graduate, and professional education, on-the-job training and continuing education, and lifelong enrichment become a continuum.
- INTERACTIVE AND COLLABORATIVE Already we see new forms of pedagogy: asynchronous (anytime, anyplace) learning that utilizes emerging information technology to break the constraints of time and space, making learning opportunities more compatible with lifestyles and career needs and interactive and collaborative learning appropriate for the digital age, the plug-and-play generation.
- DIVERSE The great diversity characterizing higher education in

America will continue, as it must to serve an increasingly diverse population with diverse needs and goals.

- INTELLIGENT AND ADAPTIVE Knowledge and distributed intelligence technology will increasingly allow us to build learning environments that are not only highly customized but also adapted to the needs of the learner.

Many colleges and universities have already launched major strategic efforts to understand these themes and to transform themselves into institutions that are better capable of serving a knowledge-driven society. Such efforts to explore new learning paradigms extend far beyond the traditional higher education enterprise to include an array of new participants, ranging from publishing houses (e.g., Harcourt-Brace) to entertainment companies (e.g., Disney) to information services providers (e.g., Andersen Consulting) to information technology corporations (e.g., IBM). It is clear that the access to advanced learning opportunities is not only becoming a more pervasive need but also could well become a defining domestic policy issue for a knowledge-driven society.

If so, we will need to develop new paradigms for delivering education to even broader segments of our society, perhaps to all of our society, in convenient, high-quality forms at a cost all can afford. Fortunately, today's technology is rapidly breaking the constraints of space and time. It has become clear that most people, in most areas, can learn and learn well using "anytime, anyplace, anyone" education. Lifetime education is rapidly becoming a reality, making learning available for anyone who wants to learn at the time and place of his or her choice without great personal effort or cost. With advances in modern information technology, the barriers in the educational system are no longer cost or technological capacity but rather perception and habit.

Even this may not be enough. Perhaps we should instead consider a future of "ubiquitous learning"—learning for everyone, every place, all the time. Indeed, in a world driven by an ever-expanding knowledge base, continuous learning, like continuous improvement, has become a necessity of life.

In a society of learning, people would be continually surrounded by, immersed in, and absorbed in learning experiences. Information technology has now provided us with a means to create learning environments throughout one's life. These environments are able not only to transcend the constraints of space and time, but they, like us, are also capable as well of learning and evolving to serve our changing educational needs. Let me illustrate with two examples, learning networks and new civic life forms.

Driven by information technology, the network has become more than a web which links together learning resources. It has become the architecture of advanced learning organizations. Information, knowledge, and learning opportunities are now distributed across robust computer networks to hundreds of millions of people. The knowledge, the learning, and the cultural resources that used to be the prerogative of a privileged few are rapidly becoming available anyplace, anytime, to anyone.

The impact on all social organizations has been profound. Business and industry are moving rapidly away from the hierarchy of the organizational pyramid to networked organizations of relatively autonomous components. The command-communication-control structure of General Motors and IBM has been replaced by the "chaordic" network organization of Visa.

It is important for the academy to appreciate how profound this new network architecture is for learning organizations. Today's learners

can learn anywhere, anytime, acquiring learning and knowledge from sources in any location. Today, learners are in command of what, how, where, and when they learn, and they will be increasingly in control of what they pay for the learning opportunity as well.

The implications of a networked or open learning architecture are manifold. First, it makes less and less sense for institutions to attempt to be comprehensive, to go it alone. Rather the key will be forming alliances, sharing resources, specializing in what they can be really good at, and relying on other focused institutions to provide the rest. This does not mean that the largest, most prestigious institutions will necessarily be the most successful. Indeed, smaller, more focused, and more nimble institutions may be able to develop world-class learning services that could compete very effectively with traditional offerings.

Learning networks may also work to couple together different levels of education. For example, we are already seeing evidence that many high school students are entering college with degree credit in college-level courses taken over the Net. By the same token, many colleges must provide remedial education at the secondary school level. At the other end, adults are seeking further educational services from higher education to respond to changing career requirements. A network architecture works best for the delivery of educational services when and where they are needed—that is, for "just in time" rather than "just in case" education. It may also be best configured for "just for you" education, that is, educational programs highly customized to the learning needs of the student.

One can imagine the learning networks evolving into a seamless continuum of educational opportunities and services, in which the degree becomes less and less relevant, and what a person has learned becomes far more significant. Learning communities will be more extended and diverse

with a network architecture. Because they will evolve unconstrained by space and time, the number of off-campus learners will vastly outnumber on-campus students. Beyond that, the distinction between learner, teacher, and researcher may become blurred. All will be able to make contributions to learning, teaching, and scholarship.

Today, as knowledge becomes an ever more significant factor in determining both personal and societal well being and as rapidly emerging information technology provides the capacity to build new types of communities, we might well see the appearance of new social structures. A century ago, stimulated by the philanthropy of Andrew Carnegie, the public library became the focal point for community learning. Today, however, technology allows us to link together public and private resources such as schools, libraries, museums, hospitals, parks, media, and cultural resources. Furthermore, communities can easily be linked with the knowledge resources of the world through the Internet.

There are some interesting trends in technology that suggest that new types of "community knowledge structures" may appear, ones that will not be derivative of traditional institutions such as schools or libraries. One such trend involves the evolution of global computer networks such as the Internet. In addition to their ability to link people together into electronic communities, they link us as well to increasingly diverse and rich sources of knowledge. In a sense, they have become "knowledge networks," giving us the capacity to build communities with access to vast intellectual resources. Higher education must define its relationship with these emerging possibilities in order to create a compelling vision for its future as it enters the next millennium.

Although market forces are far more powerful that most realize, I also believe that it is possible to determine which of these or other paths is

taken by higher education in America. Key in this effort is our ability as a society to view higher education as, in part, a public good that merits support through public tax dollars. In this way, we may be able to protect the public purpose of the higher education enterprise and sustain its quality, important traditions, and essential values.

As we enter the new millennium, there is an increasing sense that the social contract between the university and American society, perhaps best represented by today's government-university research partnership, may need to be reconsidered and even renegotiated. The number and interests of the different stakeholders of the university have expanded and diversified, drifting apart without adequate means to communicate and reach agreement on priorities. Political pressures to downsize federal agencies, balance the federal budget, and reduce domestic discretionary spending may reduce significantly the funding available for university-based research. Government officials are concerned about the rapidly rising costs of operating research facilities and the reluctance of scientists and their institutions to acknowledge that choices must be made to live with limited resources and set priorities.

