

EMERGING ISSUES FORUM



THE
KNOWLEDGE
Explosion

What's the Payoff for Americans?

1996 Highlights

NORTH CAROLINA STATE UNIVERSITY

To benefit from The Knowledge Explosion, we must invest in people and ideas — in research and education.

In the end, one overriding message dominated the 1996 Emerging Issues Forum: Brain-powered industries will drive the economy of the 21st century. If the United States is to benefit, it must invest in research to develop those industries and in education to develop the brain-power to run them. As economist Lester Thurow said, "You get what you invest in."

Over 900 North Carolina business, education, and government leaders attended the 11th annual forum, held April 15-16 at North Carolina State University's McKimmon Center. For these two days, a distinguished panel of speakers addressed the theme, The Knowledge Explosion: What's the Payoff for Americans? In addition to Thurow, the speakers included Vice President Al Gore, business adviser Stan Davis, journalist Hedrick Smith, US Sen. Bill Bradley, demographer Harold Hodgkinson, US Secretary of Education Richard Riley, children's advocate Marian Wright Edelman, and BellSouth CEO John Clendenin.

One after another, they cited the promises and the problems in the Knowledge Explosion. Davis proposed that the world already has entered the second half of an economic cycle based on information technologies. Maintaining a competitive advantage means not only advancing information-based industries, he said, but preparing for a future economy driven by biotechnology.

The speakers also described the relationship between the great unease gripping the American middle class and the dynamic forces shaping the economy. They touched on the aging of the population and other demographic changes. They discussed American values with special attention to protecting and nurturing children. The challenges they cited were great. "The kind of challenge we have posed to us today in many ways is much more difficult than the kind of challenge we faced in the Cold War," said journalist Hedrick Smith. "It challenges everything about us."

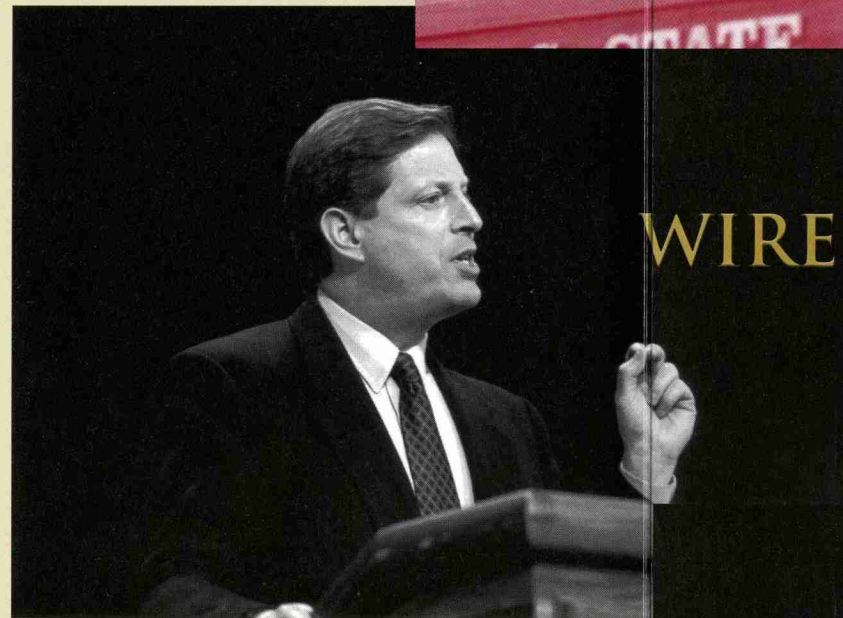
NCSU Chancellor Larry Monteith accepted the challenge and committed NCSU to developing a knowledge-based network harnessing the best minds from across the state. The network will "bring the state's enormous knowledge resources to bear on environmental, education, economic, and social issues confronting all of our communities," he said. "We have the knowledge. We must figure out how to use it."

Gov. James B. Hunt Jr., chairman of the Emerging Issues Forum, noted that an overwhelming consensus has emerged during the history of the forum. "The message is clear that we have to invest in ideas and in our people, all of our people, if our children and grandchildren are to have a better life," he said.

