

United Way Leadership Seminar, April 9, 1990

Talk Points

Good Morning and welcome to the University

of Michigan and this very important

Leadership Seminar for United Way Executives.

I have been asked to talk about our University

and what we see ahead for ourselves and for our society.

At first glance, it may seem that we have little in common

**as organizations--United Way Agencies and a comprehensive
research university.**

**After all, you are charged with caring for the needs of people
who are experiencing adversity, suffering, deprivation...**

while we are characterized as the "Ivory Tower"

privileged, aloof, unconcerned by the day to day problems and issues beyond
our campus.

Let me assure you that this image bears no relation

to the reality of our University today.

Of course, it has never been an accurate image of American universities.

But, believe me, never before in our history have we been more engaged with and
dependent on

the society that surrounds and supports us.

never before have we been so critical to our society's future.

In today's world, to paraphrase John Donne (DUN)

No University is an island.

So one thing we have in common is the necessity for concern

about the profound social problems and changes faced by our country.

Universities are also experiencing the same crisis of public confidence

that so disastrously undermines so many of our institutions.

Public higher education, indeed all of higher education, shares with

you that uncharted territory where public and private agendas meet and mix
to create that very American zone--the non-profit sector.

Like the United Way, the UM once enjoyed a virtual monopoly on

public affection and support, but now we find ourselves competing

vigorously for it with many new actors on the educational scene.

Until not long ago, our mission was relatively clear cut and accepted

by our own and the larger community,

but today demands on our resources and capacities increase almost exponentially.

I think you in United Way know something about growing demands and shrinking resources.

Most important of all, I think we have in common the commitment

to serve both great public purposes and the fulfillment of individual human potential.

**Thus, what we are doing here at Michigan may have some
relevance for you as you consider the future.**

And I also think we must increasingly see ourselves as

as working together to address the problems of people.

Personal Introduction

As some of you may know, I am a scientist by
training and background...indeed, I
am perhaps the worst of all types of
scientists...a burned-out theoretical physicist.

Hence, I tend to be one of those folks
who lives more in the future than
in the present or the past...

My life as a scientist and engineer has been
spent working on futuristic areas such as:

- i) Nuclear rocket propulsion
- ii) Laser-driven thermonuclear fusion
- iii) Supercomputers
- iv) robotics and artificial intelligence

So, perhaps it is natural that as we enter
the 1990s, I should find myself
looking once again to the future, facing
the challenge of helping to build a University
capable to serve our state and our nation in
the 21st Century.

In fact, over the past several years, much of
my time has been spent leading a process designed to

look far into the future...10, 20, 30 years or more...to understand the changes occurring in America...
...and their implication for higher education in general and my institution in particular...to determine the possibilities for this University...what it is...what it could become...indeed, what it must become.

Of course, the social transformation our country is experiencing means change for all of our institutions, not just universities. And as leaders of our society, I think we must all pause, take stock, look ahead and help our organizations and communities not so much adapt to the future but try to shape it to better serve our people and our society.

Transformations

In a nutshell, as I look to the future, I see an ever-accelerating pace of change in our society, in our state, in our nation, in our world.

The themes of change,

- i) the growing pluralism of our society
- ii) our evolution into a world nation, ever more tightly coupled to the global community
- iii) and our rapid transition to a knowledge-based economy

really are not themes of the future...

...they are themes of today...

...and they are already dominating

every aspect of American life.

It is clear that the key strategic resource of our society has become knowledge itself... that is, educated people and their ideas.

Knowledge will play the same role for us now that in the past were played by natural resources, geography, or unskilled labor.

In the knowledge-intensive future that is our destiny it seems clear that education in general...
...higher education in particular...
...and the research university most specifically are rapidly becoming the key ingredients determining

the strength, prosperity, and social-well being
of our communities, states, and nations.

Good News

But here there is some good news...

Higher education

America is particularly well positioned,
since our research universities are clearly
the envy of the world, as evidenced by the
extraordinary demand by graduates of
every country to see advanced education
and training in the United States.

