Fall 1999

Georgia Tech Magazine

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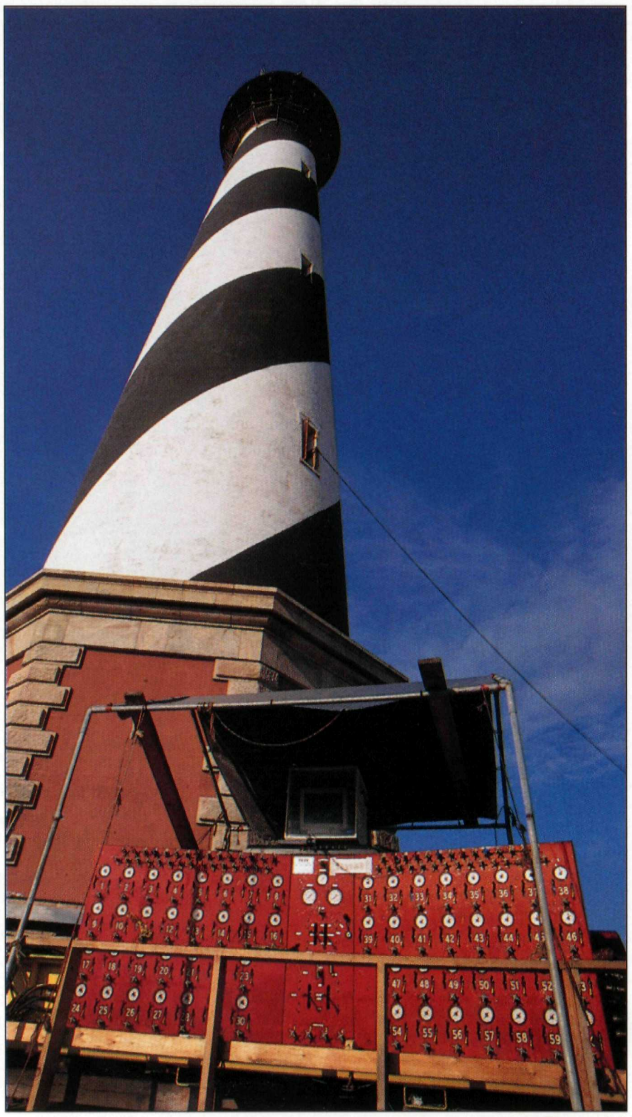

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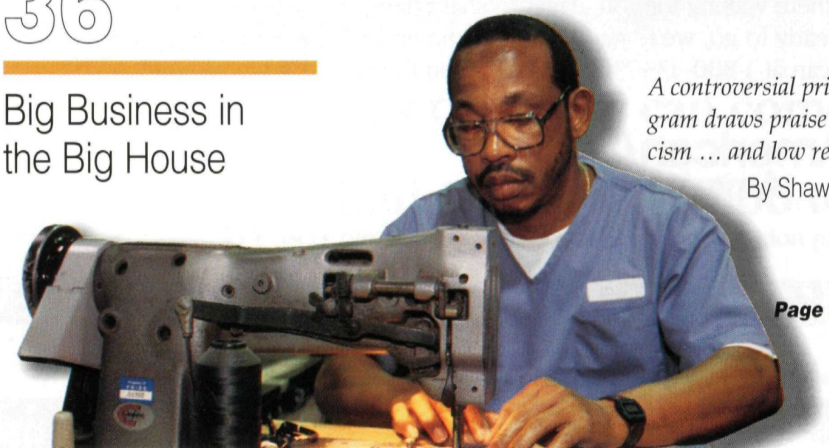

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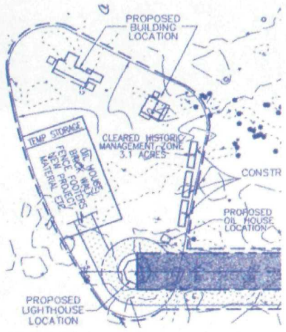

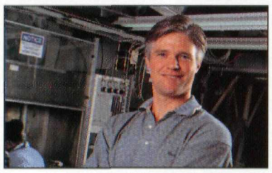

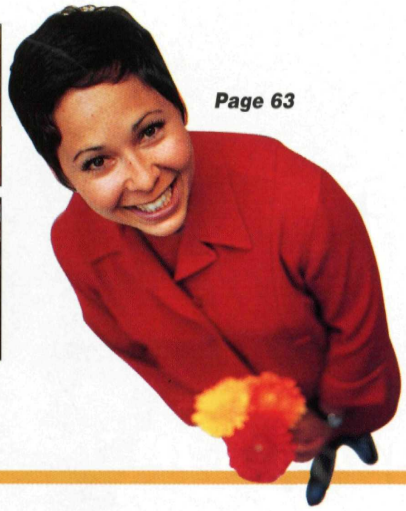

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Cover: Bob Reynolds (*left*), superintendent of the Cape Hatteras National Seashore, and alumnus Randy Knott, one of the chief engineers who moved the nation's tallest lighthouse. – *Photo by Tommy Thompson*

GeorgiaTech
Alumni Magazine

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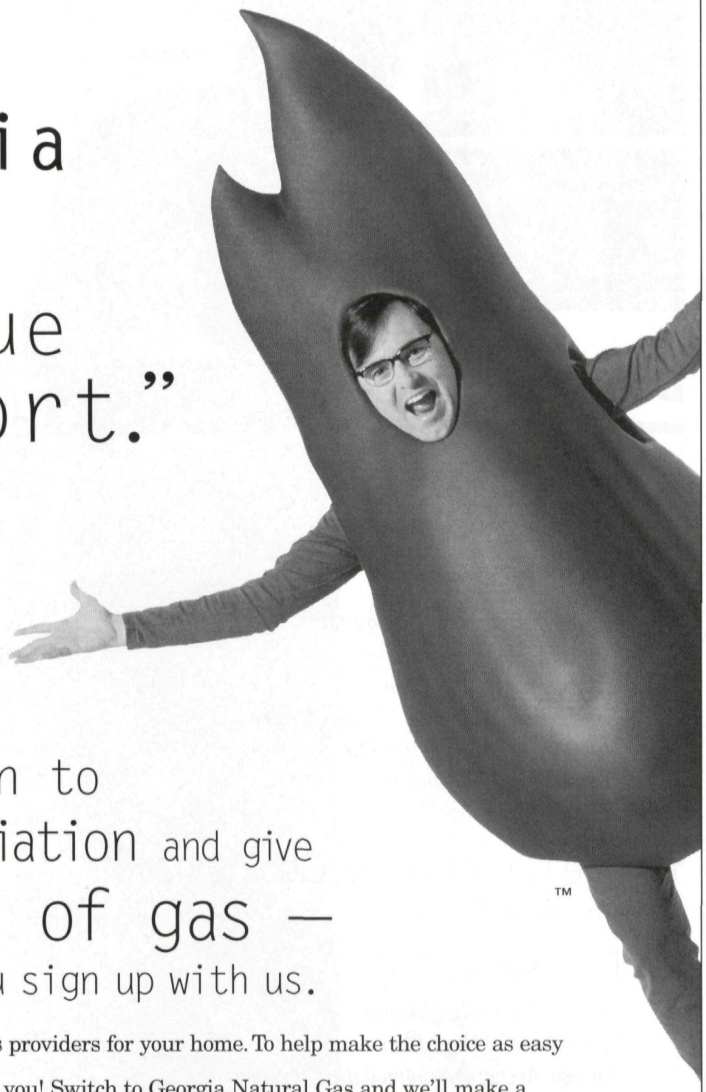

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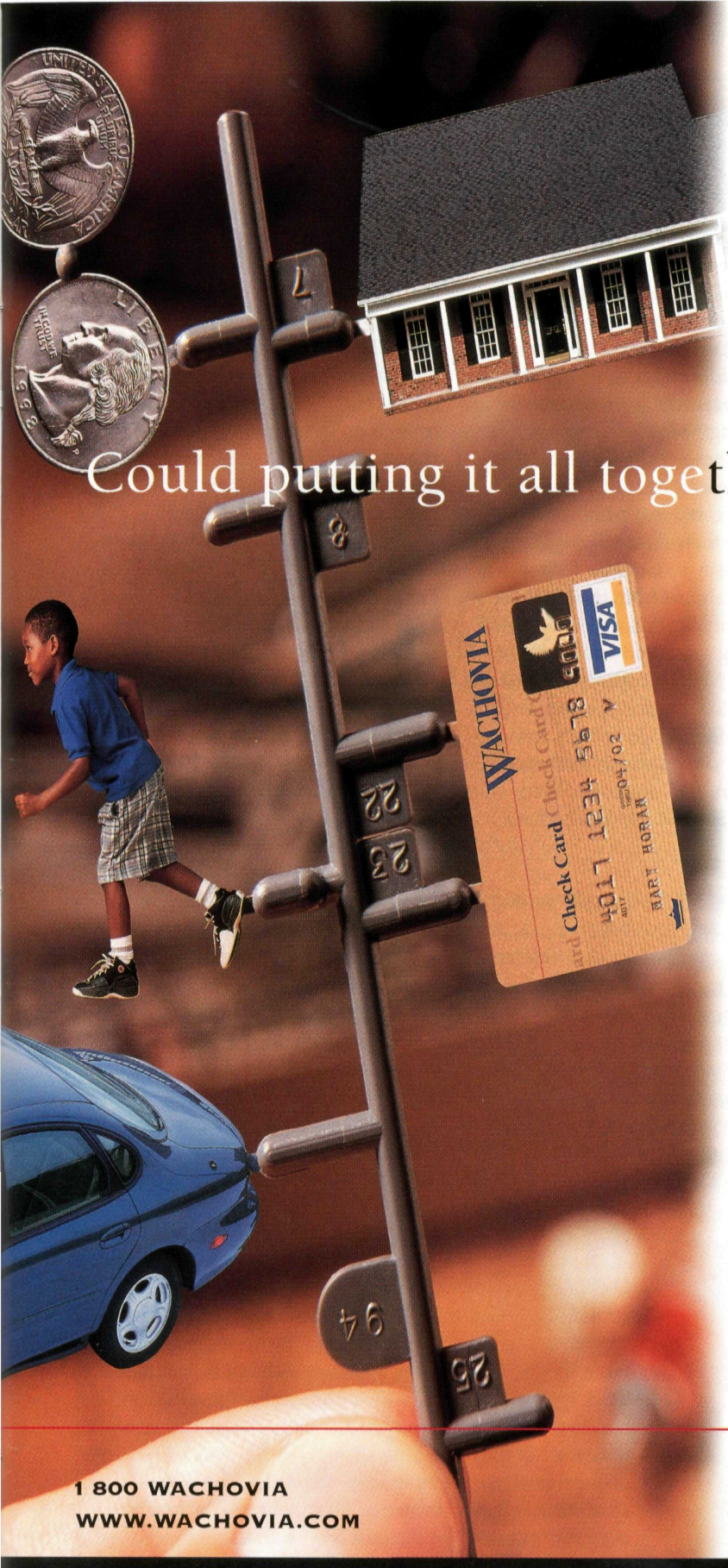

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Pride of "Power" Engineers

Hal Branch's letters—first about Professor Seidell (Spring 1999) and then about Professor Stalnaker (Summer 1999) were so poignant. They, and many similar letters to "Feedback," strike such tender memory nerves among us grads of the "old days."

Hal left out one commanding trademark of Professor Stalnaker: his 20-inch slide rule. Those of us who were power engineering EE's in the old slide-rule days of Tech thought that a 20-inch rule must be the epitome of calculator accuracy. It was enviable beauty to watch Professor Stalnaker zip his slide rule through its paces and come up with the answer before any student, and to the fourth place to boot.

Aside from cost and unnecessary accuracy for a student's learning, the 20-inch rule was not for a student because it would dangle too long from his belt. The 10-inch rule was just about right for that quite obvious blade of pride, and how proudly we wore that beautiful leather scabbard. We were engineers!

I enjoy these "old grad" letters so much. My memories of Georgia Tech begin before and extend beyond my actual time there. Dean Skiles was my second cousin, so Georgia Tech was in our family almost from the get-go. My father, Emory Sr., was a 1917 electrical engineering grad (and I still have his slide rule). My uncle, Fred Stephenson, was a 1931 commerce graduate and *Blueprint* editor. I was in V-12 and came back to graduate in electrical engineering in 1947. And one of our sons, John S., graduated co-op aerospace engineering in 1974—and is still with his co-op company, Lockheed-Martin in Marietta, Ga.

Let me compliment the *Alumni Magazine* staff on producing such an outstanding magazine. Its content, layout and artwork are superb! I took a copy to my doctor who puts his *Harvard Alumni Magazine* in his waiting room. He was noticeably impressed and envious. So there!

My fraternity, Beta Theta Pi, has a response: "I'm glad I'm a Beta!" Well, I'm also mighty glad I'm a Georgia Tech alumnus.

Emory B. "Jack" Phillips Jr., EE '47
Vero Beach, Fla.

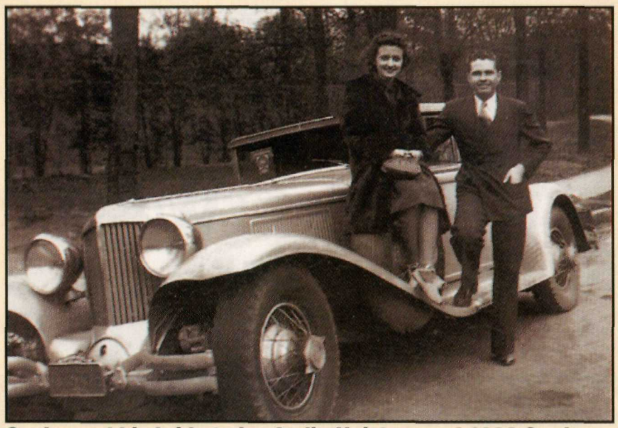
Stalnaker Was Colorful; Biltmore Was Wonderful

Hal Branch's letter concerning Professor Stalnaker in the summer issue

Tooting for the 1929 Cord

I enjoyed reading the front-wheel drive mini-debate (Summer 1999). I would nominate for your consideration as the first production American FWD, the venerable 1929 Cord, model L-29. This car was introduced following the roaring success from 1926 on of FWD cars at the Indianapolis 500. Of course, the sporty FWD 1935 Cord model 810 is fondly remembered by all antique auto enthusiasts as one of the greatest classics of all time. There is a model 810 in the Henry Ford Museum in Dearborn, Mich. and it still looks remarkable to this day.

For confirmation of the L-29 information, see the Web page of the Auburn Cord Duesenburg Museum in Auburn, Ind., at http://acdfestival.org/html landmark.html or refer to *Encyclopedia of American Cars* by David Vivian.



Gayler and his bride-to-be, Lydia Haisten, and 1932 Cord

Gerald E. Abbott Jr., ME '60,
MS IM '70
Dearborn, Mich.

Cord Was Front-Wheel Classic

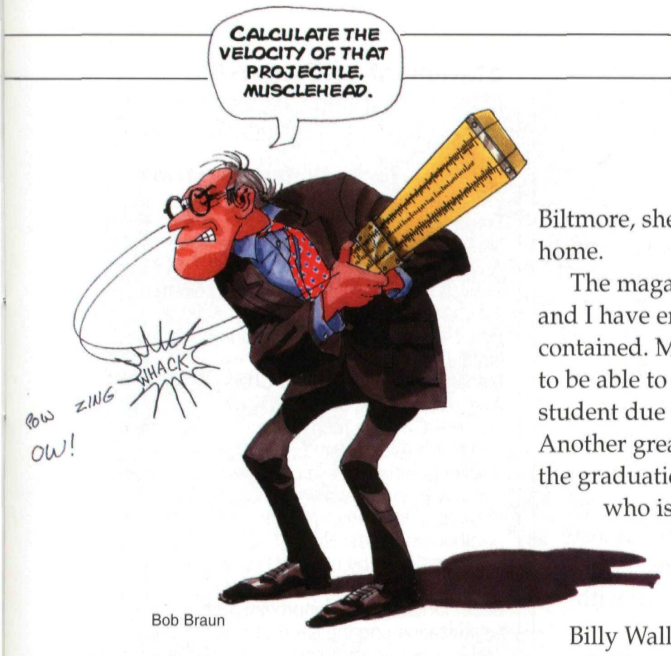
I missed the article "Engine Engineer" about Randy Thayer (*Alumni Magazine*, Spring 1999), but I thought you might be interested to know that front-wheel drive vehicles were known to the Tech campus in the 1930s.

The accompanying picture, taken in 1939, is of a 1932 Cord automobile *(left)*. This low-slung beauty featured a straight-eight engine with the transmission in front of the engine, as seen by the bulge behind the license plate. From the driver's seat the hood appeared to be about a block long. The gear shift (no automatic) looked like the business end of a golf putter sticking horizontally out of the center of the dash.

Incidentally, the young lady decorating one of the spare tires is Lydia Haisten of Birmingham, Ala. She has been my wife now for the past 58 years.

I enjoy the *Alumni Magazine*; keep up the good work.

Cecil W. Gayler, MS Chem '40
Cape Coral, Fla.



Bob Braun

brought pleasant memories to mind. I do not remember that we had a nickname for him. I do recall that he was usually without an undershirt and that he had an ample midsection. I did look in my '46 *Blueprint* for his photo to refresh my memory. He was only shown in a small group picture. However, I was pleased to see that his tie was appropriately askew. He was a good teacher, and I consider it good to have studied under him.

As I recall, he did not have a college degree. I was always pleased that Tech had hired a man without that credential and was satisfied that he could perform the task in good style. The other remembrance is that he used a 20-inch slide rule. He would frequently use it as a small bat to swat a piece of chalk at someone or just carry it around the room to emphasize his point. He was colorful and competent; they don't all come that way.

My wife and I also enjoyed reading the article about the new Biltmore. It brought back fond memories of a big formal dance there, sponsored by her sorority. It was certainly a fine-looking place to a young fellow from a small town in Arkansas. It caused my wife to remember the first time she ever drove back to Atlanta with our children. She said she knew that if she could spot the Biltmore, she could find her way home.

The magazine is of high quality, and I have enjoyed much of what is contained. My teenage ambition was to be able to go to Tech—as a co-op student due to my lack of resources. Another great joy was to be there for the graduation of my brother, James, who is 12 years younger than I. Uncle Sam paid my fare, and James was the co-op student.

Billy Wallace, EE '46
Stillwater, Okla.

Biltmore Salute

I commend you on the Biltmore feature. It showcases just one of the many contributions Georgia Tech alumni are making in Atlanta.

Greg N. Ford, IM '84
Atlanta

Biltmore Was 'Our' Hotel

What a pleasant surprise to read the story "Biltmore Rebuilt" about the restoration of this once-great hotel (*Georgia Tech Alumni Magazine*, Summer 1999). The Biltmore had a special meaning for me and my Sigma Phi Epsilon brothers, who lived almost across West Peachtree from it for three years—a long 73 years ago. Our parents stayed there when they came to see us. That grand hotel was party headquarters for my fraternity and for many others. In it was our drugstore, barbershop and other facilities. We proudly called the Biltmore "our" hotel.

I congratulate developer James Borders and architect Jim Winer for their foresight and perseverance in restoring a grand masterpiece to its deserved glory so that all Atlanta, and particularly Georgia Tech, can be proud.

Thomas F. Faires, Arch '28
Scottsdale, Ariz.

Link to John Young

I just stumbled across an article about the astronauts—John Young, specifically—on the Georgia Tech Web page (*Georgia Tech Alumni Magazine*, Fall 1998). It was a great article. I'm going to create a link to it on my John Young web page unless you have objections: http://www.nav.cc.tx.us/staff_pages/dana/young/bio/bio.htm All opinions [at that link] are my own and probably don't even vaguely resemble those of the college.

Dana Holland
Director, Computer Center
Navarro College
Corsicana, Texas

We have no objections to a Web link and obviously share your admiration of astronaut John Young.

Starting the Millennium

The start of the next millennium ("Feedback," Summer 1999), would begin on Jan. 1, 2000, if there had been a year 0 AD. Since there was not, Jan. 1, 2000, will be the day after the end of the 1999th year—not the end of the 2000th year. The third millennium does not begin until Jan. 1, 2001.

Sharon Bagby, MSci '74
Atlanta

More Millennial Math

After all the letters about the new millennium published in the Summer 1999 issue, you may be finished with the subject. But none of the letters took the approach that would probably be used in a Georgia Tech math class: Consider the year 1 (AD, Common Era, whatever term your religion or ethnic group prefers). According to one assertion, Jan. 1, 1, would be the first day *after* the first year. But it

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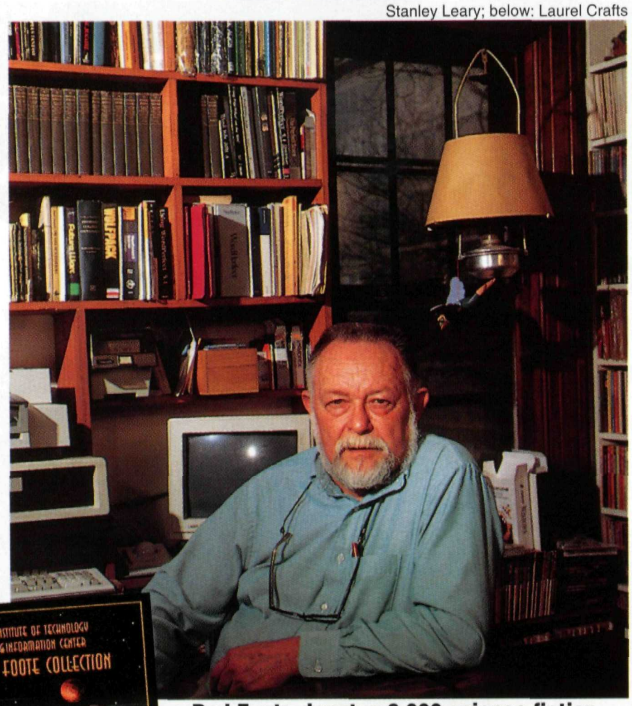
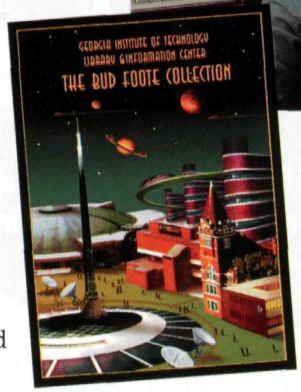
Legacy of Bud Foote

Library plans science-fiction center to house extensive collection

Stanley Leary; below: Laurel Crafts





Bud Foote donates 8,000 science-fiction books to Georgia Tech's library.

When Frankenstein's monster sprang to life in Mary Shelley's 1818 gothic novel, so did the genre known as science fiction.

Georgia Tech plans to keep that genre alive and well.

Tech's Library and Information Center is creating a science-fiction center named for Professor Irving F. "Bud" Foote, whose creative efforts have helped define science fiction as an academic discipline.

Foote, who retired this year after a 31-year career at Tech, donated 8,000 volumes of science fiction to the library. The collection includes many first editions and some of the best-known books by some of the most acclaimed writers over the past 181 years.

The Bud Foote Center for Science Fiction will provide a unique forum for futurists, science-fiction writers, scientists and students to collaborate and discuss science fiction, scientific and technological futures and the impact of science on society, says Miriam Drake, director and dean of Libraries.

Foote began teaching science fiction at Tech in 1971, introducing hundreds of students to the literature and bringing many prominent science-fiction writers to campus to share their works and ideas with students and faculty. Students in his class read a book each week coupled with a weekly quiz. "I didn't make it easy for them or me," he says.

Science-fiction seminars and workshops will be sponsored by the center and—in conjunction with the School of Literature, Communication and Culture—acclaimed science-fiction writers will be brought to campus. Foote will serve as a senior adviser to the center and participate in its programs.

"One of the things I enjoy most in life is reading books and talking about them," Foote said in a *Georgia Tech Alumni Magazine* interview in 1994. "So I got a job where I read books and talk about them, and they give me money—which seems a little immoral."

A native of Laconia, N.H., Foote graduated summa cum laude from Princeton University in 1952; he earned his master's degree from the University of Connecticut.

"We want to build a center that is environmentally controlled to preserve the books," Drake says. "It's a natural for Georgia Tech. Our students love science fiction. They attended Bud Foote's classes, and he and visiting writers stimulated them. I suspect a few books have come out of that."

Until space can be built, the collection will be maintained in the Library's archives department. **GT**

Going UP

Tech ranks No. 10 in listing of top schools

In its annual ranking of "America's Best Colleges," *U.S. News & World Report* ranked Georgia Tech No. 10 among national public universities—up from No. 13 last year—and No. 40 among the best national universities both public and private.

