

Lagatus Talk - March 30, 1989

Introduction

As some of you may know, I am a scientist and engineer
by training and background...

I must also confess I tend to be one of those
people who lives more in the future than in
the present or the past...

I can remember that...

in the 1960s I was working out at Los Alamos
on nuclear rocket engines designed to
power the first manned mission to Mars...

in the 1970s I was working in an exotic
area known as laser-induced thermonuclear
fusion in which we were attempting to use
super high powered lasers to compress
matter to the incredible densities and
temperatures found in the center of stars..
and create tiny thermonuclear explosions
in the laboratory, hence providing a
limitless source of power...

in the 1980s I refocused my efforts on
building an Engineering College which I
believed could trigger a major economic
resurgence in this state...and lead
efforts to build world-class programs in
robotics, microelectronics, artificial
intelligence, and computers

In the late 1980s as a member of the
National Science Board, I have been
working very hard to strengthen the
science and engineering base of this country...
with my particular focus on the development
of the scientists and engineers we will
need to keep our nation strong and

And, now, entering the 1990s, I find myself
looking once again to the future, facing
the challenge of helping to build a University
able to serve our state and our nation in
the 21st Century.

My own concerns...

As you know, I am a scientist and engineer
by training and background...

I must also confess I tend to be one of those
people who lives more in the future than in
the present or the past..

Over the years, I have become increasingly convinced
that education -- or more generally, the development
of human capital -- will become the dominant issue
for our state, just as it will be for our nation, in the
1990s and beyond.

Yet I also fear that few have realized the enormous
changes that our society is going through as it
approaches the 21st Century.

In a very real sense, we are entering a new age...
what has been termed, an "age of knowledge",
in which knowledge...that is, educated people
and their ideas...will become the keys to
our future...

And in this knowledge-intensive future, research
universities such as the University of Michigan
will become the cornerstone of our prosperity

and well-being...

For their educated graduates, to be sure,...
but for so very much beyond this that we
all too frequently take for granted.

The Many Michigans...

A modern research university such as the
University of Michigan has many faces...

There is the Michigan of those marvelous Saturday
afternoons in the fall as 105,000 fans cram into
Michigan stadium to watch the Wolverines...

Or perhaps the Michigan of the Big Chill...

The tradition of student involvement helping to awaken the
conscience of a nation...

The Teachins of the 1960s against the war in Vietnam
EarthDay in the 1970s to raise concerns about the
environment

Our celebration of Martin Luther King Day last month
with an educational experience involving thousands
to highlight the importance of tolerance and
mutual understanding

There is also the Michigan as seen by the over half-million
patients a year who are treated by the UM Medical Centers,
making the finest medical care in the world available
to Michigan citizens...

Or the Michigan as Silicon Valley East, working closely
with Michigan industry and government to build the
high-tech infrastructure to create new companies
and new jobs to strengthen and diversify our
existing industrial base...

...with exotic new technologies such as
integrated manufacturing systems
machine intelligence
optoelectronics
computer networks

...a new \$5 B infrastructure in the southeastern
Michigan area

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

And, of course, there is the Michigan as the educator,
attempting to provide, in the words of one of our
first presidents, "an uncommon education for the
common man"...providing an education for Michigan
youth as good as any available in the world...
to over 300,000 alumni...
150,000 in the state of Michigan alone!

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 see Michigan lose at the buzzer against Indiana...
...or open the tuition bill for our son or daughter...

In fact, perhaps the best way to think of a university
is to recognize that our primary role is
"to invent the future"...

...through the knowledge discovered on our campuses...
...and the graduates we educate that can carry forth
this knowledge and apply it to society.

Challenges for Today--Opportunities for Tomorrow

Think about it for a moment...

The students we are educating today will spend most of their lives in the next century...they will be citizens of the 21st Century...

Yet we, their educators, are very much products of the 20th Century...

And our institution, the university of today, is in reality a product of the 19th Century!

This compels us to ask whether the university as we know it today is really prepared to educate the citizens and serve the society of the 21st Century?