"As for NC State, we are ready to meet the new challenges of extending knowledge resources in practical, direct and technologically advanced ways to the people of this state."

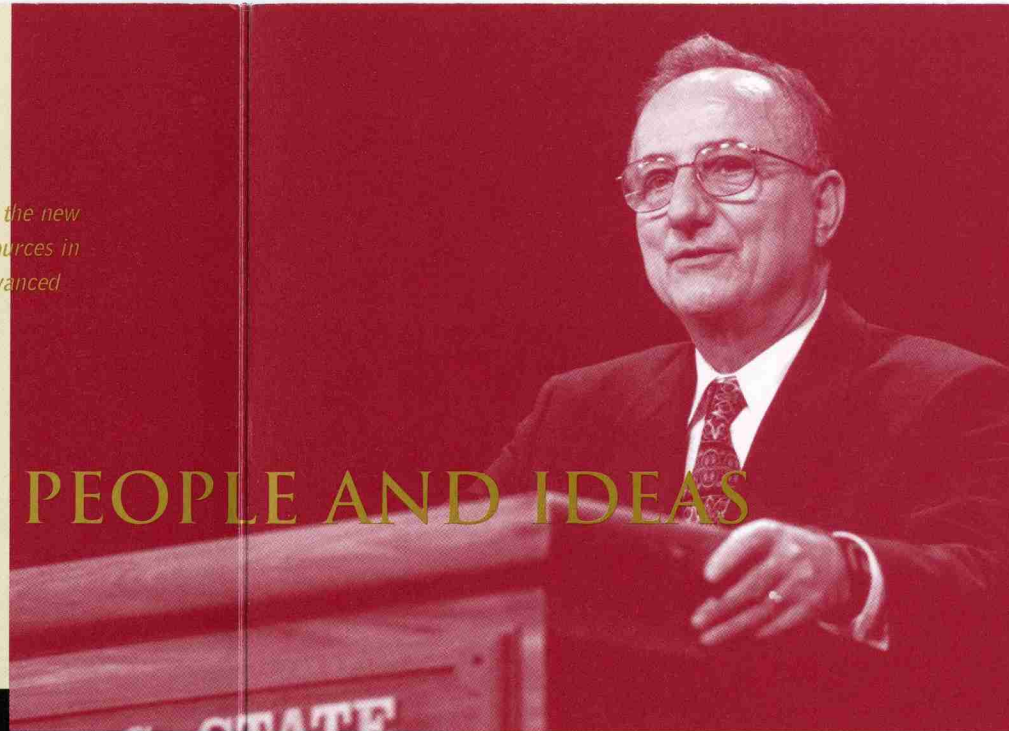
Larry Monteith

INVEST IN PEOPLE AND IDEAS



"Today, as the rest of our society has moved into the Information Age, our classrooms all too frequently are still bolted into the Industrial Age."

Al Gore



WIRE SCHOOLS FOR THE 21ST CENTURY

AL GORE

America's schools must catch up with the information revolution if they're to prepare children for the 21st century, Vice President Al Gore said in the opening address of the 1996 Emerging Issues Forum.

But schools are woefully behind, he said, with only four percent of classrooms connected to the Internet. "Today, as the rest of our society has moved into the Information Age, our classrooms all too frequently are still bolted into the Industrial Age."

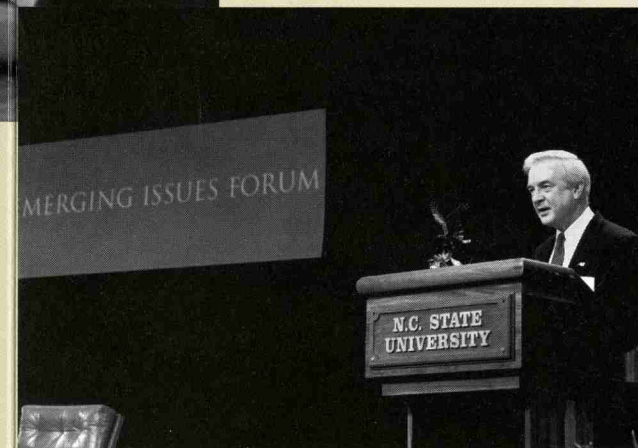
He described a four point educational technology strategy:

- Equip all schools and classrooms with modern computers and software.
- Create new educational software that is more interactive and engaging for children.
- Train teachers to use and teach the latest technology.
- Connect every school and classroom to the information superhighway.