Among the best undergraduate engineering programs, Georgia Tech is tied for 7th place with Cornell University and Carnegie Mellon University.

Tech's DuPree College of Management is ranked No. 32 among the nation's best undergraduate business programs.

"We are becoming world class in a number of important areas," says Tech President Wayne Clough.

Tech also received high marks from *Black Issues in Higher Education* in its annual "Top 100" list of colleges and universities that graduate the most students of color. Georgia Tech continued its national leadership in minority graduate education with a No. 1 ranking—tied with Stanford—in engineering doctoral degrees awarded to minority students, and No. 2 in engineering bachelor's and master's degrees awarded to minorities. **GT**

Tracking **Traffic** Headaches

Professor Ross heads newly created transportation "superagency"

It's the opportunity of a lifetime," says Catherine L. Ross, city planning professor, picked to be executive director of the Georgia Regional Transportation Authority.

The GRTA is a Georgia superagency created by Gov. Roy Barnes to tackle traffic congestion and pollution problems in metro Atlanta's 13 counties. It has the authority to veto or approve all area transportation projects.

"The issues that are in the front of GRTA are issues that have been at the center of my life," Ross says. "I understand how important this is. I have an opportunity to help shape the organization, and I'm convinced that while we are first at bat, these are issues that every American city is confronting.

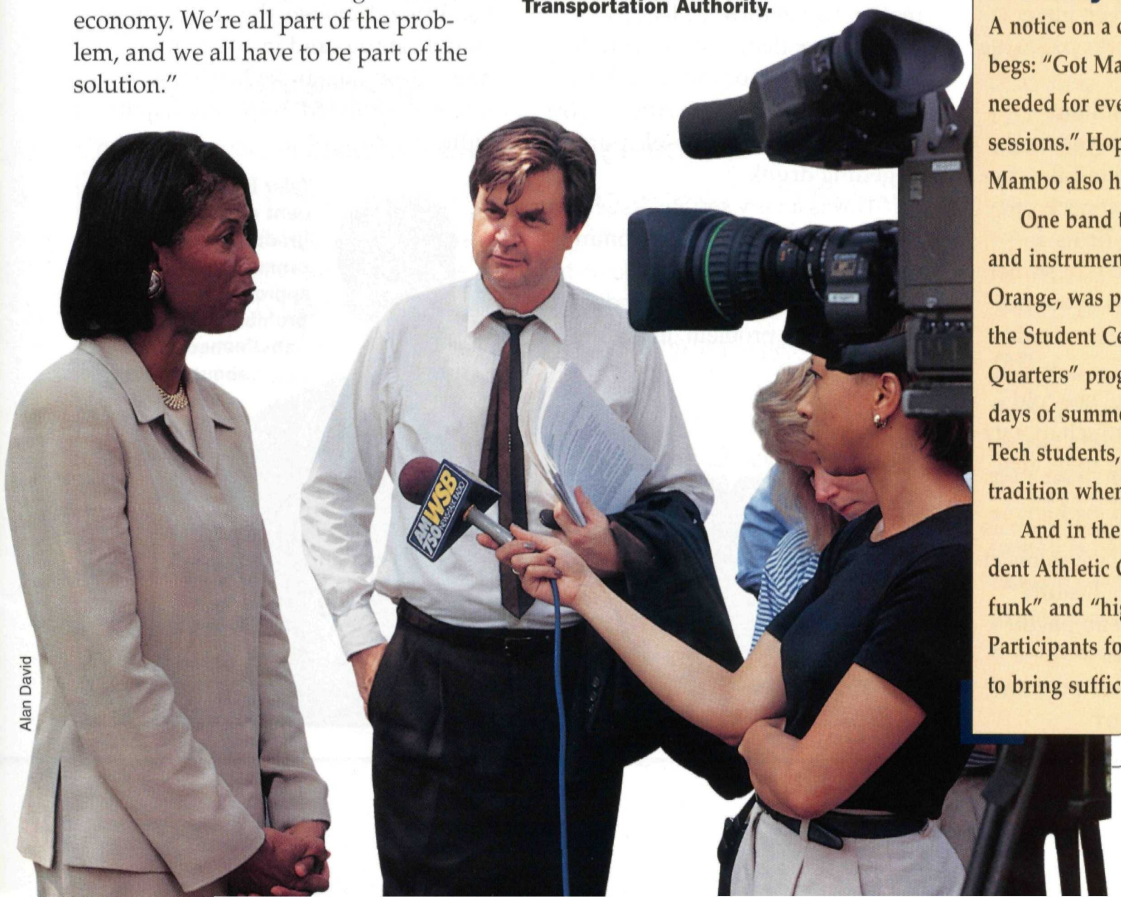
"We have to find ways to travel that are not as demanding on the environment, not as demanding on our time and not as demanding on the economy. We're all part of the problem, and we all have to be part of the solution."

She has served as senior policy adviser at the National Academy of Sciences Transportation Research Board and is vice chairwoman of the Atlanta Development Authority.

"Catherine Ross has outstanding credentials and is one of Tech's best faculty and administrators," Tech President Wayne Clough says. "While we are sorry to lose her, it is the state's gain as she takes on an important responsibility for our future." GRTA Chairman Joel Cowan, IM '58, says Ross's experience perfectly matches GRTA's needs.

"Dr. Ross will bring a combination of professional and academic experience in the two subjects we'll be dealing with—transportation and land-use planning," Cowan says. **GT**

City Planning Professor Catherine Ross faces reporters questions following the announcement of her selection as executive director of the Georgia Regional Transportation Authority.



Alan David

Ramblin' 'Cross Campus

Favorite Tradition

In its traditional back-to-school issue, the *Technique* asked returning students to name their favorite Tech tradition. Votes went to "The Wreck," "Homecoming," "Stealing the T," but alumni and students alike can identify with the tradition collecting the most votes: "The Shaft."

Name's the **Same**

In time-honored tradition, "The Shaft" is a gift students expect from professors during exam week. If traditions don't change, sometimes names do. Consider the campanile, an artistic blend of tradition and technology that was a centerpiece for the 1996 Olympic Village. The 80-foot obelisk of stacked stainless-steel plates with a corkscrew twist is now whimsically called "The Shaft" by students, who have made it a popular hangout.

Got Rhythm?

A notice on a campus bulletin board begs: "Got Mambo? Percussionists needed for evening, outdoor campus sessions." Hopefully whoever has the Mambo also has some talent.

One band that had all its musicians and instruments accounted for, Varsity Orange, was part of the entertainment at the Student Center's "Say Good-bye to Quarters" program during the waning days of summer. The band, a group of Tech students, latched on to another Tech tradition when they claimed their name.

And in the fitness tradition, the Student Athletic Complex is offering "low-funk" and "high-funk" aerobic exercises. Participants for the latter are encouraged to bring sufficient deodorant.

Good Fortune

Goldstein's a cover girl

Georgia Tech alumni may have recognized a familiar face on the Aug. 2 cover of *Fortune* magazine. Sharon Goldstein, IE '94, who as an undergraduate student was active in the Georgia Tech Student Alumni Association, was featured on the eye-catching upper right-hand corner of the cover, under the heading "MBAs Catch.com fever."

Her full photo was shown on the opening spread of the feature.

After three years at Andersen Consulting, Goldstein went back to earn

an MBA at Kellogg. She intended to resume her consulting career, but a summer job at RealNetworks in Seattle made her think twice.

Living the life of a consultant meant traveling 45 weeks a year and planning her schedule around the convenience of clients. Receiving job offers from three consulting firms, including one that offered to pay off her college loans, she agonized about her decision for two weeks before declining them all.

"I've done this already," she told *Fortune*. "No matter how much money they pay me, I'm not going to be able to get up and want to go to work."

Instead, Goldstein accepted a job as product manager for media systems at RealNetworks, giving up a healthy signing bonus, a $60,000 loan payoff and $45,000 in extra salary.

"It's a lifestyle and career-positioning decision," she says. **GT**

Sober Up

Tech says 'enough' to high-risk drinking

Georgia Tech is working on one of its toughest assignments: giving high-risk drinking the boot.

At a school where alumni boast "I drink my whiskey clear" at every gathering, and students sing a gusty salute to Budweiser at the third-quarter climax of every home football game, the catch-phrase is *responsible* drinking.

The Institute is one of only 10 universities across the United States selected as part of a national effort to curb excessive alcohol consumption through changing norms, attitudes, policies and practices affecting drinking, both on and off campus.

Tech and a number of "community partners" have been awarded $700,000 over five years to reduce high-risk drinking by students. The Robert Wood Johnson Foundation and the American Medical Association (AMA) approved the grant.

Gail DiSabatino, dean of students, says AMA research shows that on one in three college campuses, more than half of all students engage in binge drinking, and more than one-third of these students frequently drink with the sole purpose of getting drunk.

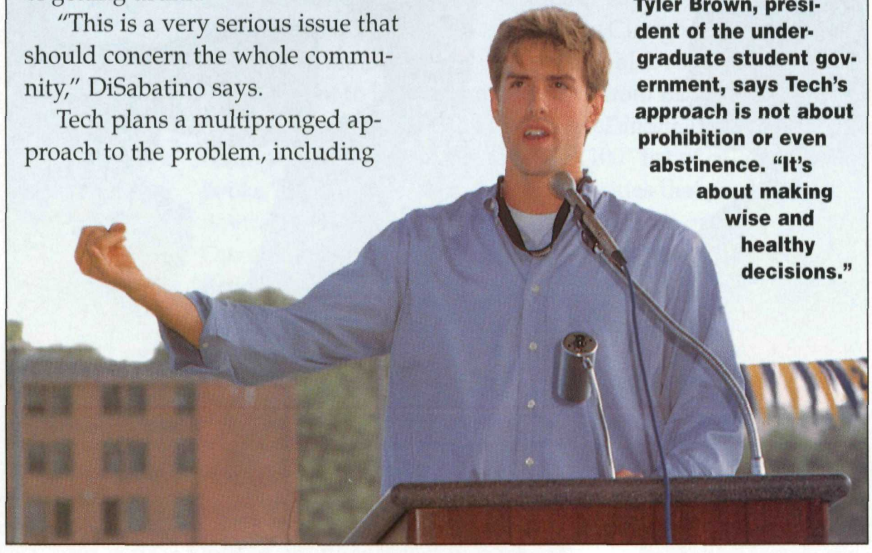
"This is a very serious issue that should concern the whole community," DiSabatino says.

Tech plans a multipronged approach to the problem, including providing alternative entertainment programs at times when alcohol use is traditionally high; revising the current alcohol policy, including stepped-up enforcement with sanctions; introducing a mandatory alcohol peer-education program for new sorority and fraternity pledges; and building support for the program among alumni.

Tech's program, called GT SMART (Students Managing Alcohol Risk at Tech), is part of the national Robert Wood Johnson Foundation project that encourages universities to build campus-community partnerships with the goal of changing drinking habits on and off campus.

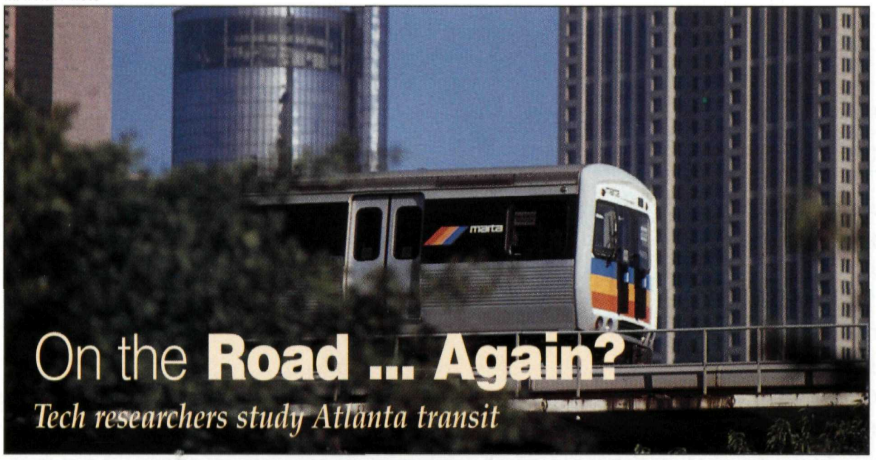
Tech has involved the student body in the project from the start. "Students who come to Tech are looking for a great education," says Tyler Brown, undergraduate student president. "Tech's training, however, is as much social as it is academic.

"We will, for the next five years and beyond, change the environment on our campus and in our community to help our students mature into well-rounded, responsible individuals." **GT**



Tyler Brown, president of the undergraduate student government, says Tech's approach is not about prohibition or even abstinence. "It's about making wise and healthy decisions."

MARTA Photo



On the **Road ... Again?**

Tech researchers study Atlanta transit

A three-year Georgia Tech study of Atlanta transportation habits will soon have some area residents documenting their every move.

In a program similar to that of TV's Neilsen ratings, SMARTRAQ (Strategies For Metropolitan Atlanta's Regional Transportation and Air Quality) will survey 6,000 households, gathering information on travel in 13 metro counties. Selected participants will keep travelling diaries to monitor trips taken by every member of the household, even those on foot.

"The ultimate purpose of the research effort is to affect the decisions being made in the Atlanta region that impact the quality of life of its residents," says Dr. Lawrence Frank, the College of Architecture assistant professor who developed SMARTRAQ.

The program was made possible by a $1,591,000 research project sponsored by several state and federal agencies. The data could ultimately be used to determine development and transportation policy for Atlanta and the state.

Researchers will also be using high-tech backpack- and hip-mounted tracking devices as well as accelerometers to monitor the distance, speed and frequency of pedestrian travel. **GT**

New **Director**

Contant heads Architecture's City Planning Program

Cheryl K. Contant, the new director of the College of Architecture's City Planning Program, envisions Georgia Tech becoming a national leader in the study of rapid suburban growth, environmental change and transportation.

Contant spent 14 years on the Graduate Program in Urban and Regional Planning at the University of Iowa, where she also served a three-year term as program chair.

Architecture Dean Thomas Galloway says Contant assumes the job at "an important time in the program's evolution with the addition of the Harry West Chair in City Planning and the creation of our new Center for Quality Growth and Regional Development."

Students in the program apply planning concepts to ongoing downtown development, neighborhood redevelopment, and the rapid growth of the suburban fringe. Recent design studios have included an in-depth analysis of Atlanta's Midtown area, South Fulton Parkway and the Atlantic Steel site.

Contant earned her Ph.D. in civil engineering from Stanford University. She also serves on the Planning Accreditation Board, the national organization that examines and certifies undergraduate and graduate planning programs. **GT**

North Avenue **Almanac**

75 Years Ago ... The Georgia Tech football team dropped the scrubs. "The coaching staff intends to devote its time to those men who in all probability will make the varsity squad," the *Alumni Magazine* noted in its September 1924 edition. "The sanguine mantle of the scrubs will fall upon the shoulders of the Freshman team." The issue also included a form to apply for football tickets: $2 to see Tech play Oglethorpe, VMI, Florida, LSU or Alabama. Tickets for Penn State, Vanderbilt and Auburn were $2.50.

50 Years Ago ... *Count 'em.* Georgia Tech had a record graduating class, conferring 1,245 degrees at its June 13, 1949, commencement exercises. Of the graduates, 1,050 were World War II veterans—and 95 percent of graduates had jobs at the time of graduation. It also marked the fifth anniversary of the presidency of Dr. Blake Van Leer, the first engineer to serve at Tech's helm.

25 Years Ago ... Dean of Students emeritus George C. Griffin retired after 46 years as cross-country coach. At the conclusion of the second annual Pi-Mile Road Race (which is named for Griffin), former runners presented him with a plaque inscribed: "George C. Griffin: A great coach and inspiration to all Ramblin' 'Recks."

New **Associate** Athletics Director

Orsini comes to Tech from NFL's Cowboys, Navy

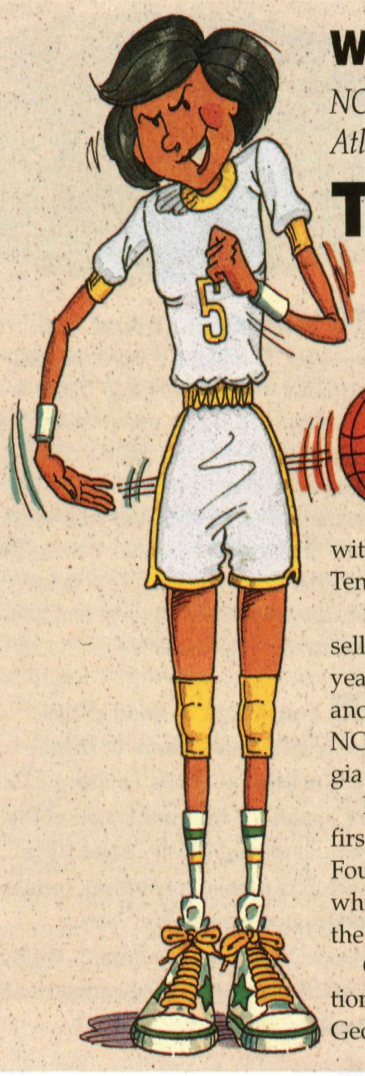
Steve Orsini, associate athletics director and treasurer for the Naval Academy since 1994, has been named senior associate athletics director for Georgia Tech.

Orsini, who also spent 10 years in administration with the Dallas Cowboys of the National Football League, replaces Jeff Bourne, who was recently named the director of athletics at James Madison University.

Tech Athletics Director Dave Braine says Orsini "has a strong background in the business end of athletics, and yet he also has considerable experience as an intercollegiate student-athlete and administrator."

A 1978 graduate of Notre Dame, Orsini was a starting fullback and one of four team captains on the 1977 National Championship Fighting Irish football team.

While at Navy, he helped increase athletics association revenue by 70 percent. Its department of External Affairs set all-time records for season-ticket sales, marketing and sponsorship revenues, and fan attendance during his tenure. **GT**



Women's Tourney

NCAA final four coming to Atlanta, Tech in 2003

The NCAA Women's Final Four selection committee awarded Atlanta the 2003 NCAA Women's Final Four, to be played in the Georgia Dome, with Georgia Tech serving as the host institution.

An Atlanta delegation from Tech, the Atlanta Sports Council, the Atlanta Convention and Visitors Bureau, Philips Arena and the Georgia Dome competed with three other cities—Detroit; Memphis, Tenn.; and Charlotte, N.C.—to secure the bid.

"Georgia Tech and Atlanta hosted the first sellout of the NCAA Women's Final Four six years ago, and we look forward to creating another sellout and record-setting event for the NCAA teams, fans and alumni in 2003," Georgia Tech Athletics Director Dave Braine says.

In 1993, Atlanta's Omni was the site of the first sellout in the history of the Women's Final Four, hosting a crowd of more than 16,000, which saw Texas Tech beat Ohio State 84-82 in the title game.

Georgia Tech will also be the host institution for the NCAA men's Final Four at the Georgia Dome in 2002 and 2007. **GT**

Y2K Cometh

Tech helping small businesses prepare for problems that could result from computer failures

Georgia Tech's Business and Industry Services has launched a final push aimed at helping Georgia's small- and mid-sized manufacturers get their electronic systems ready for the new century.

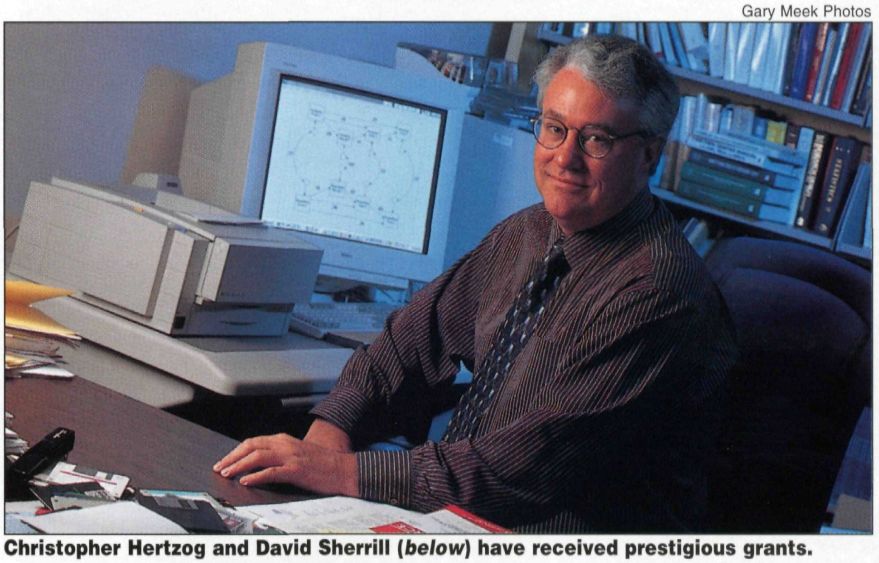
Georgia Tech has stepped up its awareness campaign to educate manufacturers about their Y2K vulnerabilities with a new Web site (www. industry.gatech.edu/y2k/) where manufacturing companies can find assessment tools to help determine their Y2K status and fixes for their microprocessor-dependent systems, as well as information on all aspects of the Y2K issue. It is also working closely with the Atlanta/Southeast Region Y2K Solutions Center, a nonprofit organization based in Atlanta, to provide consulting and service to the industry.

"We aren't expecting major interruptions in society at large, but companies that haven't updated their systems to work properly in the year 2000 could face significant financial losses," says John Laszcz, manager of the Y2K Initiative in Georgia Tech's Business and Industry Services. "In some cases, these losses could put marginal companies over the edge."

Tech regional office engineers have tested more than 300 computer systems over the past three years, developing expertise for this year's final push toward 2000.

"We went everywhere from Atlanta to Cairo," says Laszcz. "Once we get people to realize there's a potential problem, the next step is to help them go through project planning to fix it." **GT**

Gary Meek Photos



Christopher Hertzog and David Sherrill (*below*) have received prestigious grants.

MERIT-ed **Awards**

Tech Professors receive grants to support research

Dr. Christopher Hertzog, a professor of psychology, and Dr. C. David Sherrill, an assistant professor in chemistry and biochemistry, have been awarded prestigious grants to continue their research at Georgia Tech.

Hertzog received a Method to Extend Research in Time (MERIT) Award from the National Institute on Aging for his work in differential and experimental cognitive psychology to better understand changes in cognitive processes brought about by aging.

MERIT awards are given to exceptional senior scientists with outstanding proposals. They provide 10 years of support and are intended to foster continued creativity and lessen the administrative burdens associated with the preparation and submission of research-grant applications.

Hertzog came to Georgia Tech in 1985 after holding academic appointments at the University of Washington and Pennsylvania State University.

Sherrill, a new assistant professor in the School of Chemistry and Biochemistry, received one of 13 Camille and Henry Dreyfus New Faculty Awards.

The awards provide external research support to faculty at the start of their research and teaching careers. Sherrill will receive an unrestricted $40,000 research grant from the Dreyfus foundation for his teaching and research activities in theoretical studies of fundamental reactions in organic and interstellar chemistry.

A National Science Foundation Postdoctoral Fellow, he is working on the applications of the principles of quantum mechanics and electronic-structure theory to address problems in physical, organic, inorganic and biological chemistry. **GT**

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Funding the Future

Tech alumnus establishes professorship to nurture Hispanic talent

By Victor Rogers

Although educated in a strict engineering curriculum, Alfredo Estrada has never felt restricted to follow just one track. After a series of successful corporate experiences, he saw opportunity beyond his corporate achievements. He established and became chairman and CEO of Pan American Enterprises, a diversified holding company with substantial interests in publishing, management consulting, banking, construction and the environmental protection industry.

Throughout his career, Estrada, a 1954 mechanical engineering graduate, has supported Georgia Tech in a number of ways, such as funding graduate fellowships and a garden in memory of former Dean of Students George Griffin.

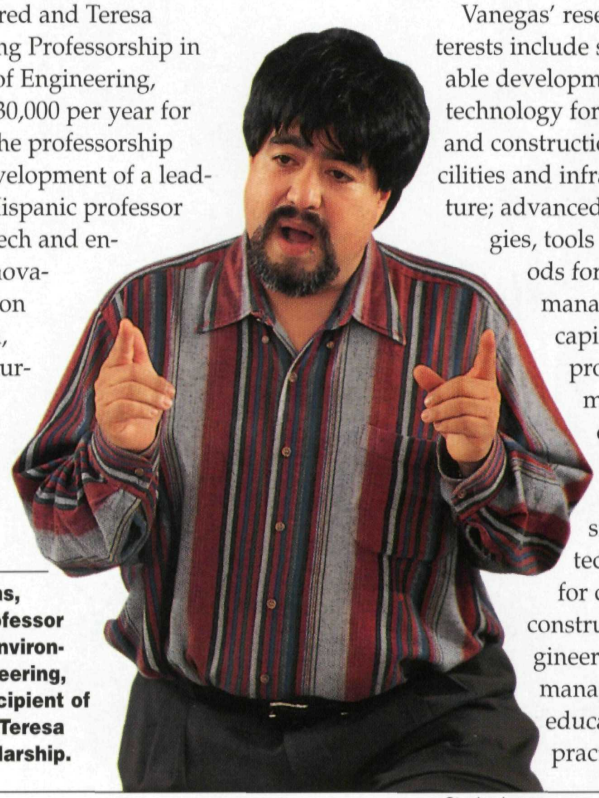
Estrada's latest contribution to Tech is the Fred and Teresa Estrada Young Professorship in the College of Engineering, funded at $30,000 per year for five years. The professorship supports development of a leading young Hispanic professor at Georgia Tech and encourages innovation, education and research, thereby nurturing the recipient's professional development.