While it is always risky to try to predict the future, three themes of 21st Century America seem clear:

- i) the changing nature of the population of our nation
- ii) our growing dependence on the global community
- iii) our shift from a resource-intensive to a knowledge-intensive society

Let me consider each of these themes for a moment...

1. Demographic Change: Diversity and pluralism

America is changing rapidly...

When we hear references to the demographic changes occurring in our nation, our first thought probably focuses on the aging of our population.

It is indeed true that the baby boomers are now entering middle age, and their generation has been followed by a baby bust... in which the number of young adults will be declining over the remainder of this century by roughly 20%.

And while the rapid increase in the average age of the American population is being driven primarily by the huge increase in the number of middle-age Americans as the baby boom grows up, this has followed on the heels of a significant growth in the 1980s in the number of senior Americans.

Indeed, today there are more people over 65 than teenagers in this country, and this situation will continue for the remainder of our lives.

Further, the growth rate in both our population and workforce is declining to the lowest level in our nation's history.

America will simply not be a nation of youth again in our lifetimes.

(Note: This is in sharp contrast with much of the rest of the world. For example, in Latin America and Asia, the young comprise 40% of the population, in contrast to 20% in the US and Europe)

This fact poses a most serious challenge to institutions such as universities which have traditionally served the young.

Yet, there is a far more profound change occurring in the population of our nation.

America is rapidly becoming the most pluralistic, multicultural nation on earth.

By 2000, one-third of college age students will be Black or Hispanic...

By 2000, 47% of our school children (K-12) will be Hispanic or Black (today 25% are)

In the second half of 21st Century, Hispanics will likely become the largest population group in America

Those groups we refer to today as minorities will become the majority population of our nation in the century ahead...just as they are

today throughout the world.

Note: It is important to realize here that 21st Century America will NOT be a melting pot in which all cultures are homogenized into a uniform blend.

Rather, it will be pluralistic...composed of peoples of vastly different backgrounds, cultures, and beliefs...peoples who seek to retain their cultural roots...to maintain their differences.

In this future, the full participation of currently underrepresented minorities will be of increasing concern as we strive to realize our commitment to equity and social justice.

But, in addition, this objective will be the key to the future strength and prosperity of America, since our nation cannot afford to waste the human talent represented by its minority populations, this human potential, cultural richness, and social leadership.

If we do not create a nation that mobilizes the talents of all our citizens, we are destined for a diminished role in the global community, increased social turbulence, and most tragically, we will have failed to fulfill the promise of democracy upon which this nation was founded.

This is probably the most serious challenge facing American society today. While it is true that universities cannot solve this problem alone, we must not use this fact as an excuse for doing nothing.

Rather we must intensify our efforts to seek full participation of underrepresented minorities among our students, faculty, staff, and leadership.

As both a reflection and leader of society at large, we have a special challenge and 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.

2. The Internationalization of America

It will be a future in which America will become "internationalized"... in which every aspect of American life must be viewed from 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 dependent on other nations and other peoples.

Some facts of life:

The fact is that a truly domestic US economy has ceased to exist. The market for nearly all significant manufacturing industries has become world-wide

In slightly more than 5 years, US trade deficit has taken us from the world's largest creditor to its largest debtor nation.

Jack Welch, CEO of GE, noted last November:

"Within the next 2 to 3 years, at most, the most important alliances will be forced in every significant global industry--medical, autos, defense, materials, and so on. Those who are slow to recognize the emergence of these global alliances or to act in forming them will find themselves locked out of the game as we enter the 1990s."

America will no longer take its know-how and apply it to low-cost natural resources from third-world countries, turn it into products, and then sell it

back to them--as we do in a hierarchical economy.
Rather, we'll be only one member in a global
dynamic economy with tremendous network
interdependency between countries.

The "shrinking globe" phenomenon suggests that understanding
cultures other than our own is necessary not only for
personal enrichment and good citizenship in the global
community, but indeed, necessary for our very survival as
a nation...

But there is another important reason for our renewed attention
to the international agenda of the University.

The US has become the destination of about half the world's immigrants
Probably 10 million this decade alone...

With falling fertility rates, immigration will soon become
the main determinant of the variability in our population.