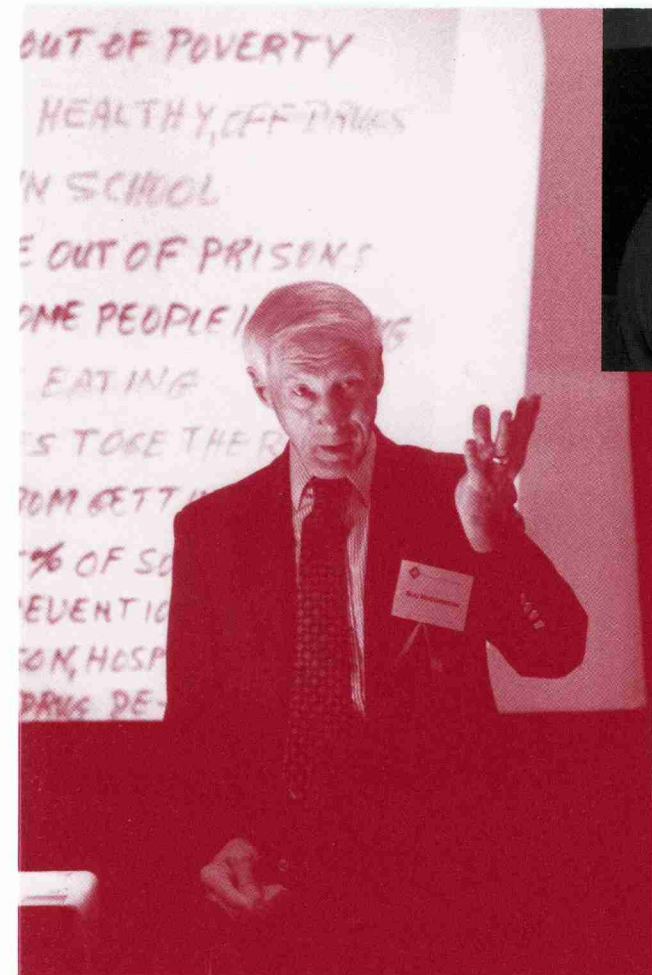
As he described the benefits of information technology, Gore also warned of the danger of leaving vast portions of the population behind—particularly minorities and the poor. "Make no mistake, there is a digital divide in this nation," he said.

"The challenge to us then, is to harness this knowledge explosion and make it work for everyone. Make it not only a tool for government and business but also a beacon of hope for society."

Jim Hunt



1996 EMERGING ISSUES FORUM



"The economic transformation that is making us more competitive is also making us more insecure."

Bill Bradley

BILL BRADLEY

To cure the great unease gripping the American middle class, US Sen. Bill Bradley proposed an economic security platform during his address to the Emerging Issues Forum.

His platform had three legs:

- Continuing company-based health insurance for employees laid off as a result of down-sizing.
- Portable pension plans so that job cuts don't threaten old-age security.
- A system of lifetime education to continually train and retrain workers.

Economic insecurity affects all aspects of society, including politics, Bradley said. At its heart lies the same set of changes that are strengthening business and industry. "That which is good – this economic transformation that is going to make us more competitive, more productive – is also at the same time making us feel more insecure," he said.

