

REMARKS BY GEORGIA TECH PRESIDENT G. WAYNE CLOUGH
Gwinnett Rotary Club, February 17, 2004

It is always a pleasure to be in Gwinnett County, which has distinguished itself as one of the most dynamic counties not only in Georgia but also in the United States. When I was a student at Georgia Tech back in the 1960s, Gwinnett County was mostly rural farmland. But Lake Lanier had just been created and I-85 had just been built, and the earliest outlines of this county's potential were beginning to emerge. When I returned to Georgia Tech as its president in 1994, it was incredible to me to see how Gwinnett County had changed. Of course, I knew that while I was gone Gwinnett had emerged as one of the fastest-growing counties in the nation, but to actually see the dramatic change that growth had caused was amazing.

Georgia Tech likes to think that we made a small contribution to Gwinnett's success. Back in 1963, a group of Tech administrators and alumni commissioned a study on how Atlanta in general and Georgia Tech in particular could encourage the development of high-tech business. Among the recommendations was to establish a technically oriented business park. Five years later, a group of Georgia Tech alumni founded Technology Park/Atlanta at Peachtree Corners. At that time most people had never heard of Silicon Valley, and it was considered a risky venture. But it was an opportunity to develop a unique community of science and technology businesses and research organizations, and also to provide high-tech jobs for Georgia Tech students who were leaving the state after graduation. The success of Technology Park attracted other high-tech businesses to Gwinnett and helped to spur the county's growth as a high-quality, high-tech community. Today, the thousands of people who work at Technology Park/Atlanta are just a small piece of a much larger business community that has developed around it. And Georgia Tech has about 7,000 alumni working in Gwinnett's high-tech businesses.

I am delighted to have this opportunity, first to bring you up to date on some of the exciting things happening at Georgia Tech, and then share a few thoughts about the future. Of course, some of that excitement is generated by our basketball team, which sprang unexpectedly into the top 25 when it beat the number one team in the nation early in the season and has stayed in the rankings ever since. And we appreciate the good coverage the *Gwinnett Daily Post* has been giving the team.

But the core of Georgia Tech's mission remains what it was set out to be at our founding in 1885, which is to educate an outstanding technological workforce for Georgia. This year, our incoming freshmen scored an average of 1336 on the SAT, which is one of the highest scores at any public university in the United States. If you consider that two-thirds of our students come from Georgia, you can see that we are educating many of the brightest young minds in the state. A significant number of them come from right here in Gwinnett County – we usually have about 1,300 students on campus from Gwinnett, and this county's high schools are well represented among our top feeder schools.

We have been holding the size of our freshman class constant at 2,200 students for several years, but our undergraduate enrollment continues to grow. We are doing a better job of serving our students and making their educational experience meaningful, and as a result, our retention rate

is up. We also have an increasing number of students coming in as juniors through the enormously successful transfer programs we have with 12 universities and colleges around the state and the historically black and female institutions in our state. The transfer programs make engineering education more accessible in Georgia. And last fall we took another big step to improve accessibility by opening an innovative new campus in Savannah that offers Georgia Tech engineering degree programs in southeast Georgia.

As a result of improved retention and innovative access programs, we graduated more students with bachelor's degrees last year than ever before in our history. We now lead the nation in number of engineering degree graduates, and along the way we graduate the largest numbers of women engineers, and the largest numbers of African Americans with engineering degrees at all three degree levels.

One reason our retention rate has been improving is because the qualifications of our student body have been steadily improving. But beyond this, we are working to provide experiences that broaden our students' horizons and promote personal interaction with faculty. One of the exciting things we are doing is involving undergraduates in the dynamic research enterprise of Georgia Tech. Last year more than 1,350 undergraduate students were engaged in structured research projects either for academic credit or pay. Research is an important learning experience for our students. The problems are open-ended – there are no pat answers that you can look up in the back of a textbook. When your experiments yield results, it is up to you to figure out what those results mean and what to do next.

Another important experience for our students is studying abroad. Current events make it obvious that we need more people who have a better understanding of other cultures and a better perspective on how the world works. So we expanded the opportunities for our students, and a third of them now study abroad at least once in the course of their college years. In addition to the typical study abroad programs that most colleges have, we also offer several with a unique Georgia Tech twist. One, for example, combines a semester of study at the Technical University of Munich in Germany with an international internship at the corporate giant Siemens.