The first recipient of the professorship is Jorge Vanegas, an associate professor in the School of Civil and Environmental Engineering and leader of the Construction Group.

"I firmly believe that responsibility follows recognition," Vanegas says. "Consequently, I will respond to the generosity of Fred Estrada, to the spirit and intent upon which the professorship was established, and to the faith and confidence that Georgia Tech has in me. This appointment has infused a new level of energy and passion in me," he adds.

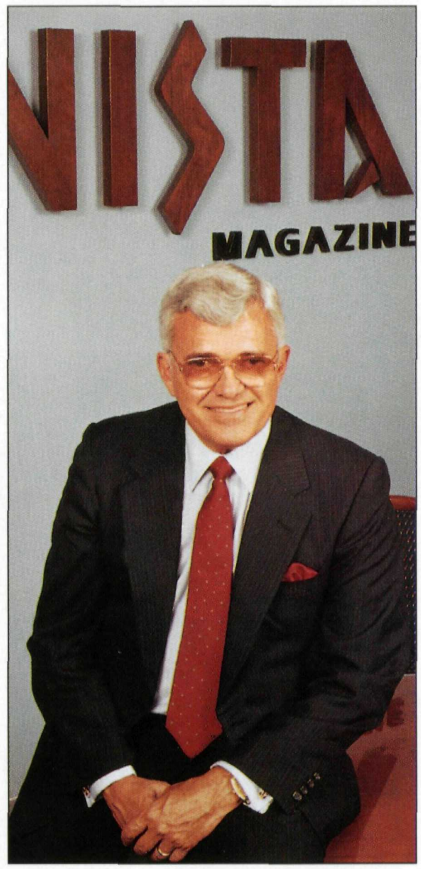
"I became very enthusiastic about the program and decided to fund it," Estrada says, "because it supports not only the university and the development of a deserving young professor, but also the many students whom someone like Dr. Vanegas will be able to advise and guide with his bilingual and bicultural abilities."

Vanegas' research interests include sustainable development and technology for design and construction of facilities and infrastructure; advanced strategies, tools and methods for effective management of capital projects; and multimedia, visualization, and simulation technologies for civil and construction engineering, and management education and practice.



Jorge Vanegas, associate professor in Civil and Environmental Engineering, is the first recipient of the Fred and Teresa Estrada scholarship.

Stanley Leary



Fred Estrada, ME '54, and his wife, Teresa, fund a five-year professorship for a young Hispanic professor.

He has a B.S. in architecture from *the Universidad de los Andes, Santafé de Bogotá*, Colombia; and master's and doctoral degrees in civil engineering from Stanford University.

His honors and awards include: Visiting Eminent Scholar, *Universidad Autónoma de Yucatán*, Mérida, Mexico, 1997; Construction Industry Institute Outstanding Instructor Award, 1995; Visiting Eminent Scholar, The Del E. Webb School of Construction, Arizona State University, 1995; National Science Foundation National Young Investigator Award, 1992; and the GE Foundation Junior Faculty Fellowship, Faculty for the Future Program, 1991-93.

Vanegas is a member of the American Society of Civil Engineers and the American Society of Engineering Education. **GT**

Victor Rogers is a writer for Institute Communications and Public Affairs.

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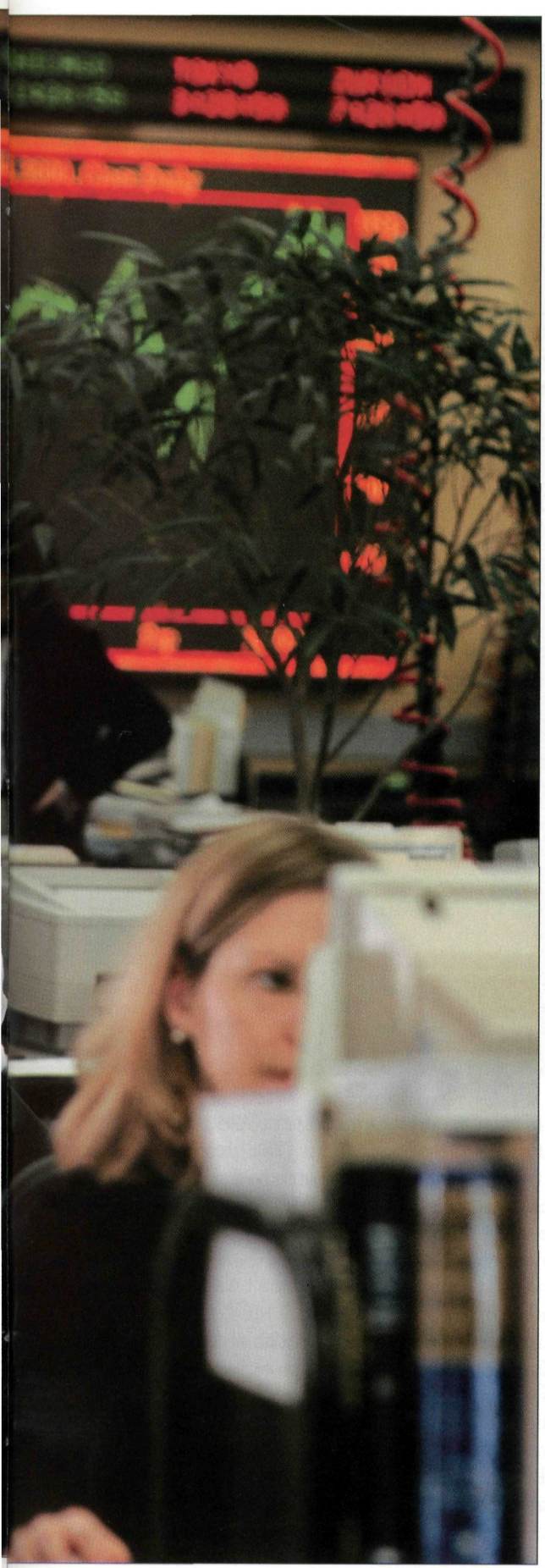
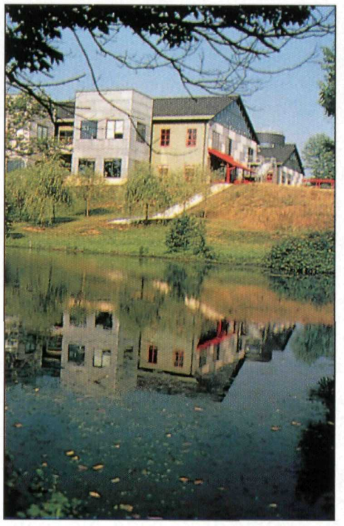


Designing A Business **Revolution**

In a pastoral setting in rural Pennsylvania, Al West (left) has outlawed executive parking spaces, dropped the coat-and-tie dress code, abolished secretaries, tossed out the time-clock, eliminated office walls and cubicles, and shredded the organizational chart. And in 1998, his company, SEI Investments posted revenue increases of 25 percent (to $366 million), a surge in net income of 60 percent (to $43 million), and an appreciation of shares by 137 percent. Is there any connection?

By John Dunn

Photography by John H. Hill



Al West steers his Audi into the parking lot near a cluster of colorful, farmlike buildings surrounding a pond in rural Pennsylvania. He finds a parking space half the length of a football field from the nearest entrance.

The distinctive—yet familiar-looking—buildings in the countryside of Oaks, Pa., are home to SEI Investments, the company Alfred P. West Jr. founded 31 years ago. And although he's the chairman and CEO of the financial services firm, West doesn't enjoy the perks most executives expect—not even reserved parking.

That's his rule; so is the dress code. No coats and ties here. Comfortably dressed in a blue long-sleeved shirt and dark slacks, West surveys the 90 acres of rolling hills and woodlands just a half-hour from Philadelphia's bustle.

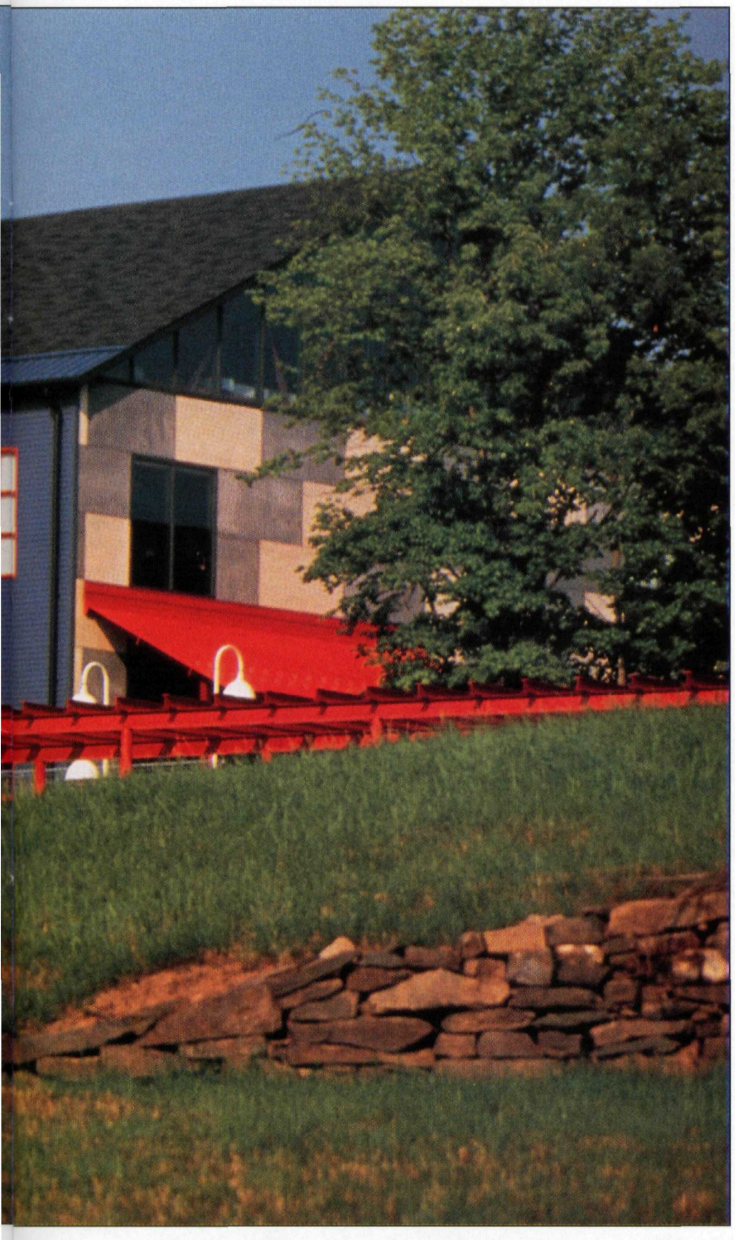
"We have always dealt with banks and we have always dealt with chief financial officers," says West, a 1964 aeronautical engineering graduate. "The dress had always been coat and tie. When we moved out here, it just didn't feel right, everybody walking around with a coat and tie on."

Clients agreed.

"When our clients come in, they don't want to dress up," West says. "So it works."

And so does the deceptively agrarian architectural design. SEI's corporate headquarters, a center of technology, has the provincial look of a mill village or farm.

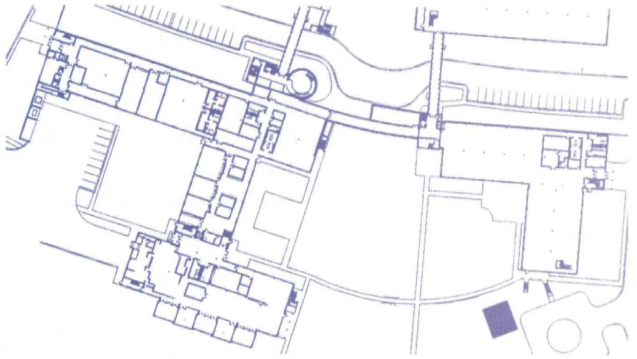
"It fits with the landscape," West says of the six buildings, connected by bridges and walkways on SEI's campus near Valley Forge. Its authentic, rural look puzzled local residents, one of whom inquired if they boarded horses there.



The answer is no. The rustic appearance stays outdoors. Inside, even though structural supports are exposed and open space seems vast, the horsepower in this barn is all high-tech. Colorful cables, called "pythons" by West and his employees, spiral down from the lofty ceilings, serving as conduits for electrical, telephone and Internet connections.

Outlawing executive parking spaces and dropping the coat-and-tie dress code is just a hint of the revolution West has brought to SEI. West abolished secretaries, tossed out the time clock, eliminated office walls and cubicles, and shredded the organizational chart.

SEI's operation is based on customer-support teams. At its Oaks, Pa., headquarters, 800 employees work on some of the 140 self-managed, multi-disciplinary teams. Another 450 employees work on 20 self-managed teams at SEI



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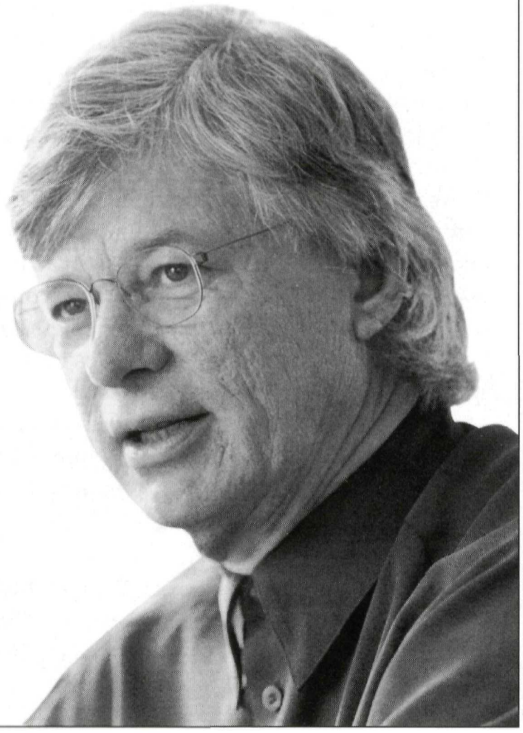


offices in seven countries. Some teams are permanent, created to serve major customers and markets. Others are temporary, employees who collaborate on a project or problem and disband. Desks, filing cabinets, pedestals and chairs are on wheels so employees can roll from one team to another. The company is so fluid it takes a software program to keep track of its rambling employees.

SEI is the embodiment of West's vision of a 21st century company.

"In today's environment, you turn the organization upside down," West says. "It used to be that information would flow up to one spot, and then the decision we make would flow back down. That's no longer a good model."

West began seeking the right model in 1990, concerned that the firm's three divisions were in competition with each other. Although one business was flourishing, another was laying off employees.

SEI had become big, but West wanted it to remain efficient, innovative, responsive—and maintain the sense of community it had as a small company.

West began an SEI Center for Advanced Studies in Management at the Wharton School at the University of Pennsylvania in 1991, drawing on the intellect of academia and experience of corporate CEOs to develop a strategy that anticipates the company of the future.

That's when West began turning SEI upside-down.

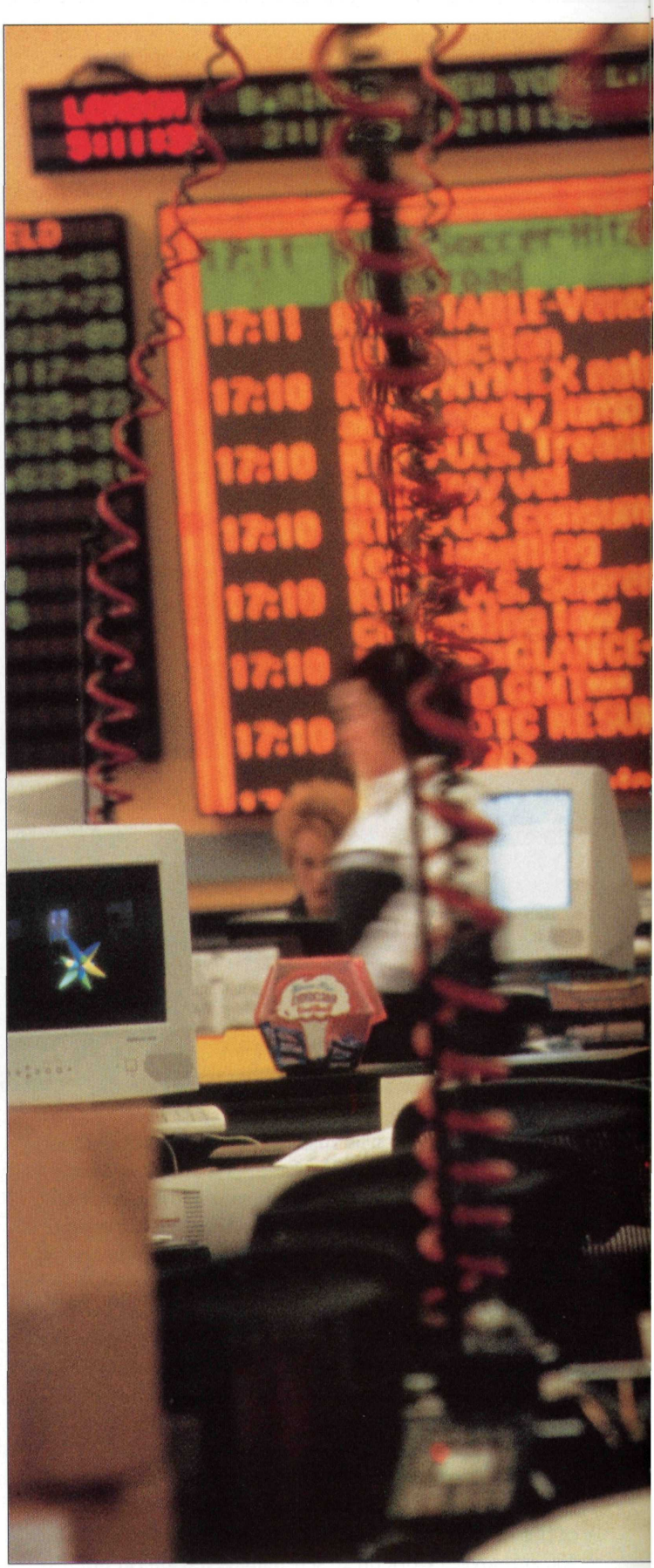
Moving into the new headquarters in 1996 defined a break from the old culture and the beginning of the new. Employees could bring only two boxes of possessions, and the new facility had no offices, floor plans or secretaries. Teams were expected to create their own work areas.

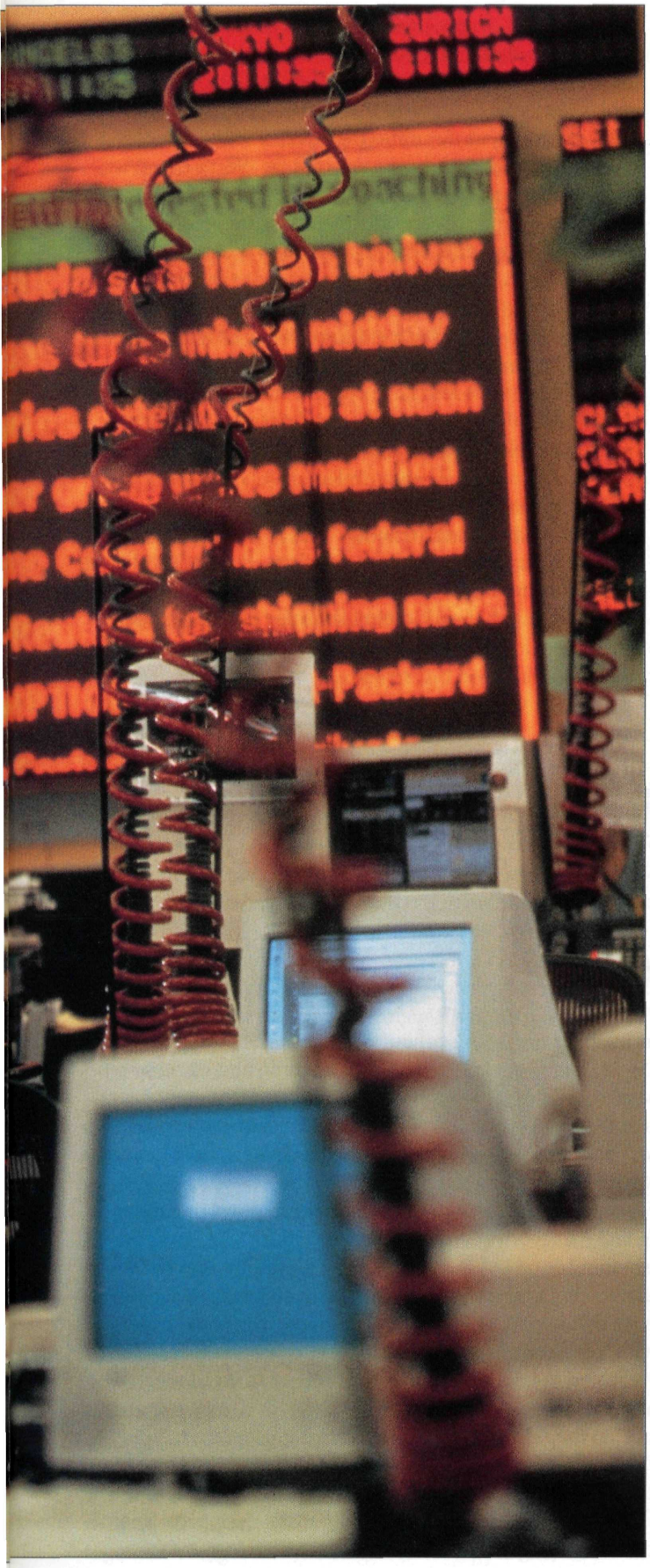
West is plain-spoken and not one to play politics or games, says Carl A. Guarino, managing director of SEI's global unit. A former SEI attorney, Guarino is responsible for expanding the company's asset-management business outside North America. "There's no pretense with Al," Guarino says. "He's very informal, very open, very down to earth."

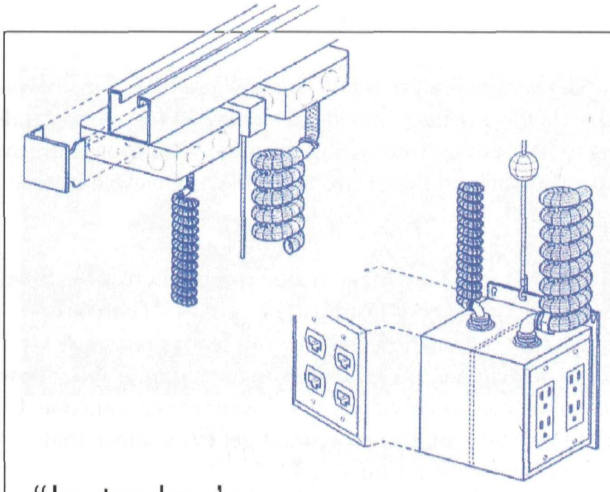
Abolishing secretaries forced SEI to make dramatic adjustments and slammed the door on its old top-down management style. Occupying a desk in a large bay area where almost everyone is in view of everyone else, West catches his own phone, takes his own messages, handles his own memos and e-mail, and makes his own travel arrangements. So does everyone else.

Judith Bavuso, a former executive secretary, had her doubts when West announced the elimination of all administrative support positions. She pulled him aside and asked, "Are you really thinking clearly here? Do you honestly believe this will work?"

Bavuso made both the move and an occupational change. Working on one of the teams, she is responsible for human resources. "It really does work," she admits. "I'm amazed."