America is evolving into the first true "world nation",
shifting rapidly away from Eurocentricity into a society
with strong ethnic ties to all parts of the globe--
with a growing focus on the nations of the Pacific Rim.

We are no longer self-sufficient or self-sustaining. We are not
immune to the shocks of the world society. We have never
been more dependent on other nations and peoples.

Understanding cultures other than our own will become
necessary not only for personal enrichment and good
citizenship, but indeed, necessary for our very survival
as a nation.

If our institutions are to serve America in its role as a member
of the global community, we must think and act more
imaginatively, more aggressively, and more strategically
to strengthen our role as truly international centers of learning.

3. The Age of Knowledge

Looking back over history, one can identify certain
abrupt changes, discontinuities, in the nature,
the very fabric of our civilization...

The Renaissance, the Age
of Discovery, the Industrial Revolution

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

As Erich Bloch, Director of the National Science Foundation
suggests, we are entering a new age, an "Age of
Knowledge"

The signs are all about us.

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:
In a car, 40% materials, 25% labor...
In a chip, 1% materials, 10% labor, 70% knowledge!!!
2. Our nation's future has probably never been less constrained
by the cost of natural resources. Future areas of
growth are likely to come from the application of technologies
that require few natural resources.
3. Increasing manufacturing production has come to mean
decreasing blue collar employment!
In the 1920s, 1 of 3 was a blue-collar worker
today 1 in 6 and dropping fast
probably to about 1 in 20 within a couple of decades...

Indeed, UM economic studies suggest that less than 5% of General Motors' work force will be unskilled labor by the year 2000.

4. Recent Office of Technology Assessment report:
40% of all new investment in plant and equipment goes to purchase information technology

A transition in which..

Intellectual capital--brainpower-- is replacing financial and physical capital as key to our strength, prosperity, and well-being

This is having a profound impact on our social structure, culture, and economy.

There is also great intellectual change and ferment...

New ideas and concepts are exploding forth at ever increasing rates...

We have ceased to accept that there is any coherent or unique core of wisdom that serves as the basis for new knowledge...

We've seen simply too many instances in which a new concept has blown apart our traditional views of a field...

Einstein's theory of relativity
quantum mechanics
the molecular foundations of life...
superstring theory

We are increasingly surrounded by radical critiques of fundamental premises and scholarship...

In many fields, the knowledge base is doubling every few years...indeed, in some fields the knowledge taught undergraduates becomes obsolete even before they graduate!

The typical college graduate of today will likely change careers several times during a lifetime...

Hence a college education will only serve as the stepping stone to a process of lifelong education... and the ability to adapt to...indeed, to manage change...will become the most valuable skill of all.

As our society becomes ever more knowledge-intensive, and hence ever 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 we enter this new age of knowledge that is our future, it is clear that we will become ever more dependent on our research universities as primary sources both of new knowledge and those who can apply it.

Hence our institutions will face a period of unusual responsibility, challenge, and opportunity in the years ahead.

But I believe we will also face a period of major change.

In a very real sense, the university as we know it today was invented to serve an America of the past...
...a nation characterized by a rather homogeneous, domestic, industrialized society.

It is becoming increasingly apparent that it is time to develop a new model of higher education--- to re-invent the university, if you will--so that it is capable of responding to the needs of the highly pluralistic, knowledge-intensive, world nation

that will be the America of the 21st Century.

The Hazards of Predicting the Future

In summary, my crystal ball suggests a future of challenge and responsibility, opportunity and excitement...
As the United States becomes a pluralistic world nation, intensely dependent upon knowledge--upon educated people and ideas--and hence intensely dependent upon these marvelous, mysterious, and complex institutions we know as research universities.
How of much of this particular vision of the future will actually come to pass?
Will the themes of pluralism, internationalization, and knowledge really dominate our future...
To be sure, change is not a predictable process..
There is always a hazard to predicting the future...
But then I always remember that old saying
"The best way to predict the future is to invent it!"..
And isn't that, after all, just the role of the University...
the job of inventing the future?...