We also have our own Georgia Tech campuses in Metz, France, and in Singapore. These are not merely study abroad locations – they are full-fledged educational and research operations that receive financial support from their local governments who value the contribution we can make to their business communities. These international campuses allow our faculty and students to spend time abroad without missing a beat in their careers, while also encouraging students from the host nations to come to our campus in Atlanta. I am proud to say that the national engineering magazine, *Prism*, recently cited Georgia Tech for pioneering new models for international studies for science and engineering students.

Back home in Atlanta, we are busy reshaping our campus to expand its capabilities, improve its livability, and increase its quality. Last year we opened \$500 million worth of new and renovated facilities. Now, some of you might be wondering how we managed that with state funding being so tight these days. The answer is that less than 20 percent of the funding came from the state, and that had already been appropriated before the budget cuts began. Our alumni and friends

have contributed significantly to this endeavor, and we have used bonds judiciously for facilities that generate revenue to help pay off their own costs.

The new facilities include classrooms and lecture halls with the latest educational technology incorporated seamlessly into their design. They include research labs that gather faculty and students from various schools and colleges around emerging interdisciplinary research fields and issues. They include a Global Learning and Conference Center with the latest Internet and satellite resources connecting Georgia Tech with every part of the world to help us ramp up our growing Internet masters degree programs.

The Global Learning and Conference Center is part of Technology Square, Georgia Tech's new complex that takes our campus across Interstate 75/85 and into the Midtown Atlanta business community. This new development also provides an exciting new home for our College of Management, new headquarters for Advanced Technology Development Center and its incubator for start-up companies, a new building for Georgia's Electronic Design Center, and last but not least, the Georgia Tech Hotel. We invite you to use the Hotel or the Global Learning and Conference Center for meetings. Both are certified conference facilities located right in the heart of Midtown on Fifth Street between the Biltmore and Interstate 75/85.

Technology Square also enhances the quality of life for our students and the neighborhood. It includes Barnes & Noble @ Georgia Tech – the largest campus-based Barnes & Noble bookstore in the South – plus other shops and restaurants where our students mingle with neighborhood residents. Another improvement to the quality of life on campus is our new Campus Recreation Center, built around the Olympic swimming and diving facility. We opened Phase I last fall, and when Phase II opens next fall, we will have one of the best recreation facilities of any university in the nation.

These facility improvements are paralleled by the growth of our research programs, which have doubled over the past decade. Last year our research expenditures totaled \$375 million, which places us in the top 30 in the nation. Our research funding comes largely from external sources and we compete with other universities to win those funds.

What makes this new generation of research exciting is that we are moving forward very aggressively in new interdisciplinary research fields that are emerging in between the traditional academic disciplines. They have exotic-sounding names like biomedical engineering, nanotechnology, mechatronics, and bioinformatics. But their names are often combinations of the disciplines that are interacting. Biomedical engineering, for example, brings together biology, medicine, and engineering. Mechatronics combines mechanical engineering with electrical and computer engineering to develop mechanical systems with electronic and computer components.

In the case of nanotechnology, “nano” means very tiny. A nanometer is equivalent to one-billionth of a meter. The width of a human hair, for example, ranges from 50,000 to 150,000 nanometers. Nanotechnology involves the creation of materials, devices, and systems at the level of individual molecules and atoms, and the possibilities that lie ahead are staggering – small, lightweight energy sources, super materials, cures for many genetic diseases, self-cleaning surfaces, and sugar-cube-sized memory devices that can store the Library of Congress. These

breakthroughs will help to form the economy of the future, and Georgia Tech plans to be one of the universities where that future emerges.

We are already a recognized world leader in nanotechnology. Our faculty includes one of the top five scientists in the world by number of scientific papers he has had published on the subject of nanotechnology. Two of our professors have won the Feynman Prize in Nanotechnology, which is the highest award in the world in this field. We are becoming one of the top places for creation of technology to allow the manufacturing of products at the nano-scale. In the near future, we will build a \$80 million Nanotechnology Research Center that will be the first of its kind in the southeast and will offer the kind of ultra-clean environments required by work at the molecular level. An anonymous donor has provided \$36 million toward the cost of construction, and Governor Perdue has pledged state support for the remainder.