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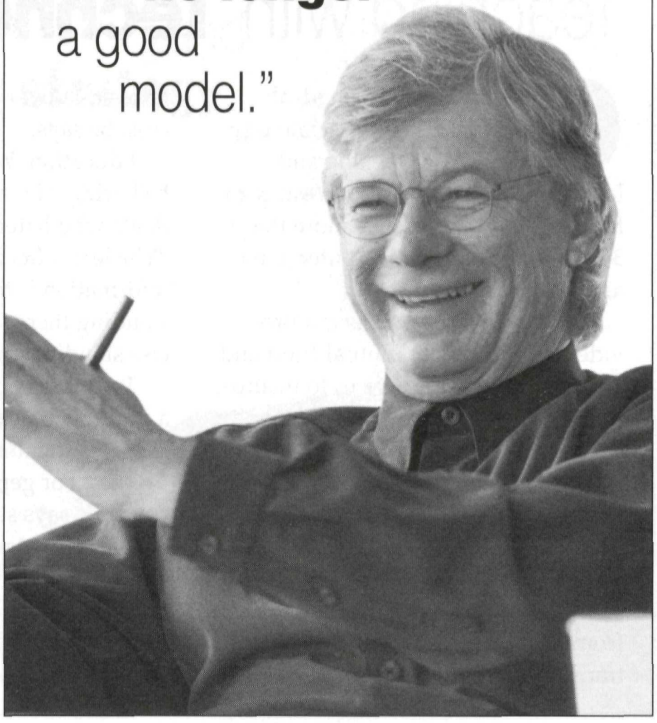


The large work areas fall "somewhere between a newsroom, a trading floor and an ad agency," West says, standing at his desk and surveying the area. "Someone came in from Taiwan and said, 'This looks like my bicycle factory in China.'"

It doesn't take long for someone coming in from a closed office environment to adjust, West says. "There are things that can distract you, but you learn pretty quickly not to be distracted. You also learn an etiquette about how not to distract somebody else. If I want to see someone, I try to get eye contact. If you don't get eye contact, that person's not open for business."

The six buildings provide a total of 300,000 square feet, and each building serves as an extraordinarily adaptable, user-friendly high-tech center. Each fiber-optic python can accommodate two computers.

"To me, No. 1, the building has to be functional for the business that's being transacted in it, and the No. 2 thing we were after was flexibility," West says. "This is a totally flexible floor plan. Everything is on wheels. You can roll desks anywhere on the floor and connect in with pythons. You can wheel over to one of the elevators and go anywhere in the six buildings. You can rearrange your team any way it suits you. It used to cost us $1,500 to move somebody. Now they move themselves."

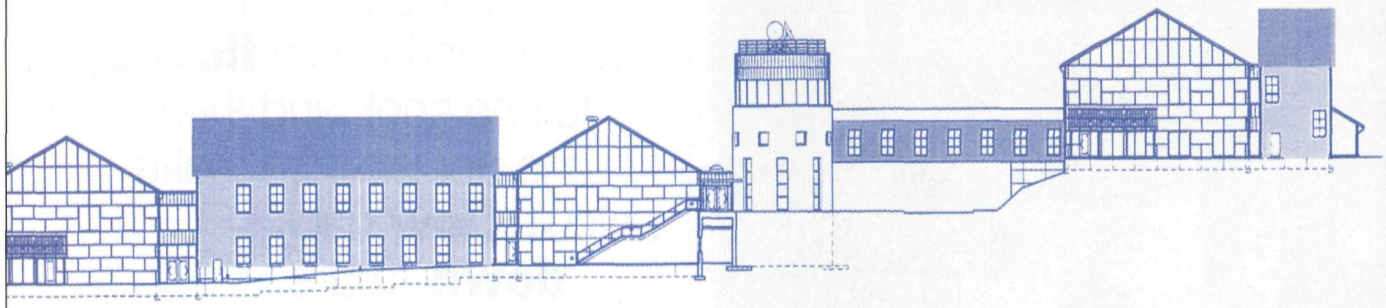
Avant-garde art decorates the interior of the complex, with paintings and sculpture selected by West's daughter, Paige, who promotes the work of emerging artists over the Internet and produces art documentaries in New York.

"It has gotten quite a bit of acclaim," West says. "We want people to get out of the box—we want them to think creatively, so why not highlight these pieces? That's what art is all about—doing it in a different way or not doing what has been done in the past."

West's two sons also have creative inclinations: Al is a published writer and poet living in Arizona, and Palmer, an actor, is producing his second independent film in New York.

West empowers employees to make decisions and he keeps a keen eye on the results.

"We want *them* to make the decisions, not somebody removed from the job," West says. "The people who are actually doing the work can make better decisions than I



Teaching with **Technology**

Georgia Tech is in an ideal position to apply technology to enhance teaching and learning, says alumnus Al West, who founded SEI Investments more than 30 years ago using a computer game as a teaching tool.

Today SEI Investments is a provider of technology, mutual-fund and asset-management services to institutions, professional investment counselors and wealthy individuals.

"Technology can be used to improve the quality of education and productivity," says West, a 1964 aeronautical engineering graduate. Computers could free professors from the drudgery of information transfer, and enable them to be facilitators that oversee the learning process, he says.

Education, West says, should not be boring. "I was one of those students who hated class," he confesses. "The least effective way to transfer information is to have somebody standing there talking and somebody else standing there listening."

Technology can turn teaching into a multimedia experience that invites students to interact with the learning process. For genuine learning to take place, he says students must recognize that whatever is being taught is relevant to them.

West has given $2 million to the Institute through the Campaign for Georgia Tech to support technological innovations in the curriculum and to enhance teaching and learning on campus.

His contribution, combined with funds from the Georgia Tech Foundation, permits "the extension of electronic media throughout the undergraduate curriculum" and supports "the plan to link the student body and faculty in a comprehensive learning environment," says Dr. Robert C. McMath Jr., vice provost for Undergraduate Studies and Academic Affairs.

"Tech is in a great place to apply technology to the art and science of teaching," West says. "We should work hard to make Tech preeminent in educational technology."

can when they are dealing with this client or that product.

"My responsibility is to make sure that this company is aimed in the right direction and that we have a good vision and strategy for the company—and to make sure that everybody knows what they are. You can't instruct people on what to do anymore. You've got to give up your control. You're counting on other people to do what is expected of them."

The strategy has received support in the marketplace.

In 1998, the company saw its stock rise 137 percent to $99.38. The cover of its 1998 annual report boasts, "Overall revenues increased 25 percent to $366 million. Net income surged 60 percent to $43 million. Earnings per share grew 61 percent to $2.25."

SEI provides technology and out-sourcing services to bank trust departments, offers mutual fund and asset management services to institutions, and delivers professional investment services to wealthy individuals. The company administers $200 billion in assets, which includes $56 billion that is managed directly by SEI, mostly through mutual funds.

Once one of the largest pension consultants in the country, the company quit the pension-consulting business in 1996 to develop asset management and now has $56 billion in assets under management. In 1998, asset management revenues grew 46 percent to $90.1 billion, and operating profits jumped 451 percent to $18.1 million.

SEI was selected to provide trust accounting services for about 350,000 American Indians, who have a trust relationship with the U.S. government. West says it is SEI's first major contract outside the banking industry.

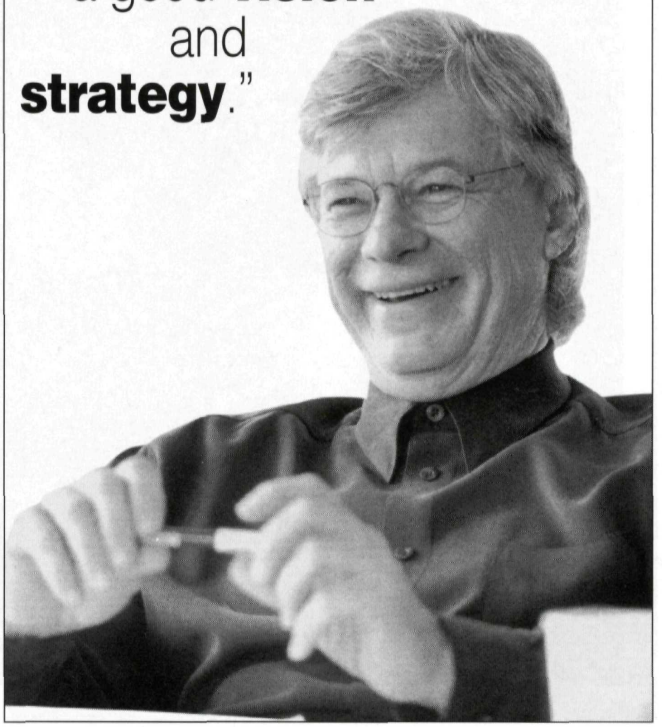
"We're providing services to the Bureau of Indian Affairs and that's been in the news quite a bit," West says. "We're the solution—not the problem. But for 100 years, they didn't keep proper accounting records. We went in last year and have been helping them straighten out what money is owned by whom, and we're accounting for it from here on out."

Last March, SEI joined with the International Finance Corp. and Tong Yang Securities in Seoul, Korea, to create SEI Asset Korea, the first foreign, majority-owned investment company in Korea.

SEI Asset Management doesn't buy or sell securities, West says, but operates as a manager of managers, picking and monitoring investment managers for large corporate pension plans, endowment funds, foundations, union pension plans and wealthy individuals. It markets its services to small pension plans through intermediaries, such as bank trust departments.

"We find a manager to manage each segment," West says. "They'll pick the stocks, but we tell them exactly what we want them to do. We've got technology that monitors them on a daily basis, and also puts all of this together. You get a very straightforward portfolio."

"The **people** who are actually **doing** the work can make **better decisions** than I can when they are dealing with this client or that product. **My** responsibility is to make sure that **this company** is aimed in the right direction and that we have a good **vision** and **strategy**."



Murray A. Louis, vice president of corporate communications, has been with SEI 19 years and remembers the days of transition.

"We had a series of company meetings in which we talked about the fact that we were going from a conventional type of organization to a team-oriented organization," Louis says. "The team is not necessarily a finite group, but one that could be flexible. People could be on more than one team, depending on what expertise they brought to whatever a particular team was doing. That gave a fluidity to the place.

"At the same time, we were de-emphasizing titles, and we were de-emphasizing private offices," Louis says. "We went to an open environment in our old place. We tore the walls down and got everybody out in the open long before we ever moved. That was kind of a self-cleaning operation because the people that didn't like it just left. It wasn't without pain."

Allison Ettel, Econ '97, of Marietta, Ga., knew about SEI through friends, and sought out the company recruiter at Georgia Tech's career fair.

"I knew this was the job I wanted," says Ettel, who works on the Investor Strategy Team and the Investment Advisory Group, which sells products to Registered Investment Advisors.

"I've become very spoiled," Ettel says. "I don't think I could go to a cubicle environment. Here everyone is interacting, talking with people, bouncing ideas around. It's really a collaboration of ideas. It's very energetic."

Richard "Rich" Aguiar, a co-op student who worked with a utility company in south Florida before earning his electrical engineering degree in 1994, runs a team that sells SEI services to community banks in the New England, New Jersey and New York area.

"I like the fact that the only person here responsible for your career development is yourself," Aguiar says. "There are no structured career paths."

In a culture with no titles, the power of persuasion is the only power you have, Aguiar says. "Because your salary is based a lot upon incentive compensation, if you've got a great idea, Al is going to say, 'Go ahead with it; go find a team.' If you can't convince people to believe in your cause, it isn't going to get off the ground. We don't have the infrastructure in place to make it very easy for you to get where you want to go, so it's power of persuasion."

West is serving this year as chairman of the American Business Conference, a non-partisan organization for CEO's of mid-sized growth companies. He is a member of the Campaign for Georgia Tech Steering Committee, and is serving as a trustee of the Georgia Tech Foundation. He is a former chairman and member of the Georgia Tech Advisory Board.

A native of Brooksville, Fla., West came to Georgia Tech planning to pursue his chief boyhood ambitions: to become a fighter pilot, and, later, to start his own business.

"The work-hard/play-hard image of Tech appealed to me," West says. A math honor student, he visited Tech as

a high-school junior, and after an administrator told him he was accepted, he didn't apply anywhere else.

A member of the Air Force ROTC program at Tech, West's eyesight worsened during his senior year, which kept him out of the fighter-pilot program.

Instead, he attended the Wharton School of Business at the University of Pennsylvania, earned his master's degree and decided to pursue his doctorate. He became familiar with a computer game that was a simulation of a number of companies, and teams of students ran the various companies.

"We would go out into the community and get business leaders to sit on the boards [of the simulated companies], and we would have mock board meetings," West says. "The students really got into it."

West and a friend recognized the potential of computer simulation as a teaching tool, and they dropped out of school to start Simulated Environments Inc.

The first product was a computer-based simulation to train bank loan officers. "We wrote up about 50 case studies on loans that had come into the bank, and then simulated them, so the student would run this simulated loan portfolio."

First Pennsylvania Bank in Philadelphia was their first client, followed by Trust Company of Georgia and C&S Bank. SEI sold its loan system to 50 of the top 70 banks in the country. And the company developed a range of outsourcing services for the financial industry.

The business was in Philadelphia until 1972, when it moved to Wayne, Pa. That was also the year West's partner decided to leave the company.

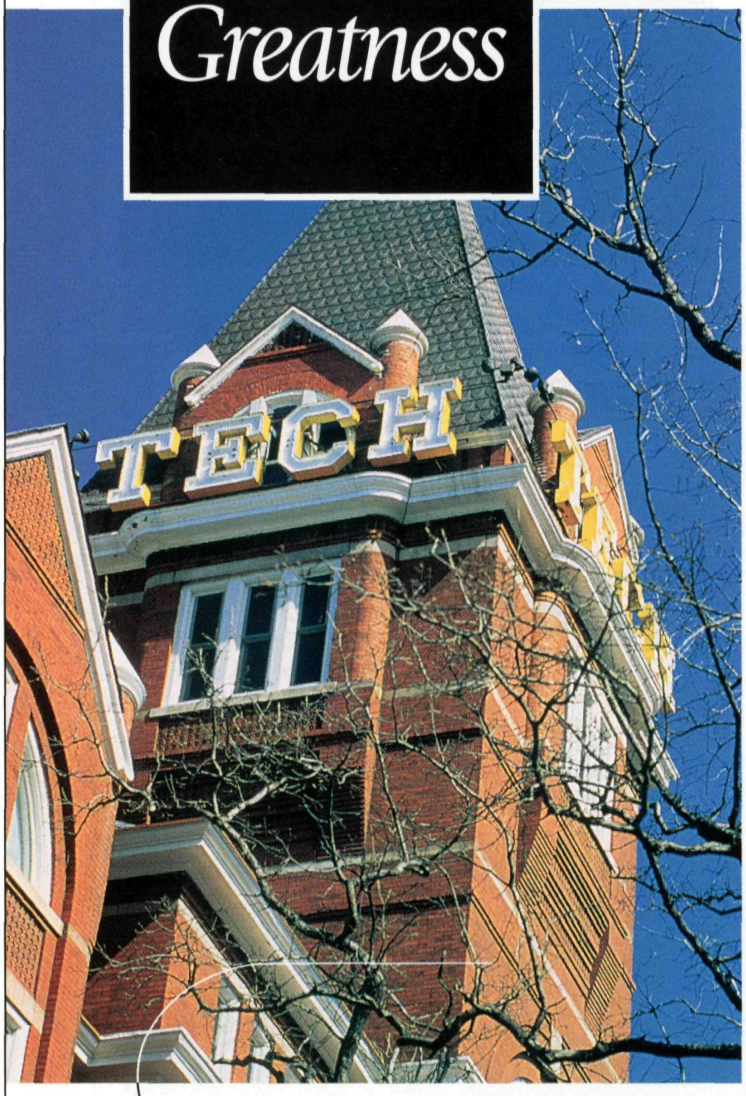
SEI also developed a system to automate bank trust departments, and in 10 years, about 30 percent of the banks in the country were using the firm's services. The company diversified, moving into the mutual fund business, primarily through banks, and SEI went public in 1981. The money-market fund grew rapidly and SEI bought a performance-measurement company to measure the effectiveness of pension plans, which was turned into a consulting firm. That led SEI into asset management.

"Today we've got two business lines that are integrated," West says. "One business is technology and the other is this asset management.

"We feel that if you scratch us, we're a technology firm, but more of an application-technology firm," West says. "We apply technology to helping solve financial and investment problems, but we include doing the laundry, too—doing all the accounting and not just making the decisions."

West is developing Internet sites for each of the company's services. The sites will offer market commentaries and video clips of the day's financial news, and will explore such topics as portfolio strategies, financial management, investing and creating trusts.

Signs of Greatness



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Annual Report 1998-1999

A Year of Accomplishment, a Future of Challenges

As your Georgia Tech Alumni Association marks the end of the 1998-1999 year, we can look back with justifiable pride on a year filled with accomplishment and recognition. But the year just past is also a beginning. Our accomplishments point to bold new directions for your Alumni Association. In the days ahead, new goals and important challenges await us in our ongoing effort to support both the Alumni and the Institute that have provided us so many opportunities. In the time-honored Tech tradition, I am confident we will meet the expectations we set for ourselves—and exceed them.

Jay McDonald

Fund-raising has always been an important aspect of our support for Georgia Tech. During this past year, the **52nd Roll Call**, with Robert Hall's leadership, raised more than $7.4 million from 25,000-plus donors—truly a remarkable achievement.

Alumni support for the **Capital Campaign** has been noteworthy as well. For example, roll-out activities have been held with the support of Georgia Tech clubs in two dozen cities across the country—more are planned.

During 1998-1999, developing closer student relations was emphasized. **Surveys** were conducted among many alumni, but particularly among students and young alumni, to identify new service and program opportunities for the Alumni Association. From that information came new initiatives: Welcome Week, Freshman Tailgate parties, ProNet for alumni and lifestyle seminars. **T Week**, a series of activities held twice a year and aimed at new graduates, was named the best new program on campus.

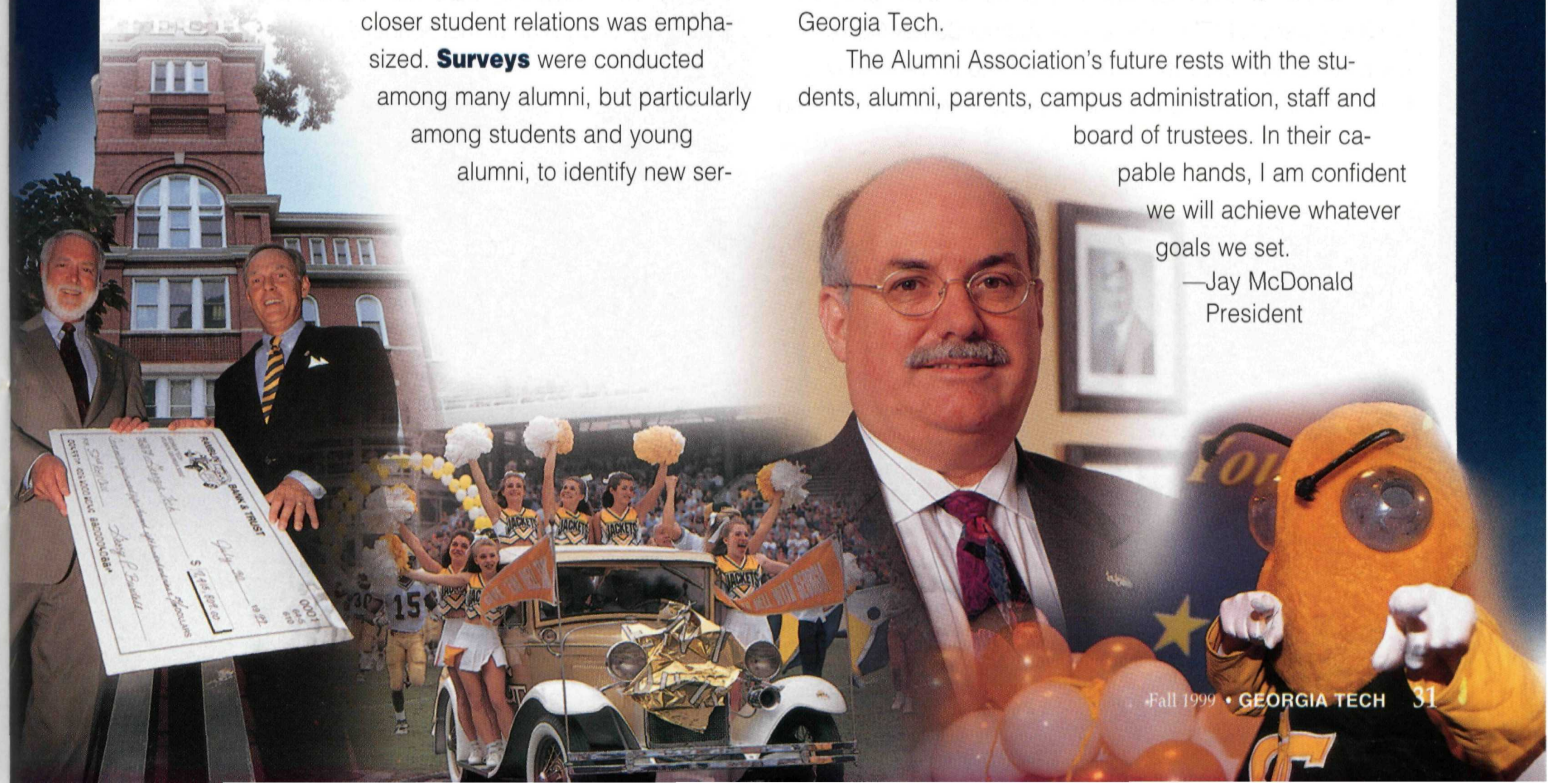
An exhaustive peer review of every Alumni Association department was conducted during the year—again, as part of an ongoing examination of how the Association can serve you and the Institute better.

Our most important challenge for the near term is to find a successor to **John Carter**, who has so ably managed the Alumni Association as executive director for the past 14 years. It will not be an easy task. Under John's leadership, the Alumni Association has experienced tremendous growth in its capabilities, activities and service to the Institute. In fact, your **Georgia Tech Alumni Association** ranks among the preeminent organizations of its kind in the country, thanks in large part to John's vision and initiative. Your Association is poised for the future.

The 1998-1999 year also marks the end of my term as president of your Alumni Association, and, at the conclusion of 2000, nine years on the board. It has been truly a wonderful experience and an honor to serve you and Georgia Tech.

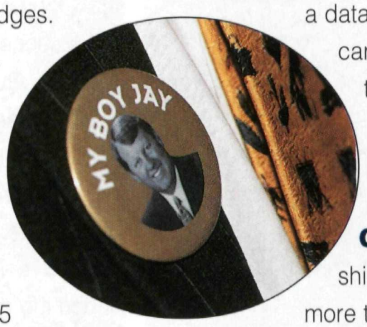
The Alumni Association's future rests with the students, alumni, parents, campus administration, staff and board of trustees. In their capable hands, I am confident we will achieve whatever goals we set.