Although the government-university research partnership has had great impact in making the American research university the world leader in both the quality of scholarship and the production of scholars, it has also had its downside. Pressures on individual faculty for success and recognition have led to major changes in the culture and governance of universities. The peer-reviewed grant system has fostered fierce competitiveness, imposed intractable work schedules, and contributed to a loss of collegiality and community. It has shifted faculty loyalties from the campus to their disciplinary communities. Publication and grantsmanship have become a one-dimensional criterion for academic performance and prestige, to the

neglect of other important faculty activities such as teaching and service. Furthermore, although the government-university partnership has responded well to the particular interests of academic researchers, one might well question whether the needs of other stakeholders, including the taxpaying public, have been adequately addressed.

For the past half-century, the government-university research partnership has been built upon the concept of relatively unconstrained patronage. The government provided faculty members with the resources to do the research they felt was important, in the hope that this research would benefit society in the future. Because the quality of the faculty, the programs, and the institution was felt to be the best determinant of long-term impact, academic excellence and prestige were valued.

Today there seems to be a shift in what society seeks from the university. Students and parents increasingly choose professional degree programs appropriate for their first job rather than the liberal education capable of enriching their lives. Politicians value productivity measures rather than academic rankings. Higher education has fallen behind health care, prisons, and civil infrastructure in its capacity to compete for limited state tax dollars.

In a sense, society is telling us that while quality is important, even more so is cost. The marketplace seeks low-cost, quality services rather than prestige. Parents and students ask increasingly, "If a Ford will do, then why buy a Cadillac?" It could be that the culture of excellence, which has driven both the evolution of and competition among research universities for over half a century, will no longer be accepted and sustained by the American public. We may be seeing a shift in public attitudes toward higher education that will place less stress on values such as excellence and elitism and more emphasis on the provision of cost-competitive, high-quality services,

moving from prestige-driven to market-driven philosophies.

One of my colleagues refers to this phenomenon as the "de-Harvardization" of higher education in America that is likely to occur in the century ahead. By this he means that our colleges and universities, which have long aspired to emulate elite institutions such as Harvard, are beginning to recognize that a paradigm that focuses more and more resources on fewer and fewer people while acting as a predator to raid the faculty of less prosperous institutions, clearly does not serve the needs of American society.

Rather than allowing the marketplace alone to redefine the nature of higher education in America, perhaps it is time to reconsider the social contract between the university and American society. But rather than create an entirely new model, perhaps it is more appropriate to first consider the relationship that characterized the early half of the twentieth century, the land grant university model.

Recall that a century and a half ago, America was facing a period of similar change, evolving from an agrarian, frontier society into an industrial nation. At that time, a social contract was developed between the federal government, the states, and public colleges and universities designed to assist our young nation in making this transition. The land grant acts were based upon several commitments: First, the federal government provided federal lands for the support of higher education. Next, the states agreed to create public universities designed to serve both regional and national interests. As the final element, these public or land grant universities accepted new responsibilities to broaden educational opportunities for the working class while launching new programs in applied areas such as agriculture, engineering, and medicine, aimed at serving an industrial society and committing themselves to public service, engagement, and extension.

Today our society is undergoing a similarly profound transition, this time from an industrial to a knowledge-based society. It may be time, therefore, for a new social contract aimed at providing the knowledge and the educated citizens necessary for prosperity, security, and social well-being in this new age. Perhaps it is time for a new federal act, similar to the land grant acts of the nineteenth century, that will help the higher education enterprise address the needs of the twenty-first century. Of course, a twenty-first century land grant act is not a new concept. In fact, several of the earlier David Dodds Henry lecturers, including Frank Rhodes, Walter Massey, and Jack Peltason have advocated just such a concept. Others have recommended an industrial analog to the agricultural experiment stations of the land grant universities. Others have suggested that in our information-driven economy, telecommunications bandwidth is the asset that could be assigned to universities much as federal lands were a century ago. Unfortunately, an industrial extension service may be of marginal utility in a knowledge-driven society. Furthermore, Congress has already given away most of the available bandwidth to traditional broadcasting and telecommunications companies.

The land grant paradigm of the nineteenth and twentieth centuries was focused on developing the vast natural resources of our nation. Today, however, we have come to realize that our most important national resource for the future will be our people. At the dawn of the age of knowledge, one could well make the argument that education itself will replace natural resources or national defense as the priority for the twenty-first century. We might even conjecture that a social contract based on developing and maintaining the abilities and talents of our people to their fullest extent could well transform our schools, colleges, and universities into new forms that would rival the research university in importance. In a sense, the

twenty-first century analog to the land grant university might be termed a learn-grant university.

A learn-grant university for the twenty-first century might be designed to develop our most important resource, our human resource, as its top priority, along with the infrastructure necessary to sustain a knowledge-driven society. The field stations and cooperative extension programs--perhaps now as much in cyberspace as in a physical location—could be directed to the needs and the development of the people in the region. Although traditional academic disciplines and professional fields would continue to have major educational and service roles and responsibilities, new interdisciplinary fields such as complexity and global change might be developed to provide the necessary knowledge and associated problem-solving services in the land grant tradition.

In an era of relative prosperity in which education plays such a pivotal role, it may be possible to build the case for new federal commitments based on just such a vision of a society of learning. But certain features seem increasingly apparent. New investments are unlikely to be made within the old paradigms. For example, although the federal government-research university partnership based on merit-based, peer-reviewed grants has been remarkably successful, this remains a system in which only a small number of elite institutions participate and benefit. The theme of a twenty-first century learn-grant act would be to broaden the base, to build and distribute widely the capacity to contribute both new knowledge and educated knowledge workers to our society, not simply to channel more resources into established institutions. Furthermore, although Congress and the White House seem increasingly confident in the strength of our economy, they are unlikely to abandon entirely the budget balancing constraints that many believe contributed to today's prosperity. Hence,

major new investments via additional appropriations seem unlikely. There is another model provided, however, by the 1997 Budget Balancing Agreement, in which tax policy was used as an alternative mechanism to invest in education.