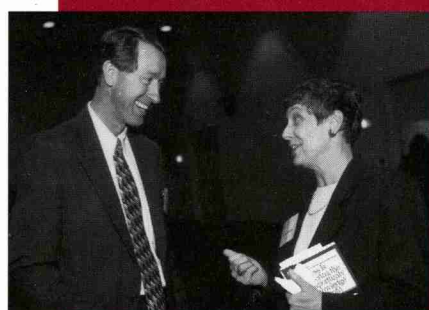
BUILD AN ECONOMIC SECURITY PLATFORM

HAROLD HODGKINSON

The uneasiness so evident in the American public results in part from changes throughout society, demographer Harold Hodgkinson said. Instead of growing more alike, society is growing more diverse with increases in minority populations.

Instead of a growing middle class, the wealthy and poor are increasing while the middle class shrinks. Instead of families with children, America has more single parents and couples without children. The changes are likely to become even more challenging, as Hodgkinson showed with graph after graph. For example, he described trends that compound one another. Families headed by single mothers are growing faster than two-parent families. Single-mother households are overwhelmingly poor. Poverty in turn is closely associated with poor performance in school. And young people who drop out of school are more likely than others to wind up in jail.

Equally troubling is the growth in the percentage of the population over 65. And, mobility complicates everything. Young, educated natives of poor states and regions move in search of jobs. Uneducated immigrants enter the United States to flee poverty and war in their homelands.



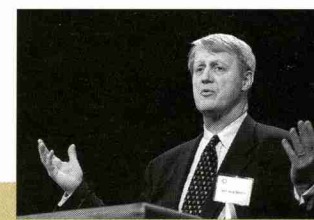
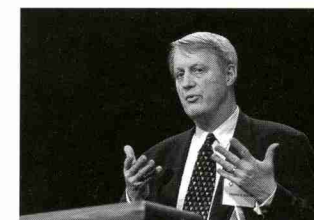
EDUCATE THE FORGOTTEN MAJORITY

HEDRICK SMITH

As American industry discovers the solution to declining market shares, American society faces a new challenge. "America does not have an adequate educational strategy for the people who are the absolute backbone of the economy, that is the people who are not going to finish college," journalist Hedrick Smith said. Industry has found that success hinges on tapping the minds of all kinds of workers, Smith said. But America's educational system is geared toward meeting the needs of only the top 30 percent—those who complete a four-year college degree.

Although some schools have improved their programs, he said, the forgotten majority of students continue to be ill-served by the general education curriculum.

"We need to reach out to those kids," Smith said. Success for industry and for America depends on the contributions of each individual, he said. "We cannot afford to leave anyone out or we will all suffer a lower quality of life."



RICHARD RILEY

US Secretary of Education Richard Riley called on Americans to continue investing in education, even as they try to balance the federal budget. In fact, he called for a faster pace in educational reform, saying the era of dumbing down in education has ended. "All children can learn, and all children can learn to a higher standard," he said.

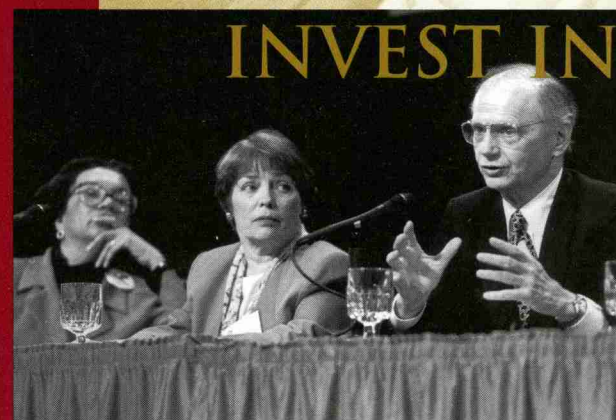
Reading topped Riley's list of needed improvements. While reading skills have remained stagnant, jobs are requiring higher levels of reading comprehension. "That's why closing this literacy gap is just as important to our economy as reducing the national debt," he said. "You can't cruise the Internet without being able to read well."

"Cutting the budget doesn't mean you stop investing in the things that will give you a great payoff," Riley said. "Our children did not create the budget deficit, and they should not have to pay for it in cuts in education."

INVEST IN EDUCATION

"Closing this literacy gap is just as important to our economy as reducing the national debt."