Indeed, higher education is not only our nation's
highest quality, but also probably also its most
competitive industry as measured by the
test of the marketplace!

But, now for the bad news...and the candor...

We--that is YOU AND ME--seem hell-bent, both as a nation
and as a society, on undermining the
resources represented by our research
universities, just as we are entering an
age of knowledge in which they will become
our most valuable resources.

Indeed, a tragic combination of public
misunderstanding, short-sightedness,
and downright selfishness, is now threatening
to constrain and hamper our universities...

Leading to the frightening prospect that we will
manage to destroy our international competitiveness
of higher education just as we have many other
American industries.

In my home state Missouri we have an old saying
that the best way to get a mule to move
is to first hit it over the head with a 2x4 to get its attention.
let me explain more clearly what is at stake here...

The Many Michigans...

Perhaps it is appropriate that I begin with a
brief description of the beast...the
comprehensive research university,
For one thing, it really is more a product of the

midwestern and western United States
It is an institution forged from the frontier experience,
That has served first an agrarian and then an industrial America.

What images come to mind when you hear
the words "The University of Michigan"
Of course there are also some very special images...
we think of those traditional images of any college...
Great faculty challenging and exciting students in the classroom..
• students studying in our many libraries
Scientists toiling away late in the evenings in our laboratories...
...striving to understand the universe
Scholars pouring over ancient manuscripts in
our collections of antiquity
Probably the Michigan of those marvelous Saturday
afternoons in the fall as 105,000 fans cram into
Michigan stadium to watch the Wolverines...
or the pride you felt when Michigan
won the NCAA championship in one
of the greatest Cinderella moments in sports.
Perhaps you think of the Michigan of the Big Chill...
The tradition of student involvement helping to awaken the
conscience of a nation...
Many see the Michigan as a change agent...
working with people, communities, organizations
to improve the quality of life through research, education
and action programs for k-12 education, ,
public and private social service agencies.
There is also the caring Michigan as seen by the over 750,000
patients each year who are treated by the UM Medical Center,
Or the Michigan as Silicon Valley East, working to build the
high-tech infrastructure necessary to create new companies
and new jobs...as evidenced by the \$5 B industry in
industrial automation now building up in the Ann Arbor-
Detroit-Warren crescent...
Or the Michigan which attracts to our state almost
a quarter of a billion dollars of federal R&D each
year...not to mention many of the world's

leading scientists and engineers

Or the Michigan of the “cutting edge”,

which conducts the research that changes our lives...

as evidenced, for example, by announcement earlier this month

that a Michigan team had identified and cloned

the gene responsible for cystic fibrosis,

thereby opening up the possibility of saving

thousands of lives every year.

And, of course, there is the Michigan as the educator,

attempting to provide, in the worlds of one of our first presidents

“an uncommon education for the common man”

an education as good as any available

in the world

for all citizens, regardless of race, creed, and

socioeconomic background.

It is important to note these different perspectives of the

University because all too often we tend to think of these

marvelous and complex institutions in one-dimensional images

that reflect only our particular interests or needs of the moment...

...when we read about student unrest on our campus...

...or open the tuition bill for our son or daughter...

or attend a seminar

or keep abreast of our professional fields through

continuing educational programs

...or see Michigan get two kickoffs run back on them by Notre Dame...

However, as my examples make clear, these

remarkable institutions have been assigned

a broad array of responsibilities by our society.

Indeed, my thesis today is that the American

research university...of which the University of Michigan

is not only the model, but one of the

leaders...

is rapidly becoming the key player in determining

the strength and prosperity for the people of our state

and our nation.

Some parameters of the University

The comprehensive research university is

a very large, complex, and diverse beast...

University of Michigan = "mega-university"

- i) Spans all intellectual disciplines and professional areas
- ii) Provides instruction, research, service
- iii) Attempts to conduct programs that rank among the nation's best in all areas (and succeeds...)

Parameters:

Enrollment: 35,000 (Ann Arbor) (47,000 total)

Faculty: 2,600 (14,000 employees)

Budget: \$1.5 billion

Academic Units

17 Schools and Colleges

Hundreds of research centers, institutes, and other types of interdisciplinary programs

We also run the largest health care system in the Midwest, treating over 750,000 patients each year...