An example illustrates one possible approach. Suppose the federal government were to provide a permanent research and development tax credit to industry for those research and educational activities undertaken jointly with public universities in special research parks or networked organizations. The states would commit to matching the federal contributions, perhaps by developing the research parks and assisting their colleges and universities in building the capacity to partner with industry. The participating universities would not only agree to work with industry on projects of interest, but would restructure their intellectual property ownership policies to facilitate such partnerships. Participating universities would go beyond this to build the capacity to provide more universal educational opportunities, perhaps through network-based learning or virtual universities. Universities would also agree to form alliances with other universities as well as with other parts of the education enterprise such as K-12 education and workplace training programs.

Other national priorities such as health care, the environment, global change, and economic competitiveness might be part of an expanded national service mission for universities. Institutions and academic researchers would then commit to research and professional service associated with such national priorities. To attract the leadership and the long-term public support needed for a valid national public service mission, faculties would be called upon to set new priorities, collaborate across campus boundaries, and build upon their diverse capabilities.

This is but one example of many, but the point seems clear. It may

be time to consider a new social contract, linking together federal and state investment with higher education and business to serve national and regional needs, much in the spirit of the land grant acts of the nineteenth century.

As our society changes, so too must change societal institutions such as the university. But change has always characterized the university, even as it sought to preserve and propagate the intellectual achievements of our civilization. Although the university has endured as an important social institution for a millennium, it has evolved in profound ways to serve a changing world. Higher education in America has likewise been characterized by change, embracing the concept of a secular liberal education, then weaving scholarship into its educational mission, and broadening its activities to provide public service and research to respond to societal needs.

The past decade has been such a time of significant change in higher education, as our institutions have attempted to adapt to the changing nature of resources and respond to public concerns. Undergraduate education has been significantly improved. Costs have been cut and administrations streamlined. Our campuses are far more diverse today with respect to race and gender. Our researchers are focusing their attention on key national priorities. Yet, these changes in the university, although important, have been largely reactive rather than strategic. For the most part, our institutions still have not grappled with the extraordinary implications of an age of knowledge, a society of learning that will likely be our future.

Clearly, higher education will flourish in the decades ahead. In a knowledge-intensive society, the need for advanced education will become ever more pressing, for individuals and society more broadly. Yet, it is also likely that the university as we know it today—rather, the current constella-

tion of diverse institutions comprising the higher education enterprise—will change in profound ways to serve a changing world. The real question is not whether higher education will be transformed, but rather how and by whom. If the university is capable of transforming itself to respond to the needs of a society of learning, then what is currently perceived as the challenge of change may, in fact, become the opportunity for a renaissance, an age of enlightenment in higher education in the years ahead.

The university has benefited our civilization for a thousand years as a learning community where both the young and the experienced could acquire not only knowledge and skills, but also the values and discipline of the educated mind. It has defended and propagated our cultural and intellectual heritage, while challenging our norms and beliefs. It has produced the leaders of our governments, commerce, and professions. It has created and applied new knowledge to serve our society. And, it has done so while preserving those values and principles so essential to academic learning: the freedom of inquiry, an openness to new ideas, a commitment to rigorous study, and a love of learning.

There seems little doubt that these roles will continue to be needed by our civilization. There is little doubt as well that the university, in some form, will be needed to provide them. The university of the twenty-first century may be as different from today's institutions as the research university is from the colonial college. But its form and its continued evolution will be a consequence of transformations necessary to provide its ancient values and contributions to a changing world.

Response by Richard Herman

Provost

University of Illinois at Urbana-Champaign

Professor Duderstadt's remarks raise three themes that I would like to address in response. First, I would agree that the "social contract" has indeed been changing with, and somewhat in response to, a changing environment. In my second point, however, I diverge from his statement that the environment is ripe for a new social contract between the public and academia. The specific high water marks that punctuate the contract's evolution over the past 150 years have come about in highly singular circumstances and from sources outside academia. Do these singular circumstances exist today? I argue that they do not. Finally, I would assert that universities do have new and special roles to play in the effort to ensure a resident population that more closely mirrors society, and that these efforts will benefit both academia and the nation.

The partnership between the university and the nation (the public as well as the federal and state governments) has been evolving. In this decade, one of the positive aspects of that evolution has been the increased emphasis on education. We can attribute this in part to a heightened emphasis on accountability, more attention to education on the part of federal funding agencies such as the National Science Foundation, and an increased understanding that individuals learn in different ways.

Some significant historical points—"calls to arms," if you will—in terms of the evolving social contract have been the Morrill Act of 1862 (the Land Grant College Act), the Smith-Lever Act of 1914 (establishing Cooperative Extension), the 1945 Vannevar Bush report called *Science—The Endless*

Frontier, and the GI Bill. These loom particularly large. I suppose one could add the Bayh-Dole Act, which provided universities with intellectual property rights from federally funded research. In focussing on these most prominent agents of change, it seems clear that they came about under very special circumstances—that is, under perceived threats to the national well-being and, significantly, by forces external to universities.

Let's look at a few examples.

The Smith-Lever Act was a product of several years of effort to develop educational programs that would reach farmers and their families. In 1910, 32 million Americans, one-third of the nation's people, lived on six million farms. Smith-Lever was a part of the Progressive movement at a time when the system of disseminating agricultural information was viewed by many as being so poor as to put the U.S. in danger of being unable to supply the growing population with food and fiber at reasonable prices. In other words, it was a response to a threat to our nation's wellbeing.

The times were again unique when President Franklin D. Roosevelt called upon MIT engineer Vannevar Bush to prepare a document describing how lessons from the experimental application of scientific principles to wartime challenges could be profitably employed in times of peace. The result was Bush's seminal report, *Science—The Endless Frontier*, which has been the most influential document shaping U.S. science and technology policy in the latter half of this century. Bush's report prompted the establishment of a system of public support for university research that continues to this day. It also led to the establishment of the National Science Foundation, which itself put in place a considerable partnership between the nation and its universities. Bush's report arose out of a unique situation: scientific research had changed the course of the war. *Science—The Endless Frontier* asked much more than what the nation could do for science. It dealt

with disease as well as national security, with jobs as well as industrial research. Today, thanks to Bush, science and technology have an established infrastructure and diverse participants. Today's need is not for another call to arms, but for a joining of forces between government, universities, and industry to direct our efforts for the greatest good.