The UM Heritage

And isn't that, after all, also just the heritage of the University of Michigan
Although Michigan was not the first of the state universities, it was the first to free itself of sectarian control and become a true public institution, governed by the people of the state.
From its founding, Michigan was identified with the most progressive forces in American higher education...
In a very real sense, it was our University that developed the paradigm of the public university capable of responding to the needs of a rapidly changing America of the 19th century...
a paradigm that still dominates higher education today.
In a sense, we have been throughout our history the flagship of public higher education in America.
Perhaps it is time that we once again played that role...
re-inventing the nature of the university once again...
...a university capable of educating the citizens and serving the society of not the 20th, but rather the 21st Century.
I believe that the 1990s and beyond can be a time similar to the late 19th century when the University of Michigan was a primary source for much of the innovation and leadership in higher education in this nation.
And what more exciting mission could we have than to accept this challenge by striving to develop a new model of the research university capable of responding to the changing needs of our state and our nation...
The challenge of making the University of Michigan the model for the University of the 21st Century.

Concerns...

Needless to say, the same challenges of pluralism, of internationalization, and of this age of knowledge that is our future will also pose great challenges to our state.
Indeed, I am absolutely convinced that our State faces a very unusual period of challenge in the decade ahead...a watershed, in a sense, from which we can either emerge at a national leader...or as an also run...
or perhaps even worse...as an Appalachia...
Maintaining Michigan's competitive edge requires attention

to our traditional strength -- people and research -- and a strong offensive strategy based on these resources. Central theme is that education, broadly defined, will play a pivotal role in the coming economic transition and its impact on individuals.

Previous economic transformations were closely associated with major public investment in infrastructure such as railroads, canals, electric networks, and highways. In the coming economic transition, an equivalent infrastructure will be an educated population.

Quite frankly, the choice will be ours...whether we choose to continue our tendency of recent years to spend our resources only to meet the needs or desires of the moment... or whether we can develop the vision, courage, and discipline to invest in the future of this state...not just for this year or next...but for the next generation...our children...

Clouds on the Horizon: Some warning signs...

WARNING SIGN 1: Michigan is slipping

No question that we have lost lead in many areas
Industrial productivity and heavy manufacturing
Steel, durable goods, ...

The bad news for Michigan is obvious...

Industries of great economic importance to our nation such as steel and automobiles have fallen victim to intense competition from abroad...

Plants have closed...our cities are filled with cronicly unemployed...which may well exceed 10% along the I-75 corridor...

In Michigan we no longer worry about nuclear war and and the bomb because we believe that

"The odds are greater that America will be bought up by the Japanese than blown up by the Russians..."

Michigan's per capita income has now dropped below the national average...

Michigan has dropped to 20th in per capita income (and at \$15,393 is now slightly behind the national average of \$15,481)

Our unemployment rate consistently is at the top...

WARNING SIGN 2: A Serious Skilled Manpower Shortage

Traditional source of human capital for business and industry, that of young adults, is declining rapidly as we slide down the backside of the postwar baby boom.

25%-30% falloff in HS graduates by 1992

Composition of young adults is also changing...

By 2020 30% will be composed of Blacks and hispanics... students who have not traditionally had the opportunity for the education necessary for knowledge-intensive careers.

WARNING SIGN 3: Labor force faces a particular challenge...

Michigan is undergoing dramatic change in industry...

Unskilled labor will lose relevance in a world dominated by microelectronics, computers, and automation.

Statistical quality control and just-in-time inventory systems require production workers with mathematical abilities that are far beyond the present level.

Of all the inputs into our economy, the quality of our workforce is probably the most critical.

There is a very serious question as to whether we are

providing adequate educational resources to produce the quality of workforce necessary for the knowledge-intensive future of this state.

The education of the Michigan workforce is inadequate to the demands of the next century.

It is bad enough to face the prospect of a significant fraction of our labor force becoming permanently unemployable because of an inadequate education. Do we want to condemn their children...OUR children...to a similar fate? Can we afford it?

Warning Sign 4: The Dangers of Underinvestment

Perhaps the most ominous dark cloud on the horizon of all is the increasing evidence that we as a people we have not yet recognized 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, we long for a return to the agricultural and manufacturing economies that once made us reach...

