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"Threshold of a New Era"
STATE OF THE INSTITUTE ADDRESS
By Georgia Tech President G. Wayne Clough
October 1999

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(TITLE SLIDE)
Good afternoon. I am honored to be able to present to you Georgia Tech's last State of the Institute address of the twentieth century, and to join you for what is going to be a great homecoming. This year we have provided you with a brochure that documents the wonderful accomplishments and recognitions for the past year that can be attributed to our faculty, staff and students. I think, like me, you will see why there are so many reasons to be proud of this institution, but what is truly exciting is that we have only begun.

After more than a century of building a foundation for excellence, Georgia Tech has created an opportunity few institutions have to become one of the world's top research universities. At the same moment, the world itself is on the cusp of a new millennium that demands the entrepreneurial mindset that has always characterized Georgia Tech.

(SLIDE: STUDENTS, ROBOT)
Tech faculty and students are known for their ability to solve real-world problems in novel and creative ways, to adjust quickly and gracefully to rapidly changing circumstances, and to use knowledge and technology to improve lives. It is up to us to use this know-how and this opportunity to emerge in the new millennium as one of the world's leading technological universities.

(SLIDE: MILESTONES)
The accomplishments of the past year are milestones in Georgia Tech's quest to seize the moment and step across the threshold into a new era of unprecedented leadership.

(SLIDE: TRIPLETS)
With 2,300 students, this year's freshmen class is bigger and more diverse than ever. With an average SAT of 1305, it is smarter than ever. It even includes triplets – Sean, Erin and Matthew Moseley. And I'd like to ask them to stand. At the other end of the undergraduate pipeline, senior Chris Young became Tech's fourth Truman Scholar in five years, a singular recognition that derives from a competition between the nation's best and brightest.

(SLIDE: GA MAP)
This year we took a dramatic step in broadening our service to the state when we enrolled the first students in the Georgia Tech Regional Engineering Program, or GTREP for short. Locally based Georgia Tech faculty and distance learning technology enable us to offer engineering degrees in coordination with Georgia Southern University in Statesboro and Savannah State and Armstrong Atlantic State Universities in Savannah. Over 100 students are now enrolled in classes as we speak.

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(SLIDE: FACULTY EXCEL)
Our faculty continue to blaze a trail of excellence. Eight of our young faculty received CAREER Awards from the National Science Foundation, bringing Georgia Tech's total to 36 awards, third highest in the nation. We also increased our memberships in the National Academy of Engineering and the National Academy of Science.

(SLIDE: DEANS)
Two new deans, Terry Blum and Sue Rosser, enabled us to enter the new academic year at full strength, with outstanding leadership for all six of our academic colleges. I would like to ask Dean Rosser to stand and be recognized. Dr. Blum was unable to be with us, but asked me to bring her greetings to you.

(SLIDES: ATHLETICS)
Our athletic teams continue to win, both on the playing courts and fields, and in the classroom. The football team beat the Bulldogs, won the Gator Bowl and is looking even better this season. The golf, baseball and track teams all compiled outstanding rankings. In the classroom, a third of our student athletes made the dean's list, and several are President's Scholars.

(SLIDE: RESEARCH PHOTOS)
Our research labs kept Georgia Tech on the leading edge. Innovations that attracted attention this year include a "user-friendly" biomaterial that can be made into cartilage, blood vessels or heart valves; smart T-shirts with fiberoptic threads and sensors to monitor vital signs and pinpoint injuries; and microneedles that take the "ouch!" out of shots.

(SLIDE: RESEARCH GRAPH)
Sponsored research reached an all-time high of $271 million, marking the fifth consecutive record-setting year. Georgia Tech is now ranked fourth in the nation in industry-sponsored activity, up from sixth last year.

(SLIDE: TECHNOLOGY ADVANCES)
As more undergraduates come under the Student Computer Initiative, over 200 courses have been redesigned to incorporate web-based activities. This year we offered our first Internet degree, an M.S. in mechanical engineering, and two more are under development.

(SLIDE: IBB PHOTO)
Construction created space for emerging programs and increasing enrollments. Technology and science are coming together in the Biosciences and Bioengineering Building, which will be dedicated next Tuesday.

(SLIDE: SUSTAINABLE BLDG)
Georgia Tech is one of the first universities to imbue our curriculum with a sensitivity toward environmental issues, and the Sustainable Education Building helps to make that happen.

(SLIDE: MRDC BLDG)
Yet another major building, the second phase of the Manufacturing Related Disciplines Complex will open early next year.