In *Science—The Endless Frontier*, Bush also makes the important although frequently overlooked point that "it would be folly to set up a program under which research in the natural sciences and medicine were expanded at the cost of the social sciences, humanities and other studies so essential to the national well being." As Allan Greenspan put it more recently, "Overwhelmed with the increasing scientific knowledge base, our universities are going to have to struggle to prevent the liberal arts curricula from being swamped by technology and science. It is crucial that that not happen."

I do not see this happening, but it is a useful caveat. These disciplines are important in and of themselves. They are vital to determining who we are. Only with the breadth of knowledge and expertise within our universities brought to bear on the issues of the day will the public realize the benefit of our advances.

As an example, I cite the recent debate about the fruits of biotechnology. University scientists and engineers have been key to advances in biotechnology, but we have yet to bring to bear our full range of talents on the attendant issues.

Consider a recent article in *The Baltimore Sun* describing the lack of progress on the Bermuda Accord—an informal agreement to release all research on human genes without claiming any patents. The article notes that the idea behind patent law was to ensure that the benefits of inventions are quickly made available to all by providing an appropriate reward to

encourage inventors. The challenge facing us is how to preserve the principle without offending human ethics and the forward march of science.

This example suggests that academic legal scholars, philosophers, and economists can elucidate the social consequences of our research in biotechnology and can interpret these advances for the larger community. Even as we innovate and discover, we must help the world make wise choices. And, we must undertake this additional public role while vigilantly protecting our core mission as educators, researchers, and thinkers.

Today is the 164th anniversary of the birth of Samuel Clemens—Mark Twain. He once said, "Education that consists in learning things and not the meaning of them is feeding upon the husks and not the corn." Similarly, Peter Medawar wrote in his book *Advice To A Young Scientist:*

> Young scientists must however never be tempted into mistaking the necessity of reason for the sufficiency of reason . . . It is not to rationalism that we look for answers to these simple questions (of origins and purposes) because rationalism chides the endeavor to look at all.

This, too, is part of the evolving social contract—an integration of knowledge, a credible, intelligible synthesis of knowledge—to create a public good.

At the same time as *Science—The Endless Frontier* emerged, another report, known as the Harvard Red Book, was published. This report, properly titled *General Education in a Free Society*, spoke to the obligation of society to nurture ability and—emphasizing the diversity of U.S. society—noted that education would not be adequate until it catches the image of that society more exactly.

A diverse campus ensures that our graduates become world citizens, as our time needs and requires them to be. I like to quote Martha Nussbaum's definition of a world citizen: "a person who can argue intelli-

gently about the most important matters with human beings the world over, not being shut out of such debates by narrowness and prejudice."

This is also a part of our social contract, our partnership with society. Although William Bowen and Derek Bok's 1998 work, *The Shape of the River*, has its proponents and detractors, all agree that this work makes the case clearly that entry into this country's elite institutions is, for American students, a great predictor of success later in life. Despite the recent attacks on traditional affirmative action programs, there is a clause in our social contract that says universities must work to provide opportunities to people of all races, classes, and backgrounds.

We are all watching what is going on in Texas and in California. In Texas, the state's flagship campus at Austin has maintained its diversity through a legislative response to the Hopwood decision. In California, diversity across the entire UC System has been maintained, although it has decreased markedly at Berkeley and UCLA.

Society is seeking healing solutions to the current racial divide. William Julius Wilson offers one in his recent work, *The Bridge Over the Racial Divide*. Wilson proposes a shift in emphasis to "affirmative opportunity," which captures both equal opportunity, a fundamental principle of our country, and affirmative action, which connotes that "something more than formal, legal equality is required to overcome the legacy of the past." No matter what particular solution we find, universities must share in the continuing work to help society overcome that legacy.

In summary, on the issue of encouraging diversity, I suspect that Professor Duderstadt and I are of similar mind. But I hear him arguing for a substantively new social contract between the public and its universities, and I think that current circumstances don't support such a leap. We are in a position to build on the traditional strengths and diversity of talents found

at our universities. We have new roles to play—to help elevate all sections of society through education, to integrate knowledge across disciplinary lines, to help society find the meaning and value in our advances, and to realize the resultant benefits.

For those of us at research institutions, I do see such a role as affecting the basic function of the university, the education of our students. This also suggests, however, that as we enter new arenas, we must keep our basic functions at the fore. Universities, to paraphrase Derek Bok, offer the most fertile ground for basic scientific inquiry, humanistic scholarship, and the analysis of society and its institutions. These are long range endeavors that provide contributions of lasting importance.

Response by Sylvia Manning

Chancellor
University of Illinois at Chicago

Respondents in general may be divided into two groups. The first are those who don't so much respond as offer another talk of about 10 minutes (or whatever the allotted time) on a similar topic.

The second are those who do respond, and this group in turn may be divided into two. The first respond in a holistic way to the central thesis of the talk. They agree or disagree, but they keep focus on the whole argument. The second type picks. They pick at points of the argument. They start with something nice, and then they pick. If they choose sporadic points, then their responses have little flow, but they cohere through picking at what the audience has just heard.

You've had one of the first sort. But I myself am a picker—usually and today.

What I want to pick at are those parts of Dr. Duderstadt's presentation that are giving me something that feels like free-floating anxiety. Except that I think I can pin it down. I want to believe the ringing confidence of his closing paragraphs. But I am anxious. My only revenge against the perpetrator of this anxiety is to attack.

But first, the nice part. The talk we have heard is highly provocative in the best sense. There are a couple of major ways of being provocative. You can be provocative by saying one utterly outrageous thing. Or, you can be provocative by saying a number of things that make people think. That is how this talk works, and I am very grateful for that, grateful that I got to read the paper earlier and be subject to its provocation because it provokes

us to the larger questions. I am also grateful because a talk that raises several questions offers lots of places to pick. I don't think I'll do much damage to Dr. Duderstadt's basic argument, nor would I want to, despite my contrarian impulses. This has been an enormously stimulating lecture. Now, to pick.