We are increasingly called on to help rebuild k-12 education
Universities are deeply engaged in addressing social issues

We conduct events in the performing arts which rival New York and London...

whether it be Leonard Bernstein performing his 70th birthday concert with the Vienna Philharmonic or, God-forbid, the Grateful Dead....

And, speaking of entertainment, we also have the

Bo and Steve show...the Michigan Wolverines...

playing in the fall to 105,000 every Saturday afternoon

Or, in the winter and spring, to every household in America...

...at least when we make the Rose Bowl or Final Four....

Themes of Pluralism, Globalization, and Knowledge

Today our universities today are at a particularly important moment in history, since they are being called upon to educate students who will be spending most of their lives in another century...citizens of the 21st Century, if you will.

And while it is always risky to try to speculate about the future our students will find, three themes of 21st

Century America seem clear...

- i) It will be future in which our nation becomes a truly multicultural society, with a cultural, racial, and ethnic diversity that will be extraordinary in our history

In which those groups we refer to today as minorities will become the majority population of our nation in the century ahead...

In which women take their rightful place as leaders of America...

It is clear that education must respond to this changing population by providing equal opportunity for all Americans.

- ii) It will be a future in which America will become "internationalized"... in which every one of our activities must be viewed within the broader context of participation in the global community...

Whether through travel and communication, the arts and culture, the internationalization of commerce, capital, and labor, we will become increasingly interdependent on other nations and other peoples.

Further, as the destination of roughly half the world's immigrants, the United States is rapidly becoming a "world nation" with not simply economic and political but strong ethnic ties to all parts of the globe.

Education must respond by educating Americans about other languages, cultures, and nations, and we must prepare students to function effectively with people from around the world.

The 21st Century will be the first post-European century in American history.

An absolute majority of young people born in US in the 21st Century will be born of parents of other than European background...

Asian, African, Hispanic

And this will represent a major change in the character of our society.

- iii) The Age of Knowledge

But there are even more profound changes underway... Looking back over history, one can identify certain

abrupt changes, discontinuities, in the nature,
the very fabric of our civilization...

The Renaissance, the Industrial Revolution

There are many who contend that our society is
once again undergoing such a dramatic shift in
fundamental perspective and structure.

Today we are evolving rapidly to a new post-industrial,
knowledge-based society, just as a century ago our
agrarian society evolved through the Industrial Revolution.

Some examples:

1. Industrial production is steadily switching away from
material and labor intensive products and processes
to knowledge intensive processes:
2. Our nation's future has probably never been less constrained
by the cost of natural resources.
3. Increasing manufacturing production has come to mean
decreasing blue collar employment!
4. We are in the midst of an information revolution that is changing
the basis of economic competitiveness and world power.
Today information and data flow quickly across continents,
oceans, and nation.s
What's more, these new technologies magnify the effects
of change. "Today the velocity of change is so great...
that the tectonic plates of national sovereignty and power
have begun to shift" (Walter Wriston)

In a sense, we are entering a new age, an age of knowledge,
in which the key strategic resource necessary for our
prosperity, security, and social well-being has become
knowledge--educated people and their ideas.

Key element in transformation, is the emergence of knowledge
as the new critical commodity, as important as mineral ores,
timber, and access to low skilled labor were at an earlier time.

This new critical commodity knows no boundaries.

It is generated and shared wherever educated, dedicated,
and creative people come together...and, as we have learned,
it spreads very quickly.

The knowledge revolution is happening worldwide
and at a very rapid rate.

As our society becomes ever more knowledge-intensive

and hence every more dependent upon educated people and their ideas...

It will become ever more dependent upon our research universities as primary sources of new knowledge and those capable of applying it.

As a society, we do not seem to be able to come to grips with what is happening.

Not only are we slow to grasp the challenges and opportunities of the future

We are failing to address fundamental social problems

that have accumulated over the past decades and now

threaten our ability to adapt to change...threaten our very survival

as a prosperous and democratic world leader.