(SLIDE: CAMPAIGN)
The Capital Campaign is expanding scholarship aid for students and has endowed more faculty chairs in the past four years than were created in all of Georgia Tech's prior history.

(SLIDE: CAMPAIGN GRAPH)
This year the goal was increased from $400 million to $500 million, and we are on track to meet that new higher goal by the end of the year 2000.

(SLIDE: MAGAZINES)
Our arrival at the threshold of a new era was reflected in our national rankings and by special recognitions. *U.S. News & World Report* ranked Georgia Tech 10th among all public universities and put the College of Engineering third behind only MIT and Stanford University. *Black Issues in Higher Education* recognized our leadership in awarding engineering degrees to minorities by including Dean Jean-Lou Chameau on the cover.

(SLIDE: HESBURGH AWARD)
Georgia Tech as an institution was elevated into very special company this past year by receiving the nation's top award for support of undergraduate teaching, the 1999 Theodore M. Hesburgh Award. It honors the Center for the Advancement of Teaching and Learning and the Tech alumni who have endowed the Center's teaching fellows programs. We were only the third research university in the history of the award to be so honored.

(SLIDE: OLD PHOTO OF RACE START)
These milestones of the past year cap a century in which Georgia Tech has run well. And we can look back with pride on all we have achieved. But in the rarified air of the top ten public universities in the United States, competition takes on a whole new meaning.

(SLIDE: BLUE CHIP)
We are proud of our 16 members in the National Academy of Engineering. Then we remember that MIT has 103. If we compare our graduation rate to other top-tier public universities, it clearly needs some attention. And there are still a few heights of recognition that we have not even begun to scale.

(SLIDE: QUOTE)
It might feel like we've made it to Wonderland, but as the Queen of Hearts explained, we have come to the place where it takes a lot of effort just to maintain our position, let alone to get ahead.

(SLIDE: HURDLES)
In this rapidly changing world, we will have to run twice as fast if we are to cross the threshold of a new era. If you ask four-time All-American Georgia Tech track star Andria King, who is pictured here, she will tell you that it is critical to size up the hurdles that lie ahead. And that is what we need to do if we are to move to the next level.

(SLIDE: CONTEXT OF 21ST CENTURY)
Let's begin by looking at the megatrends that are already developing and will create the context of the coming century. Technology is ubiquitous, and for a technological institution like ours, this is to our advantage.

(SLIDE: LAPTOP)
Computing is pervasive, and the combination of the Internet and the rapid growth of information is changing all aspects of our lives. Even for a technological university, these trends are going to demand attention in creating the future teaching and learning environment.

(SLIDE: STUDENTS)
Talent is dominant, and our population is becoming ever more diversified. We have to use these trends to our advantage if we are to succeed.

(SLIDE: INTERDISCIPLINARY)
Interdisciplinary is "in" and entrepreneurs have the edge. The question is, does Georgia Tech have the ability to change its culture to accommodate this new environment?

(SLIDE: ECONOMY)
Finally, the economy is globally networked, and research is driving innovation.

(SLIDE: CHALLENGES, OPPORTUNITIES)
It will be difficult to succeed in this demanding new environment. We will have to be clearer about where we want to go, and more focused and deliberate in our efforts to get there. Yet the opportunities to become truly world-class have never been greater.

(SLIDE: GLOBAL SCOPE)
A world-class university has a world-class presence, and Georgia Tech is moving in that direction. The Sam Nunn School of International Affairs and the European Union Center give us an edge over others in providing an international perspective here on campus and projecting our influence beyond campus. Our students are taking advantage of a growing range of study abroad programs to help them prepare for leadership roles after leaving Tech.

(SLIDE: TECH'S GLOBAL REACH)
Beyond Atlanta, Georgia Tech is setting up shop where our interests lie, both within and without our national boundaries. Within the state, GTREP has taken us to Statesboro and Savannah. In Huntsville, Alabama; Arlington, Virginia; and Dayton, Ohio, we have research facilities. We have a thriving satellite campus in Metz, France, and next year the College of Architecture will celebrate 25 years in Paris.

Only a few weeks ago, Dean Jean-Lou Chameau and my wife, Anne, and I traveled to Singapore to formally initiate the new Logistics Institute-Asia, which will offer master's degrees at the National University of Singapore. We are at all of these locations because we have been asked to be there and our services are sought after above all others. There is no more tangible evidence of our growing national and international reputation than this.