This age of knowledge creates, it has been widely argued, a knowledge-based society, which seems to mean a knowledge-based economy. That is great for those of us who are purveyors of knowledge—in the "ed biz," as it soon won't even be comical to call it. The problem is that when all is said and done and known, one doesn't eat knowledge or clothe oneself with it or find shelter in it. Our knowledge economy still seems to depend on someone else's agrarian or industrial economy. These others may reside in other countries, where wages are low—as our students protesting against Nike remind us—or at home, sliding steadily down the wage scale to produce the astounding ratios we now see between the highest and lowest paid.

The phrase, age of knowledge, also slides easily into another phrase, society of learning. To take one example from the talk, we heard, "If the university is capable of transforming itself to respond to the needs of a culture of learning . . . " There is an act of equation going on here that may be losing critical distinctions. Undoubtedly, we live in an age that requires skills and knowledge that take time to learn. Let me say now that I remain quite unsure that trouble-shooting Lotus Notes is more difficult or requires more learning than, say, tracking a bear. But, I'll concede that it is more "book-learned" and let that part of the matter drop. If I concede knowledge, I can't concede any particular evidence that we also have a culture of learning, or seem much on the road to one, unless by learning all you mean is the acquisition of more Lotus Notes skills.

In contrast, what I see are our students, a generation for whom national security has not been much of an issue—who are educated and getting more so, who are healthy and with excellent health services to support them, who are living in an economic boom of incredible length with employers eagerly awaiting their graduation, and who have an endless abundance of entertainment almost thrust at them—taking Liquid G to hasten the buzz of an alcohol high.

Whether they protest against Nike or take Liquid G, our students are saying something that I think we don't yet know how to interpret. It may mean very little, or it may point to a serious lack in our so-called culture of learning.

Dr. Duderstadt foresees the likelihood of "a global knowledge and learning industry, in which the activities of traditional academic institutions converge with other knowledge-intensive organizations such as telecommunications, entertainment, and information service companies." He warns that society "will no longer tolerate the high-cost, low-productivity paradigm that characterizes much of higher education in America today." Instead, he reminds us, people want "cost-competitive high-quality services," and he doesn't equate this high quality with excellence. In fact, he sees it as quite separate from excellence, which he also refers to as prestige: "the marketplace seeks low-cost, quality services rather than prestige." I'm struck by some of the words, by the use of "services" for education. This is not Dr. Duderstadt's coinage, I should add, but his reflection of current usage. Education is an internal struggle. Services? Well, you sit back and get them, like room service and laundry service and table service and gasoline by self-service. Prestige is a derogatory term in so far as it refers not to the substance, but to the badge. If excellence is only prestige, then indeed in an egalitarian society we can do without it. But can we do without

the real substance of excellence?

With the loss of the Cold War to support our research, we hasten to assure that we are now as essential as ever, this time to the knowledge-based economy rapidly transforming us. We say that we will produce the new knowledge and that we will produce the knowledge-workers.

We talk a lot about service and blur the distinction between serving the K-12 schools and serving corporations and between giving health care to the indigent and doing trials for pharmaceutical companies.

I do not think that training programs, even in the narrowest sense, are incompatible with the higher aims of higher education. I do not think that research under corporate sponsorship is intrinsically more liable to contamination that it is under governmental sponsorship, although we have some sobering examples in, for instance, tobacco research. I do think, however, that we face many challenges. I would like to close by focusing on one of them.

We are told that we can no longer afford the high-cost low-productivity paradigm that characterizes higher education in America today. That seems to be true in the sense that there is increasingly less willingness to pay for it. The reason the paradigm is high cost and low productivity is that it is a paradigm of teachers working closely with students. That has always been a luxury. We have tried to extend that luxury to every citizen we could persuade to take it—now reaching to over 60% of high school graduates. That's never been tried, ever, anywhere. And, it's expensive. That we want to do it, that we think everyone is entitled to it, is itself an achievement. It would be even better if we could succeed with it.

I think we could, and I'm not convinced that our society can't afford it. We are richer than we have ever been. True, our wealth has also

created some costly problems that require solution, such as environmental degradation. But our wealth is enormous. We just choose to spend it in different ways.

It may be that we can't afford it, but surely it is also that we don't yet want it enough. By "it" I mean that high-cost stuff. Mostly, I mean liberal education, education not only for the workplace, but also for citizenship; education that creates not only the workers that industry wants, but also the industry that workers want; and education that gives to every one of our children, not just to the privileged, the gift of the examined life.

I can get awful high-sounding on the classic notion of a liberal education. I don't mean that to derogate professional education. In fact, I think that at its best, the engineering major, for example, is a fine form of liberal education. Nor do I by any means want to suggest that the small class reading Plato or Toni Morrisson together on Tuesday and Thursday afternoons is the only way to go.

This is not a repudiation of my own efforts to establish the University of Illinois Online or to improve our direct transfer of technology. It is simply to say that as we move, perhaps inevitably, into either Dr. Duderstadt's society of learning or his Brave New World or something in between, it will be difficult to bring with us the values of higher education that had and have little to do with higher incomes. But because we owe it to the succeeding generations, we can do it.

Response By F. King Alexander

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University of Illinois at Urbana-Champaign

President Duderstadt, thank you very much for your thought-provoking paper and inspiring talk. I'm honored to be able speak before such a distinguished group of faculty, students, and university administrators during this special event and to share some of my thoughts regarding this important topic. As a teacher and researcher who primarily studies the evolving relationship between governments and higher education, much of what President Duderstadt has stated today foretells of an uncertain future for colleges and universities in the higher education marketplace.

There are, however, four particularly interesting areas to which President Duderstadt alluded that I would like to address. First, despite what some anti-federalists may believe about the role of the federal government in education, the federal government has played a major role in the development of the American higher education system. Two centuries of educational evolution clearly demonstrate that federal involvement in the nation's educational enterprise has been in the country's best social and economic interests. Second, the concept of globalization and free market economics is significantly changing the importance of higher education institutions to their respective societies as well as the expectations that are being placed upon them. Within academic institutions, the cry for economic development is rapidly moving into the same dominion as teaching, research, and public service as a primary function of public higher education.