Facing Up to the Constraints

But what about the capacity of our universities to play this critical role in the age of knowledge that now faces our nation and the world.

That capacity will depend, in part, on higher education's ability to face some serious challenges...

But here we face some major challenges:

Generally, any discussion of the challenges before higher education is peppered with an assortment of "isms"...elitism, professionalism, racism... radicalism, conservatism, populism...

Traditional patterns, the ways in which universities are comprehended and appreciated and understood, are being challenged, and they are changing.

Education and educators are under scrutiny and are subject to a kind of skepticism and criticism that was not the case over most of our experience.

How do we preserve strength, vitality, excellence, and independence in the face of this set of external forces, and the kinds of criticisms and challenges to legitimacy that come with it.

I prefer to classify the critical challenges which lie before higher education into some different and more useful categories

i) the costs of excellence

- ii) our relationship with a myriad of constituencies
- iii) and those forces of darkness that surround the University...namely politics!
- iv) what might be termed the "corporate culture" of the University

1. The Costs of Excellence

We face the challenge of making the transition from the growth era of the 1950s, 1960s, 1970s, characterized by increasing populations, resources, and prestige, to a limited-growth era of the 1980s and beyond.

We know all too well the impact of demographics...

The decline in the number of high school graduates...

The aging of our faculty...and the challenge with educating and recruiting the next generation of the scholars and teachers.

The effort and ability of more and more institutions to compete for the same pool of resources...

State and federal support

Private support

Students

Faculty

A Case Study: Brave, New World

Last month our Regents approved our budget for the year ahead. In that budget,

State appropriation = \$267 M

Tuition and fees = \$269 M

(a "privately supported public university")

Federal R&D Support = \$256 M

(a "federally supported state university")

And now if only our Development staff can increase private fund-raising to a similar share of the total...roughly \$250 M per year, we should be in pretty good shape...

I don't think you are strangers to this kind of calculation.

The truth is that for many of our most creative and innovative institutions and organizations, the distinction between public and private has long since become blurred. We all compete for public and private dollars and these days there is a critical shortage of both.

DEVH Theorem:

Over a sufficiently long time span,
none of our constraints are rigid.

They can be managed or changed.

And I can assure you, this is exactly the approach we are taking...

While this "well-balanced" portfolio has certain advantages, such as resilience in the face of political and economic vicissitudes, it also increases dramatically the importance of our ability to interact effectively with a remarkably broad array of constituencies...and this, in itself, is a very major challenge...

2. Relationship with Constituencies

The relationship between the modern university and its many constituencies is a bit like the parable of the elephant and the blind men...

People perceive us in vastly different ways, depending on their vantage point, their needs, and their expectations...

Students and parents are concerned both with the quality and the cost of education

Business and industry seek high quality products...graduates, research, and service

Patients of our hospitals seek quality and compassionate care

Federal, state, and local government have complex and varied agendas which can both sustain and constrain us...

And the public itself sometimes seems to have a love-hate relationship with higher education... they take pride in our quality, revel in our athletic accomplishments, but they also harbor deep suspicions about our costs, our integrity, and, even our intellectual aspirations and commitments.

As we become every day more dependent on a broad

range of constituencies, we will face increasing pressures to establish our relevance and credibility to this array of interests while at the same time sustaining our fundamental values and purposes...

Quite a feat!!!

Yet balancing act poses several serious problems:

- i) The diversity--indeed, incompatibility--of the values, needs, and expectations of these various constituencies who all view higher education through quite different lenses

- ii) The predominance of special interest politics in which myriad groups compete without an overriding concern for the larger public interest

- iii) The increasing narrowness of the public's support for higher education..."What have you done for me lately?"

- iv) The tension between responding to constituencies where all ideas can be freely questioned in the light of reason.

Public Skepticism/Challenges to Legitimacy

Skeptical about science and technology...

linking these with problems rather than solutions...

...waste disposal, global warming, arms race

Congressional attitudes are particularly alarming.