Richard Riley



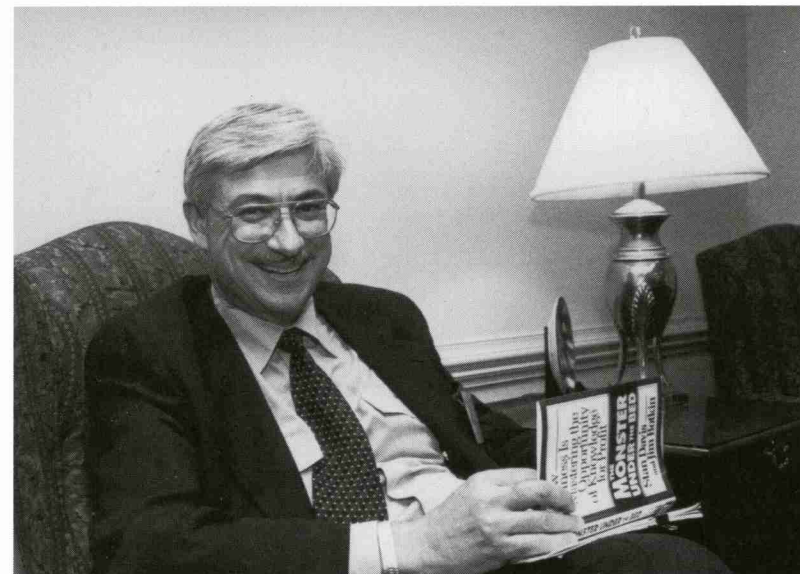
KEEP AHEAD OF THE TECHNOLOGY CURVE

STAN DAVIS

By Stan Davis's estimate, the information economy already has entered its second half. An author and business adviser, Davis sees successful products and services in the future being based on interactive and upgradable computer technology.

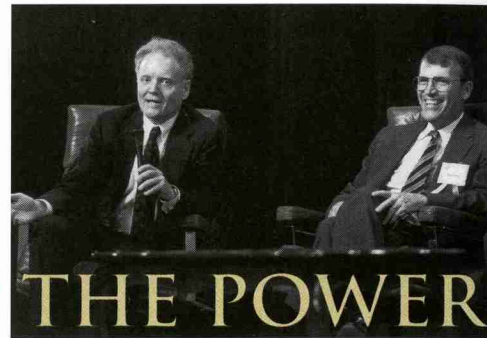
Davis outlined the evolution of the information economy. While the first half was based on computers and data processing, he said, the second half is based on telecommunications, which allows computers to connect and exchange information. The implications throughout society are tremendous, he said.

"Every time the infrastructure rumbles, everything changes," he said. "The infrastructure is rumbling again. It's shifting from crunching to connecting, and everything is going to change. How value is created. Who creates it. Who distributes it. Who controls it. Then at the specific level, that means the way we run our school system, the government, and all the private sector. It is all going to change around the dimension of knowledge, its expansion and its dissemination and delivery."



"Every time the infrastructure rumbles, everything changes. The infrastructure is rumbling again."