Third, the universality of the higher education enterprise is pressuring public universities into a problematic dynamic where greater

economies of scale and improvements in educational quality are being simultaneously expected by governing authorities. Since 1980, for example, higher education enrollments worldwide have grown by over 61 percent and continue to grow at 3.2 percent annually. This trend shows no signs of reversing in the near future either. Fourth, technology is rapidly changing how colleges and universities operate, interact with each other, and deliver education to wider student and adult audiences.

President Duderstadt addressed these issues because they are universal in nature and have already begun to irreversibly change the role of higher education in the modem society. Unfortunately, however, these issues remain relatively ill defined with dramatic consequences for institutions that choose not to react until further evidence provides rational direction.

Despite the obvious significance of these four important international concerns, I believe the most compelling and salient aspect of President Duderstadt's lecture can be found in one primary thought-provoking point to which he alludes throughout the discussion. It is imperative that we revitalize the social contract between the great public university and the state. The social contract that emanates from the writings of Hobbes and Rousseau is a contract wherein government addresses the needs of the state and wherein education is the most legitimate enterprise that a government can undertake. Our nation and other nations need public higher education systems that advance the social interests of the state.

Although social interests may have been a primary directive of the federal government during the last major federal initiative three decades ago, the enduring outcomes of its policies have proven detrimental to the nation's public higher education institutions. With the adoption of a widespread market-driven voucher model that treats public, private, and

proprietary schools as though they all have comparable social missions and interests, the federal government substantially departed from the social contract established in the earlier initiatives and began rewarding institutions for primarily abiding by institutional interests. Under the banner of access and widespread choice, private institutional interests have prevailed in directing the future of federal higher education policy. For tuition-reliant higher education institutions that are free from public constraints, the federal policies of the last three decades have proven extremely lucrative.

What has emerged is a higher education environment where the Hobbesian self-interests of individual institutions are dominant. This has resulted is an escalation of college costs, the creation of 6,400 government-reliant, proprietary, for-profit institutions; increased sectarianism among religious institutions; and exacerbation of the fiscal disparities between public and private universities.

To use President Duderstadt's own words, "In this dark, market-driven future, the college campus could well become a gated community." In a completely free marketplace where private interests dominate social interests and needs, there is no social contract. To advance a market- driven "one size fits all" federal government policy to the entire higher education community is to ignore the distinctive institutional interests and missions of public, private, and proprietary institutions. To witness the pervasiveness of these private interests, one need not look very far. Per-student expenditure growth increasingly favoring private universities over public universities, the rebirth of merit-based aid policies, and the reassertion of religious doctrine in higher education are all current examples of the dominant Hobbesian nature of institutional interests. For example, the University of Phoenix's mission statement neglects to mention meeting any social interests of the state or nation.

It is appropriate for President Duderstadt to present this lecture in Illinois since the Morrill Act was an idea of Illinoisan Jonathan Baldwin Turner. In the tradition of the Morrill Act and the great Wisconsin Idea, the time is right for the federal government and public universities to revitalize the social contract based on the social and economic needs of the state, whether those needs are social justice, environmental protection, teaching improvement, or economic development. Without a new federal initiative between our great public universities and the state, it is conceivable that current market-driven federal policies, which have substantially departed from the original land-grant concept and mission, will inevitably continue aiding the deterioration of the American public university model.

Questions and Discussions

Chancellor Aiken: I'd like to thank each of our three respondents for their very thoughtful comments. We'd like to move now to open the floor for discussion, but before I do that, Jim, I wonder if you would want to make any comments yourself.

Dr. Duderstadt: Let me say that I am terribly flattered, first of all, that my colleagues would read my comments; second, that they would disagree with them in a global sense; and third, that they would read them in enough detail to pick at them. In terms of the title, just one comment that really relates to a personal experience. In terms of the time, the appropriateness of raising these issues today, it was a little bit over a decade ago that I left the Provost office to move into the eternal fires of the Office of the President, which is on the lowest floor of our Administration Building. There, through a process of engaging broader and better elements in the university community, I tried to develop a vision for the future of the University of Michigan, as we approached the end of a century.

We recruited some really outstanding people. A team was assembled and, working with faculty, staff, students, alumni, and many others, we actually managed to move the University very rapidly toward a series of rather provocative and challenging goals we had set out for the institution. Rapidly enough, in fact, that about five years later, we had hit the mark most of the goals we had set. That was the good news. The bad news was that as we closed in on each of these goals, we became less and less confident that they were the right goals, and that we really knew what we were doing in the first place. In a sense, the more we approached the objective, the more we became convinced that the future was much more

uncertain than we had thought and that the change was much more profound.

Perhaps because of my background as a scientist and engineer, we shifted course abruptly and began to realize that maybe the role of a comprehensive university, such as the University of Michigan or the University of Illinois, is to experiment on a significant scale so that we can better understand better future possibilities. We tried to create on our campus much more of a fault-tolerant, failure-tolerant environment in which people could take risks and to try to do some very interesting things. A lot of the things that we started crashed in flames and were very expensive and well criticized. Some of them continue to exist today, and from all of them we learn a great deal. The point is that the more deeply we got into this process, the more we became convinced that the changes of our time were moving much more rapidly and reshaping our society in much more profound ways than we first concluded. Whether we hit a punctuation point, as I suggested earlier, in the century ahead, who knows? But it's clear that the world is changing and changing fast, and if one of the roles of the university is not simply to understand future possibilities, but to create them, then maybe that role of experimentation is a perfectly appropriate one for the academy.

CHANCELLOR AIKEN: Thank you. I would now like to invite anyone from the audience, if you have a question for Dr. Duderstadt or any of the panelists, there's a microphone over here in this aisle, and there's one here. Come forward, state your question and indicate the individual that you would like to have answer. The floor is now open.

RICHARD SCHACHT, Professor of Liberal Arts and Sciences: Thank you very much, Jim, for a very excellent and probing talk. I think this is going to be a Manning-like contribution to the discussion. I don't know whether it's picking or something further, but it seems to me that the kinds of things that you're talking about have to be addressed. You've done more than many to try to help us conceive of what the problems are and to try to position ourselves to deal with them. It seems to me that this is a one-eyed vision, and we need a two-eyed vision of things. The other eye has to see something further, that the highly touted knowledge revolution, knowledge-based society, and knowledge-based economy that we're so proud of are only a part of what is happening in our culture.