Another fascinating area of research at Georgia Tech is photonics, which works to control the photons in light in ways that are similar to the electronics in electrical products. However, because photons have different properties than electrons, the potential to manipulate them is much greater. The applications for photonics are widespread, ranging from flexible digital displays – imagine a wall-sized television screen that rolls up like a windowshade – to medical tools that probe deep within the body to provide clear images or fix problems without surgical incisions.

Georgia Tech is very fortunate to have four of the world's leading experts in organic photonics, who moved to Tech from the University of Arizona. They told me they came because of our excellent faculty and students and because they see Georgia Tech as a university that is on the move, and they want to be part of it. They brought with them a National Science Foundation Center of Excellence in Science and Technology. With the addition of this new center, Georgia Tech now has more national research centers of excellence than any other university in the nation except MIT, and we are tied with them.

I hope these few examples illustrate why we feel these are exciting times at Georgia Tech. There is much more I could say, including our growing role in public policy at the state and national level, the record levels of patents and invention disclosures, and the increasing work we are undertaking on behalf of economic development for the state.

We are pleased to see from the latest *US News and World Report* rankings that others are noticing our efforts. Tech was ranked as one of the top ten public universities in the nation, and our academic peer reputation puts us among the top 25 of all universities. All of our engineering programs are now among the top ten with only one exception, and it is ranked 12th. Additionally, our business school was among the top 40 and several of its programs were named in the top twenty of their specialties. Our rankings were reinforced by our high rate of alumni giving and our tradition of having almost all of our classes taught by full-time faculty.

This type of recognition is not only good for Georgia Tech, but it also brings national visibility to the state and her citizens and businesses for all of the right reasons. The question is, what lies ahead? Our high rankings and positive visibility are based on the hard work and careful investments of the past. But can we hold onto them in the future? I believe we can, but that

answer is not a given by any means. The budget cuts experienced by the University System to date are significant, and those projected for the remainder of this year and for FY 05 will cut right into muscle and bone. Our high *US News and World Report* ranking was obtained in spite of the fact that level of faculty resources is well below the top 50. It was achieved in spite of having higher numbers of large classes than most of our competitors. We are already stretched too thin on these measures, and they are the very same places where state funding is focused in our operations. The cuts being discussed for the future will drive these parameters in the wrong direction.

To date, we have experienced \$28 million in cuts – 12 percent of our state funding – and we have made significant adjustments to accommodate the cuts. Many programs have been de-emphasized to free up funds that we redirected to others that were more important. Significant numbers of faculty and staff positions are going unfilled, and we have laid off staff. We have been told to prepare for more cuts, up to \$20 million more in the remainder of this fiscal year and next. This amounts to a reduction of more than 20 percent of our state funding in three years and would put us back to about the same level of state funding we had seven years ago. But our enrollment has increased by 20 percent since then and our research enterprise has grown by about 45 percent. We are stretched very thin.

Our sister institutions of higher education, including the ones represented at the Gwinnett University Center, have similar stories to tell. They are experiencing growing enrollments and working hard to improve, but they are also being hit hard by budget cuts.

Now I am not here to whine or say that we are the only state where universities are taking budget cuts. We understand that for many years we had it better than most states and we appreciate it. We also appreciate that our governor is in a very tight spot and that the legislature has hard decisions in front of them. What I want to communicate is that the next round of budget cuts in the University System will be different. There is no longer any way to finesse them. We have already done all of the things that were “easy,” and the coming cuts will have a larger impact than those that went before. So I would encourage you to be active in the debate about where this state is going. We all need to think very carefully about what is critical to our future and what will remain when all of the cutting has been done.

I am naturally an optimist, and I also believe that Georgia’s economy is resilient. So I am looking for things to get better in the not too distant future. When this day arrives, it will be important that our universities are still in good shape and can provide the access that is needed for the growing numbers of college bound students that are in the pipeline. It will also be important that we still have universities recognized as among the nation’s best. At Georgia Tech we are going to do everything we can to pull our weight, leverage every state dollar, and keep our momentum strong. With your help, we can make our state an example for the nation.