1. Over the past several years, numerous studies have suggested that Michigan is seriously underinvesting in its "knowledge infrastructure"...by as much as 30% to 40% relative to other states.

Interestingly enough, studies performed by both the Democratic administration and the Republican Senate agree with this prognosis...and yet nothing has happened...and we slip even further behind!

2. Particular concern has been focused on the "education pipeline" in Michigan...from pre-school through K-12 education through higher education to lifelong education.

Two-thirds of new jobs are in professional, managerial, and sales area...just 5% go to unskilled workers...as Michigan economy shifts from manufacturing to knowledge-based and service jobs.

3. The challenges faced by K-12 education were well-summarized in a recent editorial in a Detroit paper:

"If Michigan is to prepare tomorrow's workers for tomorrow's jobs, major structural changes are needed in public education, both in classroom quality and in the adequacy and fairness with which the system is financed."

"What is required is a strengthened commitment in Lansing to school finance reform and improving the quality of basic and higher education, and a greater political willingness to stand up to special interests who would thwart those long-term goals to pursue short-term objectives. The opportunity to eliminate chronic unemployment in Michigan may be never more within our grasp than between now and the end of the century. The alternative is a growing mismatch of job opportunities and job training that threatens not only the state's recent prosperity, but its very solvency."

(Free Press editorial, 1/5/89)

Yet, we continue to be paralyzed in our efforts to come to grips with school finance reform or major structural changes necessary to achieve quality in public education.

Lottery

Instead, we continue to rely on gimmicks...such as the State Lottery, which in effect robs from those most in need of state assistance...

Furthermore, since these Lottery funds flow into the General Fund, and since state support of education has clearly not tracked the increase in lottery revenues, it is clear that lottery revenues are, in effect, going to build and operate more prisons

(the only part of the state budget which has growth at this pace).

Some irony here, since the Lottery, in effect, is transferring funds from the deprived components of our population..

4. The situation is somewhat different yet no less acute for higher education in our state.

While the quality of Michigan higher education today is very high, the long term prognosis remains guarded...

The Investment in Higher Education

Our state has dropped from 6th in the nation in its support of higher education to 35th over the past two decades... into the bottom third!!!

Indeed, we have dropped to 32nd in tax revenue for higher ed--7.8% compared to 11.4% for California!

We are being outspent by 30 - 40% in state support per student...

Not simply by prosperous states like California...but by neighbors such as Indiana and Ohio!

Over the past 10 years, high tech states such as California, New Jersey, Massachusetts, and New York have seen real dollar increases in higher education appropriations of roughly 20 to 30%. In sharp contrast, over this period Michigan has declined by 4.5%...

Certainly these states are prosperous...but they are also investing substantially more of their resources in higher education...in preparation for a knowledge-based future...than are we.

Indeed, one measure of the importance of higher education in the state budget is the ratio of tax dollars per enrollment ratio... a measure by which Michigan ranks 47th in the nation!

It seems clear that higher education faces a serious challenge in Michigan. Our present level of public support is clearly inadequate to maintain a system that is competitive on a national basis.

We are attempting to compete in this knowledge-intensive future with an underfunded public system of higher education... and no private capacity (such as a Stanford, MIT, or Caltech).

Only the autonomy granted to our public universities have allowed them to "overachieve" their public support through higher tuition and other sources of financial support.

This has given public higher education in Michigan some capacity to face the devastating impact of the past decade...but it is rapidly losing this capacity...and there seems little doubt that the quality of our system will probably be gone in the next 10 to 20 years if the present trends of inadequate state support coupled with tuition constraints continue.

Whether measured in terms of state appropriation per student or fraction of our tax dollars directed toward higher ed, it is clear that in comparison with other states, our present level of public support is simply inadequate to maintain over the long run a system of higher education that is competitive on a national basis.

Despite herculean efforts by the Governor and the State Legislature in recent years to restore adequate support for higher education in Michigan after the devastating cuts of the early 1980s, we continue to fall further behind the national average in state support.