Stan Davis



TAP THE POWER OF INFORMATION AGE TECHNOLOGIES

MARIAN WRIGHT EDELMAN

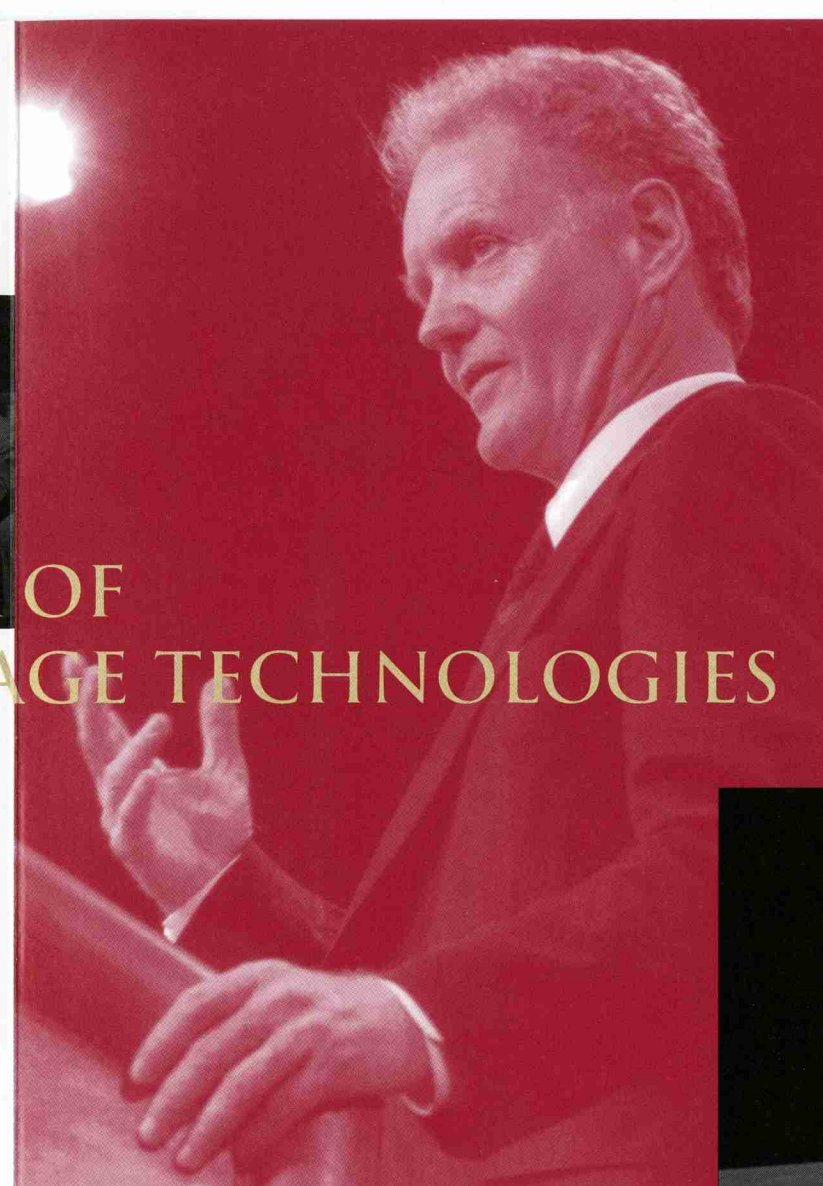
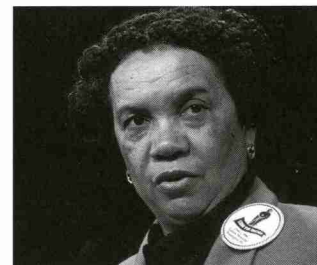
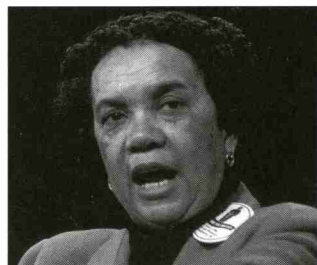
Marian Wright Edelman, director of the Children's Defense Fund, made a moving plea to place children at the center of every action in families, schools, businesses, and communities.

"I fundamentally believe that the neglect of our children, that our failure to invest in and respect all of our children is the moral and economic Achilles heel of this nation," she said.

She supported educating children for the 21st century, but said those children also need to see that they will have jobs and can support families. She denounced budget-balancing measures that would reduce preventive medicine programs for poor children and called for an end to the violence that kills a classroom full of children every two days.

"Americans must begin to honor children with their deeds and not just their words," she said.