(SLIDE: BLUE CHIP PROFILE)
If we really want to be known as a world-class university, we must continue to upgrade our profile in Blue Chip organizations like the National Academies of Science and Engineering. Earlier I noted we have made progress in this area, but we have much more ground to cover. We must develop and offer policy expertise, and build partnerships with other world-class universities, as we have with Columbia University in the Center for Science, Policy and Outcomes, and with Emory University in biotechnology.

We also need to build academic excellence across the board in all of our colleges. This is one of our biggest challenges and one of the most significant factors keeping us in the shadow of the world's finest universities.

(SLIDE: NEW ECONOMY)
We have begun to explore the economy of the new century, and we have several opportunities to expand our efforts. The DuPree Center for Entrepreneurship figures out what makes start-up companies succeed. The new iXL Center for Electronic Commerce studies business on the Internet, a dynamic area that offers great potential to Georgia Tech and its management college.

(SLIDE: CONTINUING EDUCATION)
Our executive master's degree programs in the management of technology and international logistics give Georgia's business leaders skills for the new century. And we are hoping to build an executive education and continuing education center on Fifth Street to house these rapidly growing programs.

(SLIDE: OLD ENIAC COMPUTER)
There is no debate that we must be a leader in computing. In 1946, Georgia Tech became the sixth university in the nation to own a state-of-the art AC network calculator – a sort of rudimentary computer that was as big as a room. Today, more than 50 years and countless product cycles later, leading the way in computing continues to be both a challenge and an opportunity.

Our fastest-growing majors are computer science and computer engineering – academic programs that didn't even exist when I was a student 35 years ago. We now have more than 1,300 students majoring in computer science. Our research efforts in virtual reality and information security are among the best in the nation.

(SLIDE: VIRTUAL FUTURE)
We have begun to offer master's degrees over the Internet, and unlike universities that simple plop video onto the Net, Georgia Tech's courses are designed specifically for Internet delivery. We are going to take just a minute here to give you a taste of what our far-flung Internet students see and hear when they sit down at their computers for Jonathan Colton's class.

(SLIDE: INTERNET DEMO)
This is education on demand – any time and any place you can plug into the Internet, and over the next two years we will use this technology to offer master's degrees in mechanical engineering, civil engineering and electrical engineering.

(SLIDE: FALCON VIEW)
That Georgia Tech's computing prowess is important to the nation's present and future defense effort was prominently illustrated this year by the use of Falcon View in every U.S. fighter plane that flew a mission over Kosovo. This remarkable three-dimensional computing technology, which was developed at Georgia Tech, guides our pilots across enemy terrain while providing instantaneous information about changing ground threats. That guardian angel that kept our pilots safe in the air over Kosovo looked a lot like Buzz.

(SLIDE: COMMUNITY)
The major economic development initiative undertaken by our new Governor Roy Barnes is known as the Yamacraw Mission, an effort designed to make Georgia a major center of software engineering and electronic design over the next five years. I was proud to have participated in the design of the Yamacraw Mission, and am pleased to announce it will lead to the addition of 45 new faculty members at Georgia Tech – 15 of them have already been hired this year.

Yamacraw dovetails beautifully with another initiative that is being implemented at the same time. The Metro Atlanta Chamber of Commerce Industries of the Mind initiative has targeted 520 high-tech companies to recruit to Atlanta, and Georgia Tech is a major drawing card. Tech is working closely with the Chamber to implement the Industries of the Mind effort, and through the Yamacraw Mission, we will provide the talent to drive it. Nowhere in the nation are there two such initiatives as the Yamacraw Mission and the Industries of the Mind effort, and nowhere do such ambitious efforts intersect on one institution as is occurring today at Georgia Tech. I personally want to deliver this message - if any of you Tech alumni have been thinking of coming home, there has never been a better opportunity to be in Georgia.

(SLIDE: GCATT BLDG)
These efforts to expand Atlanta's high-tech communication industries complement the research at GCATT – the Georgia Center for Advanced Telecommunication Technology – to give us the ingredients we need to become a world leader in advanced communications. In addition to its research labs, GCATT also houses an Advanced Technology Development Center, a component of our nationally recognized high-tech business incubator. The ATDC serves entrepreneurs and now incubates start-up companies at three Atlanta locations, in Warner Robins, and soon in Savannah. Georgia Tech is one of only a handful of universities in the nation that have a business growth machine like ATDC.