Congress seems unable to deal with the proposition that investment in higher education including research and student financial aid ought to be regarded differently from all those other things they are concerned about in trying to balance the budget.

3. Political Issues

External Politics:

Threats to autonomy by both state and federal government

Recent efforts by state government to interfere:

Tuition control

Nonresident tuition levels

Admission standards

Contact hours

Use of teaching assistants
Even curriculum, to some degree

Federal Government

Academic misconduct
Content of research and art
Loan defaults
Tuition and financial aid ("price fixing")
UBIT
Restrictions on publications
Even intercollegiate athletics

Erosion in public confidence in higher education ("Profscam")

Spiraling costs of education
Scandals in intercollegiate athletic
Academic misconduct
Balance between research and teaching
Elitism, racism, sexism, radicalism, conservatism...indeed, populism!

Unwillingness to invest in the future

I believe the most ominous of all clouds on the horizon of all is the increasing evidence that we as a people we have not yet faced up to either the nature or the magnitude of the investments we must make to achieve prosperity in an age of knowledge.

While we all give the "age of knowledge" lip service, the evidence suggests that in reality, as a society we long for the pieties and certitudes of the agricultural and manufacturing economies that once made us rich...

Our approach to education...like to so much else in life these days...can be summarized by that T-shirt slogan: "Eat dessert first, life is uncertain"

We have become consumers of education, not investors in the future.

We see ourselves caring about the future, but we are not preparing for it.

...the "me generation" of the 1960s has grown up into comfortable Yuppiehood...

Our aging population increasingly competes with the young for basic resources to support medical care, shelter, and other basics of survival.

4. Corporate Culture

Constants of the Motion

Of course, there are some fundamental aspects

of the character of this University that we
must preserve at all costs...physicists would
refer to these as "constants of the motion"
Our fundamental commitment to excellence in our
teaching and scholarship
Our respect for and defense of
fundamental academic values
Academic freedom
Freedom of expression
Disciplined reason
Academic integrity
Then, too, there are some uniquely
Michigan traditions
The liberal spirit and activism of
this University
Our unique blend of quality,
breadth, and capacity...
we thrive on a rich diversity
of truly outstanding programs
Our openness and candor

Changes:

But I am sure we can all point to other
aspects of our University culture
that could stand improvement.

My personal list includes the following...

Focusing resources to achieve excellence...

Should not try to be all things to all people...
The time of continual increases in public support
ended more than a decade ago.
Quality should dominate breadth and capacity...
Build "spires" of excellence

More of a "customer focus"

We must never forget that the primary
endeavor of a university is learning...
and that our principal customers are
our students.

It seems clear that we need to re-evaluate
and intensify our commitment to the
learning process on this campus...
...the way we teach...

...our total environment for learning
...the nurturing relationship that must
characterize interactions between
faculty and students
...and between staff and students

More respect for pluralism and diversity

While an increasing number on this campus
understand the importance of diversity
to our future,

It is also clear that we need to work and talk
together in the months ahead to more
clearly define our goals and values.

These are not easy matters we are dealing with.

We simply must find ways to engage in a open and
honest discourse about the meaning of diversity
for this University...and to American society...
and relate it to our everyday lives as
faculty, students, and staff.

More of a sense of community

While many of our achievements occur through
the efforts of individuals,

Our strength as an institution arises from
our ability to join together as a
true academic community, in
which the human mind is brought
boldly to bear on the most enduring questions
that confront us.

The politics of pluralism

It is clear that as we move closer to
our goal of reflecting the increasing
diversity of the American population
among our students, faculty, and staff

We run the risk of increasing pressures of
separatism and distrust that can arise
when people of vastly different backgrounds
and cultures come together for the first time
to live and work together.

Fragmentation and the rise of

special interest groups in the "multiversity"
...just as they have tended in recent years

to dominate American politics

We simply must look for experiences designed
to bring people together...to establish
new bonds of mutual trust and understanding.

More daring and venturesomeness

New ideas and concepts are exploding forth
at ever increasing rates in so many disciplines.