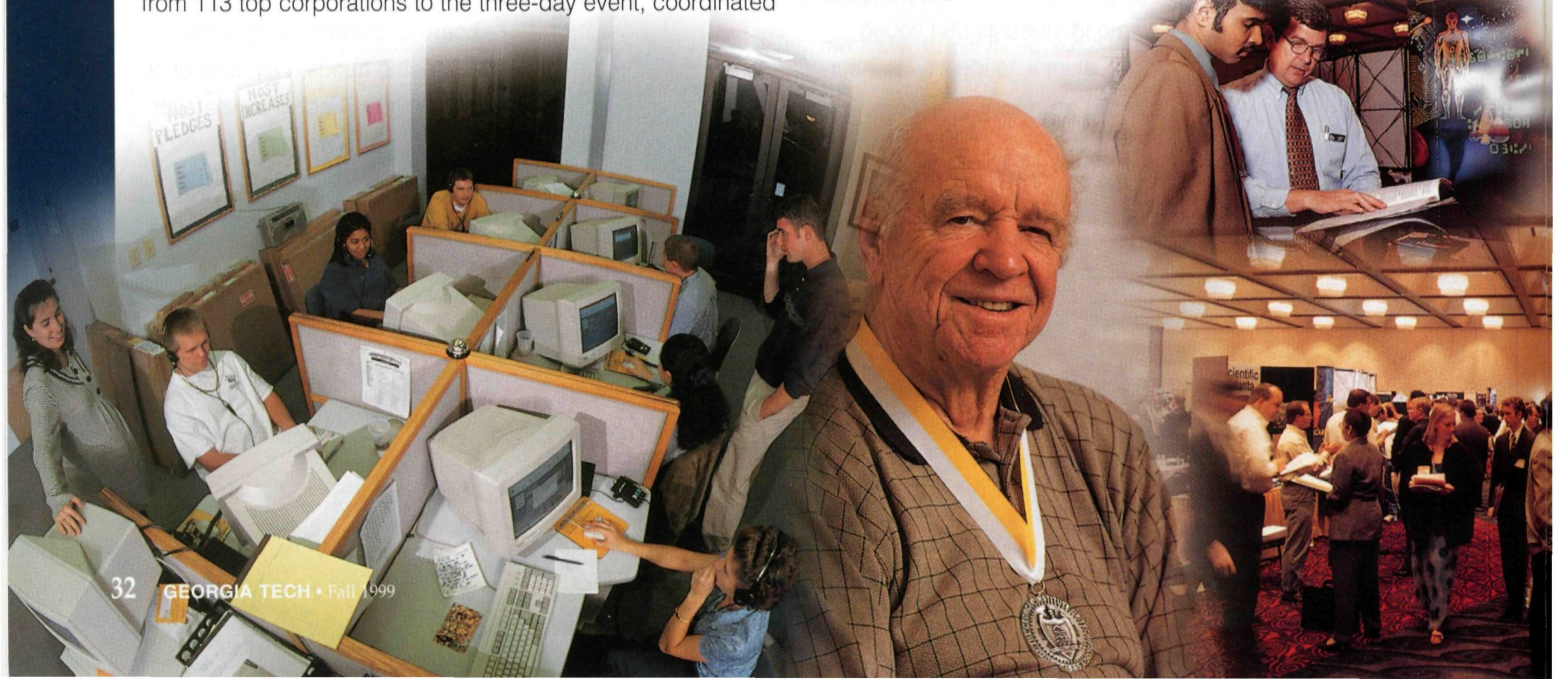
—Jay McDonald
President



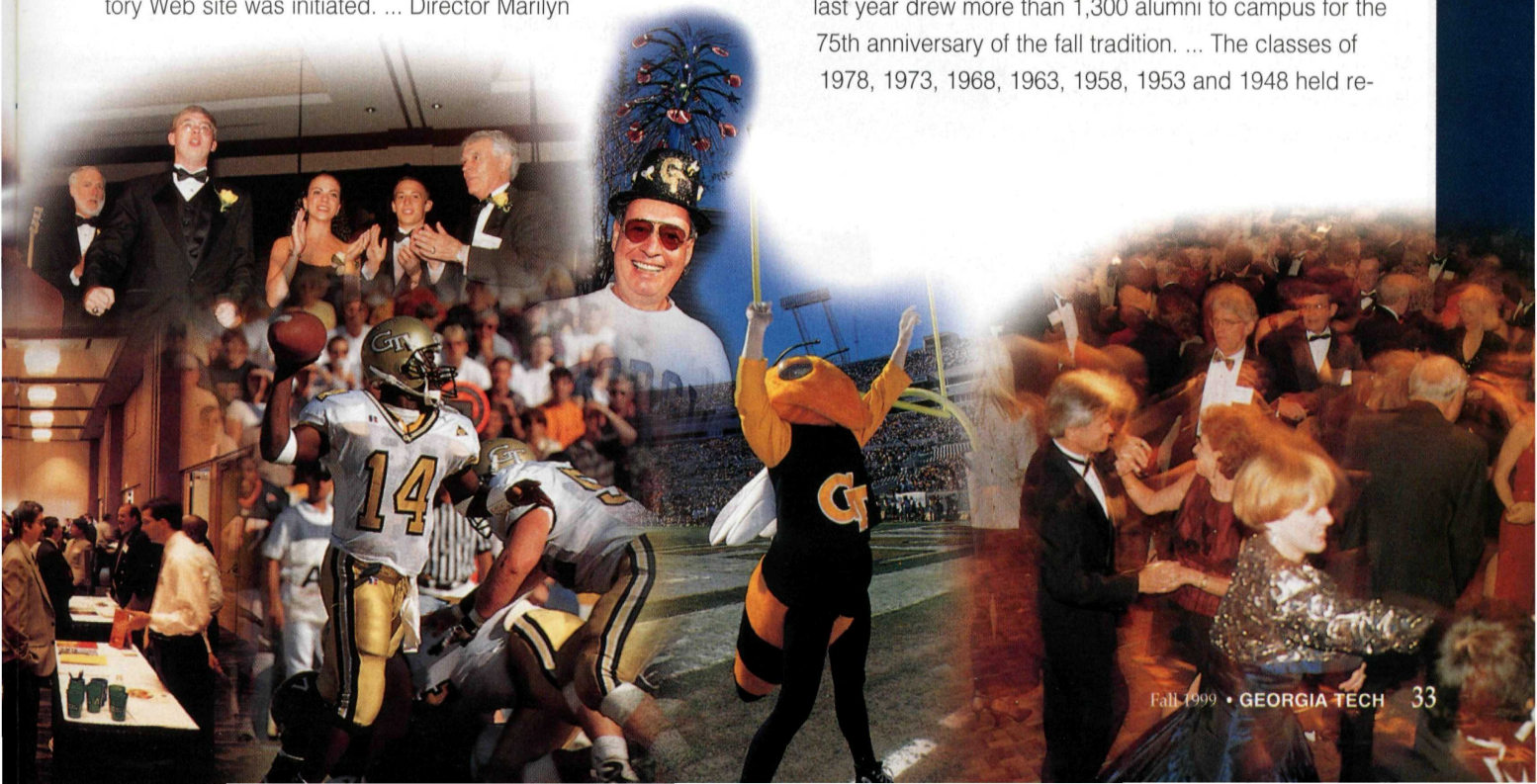
Highlights of the Year

After 14 years as executive director of the Georgia Tech Alumni Association, **John B. Carter Jr.**, IE '69, announced he is accepting a position as chief operating officer of the Georgia Tech Foundation. ... The Alumni Association kicked off fiscal year 1998-1999 as it has done previous years: with a Roll Call fund-raising campaign to provide Georgia Tech its largest source of unrestricted funds. ■ The **ANNUAL GIVING** office coordinated the effort to raise $7.4 million. ... When the books closed on June 30 for the 52nd Roll Call, a goal-breaking, record total of $7,415,809 had been raised. The effort involved 25,000 donors and 400 volunteers. Phonathons brought an increase of 17 percent in total giving and a 21 percent increase in the number of pledges. ... The Enrichment Fund, supported by Georgia Tech parents, showed an 85 percent increase in donations over the previous year. ... Students contributed more than $22,000 to Roll Call through the Georgia Tech Student Foundation. ... Roll Call's Class Committee Program managed a number of events, including eight nights of volunteer phonathons, through 25 class-giving committees. ... The Matching Gift Program accounted for nearly a quarter of the Roll Call total. ... **Howard Ector**, IM '40, the first chief administrator of the Georgia Tech Foundation and one of the originators of Roll Call, was awarded the 1998 Joseph Mayo Pettit Alumni Distinguished Service Award. ■ The 16th annual Alumni Career Conference attracted more than 1,230 alumni and representatives from 113 top corporations to the three-day event, coordinated by the **ALUMNI CAREER SERVICES** office. ... Len Contardo was promoted to director of Alumni Career Services. ...The Commission on Alumni Relations of the Council for Advancement and Support of Education (CASE) awarded Alumni Career Services a Seal of Excellence for its "model alumni program in Career Assistance."... The department provided one-on-one career advisement and coaching sessions to 279 alumni during the year. ... *The Bulletin* moved to electronic access, permitting employers to register and submit job openings online for the weekly employment listing. ... Career Services redesigned its Web site to better meet the needs of alumni and companies. ... Career Services initiated a database of information about alumni utilizing career services—graduation year, degree, types of jobs sought, geographic preference. Analysis of the data will help market alumni to employers and develop new services. ■ During 1998-1999, **GEORGIA TECH CLUBS** awarded 175 scholarships totaling $150,000. ... Clubs conducted more than two dozen Capital Campaign roll-out events in 20 cities. ... The 1999 George O'Leary Spring Golf Tour and Banquets visited 13 cities and raised $50,000 for academic and athletic scholarships. ... Club members represented Georgia Tech at 120 college fairs nationwide. ... Five Georgia Tech Club members received Ramblin' Wreck awards in recognition of their leadership roles and volunteer



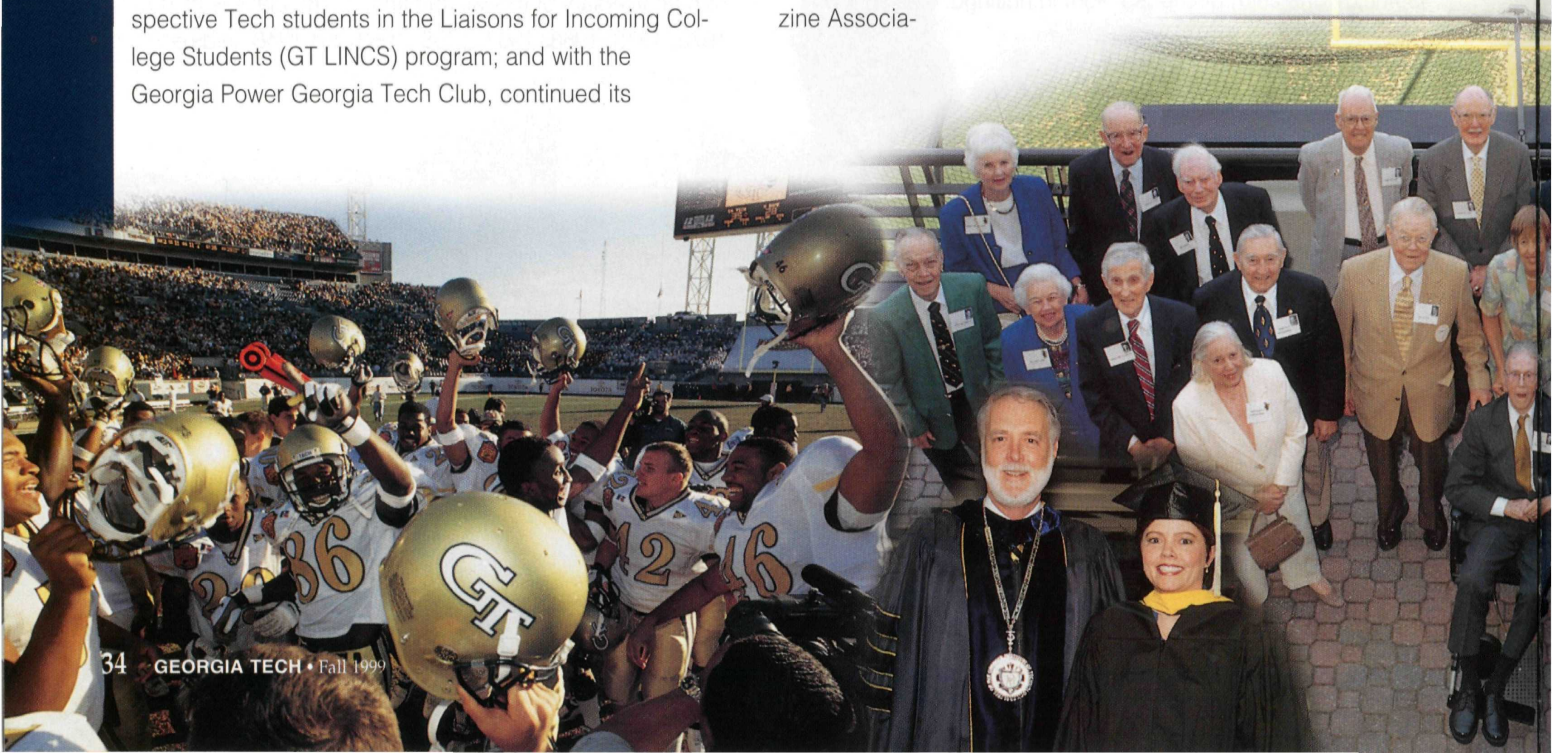


efforts. The recipients were Jane and Joe Stone, ChE '66, of Westfield, N.J.; Michael J. Murray, ChE '76, of Houston; David C. Nelson, BC '92, of Atlanta; and Colin Wright, EE '94, of Atlanta. ... More than 1,500 alumni and friends joined road trips to support the Yellow Jackets football team against Clemson, North Carolina, Maryland and Georgia. ... The Alumni Association's clubs department also hosted a Gator Bowl trip that attracted more than 300 alumni to Jacksonville. ... A pre-game tailgate party drew 3,000 fans to the Jacksonville Fairgrounds. ■ The **COMMUNICATIONS** Department supervised and coordinated installation of an exhibit about Lawrence "Chip" Robert, '08, for whom the Alumni/Faculty House is named, on the building's mezzanine level....A series of placards, representing eight decades of Tech's history, was created for use during special events. ... Ten videos were produced for tributes, testimonials, reunions and celebrations. ... Digital technology was acquired by the Communications staff, enabling in-house editing and other post-production video projects. ■ This past March, the **ORAL HISTORY** Program was separated from Communications, becoming a separate department. ... Sixty oral histories were produced during 1998-1999....An extensive expansion of the oral history Web site was initiated. ... Director Marilyn Somers presented a workshop on oral history at the CASE regional conference in Charlotte, N.C., in February. ■ The **COMPUTING AND TECHNICAL SERVICES** Department conducted Y2K testing of all Alumni Association computers and related equipment. ... Completed rewiring of Alumni/Faculty House for computer connections as part of FutureNet Project. ... A new web site —GTALUMNI. ORG—was established to provide new services for alumni, including e-mail forwarding for life, online events registration, searchable alumni directory and secure server capabilities. ■ A survey of alumni and students conducted by the **MARKET RESEARCH** Department revealed that the Alumni Association is most strongly identified with Career Services, Roll Call, publications, class reunions, its Web site and Georgia Tech clubs. ... The survey also showed that 80 percent of alumni and 71 percent of students have strong pride or loyalty to Tech. ... Throughout the year, 10 major surveys of alumni and students were conducted in an effort to improve the Alumni Association's services. ... Five focus groups were also held, along with a think tank for former trustees. ■ Among the most important responsibilities for the **PROGRAMS** Department are planning and logistics for the Alumni Association's Homecoming activities, which last year drew more than 1,300 alumni to campus for the 75th anniversary of the fall tradition. ... The classes of 1978, 1973, 1968, 1963, 1958, 1953 and 1948 held re-



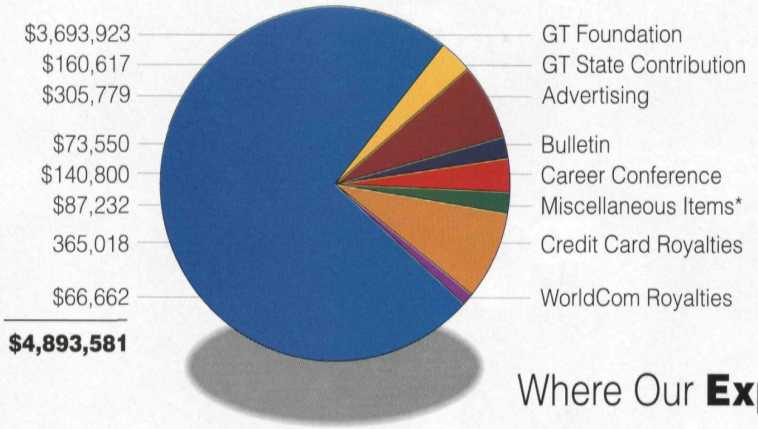
unions, while graduates from 1993, 1988 and 1983 enjoyed special activities and reserved seating at various Homecoming events .... Adelyn Stevenson, wife of Dr. Jim Stevenson, former executive assistant to the president, and longtime director of choral music Greg Colson were named Honorary Alumni during Homecoming. ... Michael Niederhausen's time of 16:20 was best in a field of 400 runners participating in the annual George C. Griffin Pi (3.14) Mile Road Race. ... The Student Leadership Awards for International Study provided $15,000 to eight student leaders. ... The Alumni Association presented the Outstanding Young Alumnus Award to Kimberly Krabe Winstel, IM '84. ... The Dean Griffin Award for Community Service was presented to Joseph P. Byrd III, CE '38, and Donald C. Johnston, TE '37. ... The Minority Affairs Committee hosted a reception for graduating minority students in conjunction with T-Week, the Alumni Association's send-off week for graduating students .... The Student Relations initiative expanded to become a new department within the Alumni Association beginning with the 1999-2000 year. ... The Student Alumni Association (SAA) welcomed more than 125 incoming Tech students and their families at the ninth annual Legacy Lunch; administered the popular Adopt-an-Alum program during Homecoming weekend; contacted more than 200 prospective Tech students in the Liaisons for Incoming College Students (GT LINCS) program; and with the Georgia Power Georgia Tech Club, continued its annual exchange program pairing SAA members with Georgia Power employees....SAA updated and automated its mentor program this year, instituting online registration for both alumni and students. ... The T-Week send-off for graduating students, held in December and June, included seminars on financial management and business etiquette, a group outing to a Braves game, a cookout on the Tech Tower lawn and a post-commencement reception for graduates and their parents. ■

Through the efforts of the Alumni **PUBLICATIONS** Department last year, the 80,000 alumni and friends of Georgia Tech who receive *Tech Topics* stayed up-to-date with Alumni Association and campus news, and learned about notable accomplishments of alumni and faculty. ... *Georgia Tech Alumni Magazine* provided in-depth treatment of alumni, students and faculty involved in the management of technology to the 30,000 readers who receive the magazine in appreciation for their Roll Call support. ... John Dunn, director of publications, was promoted to assistant to the executive director, and Hoyt Coffee, associate director, was named Faculty Adviser to the *Technique* and appointed to the Institute's Board of Student Publications. ... *Georgia Tech Alumni Magazine* was named the Grand Award winner as the best magazine in the region by the Council for Advancement and Support of Education (CASE). ... *Tech Topics* received an Award of Excellence from CASE. ... The magazine also received recognition from the Magazine Associa-

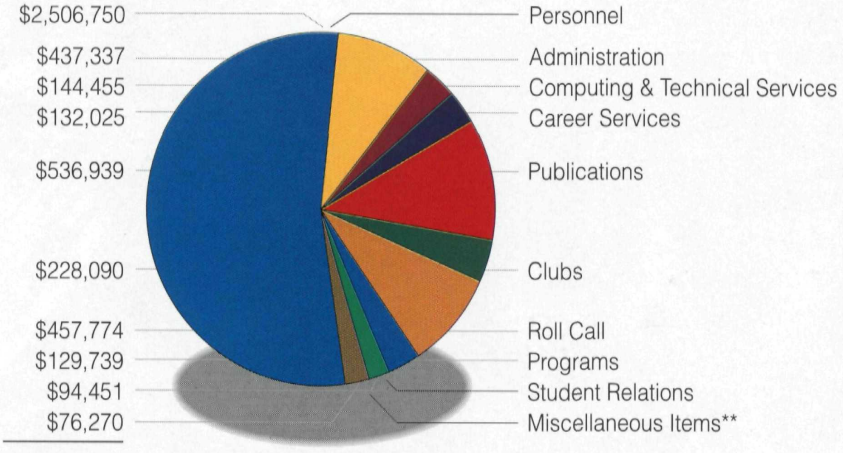


tion of Georgia, which presented the quarterly with two Gold GAMMA awards for design and photography or illustration, a Silver GAMMA for overall excellence, and another Silver GAMMA for the fall 1998 "Space" issue. ... Alumni **Tours** hosted more than 150 travelers to such destinations as Ireland, Russia, Austria, Chesapeake Bay and the Hudson River, Rome, Costa Rica and the Panama Canal, England, Tuscany, and the Czech Republic. **GT**