(SLIDE: MIDTOWN MAP)
All of these attributes – educating a technological workforce, conducting research and promoting high-end economic growth – make Georgia Tech a driving force in stimulating a Midtown Atlanta Renaissance. As our campus becomes the center of a high-tech community, quality housing, retail and service outlets are completing the picture. We are seeing the leading edge of what will become Atlanta's Silicon Valley, and we are at the heart of it.

(SLIDE: INTERDISCIPLINARY)
Just at a time when Tech strives for a new level of excellence in the sciences, the hottest research fields are in the gap between the sciences and technology, enabling our strong engineering and

computing programs to give the sciences a leg up. Many universities pay lip service to interdisciplinary endeavors, but Georgia Tech is actually becoming interdisciplinary from the ground up – in partnerships with Emory University and the Skidaway Institute for Oceanography in Savannah, and in facilities like the uniquely designed BEM Complex.

(SLIDE: BEM COMPLEX)
The Biosciences and Bioengineering Building is built; the Environmental Sciences and Technology Building will soon be under construction; and we have begun raising funds for the Molecular and Materials Science and Engineering Building.

Already representatives from other universities are coming to our campus to understand this innovative approach to creating a knowledge complex. It is designed to operate as a unit, not as three individual buildings, and faculty occupying its offices and laboratories are drawn from a range of disciplines. The BEM Complex is essential for our sciences to compete in the new era, since the last science building at Georgia Tech was the Boggs Chemistry Building, constructed in 1966.

(SLIDE: LEADING EDGE)
In the next century, faculty and students at Georgia Tech will lead in developing the new knowledge that drives a range of interdisciplinary research areas important to the future. We have already built positions as a leader in these fields.

(SLIDE: INTERSTATE AT CAMPUS)
One of the biggest practical research challenges and opportunities lies right here in our own backyard. As Atlanta's pollution and traffic problems reach unacceptable levels, Georgia Tech is helping to provide the expertise needed to solve these problems.

(SLIDE: SMART GROWTH FOR GT)
Just like Atlanta, Georgia Tech has experienced exceptional growth, and it is stressing our facilities and campus support systems. And just like Atlanta, our challenge for the future is to catch up with the growth and be smart about how we manage and direct any additional growth.

(SLIDE: ENROLLMENT GRAPH)
Not only has our overall enrollment increased by 70 percent over the past 30 years, but our graduate enrollment increased by 167 percent. That puts extra stress on our facilities, because graduate students need more in the way of office and lab space than undergraduates.

(SLIDE: FACULTY GRAPH)
When you've got more students earning more degrees, you need more faculty. Our faculty growth has paralleled student growth, but has not quite kept pace, so we have not made the progress we need in improving our student/faculty ratio. That is another of our challenges.

(SLIDE: HOUSING GRAPH)
In addition to enrollment growth, on-campus housing for students, including Greek housing, has more than doubled over the past 30 years. Those new Olympic dorms are great, but they are

putting pressure on other campus life infrastructure, much of which was created in the early 1970s, when we were a university of 10,000 students.

(SLIDE: CONTINUING ED GRAPH)
The increasing demand for workforce education is reflected in the significant growth that Tech's continuing education programs have experienced over the past 20 years. Revenues from these programs cover the cost of their operation, but we have to have somewhere to put them.

(SLIDE: RESEARCH GRAPH)
But the largest increase of all has been in sponsored research, which has grown 30-fold over the past 30 years. Research is important because it drives high-end economic development, and it is a powerful magnet for attracting and holding quality faculty and students.

(SLIDE: COMPOSITE GRAPH)
The trajectory for all of our major growth factors is up, and our challenge for the future is to craft a strategy that will carefully manage and focus our growth to achieve higher levels of quality.

(SLIDE: MANAGING GROWTH)
That strategy includes limiting our campus enrollment to 15,000 students, targeting our research at carefully chosen fields, serving the market for continuing education at market prices, and catching our campus infrastructure up with growth. And I'll say a little more about that last one in just a minute.

(SLIDE: DIVERSITY QUOTES)
As we limit our campus enrollment, we face the additional challenge of increasing its diversity. Diversity is more than a social issue. As I talk with the corporate leaders who recruit our students, it is clear that diversity is important to them and to our relationship with them.

(SLIDE: DIVERSITY GRAPH)
Georgia Tech has made tremendous progress in encouraging women and minorities to enter technology fields. We now graduate more women and minority engineers than any other university in the United States. Our challenge is to continue and expand our efforts to prepare women and minorities for technology leadership. And here is a good example.