The capacity for intellectual change and renewal
has become increasingly important for the
continued vitality of academic institutions.

To this end, we must seek a culture in which
creativity, initiative, and innovation are valued.

We must stimulate more of a risk-taking
intellectual culture in which people are
encouraged to take bold initiatives.

In a sense, we must achieve more of a
fault-tolerant culture, in which failure
is not punished, but rather is viewed as a
natural part of the learning process
associated with aiming high!

Need to see higher education in the larger context
of the total educational continuum and the social environment

which in today's world extends from pre-natal care, to preschool, to k-
12,

college, graduate and professional education and continuing education
--formal and informal--extending throughout life.

Higher education no longer limited to
campus borders. With information and communications revolution,
our reach will soon extend to every classroom, workplace laboratory
or home on the planet.

More of a long term, strategic focus

All too often the University has tended to
respond to external pressures and
opportunities, rather than taking strong
actions to determine and pursue its own
objectives.

We must also counter the tendency to become
preoccupied with process rather than objectives...
with how rather than what...

Actually the changes I am talking about are already being
felt.

But I know that I am talking to an audience
that is on the front lines of change.
You are familiar with the human consequences
of the human cost of change.

The accelerating transformation of our population, culture,
society, economy
political life that we are seeing is affecting every aspect of
American life.

The cost is high, painfully high for many.
It is highest for many of the most vulnerable, fragile
members of our society---
the elderly, the young, the poor and uneducated, minorities,
women,
the handicapped, and immigrants.

I

In this sense, we must think and act more
strategically--to decide first what we
want to do...what we intend to become...
and then to move purposefully toward
these objectives.

Pace of Change Accelerating

One thing I can predict with real certainty, and that is a future of ever-accelerating
change--

At last year's commencement, I used as my theme
a phrase from the French poet Paul Valery
He remarked "The future is not what it used to be".
Could there be a better description for our times?.

As the pace of the creation of new knowledge accelerates,
it seems apparent that we are entering a period
in which permanence and stability will be rare.
Instead we must be prepared to steer a course through the profound changes in our
world.

This world of accelerating, breathtaking change, is full of promise
but it is challenging every institution in our society,

to adapt or face irrelevance --- even extinction..

Price of Change

I don't know if what I have said so far about our University
and its future

makes sense in terms of the challenge before you as leaders
of United Way agencies and as leaders in your communities.

Certainly the trends we foresee in our national future,
are already daily realities for most of you.

Each one of you is on the front lines of change.

And I don't need to tell you that it is a battlefield
with many casualties--far more casualties than we should accept.
or that we can afford.

The costs of the major transformations
in our economy, culture, society and political life
are highest for the people least able to pay.you are pledged to serve.

They are the people you are pledged to serve.

You know first hand the pain of change felt by our most vulnerable, the most
fragile neighbors.....

The young, the elderly, people of color, the poor, uneducated, immigrants,
displaced workers

the homeless, the isolated, the sick....the disabled.

The Challenge/Human Resources

Covinced that the greatest challenge before our country is
investment in human resources.

Education is the issue of the nineties and beyond.

If higher education is a great strength for America,
k-12 is our greatest weakness. This at least is the opinion
of leading foreign scientists and business leaders at a NAE
meeting I attended not long ago.

It is hard to disagree with their bleak assessment.

Despite many reports, media alarms, political speeches,
public hand-wringing by leaders in every walk of life,
our system of k-12 education is a national disgrace.

By virtually any measure you care to make,
we are not preparing a majority of our young people for work, citizenship,
family responsibility, or personal fulfillment in a civilized society.

The educational crisis is more than a crisis of classrooms, curriculum and
teachers.

Education cannot be isolated from its human context.

And the context includes the transformations and dislocations I have been talking
about today.

Investment in Future

Harold L. Hodgkinson recently pointed out that
as a society we spend some 85 % of our money on
"rather ineffective "cures" in all social service areas"
whereas we spend only 15% on prevention programs.