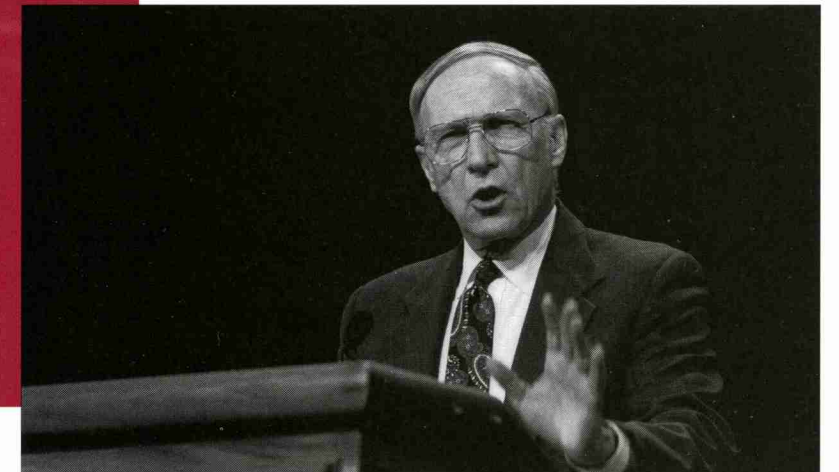
PUT CHILDREN FIRST



JOHN CLENDENIN

Saying government and industry have only begun to tap the power of information age technologies, BellSouth CEO John Clendenin predicted the creation of new kinds of businesses and a new era of electronic commerce. "The challenge to us is to stretch our imaginations to match the powers of this technology and to broaden the advantages of that technology so it can be utilized to serve all our citizens in maintaining a competitive edge as a nation and as a state," he said.

Telecommunications is a major piece of the foundation of the new knowledge-based economy, Clendenin said. Forty years ago, the phone company was a utility. Today telecommunications has become a strategic industry.



LESTER THUROW

Man-made, brain-powered industries will drive the economy of tomorrow, economist Lester Thurow said in the Forum's concluding address. Succeeding in that world will require major investments in research, he said.

Just a century ago, natural resources determined wealth. Today, the industries with the highest wages and profits and the greatest job-growth are in such fields as microelectronics and biotechnology.

"One of the things we have to recognize in this era of man-made, brain-powered industries is, you get what you invest in," Thurow said. "And if you're not willing to pay the price, you won't have the industry."

The investments may need to be accompanied by patience. Research that originated at the National Institutes of Health has given this country almost a monopoly in biotechnology, Thurow said, but it took 30 years to develop. Similarly, the Internet was

first driven by the Defense Department, then by the National Science Foundation. "Thirty years later, it has become the most exciting economic opportunity in America," he said.

The shift from natural resources to knowledge resources is only one of the major forces reshaping the world economy and, often, driving wages down. The others include:

- The global economy.
- The end of communism.
- An aging population in the western world.
- The world population explosion.
- The level playing field.

In the 21st century, the world will have no dominant political and military economic power, Thurow said. The United States filled this role for most of the 20th century. Now it can no longer impose its own terms.

TO ALL BRAIN-POWERED INDUSTRIES WITH RESEARCH



"How do you have a long-term time horizon when you have a majority of short-term participants? If democracy can't solve this problem, democracy will end."

Lester Thurow



A NOTE FROM THE DIRECTOR

From its beginning in 1985, the Emerging Issues Forum has had but one purpose — to bring the highest levels of enlightened public policy debate to the people of North Carolina.

It was a special pleasure at the 1996 Emerging Issues Forum to present nine leading Americans who are helping to set the agenda for our national dialogue on the future. Nowhere in this country will a better group come together to discuss the consequences of the EXPLOSION of knowledge and information. This report offers brief highlights of the discussion.

As I reflect on the eleven-year history of the Forum, I am struck by two facts. Our ambitions in selecting topics and speakers have been unquestionably bold, and you, the leaders of North Carolina, have provided the support and involvement crucial to our success. I am immeasurably grateful to you.

I also want to reaffirm my gratitude to Gov. Jim Hunt, to Chancellor Larry Monteith, to members of the EIF executive committee, and to the most excellent faculty, staff and student body at North Carolina State University.

Betty Owen, *Director*

Mark your calendar now!

The 12th Annual
Emerging Issues Forum
will be April 10 and 11, 1997.



EMERGING ISSUES FORUM

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