At the same time, we are seeing a kind of impoverishment of our ability to comprehend and understand what is going on at the level of the meaning and value of it all. Our universities are not doing a very good job right now, in helping our students, our public, and our leaders to think and understand and comprehend what all this knowledge is for and how it is to be used. This is where a number of the disciplines that are not engaged in the same kind of knowledge generation that feeds into technology, into society, and into the economy can and must help.

Somehow, as we deal with the kinds of problems you're talking about, we also have to figure out how our institutions can contribute more effectively to better thinking; better analyzing; better understanding; and better comprehension of the social, cultural, evaluative issues, without which the rest of it is empty or dangerous. So, what I hope that I will hear from you the next time you address these issues is how we can also mobilize our resources to help people think better about these things and not just generate more knowledge that, like the Sorcerer's Apprentice, can get us into a lot of trouble.

DR. DUDERSTADT: Let me respond briefly in two ways. I think the concern you have about the academy not stepping up to address these issues is one that could apply as well to many leaders of our society. About a year ago, in the wake of the Re-authorization of Higher Education Act, the few charitable trusts pulled together a group of university presidents, people from the federal government, and a number of others to talk about public policy with respect to higher education. After two days of intense discussions, they finally concluded that there is no public policy, nor has there been one for decades, not since the time of the G.I. Bill, the Bush report, and perhaps the National Defense Education Act.

In a society in which decisions in government are driven more by image than by ideas, the decisions are made more on what is going to generate vote support and contributions than serving society. As the people who have fallen into these patterns are graduates of our institutions, we are in part to blame. Coming back to the academy itself, both from my experiences as a provost and a president, there were times when I kind of wished I could lead all of our faculty to some bluff overlooking the Pacific, and say, "Let's build a new campus and design it the way it really ought to be."

The structures we create, the way we operate, the curricula we form, and the way we evaluate our colleagues in terms of scholarship and so forth constrain us to think in certain ways and perhaps make it very difficult for us to understand in the deeper way that you suggest the true nature of the changes that we're all experiencing. Somehow, we have to break ourselves out of the box. I don't think there are adequate resources to try to create new universities, unless the for-profit sector is creating them in ways that we're not going to like. Somehow, we've got to challenge the academy to begin to come together in an integrative sense to address these issues. That's a challenge that I think all of our campuses are going to have to face.

Maybe it will be driven by economic factors, maybe it will be driven by competition without, or maybe it will be driven by new actions by state or federal governments. It's incumbent upon us to figure out how to do that.

AUDIENCE MEMBER: The main theme of your talk today, which I greatly appreciate, was the need for universities to change in response to changes in society and changes in data brought about by technology, the global economy, and so on. I have always believed that the faculty are central to this university and that faculty ought to be involved in any changes that we make in the university. I'd like to ask how we encourage our faculty to accept the necessity for change. There is an old joke: How many faculty members does it to change a light bulb? Change? What is change? I'd appreciate any wise words that you might have.

DR. DUDERSTADT: A comment on the wisdom of getting the academy to change: Frank Rhodes, in a moment of great despair, as he was stepping down after 17 years of being President of Cornell, threw up his hands and said, "The faculty is the last constituency on the face of the earth that believes that the status quo is still an option." So, if Frank Rhodes, one of our great orators, has been unable to persuade his colleagues . . . Faculties do change and they change in very dramatic ways. But ironically, they rarely change because of any kind of internal dynamic. They changed enormously after World War II, as the federal government put into place a system of merit based and peer review and grants. The culture of the research university, which is very clearly faculty centered, is an example of that. How can they change from within?

Anybody that serves as a dean or provost knows well what one of my colleagues calls the "foodball" philosophy of university governments.

Think of a fish tank filled with fish that all swim around in random patterns until you drop in a little ball of food. All of a sudden they orient themselves. I think maybe we need to drop some foodballs in the university as incentives to pull together the faculty to begin to center through processes that are well established within the academy, determining how they're going grapple with these issues. I think only by doing that can they serve their students, their disciplines, their institutions, and our society. It may require an infusion of focused resources to stimulate the university.

Audience Member: I'd like to address this to Dr. Herman and Dr. Manning, and I would like to take into account some aspects of human nature. One of my more cynical professors said, "People don't do anything unless they have to do something." As Dr. Herman pointed out, right now things are going pretty well, and people are not, as far as society is concerned, in a big hurry to make great big changes, both from a societal standpoint and from an individual student standpoint. The impetus to change the university on the part of society may be less than we within the academy think is apparent. I think we often look at the student population as being, to oversimplify, almost the noble savage idea, that students are malleable and all capable of wonderful learning achievements if we as a faculty could make the environment appropriate for them. I think Dr. Manning hit on this when she talked about the difference between services and the sort of learning environment that we should be striving for, which is a rather passive thing when it comes to providing services. I think many students come here and say, "All right, throw it at me, and I'll accept it," and the result of that is the expectation of good grades. You may couple all of that with the fact that as the faculty has evolved over the years, many who were politically active in the 60s have risen to positions of prominence and have

promulgated activities on the campus that many members of society consider irrelevant. How then do you convince society as a whole that significant resources should be put into this institution when overall things seem to be going pretty well from society's standpoint?

Dr. Herman: I would not say that I indicated that things were going so well. I mean I think the forces that Professor Duderstadt remarked on as concerns of society are there. My point was that partly the stars are not aligned the way they were in the past for the sort of change that took place in the previous instances I cited. I do think that there have been changes, and as institutions we've learned to realize that the problems don't fit neatly inside the boxes we call departments. All of our institutions have refocused on undergraduate education, and I do think there are opportunities for additional investment if we choose to bring all of our resources and the breadth of our intellect to bear on solving problems that are perceived to be for the public good. I do, however, have this caution, as amplified in Sylvia's remarks, and in Dick Schacht's remarks, that there are many ways in which we contribute, and it is not just the immediacy of the problems. There was one additional point, touched on and that is that additional resources may flow as we seek to differentiate our mission. We heard early on in the decade, as it seemed the national debt was about to consume us, that there were going to be fewer research universities. I'm inclined to think that's still the case, and I would put that under differentiation of mission. More resources may flow, but I don't see the big cash drawer out there. I think they will flow only through a broader partnership with society. Sylvia?