And what will then happen to Michigan. We will become a "have not" state, competing in low wage industries in dying industries. We will have rejected the age of knowledge!

5. Prisons

In fact, the only area where we now lead the nation is in our prison system... We are now investing more in prisons than in higher ed...that is, we spend more money putting people into jail than we do in keeping them out of jail!

Over the past 5 years, the Corrections budget has increased by 141%, compared to a 25% increase for higher education.

Corrections will be \$633 in FY88-89 (compared to \$1,137 M for higher ed and \$2,144 M for social services), but projected to grow to \$2 B in 1990s.

Each of 25,000 inmates require \$22,000 per year... Furthermore, we have spent over \$1.3 B to build new prisons...every penny of new construction funds... and now appear prepared to launch a second wave of prison construction, even though demographics suggest that many of these prisons will remain empty.

Further, while state revenues are projected to increase 5% in the year ahead, the exploding corrections budget (\$140 M additional just to operate the new prisons) will eat up this growth, thereby crippling other state priorities such as education and social services.

What has happened to our priorities?

What is wrong here???

Who is to blame???

Our schools and colleges???

Certainly they must take stronger actions to improve quality...and strive harder to operate in a more cost-effective manner...

But their present situation reflects as much as anything else our own personal priorities...

...as parents

...as volunteers...

...as citizens and voters...

What about our elected public officials???

It is certainly not their fault!!

Listen to their recent messages...

whether it be the Governor's State of the State address...

...or the response from the state Republican leadership...

...or the President's State of the Union address last week...

It is clear that our elected leaders, whether in Washington or Lansing or our local communities...

Would like nothing better than to make education their highest priority.

To become

...the Education Governor

...or the Education Party

...or the Education President

They understand clearly the importance of investing in our human resources, and they are searching valiantly for creative ways to improve the quality of our schools and provide adequate and equitable financial support.

But they also face formidable constraints, since in the end they must be responsive to the wishes of the electorate...and face it, gang...the electorate today says:

- i) no more taxes...
- ii) no more crime...
- iii) no more cuts in social services or national defense...

and our public officials have no choice but to respond.

No, the real finger of blame for the crisis we face in education should be pointed, as Michael Jackson would say, at "The Man in the Mirror"...
...at you and at me...

We are the ones who fail to demand the highest quality
in our educational institutions in Michigan...

We are the ones who steadfastly resist a tax base adequate
to support both our needs and desires...and provide an
adequate level of support for quality education in this state.

We are the ones who block any effective efforts to achieve
equitable financing of education in Michigan.

We are the ones who generally are too busy to help our own
children in their studies or participate in their activities.

And we are the ones who insist on building more and more
prisons, even when we know that this investment
comes out of the hide of education and social services--
which are, of course, the only true long term solutions to crime!

We are the ones who complain about higher tuition costs
at our public institutions, even though we know that
these fees represent only one-third to one-fourth of the actual
costs of an education on our campuses...
and that our colleges provide adequate financial aid
to offset the burden of even these modest costs to
those in need...

Indeed, there is a particularly tragedy in this disturbing recent
trend, because when combined with the serious limits
on public support which now exist in our state,
successful efforts to prevent adequate tuition
levels for those who can afford to pay them, will
not only undercut our capacity to provide financial
aid to those less fortunate, but beyond that, will
force our institutions down a path of towards mediocrity.

Let there be no doubt about it...

In higher education, as in every thing else in life, if you want
bargain basement prices...you will eventually end up
with bargain basement quality...

If there is one common theme to these trends, it can be
summarized by that old T-shirt expression:

"Eat dessert first, life is uncertain"

We have become a "live for the moment society"

The "Me Generation" of the 1960s has now up into mature
Yuppiehood?

For many years now we simply have not been
willing to invest in our future...and the future of our children...
We have chosen instead to mortgage this future to pay for mistakes
make in our past.

The attitude we have taken toward our most precious resource,
our youth, is both callous an alarming.

I simply cannot accept the excuse that "we can no longer
afford this investment in the educational opportunities
we offer our youth".

To be sure, the immense social needs for welfare assistance,
medical care, prisons, and all of the other programs that
drain our tax dollars are compelling.