He argues persuasively in All One System that to be effective educational and
social services must be delivered as part of a coordinated client-centered system

Hodgkinson quotations

1. Keep all people from falling into poverty in the first place
rather than bailing them out later.
2. Keep all kinds of families intact rather than arranging adoption and foster care
facilities later
3. Keep students performing at grade level by front loading resources toward
those most at risk, rather than telling them at the end of third grade that they
failed when no effort was made to provide the resources that could have meant
success.
4. Keep people out of prison rather than trying to rehabilitate them later.
5. Keep low income people in an expandable supply of affordable housing rather
than increasing the number of homeless families, often with children and one or
more full time workers.
6. Keep mass transit so that low income workers can continue to have jobs,
housing, and some freedom.
7. Keep kids from getting sick (or hungry) rather than providing massive
programs for curing (or feeding) them after the damage has been done.

I know that I am talking to an audience
that is on the front lines of change.
You are familiar with the human consequences
of the human cost of change.

The accelerating transformation of our population, culture, society, economy
political life that we are seeing is affecting every aspect of American life.
The cost is high, painfully high for many.
It is highest for many of the most vulnerable, fragile
members of our society---
the elderly, the young, the poor and uneducated, minorities, women,
the handicapped, and immigrants.

I

...

In this increasingly pluralistic, knowledge-intensive
world nation that is America today
it seems clear that education in general...
...higher education in particular...
...and the research university most specifically
are rapidly becoming the key ingredients determining
the strength, prosperity, and social-well being
of our nation.

Just think of the challenges

which cry out for our attention

- the plight of our cities,
spread of unemployment, underemployment and
permanently disadvantaged
the polarization of American society
- greenhouse effect and global change

- international competition
Pacific Rim or Europe 1992
- health care: cancer, heart disease, AIDS
- new frontiers: outer space
or spaceship Earth

None of these problems can be addressed let alone overcome
unless we have fully educated people who
can work with knowledge and create ideas

No challenge is greater no priority higher than
preparing all of our people for full participation the economy and society that is
emerging.
If we meet this challenge, we can accomplish anything we set out to do.
If we fail, nothing we might accomplish will be worth the human price.

Some Personal Memories

This has been a year of stocktaking for my wife Anne and me.

25th Reunion

25th Anniversary

1967 was still a time of optimism in America. The glow of Camelot of the Kennedy administration still lingered with us. There were great causes to take up such as world peace, the conquest of space, the civil rights movement. Indeed, Martin Luther King, Jr., was the commencement speaker at my graduation.

My Class of 1964 graduated with a feeling of boundless confidence in ourselves and in our country. We each had mighty visions of changing the world. In fact, I chose to go into the exotic field of nuclear engineering because I felt that we could "make the deserts bloom" by creating a limitless source of energy for mankind. My first job out of college was out in the deserts of New Mexico at Los Alamos, developing nuclear rocket engines that we expected soon to power the first manned mission to Mars and beyond...and which would be used to colonize the solar system.

Like many generations of Americans before us, the Class of 1964 took for granted our nation's leadership, our motives for good, the virtues of science and technology. We believed that we would live better than our parents and that our children would have a life even better than ours, that old fashioned virtues and hard work would guarantee our own personal futures and our nation's future.

But there were already clouds gathering on the horizon. Even during my senior year it was suggested that things would not be quite so simple, that dramatic changes were coming. John F. Kennedy was assassinated during that fall. The Cold War had begun to heat up with the Cuban Missile Crisis. A few people were talking about a distant war in a place called Viet Nam. Civil rights protests were challenging racism. The free speech movement at Berkeley was revealing a new spirit of student anger and activism on the campuses.

But even with these warning signs, we were not prepared for the dramatic crises and confrontations, the great changes Americans and their institutions would face in the years immediately following our graduation. The war in Viet Nam that so profoundly affected all of our lives, both those who served and those who protested. The eruption of assassination and terrorism, which robbed us of our heroes. The racial turmoil that tore apart our cities. The social turbulence and seeming disintegration of national consensus and confidence. The emergence of the drug culture, as more people turned on and tuned out. Watergate and the crisis in confidence in our leaders.