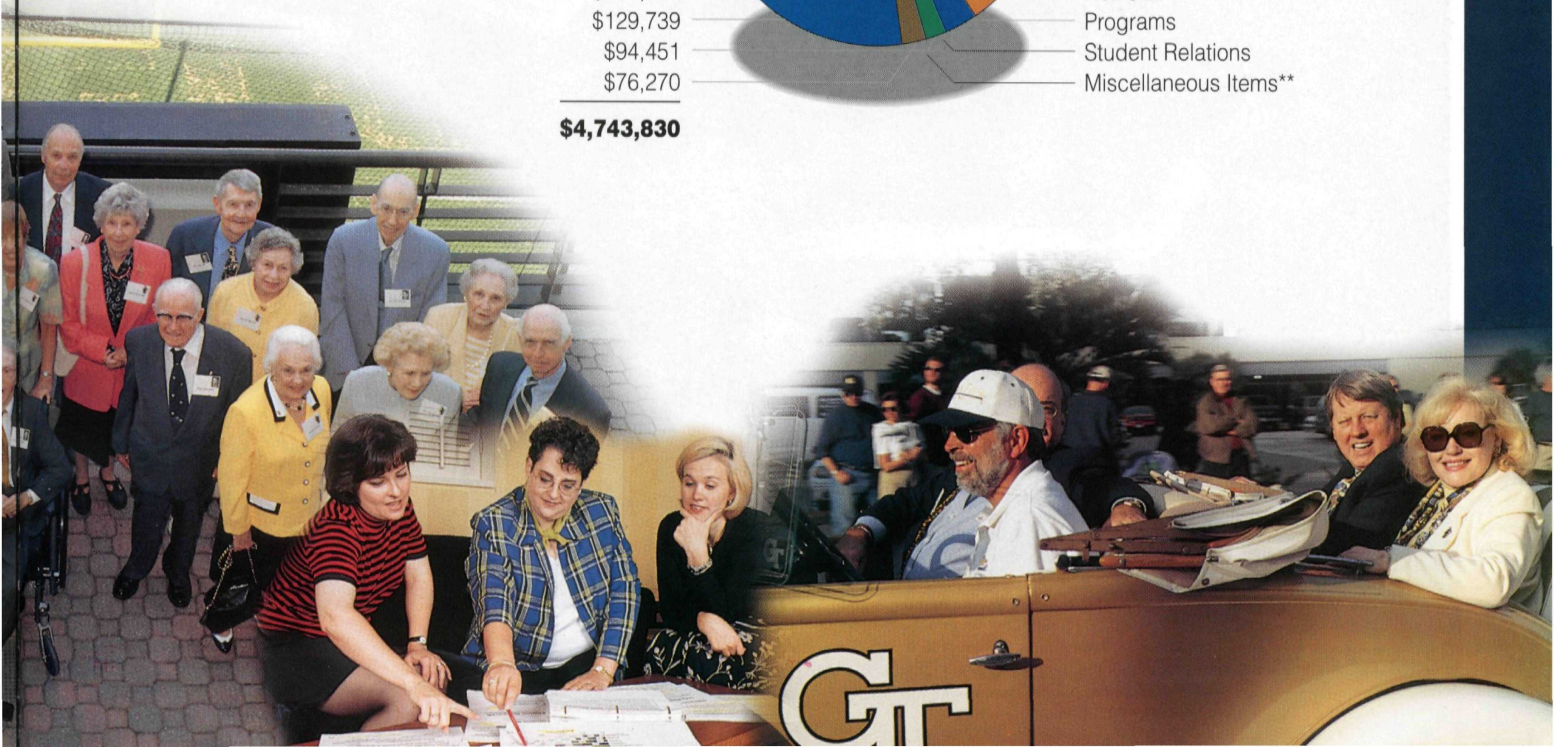
Where Our **Revenue** Came From



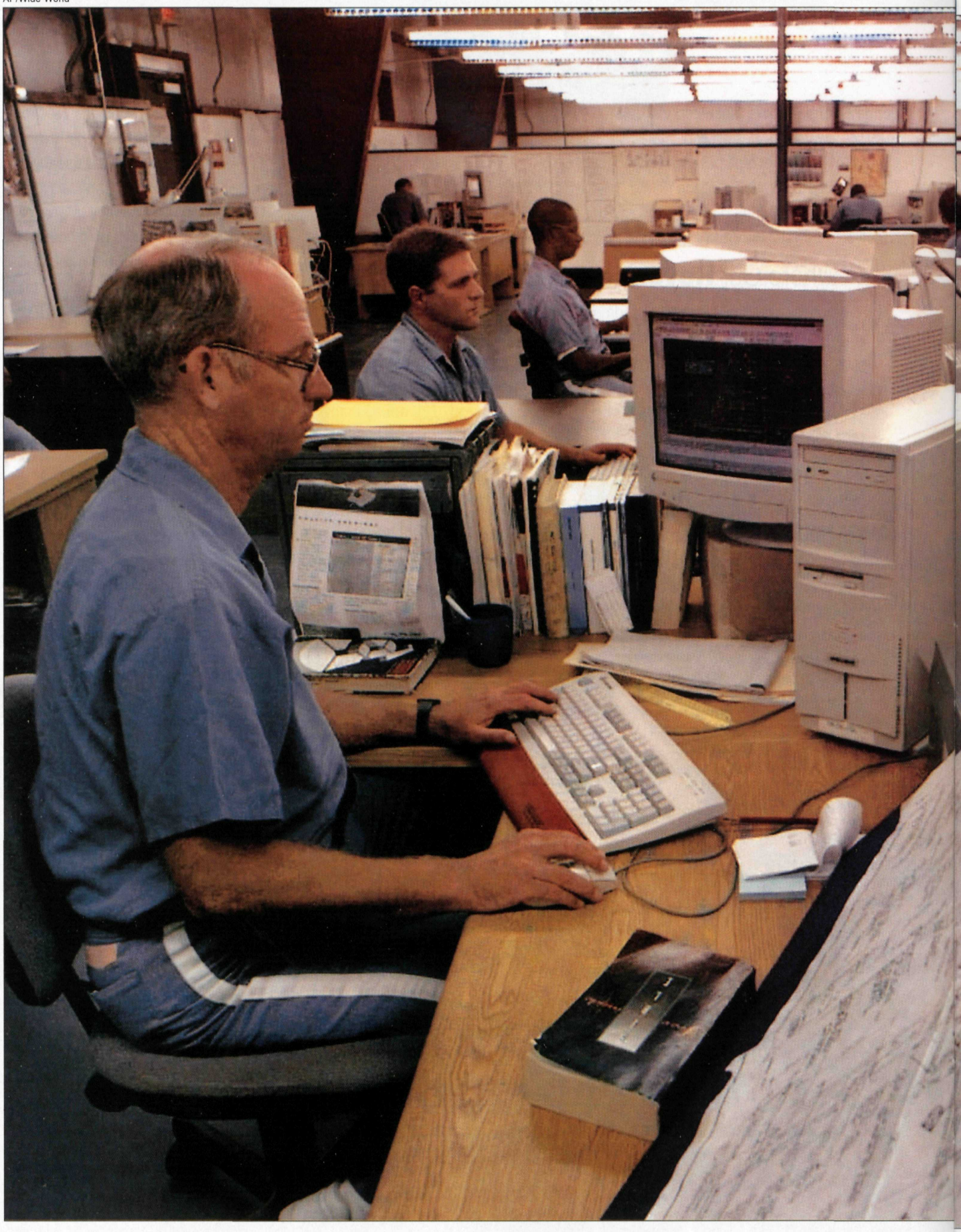
Where Our **Expenses** Were Spent



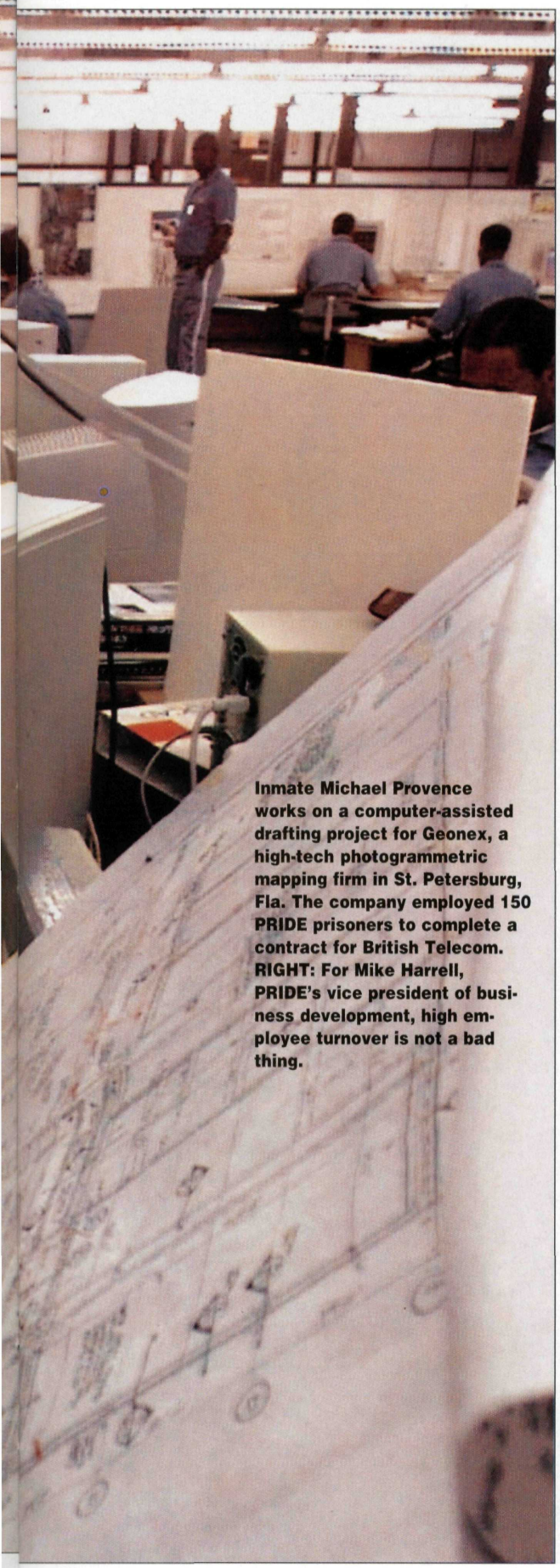
** **Miscellaneous Revenue** includes Alumni Tours, Interest Income, Merchandise Sales, Insurance Royalties, Tailgate Sponsors and Other Sources.*
*** **Miscellaneous Expenses** are Market Research, Oral History Program, Gift Processing, Marketing and Tours.*



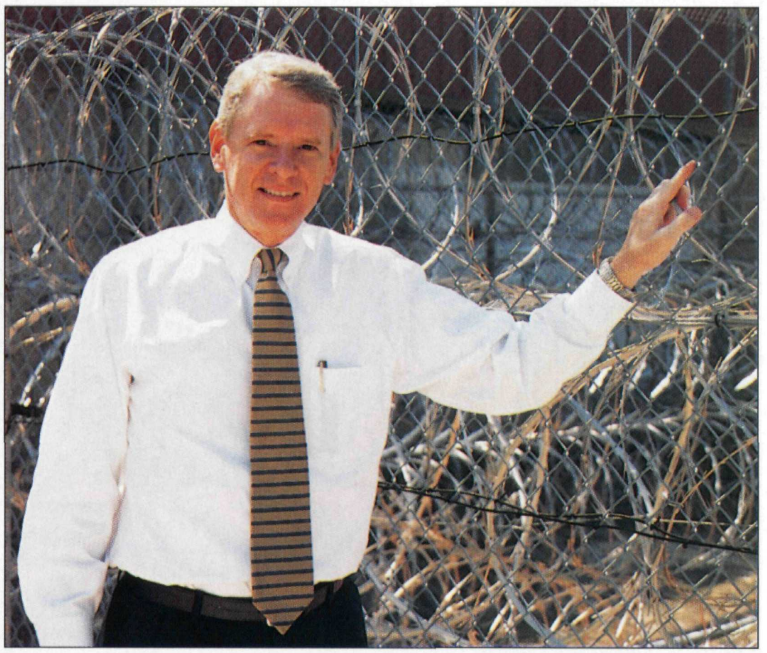
AP/Wide World



Big Business in the **Big House**



Inmate Michael Provence works on a computer-assisted drafting project for Geonex, a high-tech photogrammetric mapping firm in St. Petersburg, Fla. The company employed 150 PRIDE prisoners to complete a contract for British Telecom. RIGHT: For Mike Harrell, PRIDE's vice president of business development, high employee turnover is not a bad thing.

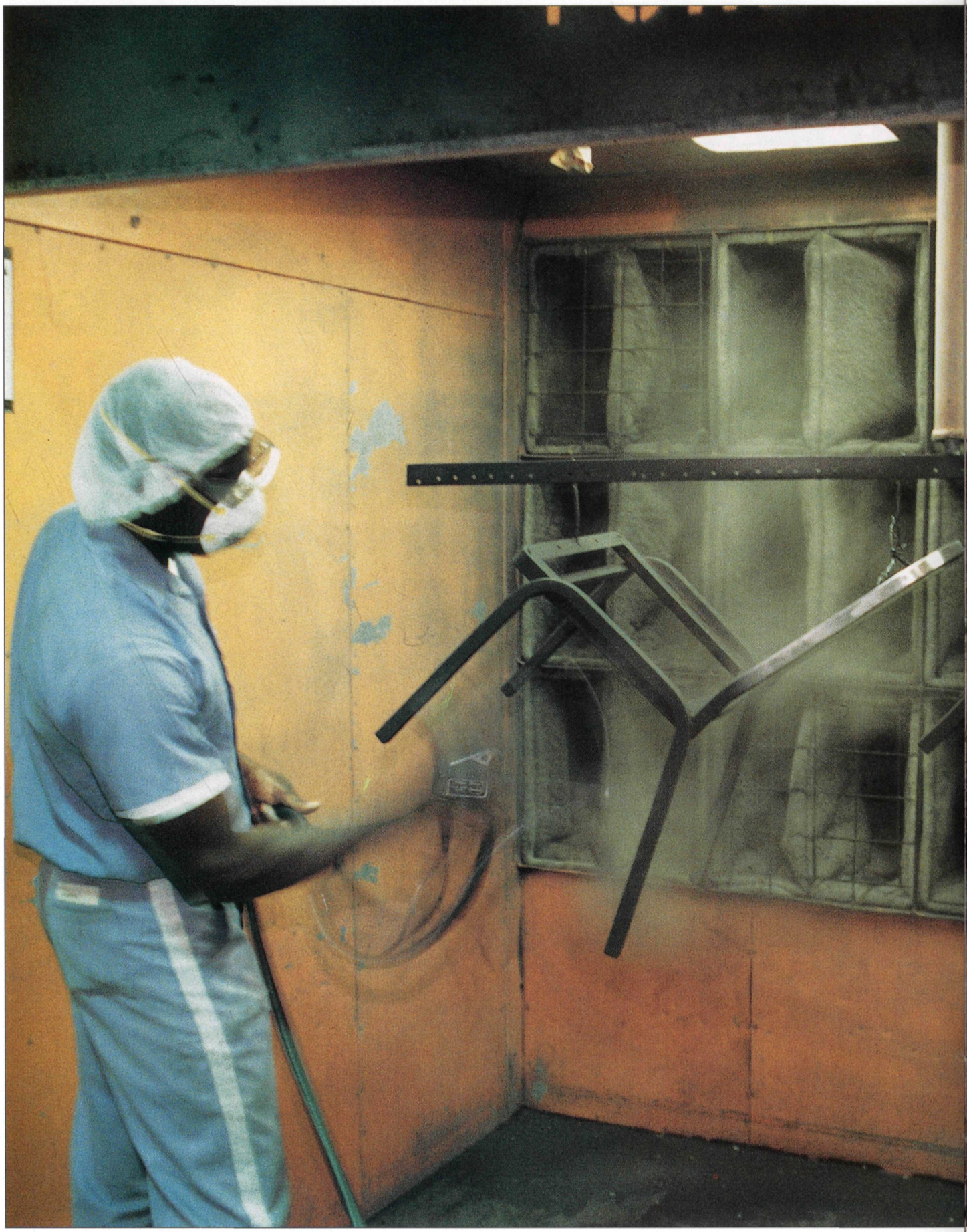


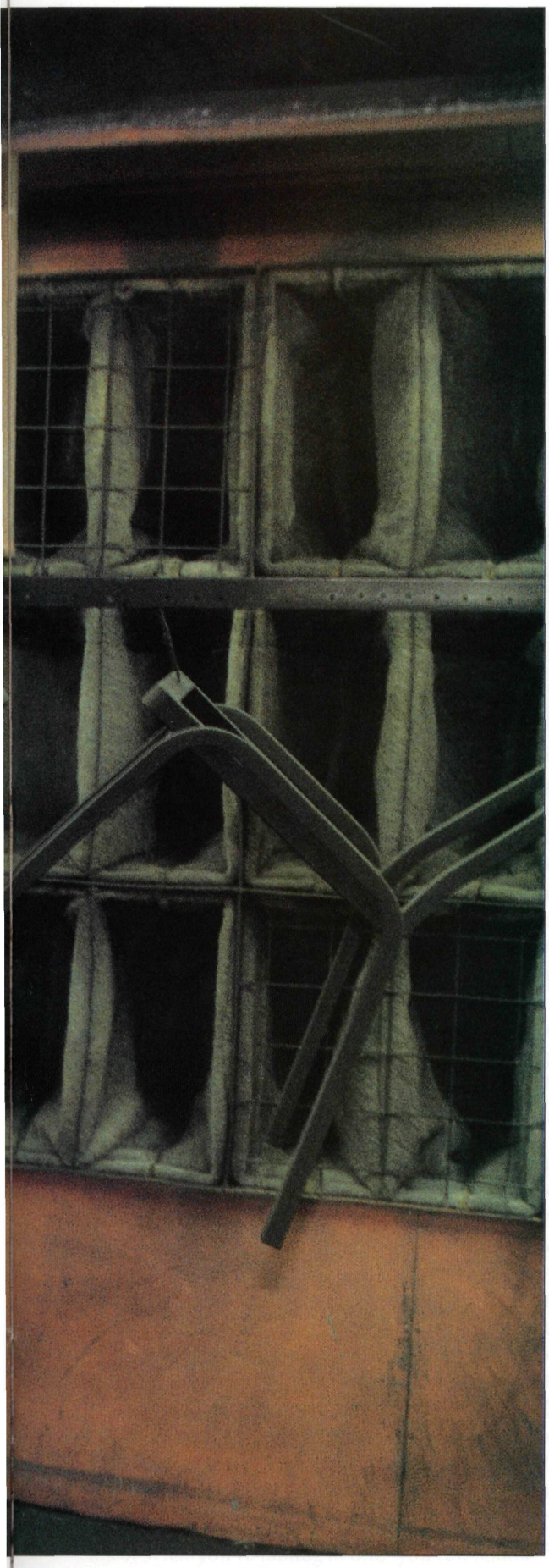
In Florida, a controversial **prison** work program draws **kudos** and **criticism**

Story and Photos by **Shawn Jenkins**

Mention prison work programs to most people and they immediately envision inmates pressing license plates or shackled chain gangs hacking weeds in the summer sun under the watchful eye of shotgun-wielding guards.

And while those methods are still widely employed as a remedy to inmate idleness, state corrections officials nationwide have recognized the value of training their prisoners to do more than just make little rocks out of big ones.

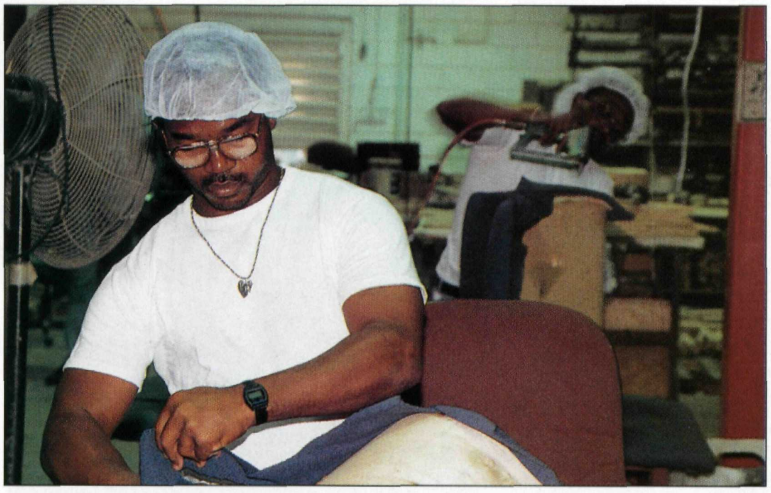




For decades, prisons have kept inmates busy producing goods—uniforms, linens, furniture—for use by state and federal agencies, while providing them with marketable skills for the "outside." Now, with record-low unemployment and American companies looking offshore to find the skilled labor needed to get their product to market, prison bureaus are offering their vast pool of manpower to private industry.

In 1979, the Prison Industry Enhancement Program made it possible for correctional facilities to farm out prison laborers to for-profit entities, provided inmates received a prevailing wage and that a portion of wages were funneled toward restitution and prison costs.

The legislation opened the cell door for compa-



PRIDE workers at the Polk Correctional Facility furniture division refurbish and upholster office furniture for use by state agencies. Harrell says his company initially drew criticism from Florida furniture manufacturers because the state could bypass the bid process by using PRIDE. The answer was to set up local manufacturers as dealers, and give them a piece of the pie.

nies like PRIDE—an $80 million-a-year corporation that manages Florida's correctional work programs—which turn prisoners into productive citizens who are less likely to return to crime. The brainchild of drugstore mogul Jack Eckerd, PRIDE (Prison Rehabilitative Industries and Diversified Enterprises) was created by the Florida legislature in 1981 and ranks among the state's top 200 businesses.

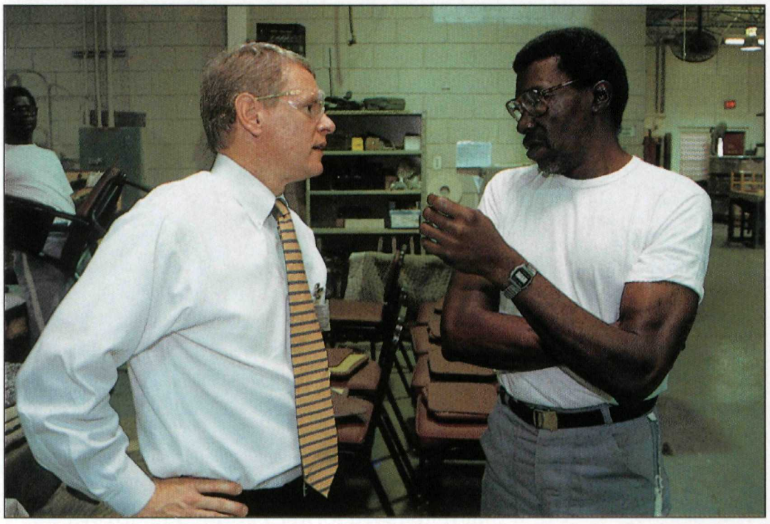
"Typically, every state has prison industries that are run by some sort of government agency, whether it's the Department of Corrections or another group," says Mike Harrell, EES '77, vice president of business development for PRIDE. "They're on the appropriations roll for capital improvements, and some of them are more self-supporting than others in terms of cash flow. Apparently, some of Florida's legislators felt the prison industry system was a tax drain, so the decision was made in 1981 to privatize this piece of the government.

"PRIDE is an instrument of the state, yet it's a private company. There was initial seed money,

which was given by private businesses to make the transition. Past that point, PRIDE has never taken anything from the tax roll. It has always been self-supporting, and from the standpoint that our benefits are separate, everything is funded out of what we sell. Today, we have 54 different industries in 21 locations around the state."

The program employs almost 5,000 of the state's 66,000 prisoners, who produce everything from frozen pizzas to eyeglasses within PRIDE's six business divisions. Inmate volunteers who pass their prison's screening process are referred to PRIDE, where they go through a typical interview process.

"We usually will have a waiting list of people who want to get into our industries," Harrell says. "The motivation to work is higher than I've seen outside, primarily because there's nothing else to do on the compound, and it raises their self-esteem."



"We were getting pressure that we needed to be working more inmates because of the impact it was having on recidivism rates," Harrell says. "We started looking for other ways to expand the business."

It also raises their chances of being employed once they leave prison.

Upon completion of the work program, PRIDE participants are certified by accredited outside agencies—like the Department of Education or the National Institute for Automotive Service Excellence—giving their skills added credibility when they return to society. The high demand for PRIDE workers has warranted the creation of a separate placement agency that matches inmate skills with the labor needs of its clients.

As a result, only about 16 percent of PRIDE's inmates over the past five years have returned to prison—compared to almost 40 percent for the rest of the prison population—and millions of dollars from PRIDE profits are paid to victims through a restitution fund, and to the state for incarceration costs.

Despite easing the financial burden of jailing criminals, programs like PRIDE have been a lightning rod for critics—labor unions and industry competitors, in particular—who claim prison industries have an unfair advantage because of low labor costs.

Tim Graves, a Marietta, Ga., businessman, said his 18-year-old company was driven out of business in 1998 when a federal prison industry won over a bid to produce missile-shipping containers.

"It's hard for me to accept that the government would put the welfare and benefit of convicted felons above the interests of its taxpayers," Graves said.

But with the nation's prison population exceeding 1.5 million and tax dollars being siphoned for more space to warehouse repeat offenders, there is pressure to include a greater number of inmates in these programs, and to expand into new markets where the competition is often uninvited.

Harrell says PRIDE "will not enter into a relationship with a company if there's a displacement of workers.

"We're very sensitive to that. But you've got to understand that we're an aggressive not-for-profit entity. We have an available labor supply—in an economy that is starving for labor—and we have a broad infrastructure and capability. Those are our core competencies. We will target companies that can outsource some of the more labor-intensive, repetitive portions of the manufacturing process to us, so they can put their people on more value-added things."

Sen. Daniel Webster, EE '71, a former speaker of the Florida House and chairman of the state's governmental oversight and productivity committee, has studied the effectiveness of programs like PRIDE.

"In juvenile justice we have so many programs that absolutely do not work, yet we spend millions on them," Webster says. "PRIDE is working, and we're not even paying for it. I would be willing to do it even if we had to pay for it.

"The benefit to the public is awesome because those people are not going back to the correctional facility, or causing more havoc—whether it's murder, rape, burglary, destroying property. Those things cost the private sector lots of money. If you look at the recidivism statistics—even over an extended period of time—those prisoners in PRIDE usually don't come back. They have a skill that is marketable, and their supervisors know what they can do. We have employers who are signed up to hire them."

Michael DePriest, an inmate in Florida's Polk Correctional Facility, is waiting for his PRIDE training to pay dividends. While serving the final 13 months of a 12-year stretch for accessory to robbery and kidnapping, the father of two teenage children holds down an 8-to-5 job as a customer service representative.

"I was kind of worried about my work and social skills when I first came up here because I had been incarcerated for 11 years," DePriest says. "They told me I was going to have to get on the phones. I said, 'On the phones? Nobody mentioned anything about being on the phones. Who do I talk to? Customers. Customers?'

"I use my work experience in my personal life with conflicts that come up. Dealing with customers is like dealing with life. There's always something that's going to get you upset. If someone says, 'I don't want to hire an inmate' or 'You don't know what you're talking about,' you can handle that situation because you've had to deal with it here. With a lot of jobs on the compound, they just hand you a broom or a rake and tell you, 'This is your area. Just be there all day.'"

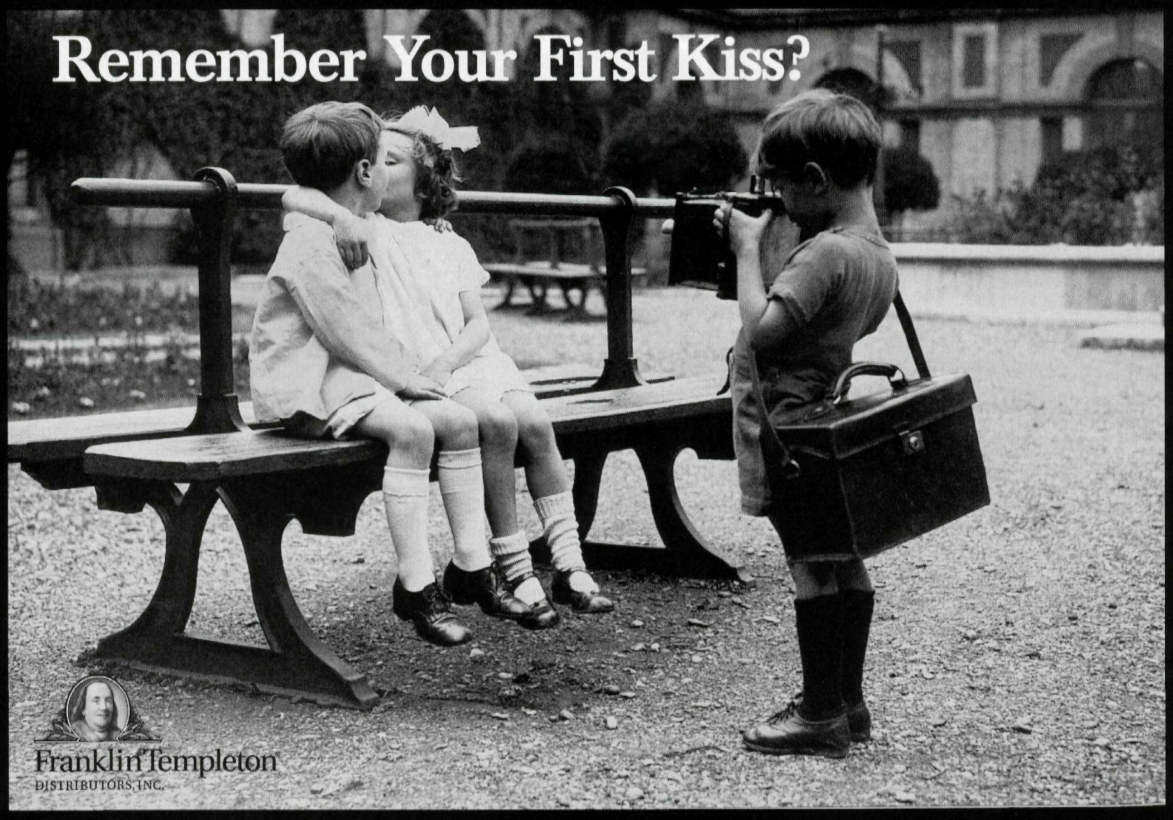
By federal law, states can keep up to 80 percent of an inmate's pay. Florida keeps 60 percent–40 percent goes to offset the cost of incarceration, another 15 percent is earmarked for victims' compensation.