(SLIDE: ASTRONAUT JAN DAVIS)
Fifty years ago, she couldn't have even gotten in, let alone gotten out. Today Astronaut Jan Davis, class of 1975, is the veteran of three space shuttle missions and is a leader in developing the International Space Station.

(SLIDE: INFRASTRUCTURE)
Now, back to that challenge I mentioned a moment ago of catching facilities up with growth. We have a lot to do, and we have the plans to get us where we need to be. As we do that, we will also gain the elbow room to do some desperately needed renovation of the many older buildings on our campus.

(SLIDE: ES&M PHOTO)
Too many of our classrooms are in old buildings like Engineering Science and Mechanics that are neither designed nor retrofitted to take advantage of today's educational technology.

(SLIDE: RENDERING)
We are planning a new Undergraduate Learning Center that will not only provide space for state-of-the-art classrooms, but also space for library resources and student activities. It will also be one of the most visible buildings on our campus, being located next to the existing library and across from the Student Center.

(SLIDE: ELECTRONIC CLASSROOM)
The days are gone when education technology consisted of a T-square and a slide rule. Today Georgia Tech is one of America's most wired campuses, with 1,700 miles of fiberoptic cable, and "virtual" learning communities are developing. As we build and renovate our buildings, they will be designed for the high-tech learning environment of the future.

(SLIDE: FOOTBALL)
Our infrastructure needs extend beyond classrooms to athletic facilities. Seventy years ago, the great 1928 Georgia Tech Golden Tornado won the Rose Bowl and earned $76,000 in the process. These funds allowed us to buy land for our baseball program and build Rose Bowl Field. Today, we need to bring our intercollegiate team sports from our present 16 to 20, the ACC average, and the funds cannot come from winning a single bowl game.

(SLIDE: SOFTBALL)
As we look to the needs of our athletic program, moving our women's softball field from its distant home on 14th back to main campus is a priority as well.

(SLIDE: AQUATIC CENTER)
The Olympic Aquatic Center stands as a gaunt reminder that it is not finished. It is connected to our Student Athletic Complex that was built back in 1970 when our student population was only 10,000. Our student recreation facilities are only half the size of most universities with the same number of students. Our plan calls for us to use one innovative project to enclose the Aquatic Center so it can be used for intercollegiate competitions and at the same time to expand the Student Athletic Complex and renovate the existing building.

(SLIDE: SAFE CAMPUS)
If we are to become a world-class university, we must have a campus that is safe and open. For most of our life, Georgia Tech had to cope with the problem of a public housing project across the street from campus. Today, thanks to the Olympics, Centennial Park has replaced Techwood Homes, and a new era is being created.

(SLIDE: POLICE)
A shiny new neighborhood police precinct coordinates with Georgia Tech police to make our campus a safer place. These changes, along with increasing our own police force and adding bike patrols, are leading to an encouraging decrease in crime on our campus.

(SLIDE: HOUSING PHOTOS)

A hundred years ago, Tech's lone dorm had no central heat or electricity. We still get up by the whistle, but the Olympics has upgraded and expanded campus housing for unmarried students.

(SLIDE: CALLAWAY APTS)

Our remaining challenge is to renovate housing for married students. Callaway Apartments, for example, are more than 50 years old and badly in need of major renovation. We are exploring options to address this important need.

(SLIDE: STUDENTS AT COMPUTER)

So there is much to do, but the opportunities are great and our students deserve all we can give. They are among the best the nation has to offer, and we hope their journeys will all lead to a Tech degree. We are going to explore ways to improve retention and graduation rates, and offer opportunities to help students develop the leadership skills they will need as they leave our campus.

(SLIDE: CAMPANILE)

Our students of today, and graduates of tomorrow, are going to become the technological leaders of the nation, and we need to prepare them for this role. We want to provide a campus environment for the next century that encourages their growth and allows them to use their talents to the very best of their very substantial abilities.

(SLIDE: DRUCKER QUOTE)

Our students, faculty, staff and alumni have helped Georgia Tech ascend to new heights, but history knows no resting places. Our choice is either to press ahead or fall behind. It is said that complacency is death, and this is a truism. But a corollary is that complexity is slow death. We have to be focused and strategic. Yesterday's strategies will no longer work, and the changes ahead are unpredictable.

(SLIDE: STUDENT THROUGH ARCH)

The only approach that is likely to succeed is for us to engineer the future. It is this spirit that will carry us across the threshold of a new era.

(FINAL SLIDE: BRITTAIN ARCH)