Americans experienced a sense of shock as our nation began to encounter limits for the first time. As the environmental movement exposed the downside of technological progress. As foreign competition challenged our enterprise. As our economic and political preeminence was challenged by new centers of power in Asia, Europe, and the Middle East.

In a sense, during the decade following my graduation, America lost its innocence. It lost its sense of optimism. In many ways, my class may have represented the last generation of Americans to be truly optimistic about the future, to welcome its challenges and to feel equal to them. I can't say whether or not my own choice of a career would have been different if I could have foreseen the future. I like to think not.

Some reasons for optimism

Perhaps this is because I am that seeming contradiction in terms--a futurist and an optimist.

We are living in a time of immense opportunity.

If we have faltered, fumbled, even stumbled

and lost our way in the rush of events,

we also have the means of revitalization, renewal,

and social transformation.

We are living in one of the most exciting, extraordinary

and potentially positive times in history.

Let me dwell on this final point for a moment, because all too often we tend to press the panic button when we face the future, particularly by simply extrapolating the events of the past. We must regain perspective, our sense of excitement about the future, the optimism and confidence in ourselves and in each other. Certainly events of the past twenty-five years have been both tragic and traumatic. But this has also been one of the most intellectually productive times in human history. Knowledge continues to grow exponentially. The more we learn the more we are capable of learning. Science and technology are now capable of fulfilling their age-old promise of delivering us from the drudgery of labor. Information technology now extends the span of our intelligence by orders of magnitude and transcends the distances that divide us.

On the whole, the world is becoming more connected and more democratic. From the moment we first saw ourselves reflected as one world from the moon's surface back in 1969, we have been increasingly bound together through commerce, culture, arts, literature, travel, and communications. Despite the pessimists, we have had no full-scale wars, we have made at least some progress in limiting the arms race. Democracy is spreading like wildfire through the world brought not by generals but by common people, and poets, artists, intellectuals armed only with the power of ideas. Chances of super power warfare are less than at any time in memory and prospects for prosperity are good. The coming era, most predict, will be one of national competition, not confrontation or conflict.

And to paraphrase Mark Twain, the decline and fall of America has been greatly exaggerated. Our nation continues to be nourished and revitalized by the extraordinary diversity of our people--particularly those formerly excluded from full participation such as minorities and women and immigrants. Indeed, it is the continuing strength and resilience of our society and our people that is our greatest asset and our primary defense against the gloom and doom prophecies of America's decline.

There are difficult times ahead for universities such as ours and for agencies such as the United Way.

But I believe that we have the tools that we need to understand and overcome our challenges, to grasp new opportunities

and to help lead our society through the this period of transformation.

I am very pleased that the UM is part of this effort

you are making to prepare yourselves for continued leadership.

This is an example of the ways we can work together

to shape a better future for ourselves and our children.

Before closing, I want to express my personal appreciation for the work that you do.

United Way has been a model of caring and service for people in need.

Thank you for helping to make this a better more humane world and thank you for coming to Michigan.

Best wishes for your stay.

My remarks this morning reveal me to be a certain contradiction in terms. As a scientist, I am certainly a futurist. But I also tend to be an optimist. Unfortunately, neither point of view is very fashionable these days. People tend to focus on the present, not on the future. And they endlessly deplore all of the ills that we have inherited or that can be conjured up.

But I believe that we can be masters of our fate. That we can seize control of the forces around us--most of all ourselves--and bring progress to the world. I even think that each individual has the possibility to change the world.

The truth is that adapting to change and challenge is what keeps our species evolving. We ought to relish it. Welcome it. Seek it out. Not for its own sake but for the challenge it brings and the possibility for progress.

But whether you accept my optimistic perspective or not, one thing is clear to me. Whether we like it or not, change--massive transformations, in our society, our culture, our way of life-is what you can expect in your future. The fear or denial of change isn't going to keep it from happening. It will just keep you from influencing the direction it will take.

There is an old saying that "the best way to predict the future is to invent it!" That is the real challenge before you.

Indeed, it is your challenge to make certain that the future is not what it used to be!

□