However, by choosing to meet these needs with resources
taken away from our system of public education rather than
through reforms in our tax structure or political system,
we have in reality mortgaged our future by withdrawing

the educational opportunities from our youth.

Michigan has had a long tradition of wealth and a caring attitude for its populace. But it seems clear that if priorities are not changed, Michigan will become poorer and poorer and finally it will not be able to meet the "caring needs" of its people. It will then have become a "have not" state.

Yet the writing on the wall could not be clearer:

As we prepare to enter the Age of Knowledge, our ability to sustain the strength of our state and our nation...to achieve the quality of life for our citizens...will be determined, more than any other factor, by how we develop, nurture, and educate that most precious of resources, our people.

Hence, let me conclude my brief remarks by tossing at you--and at me--several challenges:

Concluding Remarks

To Us...

In a very real sense, our state has entrusted to us its most valuable resources...its youth...and its future.

To be responsible stewards of the public trust, it is clear that we must strive to achieve greater cost-effectiveness in our use of public funds...and I can assure you that we intend to do just that.

But even beyond this, we must become staunch guardians for the quality of our institutions...

For in education, as in every other aspect of American life, quality will be the key to our future.

Hence, to us falls the responsibility of taking the forceful and courageous actions necessary to sustain and enhance this quality...in the long run the people of this state both demand and deserve nothing less!

To You...

Higher education represents one of the most important investments a society can make in its future...since it is an investment in its people...

It is indeed the case that our state and our nation have developed the finest systems of higher education in the world...

But we must also remember this resulted from the willingness of past generations to look beyond the needs and desires of the present and to invest in the future by building and sustaining educational institutions of exceptional quality--

Institutions that have provided those of us in this auditorium today with unsurpassed educational opportunities.

We have inherited these marvelous institutions because of the commitments and the sacrifices of previous generations...and it is our obligation as responsible stewards--not to mention as responsible parents--to sustain them to serve our own children and grandchildren.

It seems clear that if we are to honor this responsibility to future generations, we must re-establish the priority of both our **personal** and our **public** investments in education, in the future of our children...and hence in the future of our state and our nation.

A different way to look at it:

The Investment in Human Capital...

The real issue here is not the investment in education... it is the priority that we as a nation place on investing in our children.

We should feel both embarrassed and ashamed for robbing our youth to pay for our own excesses...

But let's take the cynical view that responsibility and stewardship will simply not be a compelling enough argument to reprioritize the

importance of investing in human capital...in our youth.
There is another viewpoint, however...
If we do not invest in the youth of today, they will not become a
sufficiently productive workforce to keep the checks coming
to those of us who retire in future years!!!
By 2000, there will be only three workers to support each
retiree...and one of these will be minority!
Look at it another way...which is the better investment...
\$3000/y to keep a preschool kid on track
\$5000/y to achieve a strong K-12 education
\$10,000/y to sustain strong college education
or \$25,000/y to put someone in jail...

The Need for a New Coalition

Today Michigan faces serious challenges that
will clearly determinine its future prosperity
and well being...
the challenge of pluralism...
the challenge of participation in a global community...
the challenge of the Age of Knowledge
the challenge of change itself...
If we are to respond, we simply must reorder the priorities of this state...
We must shift away from the temptation to
address only the needs and desires of the moment
And, instead, we must begin to make some of the key investments
necessary for the long term...
The key investments in our people...
in our children...
This is not just the worry of local communities or
state government or public institutions
It is everybody's concern!
Each of us must step forward and unite to
face the challenge of the future.
We must work together to build new coalitions including
the public and private sectors...state government,
education, business, industry, and labor...to
develop an agenda appropriate to secure the
future of our children, our state, and our nation.
Michigan continues to be blessed with abundant natural resources,
a people of great strength, and a system of higher
education of a quality envied by the rest of the
nation...indeed the world!
But, the writing is on the wall...
If Michigan is to prosper in the age of knowledge
that is almost certainly our future, we must join together
now to restore both our public and
personal investments in education...
...in our people and their ideas...
...in our children...
...and in our future