Dr. Manning: When you started talking about how there is not much impetus out there to change, I agreed. But there actually is a fair amount of evidence of impetus to change us. Let me go to the way I believe you formulated the question, which was how to convince society as a whole to put significant resources into the academy. I don't quite know the answer to that, but there is one area that gives me a certain amount of hope. That has to do with health care. And as we entered the managed care revolution ten years ago, you may recollect that a lot of people looked at the academy and said, "You're next. See what happened to the doctors? Now it's gonna happen to the faculty. We're not going to put up with this expensive, wasteful system." Well, ten years later where are we? Everybody is unhappy, including the people who invested in the healthcare companies. It clearly seems to me to be in malaise. Nobody quite knows what the answer is. There's a patient bills of rights, and there is the question of whether you can sue your HMO. There are healthcare organizations forming and going bankrupt hourly. What people have stopped doing is pointing to the managed health care revolution as a solution that they want to apply in any other arena. That may lead us towards a greater willingness on the part of society to pay for the things that we really value. As a last point, when you talk about whether people do really value the outcomes of education, I can't demonstrate this on the basis of anything that would look like research or even sound like it. Anecdotally, however, it seems to me that even though there is a lot of public talk about cutting costs and finding ways to do things cheaply, there is the sense that higher education is able to give people a ticket to higher compensation in whatever they plan to do. When you talk to people privately, they still want some of the same things that we want from higher education. That gives me hope.

Audience Member: My question is to all of the panel members and relates to what Professor Manning has just been talking about the question of quality. Professor Duderstadt described pressures to reduce costs, and that frequently means a reduction in quality. You can see how it's happening with new technologies in the for-profit sector. It's an "I sell it cheap" model of education. In his talk, Professor Duderstadt explained that somebody may ask, "Why buy a Cadillac when a Ford will do?" As a consumer, I can understand that, but as an unashamed elitist in education, it worries me, especially for those who don't know the difference between a Ford and a Cadillac. I wonder if any member of the panel can say how we should sell the concept of quality?

Dr. Duderstadt: I'll make a quick comment, and then we can pass it down. Part of the difficulty is the definition of quality. The next question is quality for whom? If by quality the American public thinks where you're ranked in *US News and World Report*, we're doomed. A significant fraction of the public uses that as their measure. My concern is that quality is something to which we all aspire, and one of the lessons that the business community has learned over the last 20 years is that increasing efficiency and reducing costs does not necessarily result in reduced quality. In many cases it actually increases it. That's the whole concept of total quality management. Such practices may affect parts of universities, but not the academic part of the enterprise. I think we really must do a better job in our own minds of defining what we mean by quality. Is it peer evaluation, is it reputation, or is it something that we can see in terms of impact on individuals or society? Once we've figured that out, and I don't think we have yet, we've got to make that case for quality to the broader public. Right now, I think that within the academy and in the broader society, people

don't understand what quality is. They may think they're getting it, but they think they can get it for a far smaller investment than they're currently making.

Dr. Manning: Well, I think part of the question is motivated by the fact that we're not so good at making our case to the public. I admit that. Of course, this did come up early on in the 90s when, in the scientific end of the world, people started talking about strategic research and the several communities really reacted poorly to what was going on in Congress. Another part of it is that the case is made significantly by our graduate—where they go and how they contribute to society. In that regard, I think where we have not been effective is having other people make the case for us—the consumers of our product, those institutions or places where our graduates go. Somehow when we walk into Congress or the legislature we're suspect. We're just another agency. We have to get beyond that, and I think part of it is how we say things and what we say. Quite frankly, part of it is having other people make those cases for us.

Dr. Alexander: That is a really important question because we haven't defined very well what we do. Governments have gotten very involved in this process, especially when you look outside the United States. Trends show that this type of development is coming rapidly in our own states—performance issues and government rankings of institutions. What I've seen in the last ten years is that along the lines of cost efficiency and quality being determined outside of the University, issues of accountability have surfaced and are growing, making institutions more accountable. In other words. institutions are losing their autonomous control and a standardization of institutional missions is occurring. During the 1980s, we differenti-

ated ourselves from one another as institutions, and now we're seeing a standardization of institutional missions because federal and state governments are determining quality. This ought to concern everybody, especially as we have become incredibly specialized within our institutions and diverse within our own disciplines. What does this really mean? I think this is part of the new environment.

CHANCELLOR AIKEN: I think this will conclude today's David Dodds Henry lecture. I want to first of all thank Jim Duderstadt for braving Northwest Airlines, flying nonstop down here all the way from Detroit. But also, more importantly, I want to thank him for a truly insightful and thoughtful speech. We really appreciate it, Jim. I also want to thank the panelists and President Stukel for joining us today, and I'd like to thank all of you for being here as well. There is a reception in the foyer just outside, and we'd like to invite all of you to join us together with the panelists and Dr. Duderstadt. Thank you very much for coming.

The David Dodds Henry Lectures in Higher Education

"The Administration of Higher Education in an Era of Change and Conflict," by Clark Kerr, October 1972

"Can We Maintain Quality Graduate Education in a Period of Retrenchment?" by David Riesman, April 1975

"The Administration of Education for the Health Professions: A Time for Reappraisal," by John R. Hogness, April 1976

"Adding Value and Virtue to Higher Education, " by Dr. William C. Richardson, March 1997

"The Education of Administrators for Higher Education," by Harlan Cleveland, April 1977

"Socially Imposed Costs of Higher Education," by Howard R. Bowen, April 1978

"Quality and Equality in Health Professions Education and Service," by Lloyd C. Elam, April 1979

"How We Talk and How We Act: Administrative Theory and Administrative Life," by James G. March, September 1980

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"The New American University," by Frank H. T. Rhodes, October 1990

"Beyond Conservation and Liberation: The Education of Our Aspirations," by Linda S. Wilson, February 1992

"(R)evolution in American Higher Education," by Donald N. Langenberg, December 1992

"Higher Education and the Concept of Community," by Alexander W. Astin, October 1993

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"Reactionary Thoughts of a Revolutionary," by J. W. Peltason, October 1995

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