Though his expendable income is limited after the required payments have been deducted, DePriest appreciates the freedom of not having to lean on family members for help.

"I've done that most of my life," DePriest says. "I hate to hit them up for anything—even stamps. My daughter sends me stamps when she writes."

When he leaves Polk Correctional behind, he plans to become another PRIDE success story—and make it stick.

"I believe in all my heart I'm not coming back," he says. "I know that when I get out there, it's going to be one day at a time, one goal at a time. I'm not in a rush. My first goal is to be self-supporting. And I've got to get to know my kids again; they're practically grown up." **GT**



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ne Light

an a half-mile inland • By Karen Hill Photography by Mike Booher

The 2,900-foot-long move corridor awaits the lighthouse's transfer to the new site, about two feet higher than the old.

After six months in the dark, the beacon of North Carolina's historic Cape Hatteras Lighthouse blazed again this fall, warning ships of a treacherous coast—and signaling its own escape from a watery grave.

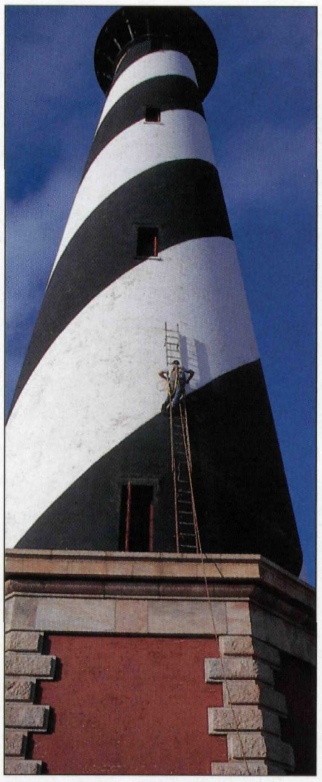
In July, engineers finished moving the 129-year-old, almost 5,000-ton lighthouse more than a half-mile inland from where the surf on North Carolina's Outer Banks had been pounding it into the ocean. It wasn't until October, though, that Randy Knott could relax completely.

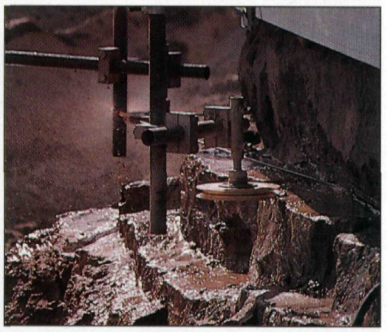
That's when the 208-foot brick lighthouse, the world's tallest, was securely mounted onto its new foundation.

"We had planned the move in such detail that when executed, it went just like clockwork," says Knott, CE '69. "There were never any conditions that were completely unexpected." Knott, chief engineer for Law Engineering and Environmental Services, a LawGibb Group member in Atlanta, was a project manager on the team of seven companies that moved the black-and-white, barber-pole-striped lighthouse this past summer.

Law, the lead engineering consultant for the project, helped plan the move and provided quality-assurance checks for the other companies—engineers, surveyors and movers—who actually relocated the lighthouse and its outbuildings (two keepers' houses, an oil house and three water cisterns) to

The move corridor was graded, graveled and compacted over a 700-foot section so movers could reuse the gravel to make a smooth, stable surface for the steel mats that held the moving rails. RIGHT, Clockwise: Workers install electrical monitoring devices outside and inside. A cable saw cuts through the original granite foundation. Then workers chisel and blast out the granite base below.

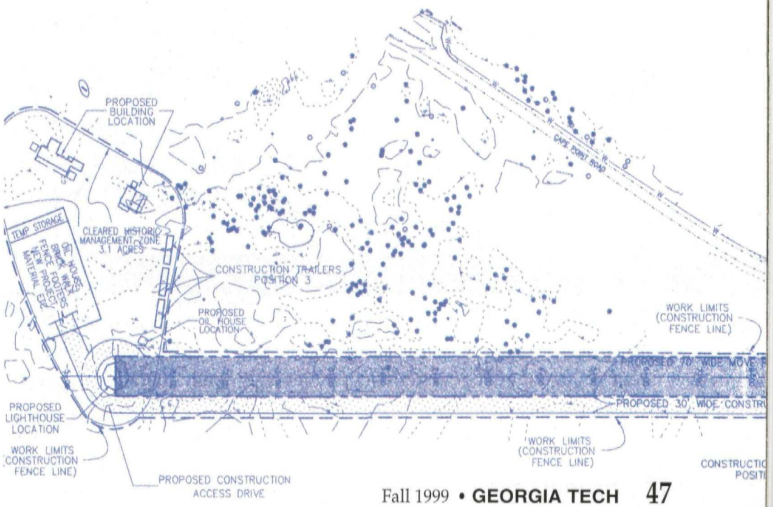


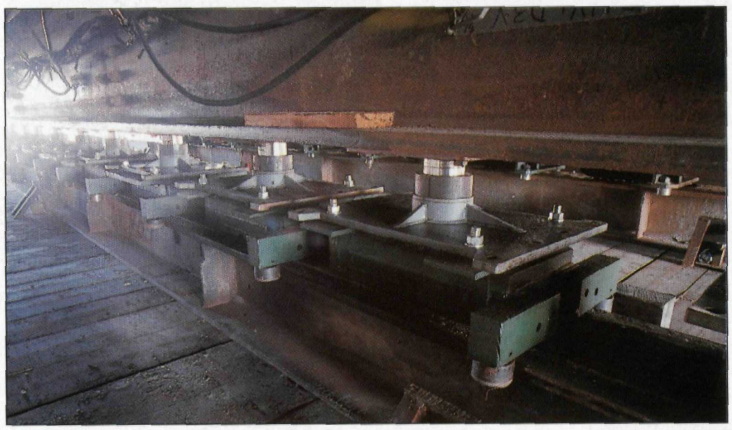


their new home on slightly higher ground.

When it was built in 1870, the lighthouse was 1,600 feet from the ocean. But by this summer, the surf had eaten away all but 120 feet of sand. Knott and the team moved the lighthouse 2,900 feet to the southwest, but because of curves in the coastline, it's once again 1,600 feet from the surf.

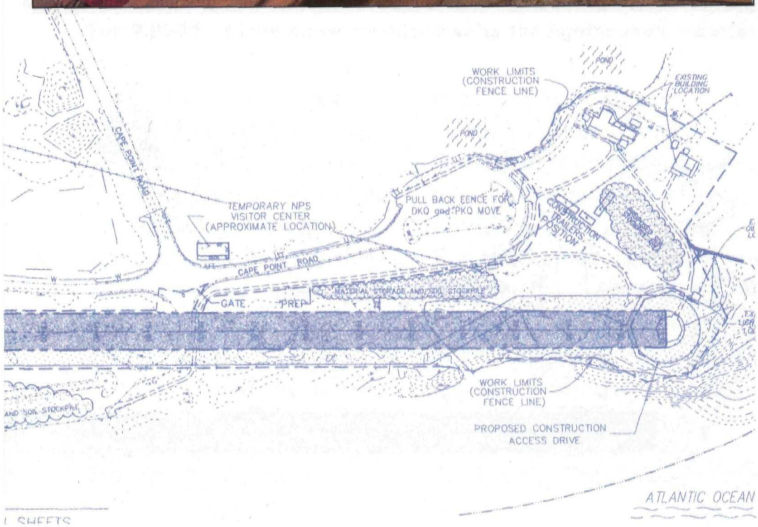
Without the move, Knott says, the lighthouse was 10 to 20 years from toppling into the ocean—sooner if a hurricane came along and eroded its foundation. This lighthouse is actually the second on Cape Hatteras. It replaced one built in 1803, which was damaged in the Civil War and later lost to the ocean. The lighthouses helped pilots navigate Dia-





LEFT, Top: Workers install rollers on the track steel beam. Middle: On the rollers and above each set of guide rails, hydraulic jacks—like upside-down car jacks—were mounted on the rollers. Bottom: A worker smears Ivory soap to the rail track so the rollers will roll easier. Soap is a good and enviromentally safe lubricant.

Looking down: The steel mat and seven steel tracks coming out.



mond Shoals, where hundreds of ships were wrecked over the last three centuries. The shoals are why the Outer Banks earned the ghoulish nickname, "Graveyard of the Atlantic."

The lighthouse still is not safe from erosion—but it should be about 100 years before the surf gets too close again, Knott explains.

The only other way to save the lighthouse, he adds, would have been to "build Fort Knox around it, eventually letting it become an island, but that would have been more costly in the long run."

Besides, North Carolina law forbids the construction of sea walls to protect the shoreline.

Workers began moving the lighthouse on June 17; it

The 70-foot-long guide rails are laid on 190-foot-long steel mats, which lie on a 700-foot-long section of compacted gravel.

came to rest above its new, reinforced concrete foundation on July 9, slightly ahead of schedule. Work continued in September to fill the new foundation with some 144,000 high-strength bricks.

The National Park Service celebrated the $9.8 million move by relighting the lighthouse's beacon in late September, after Hurricane Dennis forced the original Labor Day-weekend date to be postponed. It had been extinguished March 1, in anticipation of the move.

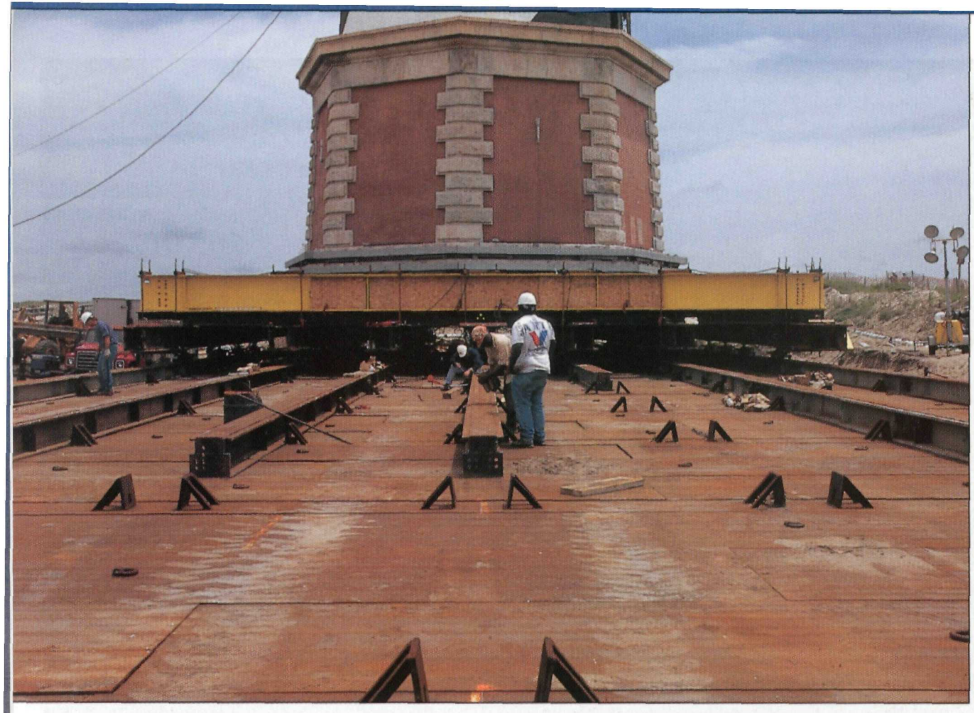
The park service owns and cares for the lighthouse, which draws about 250,000 visitors a year. The Coast Guard maintains the light, which can be seen 20 to 30 miles away.

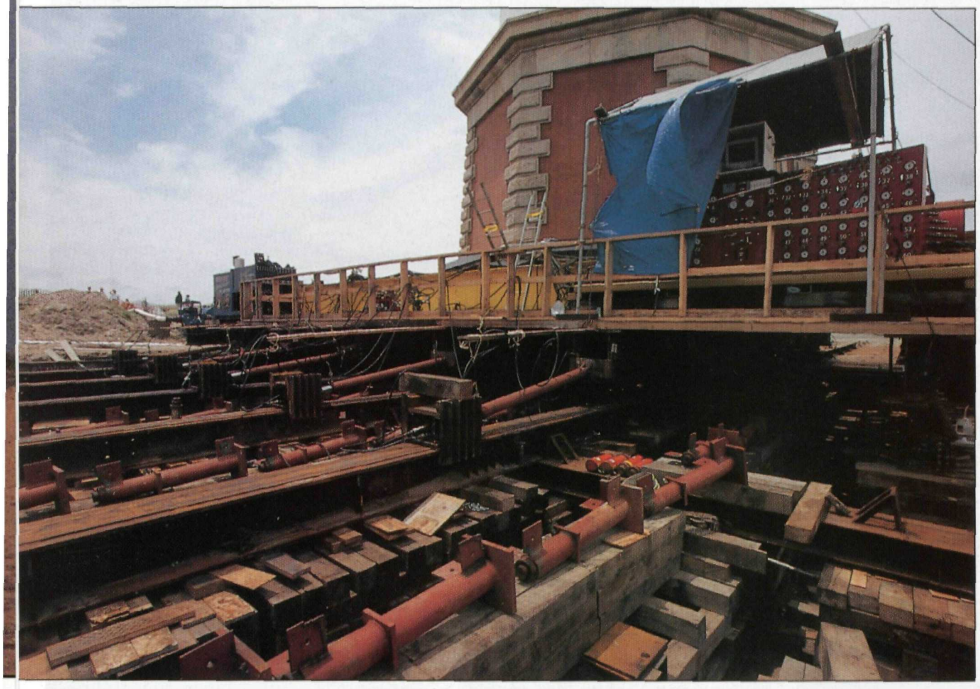
The new location will be open to visitors by next Memorial Day. It will take that long to build parking lots, restrooms and other amenities at the new site.

Knott first got involved in the Cape Hatteras project in the early 1990s, when the park service hired consulting engineers to prepare plans and specifications for relocating the lighthouse. But design work stopped when Congress failed to appropriate money for the project.

In 1997, the park service tried the project again. Knott was involved in writing both the proposal presenting the team qualifications and the technical proposal describing the design/build team.

In June 1998, the team landed the design phase of the project, winning out over five other teams, but had to wait until October to know if





LEFT, Top: Workers slide guide rails into the V-shaped guides on the steel mats.
Middle: Five huge jacks push the lighthouse along the steel-rail tracks toward the new site. Below the canopy, a hydraulic control system for the jacks below the lighthouse constantly monitors level and balance, keeping the 200-foot-tall lighthouse vertical.
Bottom: Workers prepare the new foundation, with the lighthouse still at its old site in the distance.
RIGHT: Underway, the lighthouse moves along the corridor toward the new site. The push jacks are on the left as the lighthouse moves toward the right.

Photo by Tommy Thompson

The lighthouse moves along its roadbed of compacted gravel. "Putting the mats down was like laying tiles on a bathroom floor," says Randy Knott. Workers moved gravel, then mats, then guide rails as the lighthouse eased toward its new site nearly 3,000 feet inland. LEFT: Bob Reynolds (*left*), superintendent of the Cape Hatteras National Seashore, senior on-site technician Brett Yoho and Randy Knott (*right*) plot the lighthouse's progress along the corridor.

Congress would approve the construction money. It did. "We were jubilant," Knott says. "We felt so confident we could do it."

Engineers devised a sophisticated hydraulic system to power the lighthouse along rails—which movers kept slick with soap.

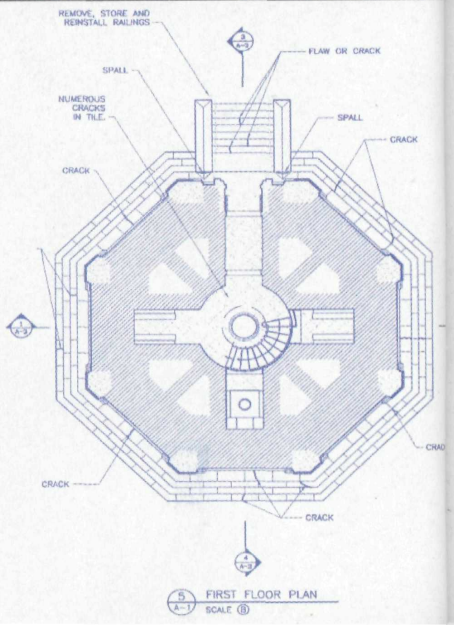
The lighthouse basically floated on 100 rollers along seven rails, pushed by five hydraulic jacks. Each roller was attached to a 100-ton hydraulic jack so the structure could be tilted and aligned to remain perfectly vertical.

"Basically, as it went over the terrain, it could move like a tricycle," Knott says. The rails moved along steel mats set atop gravel. Guides on the mats kept the rails aligned.

When the lighthouse had moved over a section of land, workers picked up the gravel, steel mats and rails and moved them to the front of the lighthouse.

"We were not going to consume a lot or waste a lot," Knott says.

"Recycling our construction material is, I think, part of the reason



we got the job."

Knott specializes in geotechnical engineering, involving the analysis of the ground near and under a project. A particular problem on Cape Hatteras, he said, was that the ground settled as the ponderous lighthouse moved across it. "We had to know when it would settle and how much it would settle," Knott says. "We didn't want to waste time or get aggravated because we were bogged down."

Months of work smoothing and preparing a path, combined with the stabilizing presence of the steel mats and gravel, worked well, Knott says; ground conditions didn't slow the project once.

The lighthouse moved an average of 130 feet a day, nearly double what had been anticipated.

If the lighthouse had slipped more than half a degree from its vertical alignment, sensors would have automatically alerted four project leaders, located in various parts of the country, instantly by phone. It never slipped.

That's not to say there weren't problems. Some of the hydraulic jacks leaked. More than once lightning knocked out the electrical instrumentation. But in all cases, back-up systems were ready to take over.

The biggest problem turned out to be an unexpected one.

"The one thing that turned out to be more difficult than we had planned

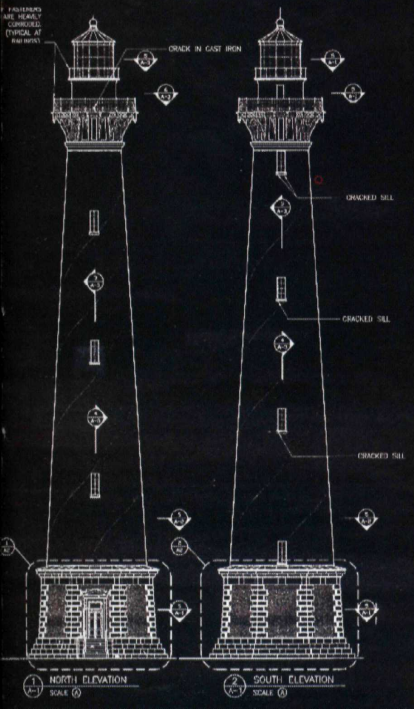
was removing the granite blocks in the old foundation" before the lighthouse could be lifted off it, Knott says. "We had to mine them out, like a hard-rock tunneling job."

That put the move's start date behind schedule, but the team more than made up the difference in the actual move time. Knott had expected the move to take up to six weeks; it took three.

"There were some people who had planned vacations around coming to see the lighthouse moving, and they missed it," he says. "The people selling T-shirts—you know, 'I saw the lighthouse move'—had lots left over."

Knott didn't worry about toppling the famous landmark because he had already imagined—and decided how to fix—worst-case scenarios in the planning stage. Failure, he says, simply wasn't an option, not "when you do something with as much scrutiny as the park service provided, when local residents showed such concern and when there's so much national and international publicity. Everybody was watching."

Four other Georgia Tech graduates, now LAW engineers, helped move the lighthouse: Victor Doritis, MS EE '88, electrical engineering; Alfredo Osuna, MS CE '95, design/construction management schedules; David Pauls, CE '63, MS CE '66, contract-and-scope reviews; and Patrick Sparks, MS AE '83, structural engineering reviews.



Even though this is the first time he's moved one, Knott has long had an interest in preserving historic structures such as old state capitol buildings. He's worked at Fort Sumter and other structures in Charleston, S.C. and Savannah, Ga. He's worked at Fort McAllister near Savannah. He conducted the first geotechnical investigation, in 1988-1989, of the ground under and around the old Spanish fort at Saint Augustine, Fla., built four centuries ago.

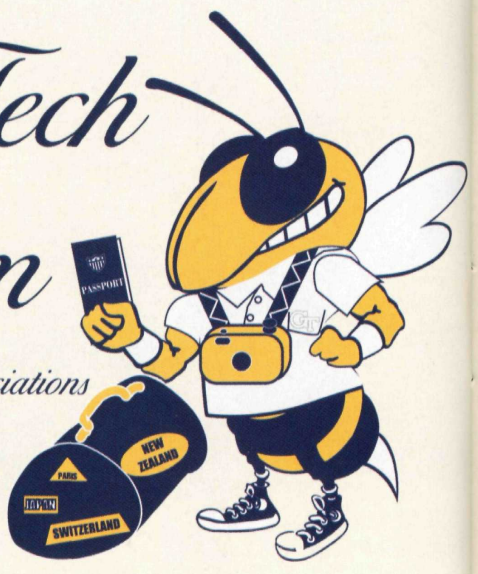
Most recently, he's worked in Panama City, Panama, where the government is preserving and restoring the original 20-acre city built in 1517.

"It lasted until 1571, when Morgan the Pirate burned it and everyone moved five miles west," Knott says.

And Knott says he's ready, whenever the next call might come, to move another lighthouse. *Lighthouse Digest* magazine, he notes, has a list of lighthouses it considers endangered all over the world. **GT**

Karen Hill is an Atlanta freelance writer.

Presenting the 2000 Georgia Tech Travel Program



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Our most popular trip last year, the Alumni College in Tuscany is back! The walled Etruscan town of Cortona is the base for this education and sightseeing experience. You'll have the opportunity to interact with local residents and attend presentations on Tuscan history, Renaissance art, contemporary Italian politics, and the region's famous cuisine. You'll also enjoy excursions to Montepulciano, Perugia, Assisi, Siena and Florence. An optional trip extension in Rome is also offered. Accommodating just 47 guests, this trip will be an exclusive Georgia Tech departure and is expected to sell out quickly! (Alumni Holidays)

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Alumni College in Provence
July 4-12, 2000
$2,395 per person from Atlanta

Walk in the footsteps of Cezanne as you explore this region which has inspired artists the world over. Your "campus" for this program is the charming town of Aix-en-Provence, founded by the Romans in 122 B.C. and home to Paul Cezanne and Emile Zola.

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Our Escapade programs have a loosely structured itinerary, offering ample opportunities for individual sightseeing. Your home for seven wonderful nights in St. Moritz is the historic, five-star Kulm Hotel, set in its own private park overlooking a lake and the majestic Engadine Mountains. Several optional excursions are offered, including visits to Pontresina, Lugano, Innsbruck, and a ride on the spectacular Bernina Express train through the 7,400-foot Bernina Pass. You can also take advantage of St. Moritz's world-class shopping and outdoor activities including golf, tennis, bicycling, sailing and alpine walking. (Alumni Holidays)

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Alumni College in Kinsale
October 1-9, 2000
Approximately $2,395 per person from Atlanta

Colorful, tall slated houses, winding cobbled streets, fishing boats bobbing in the gentle surf… Kinsale is the quintessential quaint Irish seaside village. Set in southwest County Cork and built on the slopes of Compass Hill, Kinsale is Ireland's gourmet capital. You'll learn all about this rich culinary tradition and enjoy educational presentations on Irish history, county Cork's lovely gardens, Ireland's castles and gardens, and other topics. Excursions to Charles Fort, Cork City, Blarney Castle, and the Ring of Kerry will further enhance your understanding of this storied region. Limited to just 47 guests, this departure will be exclusive to Georgia Tech. (Alumni Holidays)

Paris Escapade
November 2-9, 2000
Approximately $2,095 per person from Atlanta

Ernest Hemingway once described Paris as a "moveable feast", and we think you'll agree after you've spent a magical week in the "City of Light". Your home for this Escapade is Le Grand Hotel Inter-Continental, ideally located on Place de l'Opera and convenient to Paris's key sights. Our program includes ample time for independent exploration, so be sure to visit the incomparable Louvre, marvel at the soaring Eiffel Tower, and stroll along the elegant Champs-Elysees. In addition to sightseeing on your own, you may choose to take advantage of optional excursions to the Marais District, Notre Dame Cathedral, Versailles, and the Champagne Country, just to name a few of the surrounding area's special attractions. (Alumni Holidays)

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GO JACKETS!

Tending to **Business**

Steve Mitchell's no entrepreneur, but he knows how to make a business make money

By John Dunn

Photography by Caroline Joe

"People accuse me of being an entrepreneur, but I'm not at all. I'm a nuts-and-bolts **manager.** I'm very detail-oriented and very organized."

If you're tooling recklessly about town sporting one of those "How's My Driving?™" decals on your vehicle, you can bet that Steve Mitchell knows the answer. Mitchell's the guy at the other end of the 1-800 number, and bad drivers set his phone ringing.

Stephen M. Mitchell, who earned a bachelor's degree in industrial engineering from Georgia Tech in 1965 and a master's in 1966, runs the Atlanta corporation that the company DriverCheck helps drive.

Mitchell is chief executive officer of Sertec Corp., which stands for service technology corp., an organization of companies targeting driver safety, customer service, insurance claims reporting and, most recently, finding employees for such organizations as McDonald's. Their common characteristic is that all are telephone-based companies operating 24 hours a day, seven days a week, with online data entry and electronic transmission.

And like many of the 15 companies Mitchell has owned or operated during the past 30 years, Sertec wasn't a moneymaker until he began running it. The company that asked *How's My Driving?* was running on empty in 1995, when Mitchell teamed up with entrepreneur George Zimmerman, Sertec's founder.

In a culture that reveres entrepreneurs, Mitchell professes not to be one. "People accuse me of being an entrepreneur, but I'm not at all. I'm a nuts-and-bolts manager."

Entrepreneurs are inspired free-thinkers, usually with a flair for sales, but not for details, Mitchell states. "I'm the opposite of that. I'm very detail-oriented and very organized."

While entrepreneurs may have the genius to start a company, he says, running the company often bewilders them.

"The entrepreneur goes as far as he knows to go—or runs out of money—and that's where I come in," Mitchell says. "I'll buy into a company, using my own money, and I manage the company. That's what I know how to do."

Although Sertec wasn't making money, Mitchell was impressed with its fast growth and sound concepts. All of its companies had potential: DriverCheck operates in conjunction with the National Safety Council and is sponsored by 45 insurance companies; ServiceCheck operates a customer-satisfaction hotline for more than 1,000 participating businesses, and Actec is an insurance claims-notification service for 150,000 companies nationwide. All operate all day, all year.

"It was a great idea with great concepts," Mitchell says. "But the execution was terrible; quality was terrible, and the turnover rate was out the roof. There were no performance or cost-accounting measures, so we didn't know what the costs were."

In the first month after Mitchell took over as CEO, Sertec began operating in the black and continued to have 13 record months in a row. During the four years since he took over the organization, it has tripled in size.

Although Mitchell has been called a turnaround specialist, he says his philosophy and methods are very different. "The classic turnaround specialists, as I understand it, come in, put in their own team and try to straighten things out," Mitchell says. "Typically, that's a hired manager who doesn't own the business.

"I have found that when you go into a business, there are generally good people there," Mitchell says. "I very rarely have changed a manager."

Mitchell interviewed every manager at Sertec before deciding to buy into the organization. "That is probably the best single group of managers I have ever been associated with," he says. "Only one manager left, and that was to make a career change."

Working with the same management team, Sertec began operating in the black.

"I'm a manager who manages by evolution, not

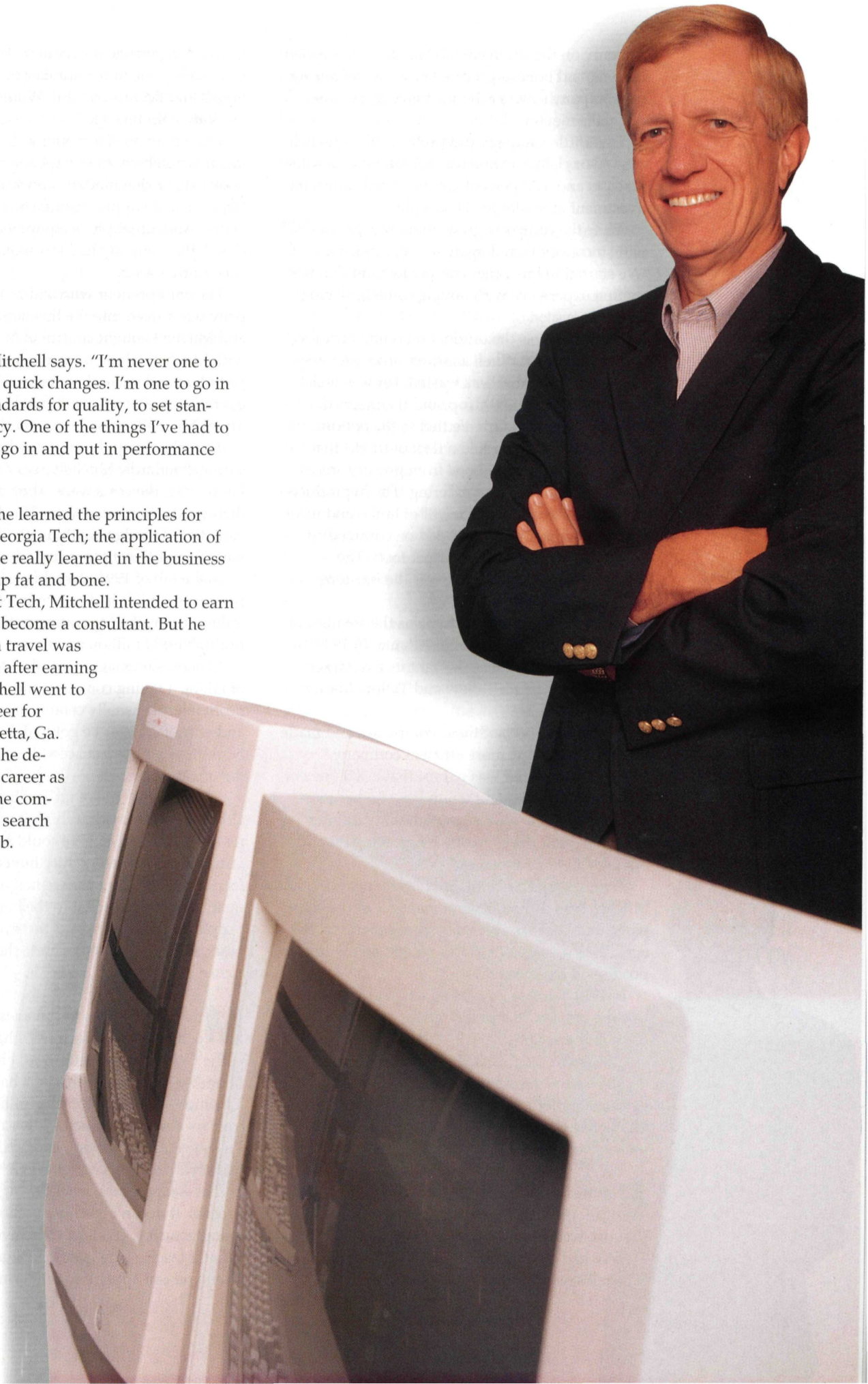
by revolution," Mitchell says. "I'm never one to rush in and make quick changes. I'm one to go in and try to set standards for quality, to set standards for efficiency. One of the things I've had to do everywhere is go in and put in performance measures."

Mitchell says he learned the principles for success at Georgia Tech; the application of those principles he really learned in the business of processing scrap fat and bone.

As a student at Tech, Mitchell intended to earn his doctorate and become a consultant. But he decided too much travel was involved. In 1967, after earning his master's, Mitchell went to work as an engineer for Lockheed in Marietta, Ga. Three years later, he decided to pursue a career as a manager, quit the company and went in search of a managerial job.

Snapper lawnmower in McDonough, Ga., hired Mitchell as assistant plant manager, and he quickly became manager of material control, in charge of purchasing and inventory control.

In 1973, Mitchell left Snapper to become manager of Atlanta Processing, a small



"The real, underlying **base skills** that you learn, you learn at **Georgia Tech**. What Tech teaches you isn't a specific process. It teaches you **how to analyze** a process. Then you can apply it to what you do."

company on the southside of Atlanta that recycled scrap fat and bone, a process known as rendering. The company's owner, Bernie Stevens, became Mitchell's mentor.

"That little company did pretty well," Mitchell says. "Our claim to fame was a 2,300 percent sales increase, and a 32 percent compounded return on investment annually for 11 straight years."

While the company grew internally, its dramatic increases were largely due to acquisitions. "We started to buy other companies, and that was my first experience with buying something else," Mitchell says.

Rendering was the original recycling business, Mitchell explains. When a farmer processed hogs, no part of the animal was wasted. Fat was boiled in a pot; lard rose to the top, and the pieces of meat— called cracklin'—settled to the bottom.

Atlanta Processing had a fleet of trucks that collected scrap fat and bone from grocery stores, butcher shops, etc., for rendering. The byproducts are tallow—the beef equivalent of lard—and meat and bone meal, formerly traded on commodity exchanges, and now used for pet food. The company's largest customer was the Ralston-Purina plant in Union City, Ga.

In 1973, Atlanta Processing was the smallest of three rendering companies in Atlanta. In 1979, the company simultaneously bought its two larger competitors, Atlanta Tallow and Tallow Masters of Georgia.

"We bought both of those companies and made the three one large, more efficient company," Mitchell says. "That was part of that 2,300 percent growth. We also bought a number of other recycling operations—small companies in outlying areas. We built the company by growing it and buying similar companies."

Two weeks after being hired as manager, Mitchell was named general manager of the company, and later vice president and general manager, then president. He also bought an ownership position in the company.

In 1983, Atlanta Processing Co. was sold to Darling and Co., the predominant rendering company in the nation.

"I wasn't particularly interested in selling, but if you're a businessman, there is such a thing as getting an offer that is too good to refuse," Mitchell says. He stayed on as general manager under Darling.

Eighteen months later, Mitchell was invited to walk the aisle in the business equivalent of a shotgun wedding.

"We had always banked with C&S Bank," Mitchell says. "They came to us and said, 'We've got a failing business over here. We know you guys have gone into a number of failing businesses and been successful. Would you consider working with this one?' "

That company, Norcom Inc. in Atlanta, manufactures notebook filler paper, spiral-bound notebooks, three-ring binders, and was one of the larger school-supply manufacturers in the United States. And although its equipment was "world-class," the company had lost money for three consecutive years.

The entrepreneur who had founded the company was forced into the business deal. Stevens and Mitchell bought control of Norcom in 1985, with Mitchell taking over management as vice president and general manager. The company was operating at a seven-digit loss. In the first year under Mitchell, it made a seven-digit profit.

The school-supply company had lacked measuring standards, Mitchell says. "They didn't know what the costs were. They didn't know what their production rates were. They didn't have any yardsticks to judge anything against. We started measuring for every product we made."

In the fall of 1994, the school supply company was sold. It had grown from an $18 million enterprise, operating in the red, to a profitable $30 million business.

"There is no magic formula," Mitchell says of taking a failing company and making it profitable. "It usually centers around quality and efficiency. You've got to deliver quality. Nothing is going to succeed if you can't make the quality right.

"That's even true of fat and bone meal, although you wouldn't think it would apply to rendering," he says. "We could sell to Ralston Purina—the highest quality buyer in the pet food industry—because we had absolute top quality. We could sell it to the best people, and people paid the best price. So if you make the best quality, you also generate the most money."

Mitchell attributes his business acumen to a combination of factors. "I had the benefit of the Georgia Tech education; I had the benefit of on-the-job experience, and I had the benefit of a mentor—Bernie Stevens, a brilliant and extremely able businessman," he says.

"The real, underlying base skills that you learn, you learn at Georgia Tech," Mitchell says. "What Georgia Tech teaches you isn't a specific process. It doesn't teach you school-supply manufacturing. It doesn't teach you rendering. What it teaches you is how to analyze a process. Then you can apply it to rendering, or you can

apply It to school-supply manufacturing. Or you can apply it to what I do now."

Mitchell became CEO of Sertec in May 1995. In addition to the three companies operating at the time, the firm has launched a new product: HireLine—an automatic telephone job-application service that could launch a revolution in the way job applications are received.

"We actually developed it to hire people for ourselves," Mitchell says.

Instead of filling out a job application or preparing a résumé, a candidate handles the transaction over the telephone. Because using the phone is simple and convenient, it generates more applicants and more candidates.

"All someone has to do is pick up a phone and talk—anytime day or night," Mitchell says.

A brain-child of George Zimmerman, Sertec is running the automatic application service with a number of companies, including McDonald's Corp., which introduced it nationwide.

When McDonald's tested the HireLine system, a 6 percent increase in applications would have been considered outstanding, Mitchell says. The fast-food firm had a phenomenal 30 percent increase in applicants.

It is also a time saver, Mitchell says. "You can't interview anyone for a job in less than 15 or 20 minutes—three or four people an hour," Mitchell says. "The telephone is much faster; you can tailor the questions to eliminate unqualified candidates up front, which speeds up the screening process. If they have the basic qualifications, you listen to the rest of the interview."

The telephone industry is changing dramatically, Mitchell observes. It is an age dominated by information technology and management-information systems. A new computer system has been installed at Sertec to help manage about 1.5 million calls per year.

And yes, some of the calls are to report a reckless driver, using DriverCheck's 800 number posted on the back of an offending vehicle. DriverCheck takes the call, makes a report and then notifies the driver's employer.

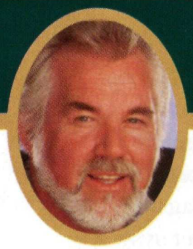
Companies want to know if their drivers are reckless, Mitchell says. Ten to 20 percent of all drivers account for 80 to 90 percent of all accidents, according to the "Pareto Principle." The company counsels with an offending driver; the concept behind the program is to prevent accidents.

Not all calls are negative.

"You'd be surprised," Mitchell says. "We also get calls that are complimentary of drivers out there with our 800 number on their vehicles."

The answer to the driving question could be "excellent." **GT**

ABSOLUTE AUCTION



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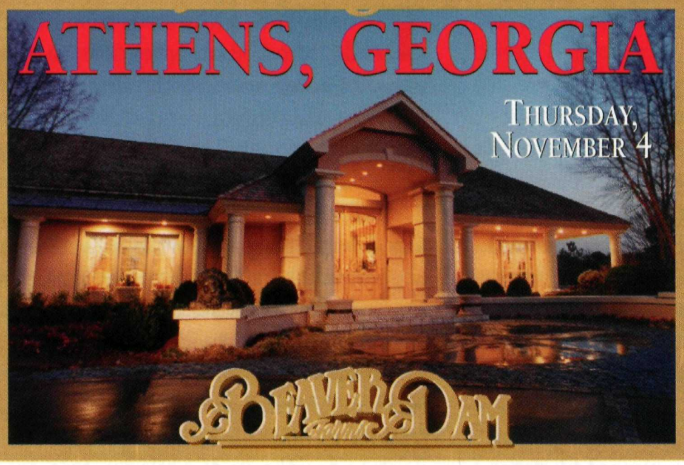

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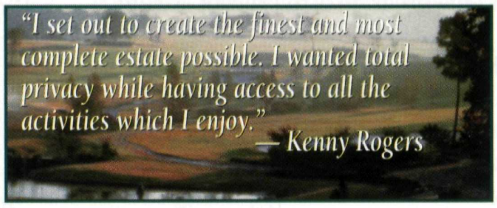

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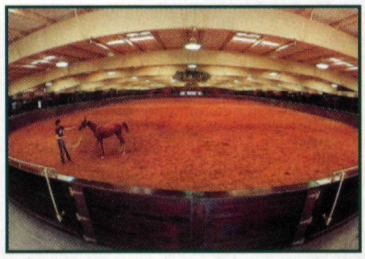

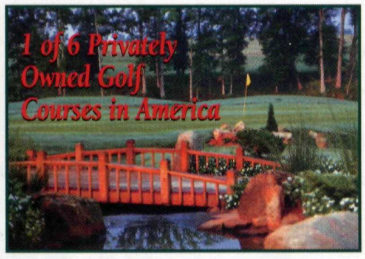

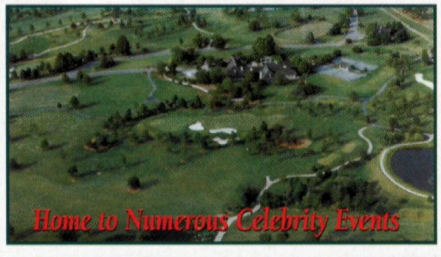

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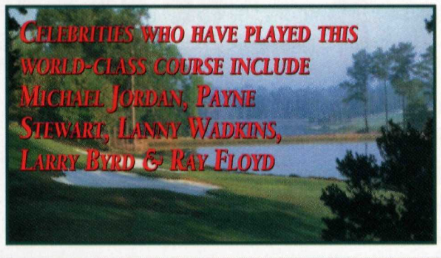

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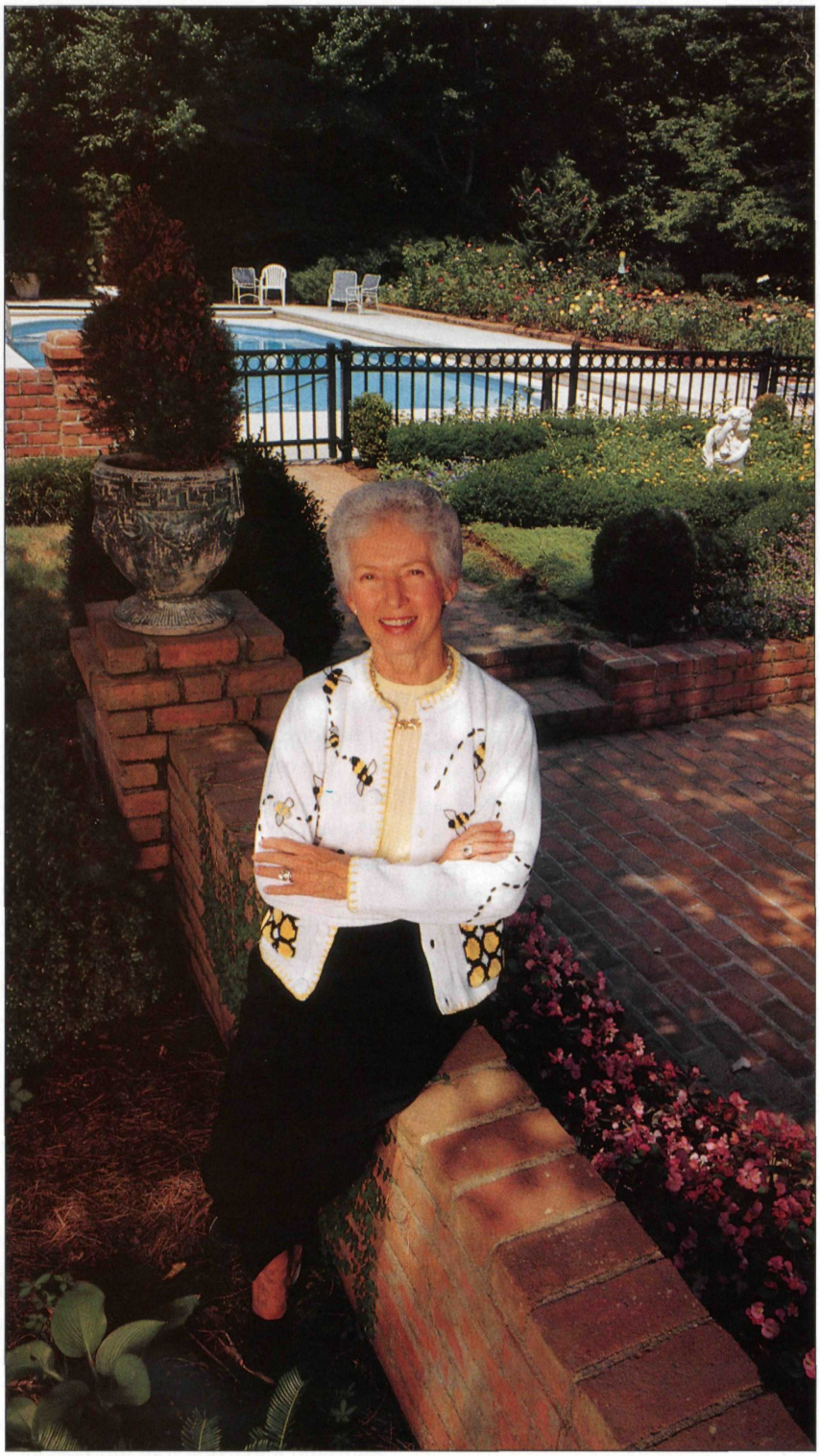
Family Matters

Printpack is a labor of loves for the chairwoman of the board

By Carol Carter

Caroline Joe



Gay Love's Printpack is one of the country's top 500 women-owned businesses.

Sitting in the lobby of Printpack's Atlanta headquarters is a small printing press, the company's first. Printpack has come a very long way since its inkwell ran dry.

Printpack now employs 4,000 people in 17 locations, including one in Mexico and two in England.

Overseeing the entire operation is Gay Love, chairwoman of the board. For the second year in a row, Love's position landed her and Printpack on *Working Woman* magazine's list of the top 500 women-owned businesses. Love stepped into her job after the untimely death in 1987 of J. Erskine Love Jr., ME '49, her husband and the company founder. He was 58 when he died.

"It was something I felt I needed to do to keep that coherency between Erskine's Printpack and post-Erskine Printpack. I made the decision very quickly. I wanted to be a part of this, knowing that it would still be run like it had been run," she says.

Though the decision was easy, the transition was difficult, she says, both for her and son Dennis—31 at the time of his father's death. As his mother took the chair's chair, Dennis took over as president.

Loves make a good portion of the Printpack world go round. In addition to Gay and Dennis, Jimmy Love is divisional vice president for national accounts, Keith is plant manager in Hendersonville, N.C., and Bill is director of sales and marketing for Printpack Europe. David works in sales, though he's taking time off to attend business school at Duke University, his mom's alma mater.

"Their Daddy used to say this company will never be big enough to

absorb all these boys," Love says. All but Dennis tried other jobs before joining Printpack. Daughter Carol Anne is the only offspring not working in the family business.

Erskine Love started Printpack in 1956 at age 27, his vision being to have a business of his own. Gay was a shareholder from the beginning in the company that manufactures film and prints it for everyday flexible packaging uses such as bread bags, candy wrappers and bottle labels. Frito-Lay is Printpack's largest customer, the relationship dating to the time when Frito and Lay were separate companies, with the Atlanta-based H.W. Lay Co. being a Printpack customer before the 1961 merger that created Frito-Lay. Hershey Foods Corp. is the second-biggest customer. Other notables are Nabisco, General Mills and The Coca-Cola Co.

Every product is custom-made for each customer, newer examples being a wrap for fresh vegetables that lets them breathe and a special wrapping for copy paper that shuts out light.

In the early days, labels were printed onto cellophane "because it was the only thing there was," Love says. "Now there's very little cellophane being used." In addition to Lay, early customers were Pennington Bean and Louisiana State (Mahatma) Rice.

"But we were mainly in the snack-foods business—potato chips, corn chips, pork rinds, cookies, crackers," she says. Printpack started in the basement of a Sandy Springs office building. The company's first employee, John Samples, stayed 38 years, until Erskine's death. "He couldn't stand it after Erskine died," Love says.

When she graduated from Duke, Love came to Atlanta in 1951. She stayed at Rich's a short time after marrying Erskine, then taught school briefly before they started their family.

"It was a different thing, joining the corporate world after Erskine died. I was the only one who really knew Printpack from the beginning, and Dennis was the only one of the children who had been in the business at that time," she says. "They had all worked here in the summertime, but he was the only one who had been formally associated with the business at that time."

She views her job as keeping a bridge between Printpack "as Printpack had always been" and the future. "We always thought of it as a family, and I try and keep that family feeling with our employees," she says. "I felt my role was to be a support for Dennis and all of the other children and to keep that historical perspective. That becomes more difficult as we acquire other companies that don't have that background.

"Five or six years ago, we started putting computerized learning centers in our plants because we discovered that some of our associates didn't have basic skills. As Printpack becomes more technologically advanced, it takes more education to do the kinds of basic work that's done here. The learning centers teach basic skills, and if people want to stay with it and don't have a high school diploma, they can get their GED," she says.

Gay attends service award dinners and visits plants, putting names with faces. "I try to give it a little bit more personal touch. That's what I see as my role." She also helps the company's foundation with decisions as to which organizations receive grants.

Already an honorary Tech alumna, Gay is serving as honorary chairwoman of Erskine's 50th Class Reunion during Homecoming.
Of the sports rivalry between ACC schools Tech and Duke, she recalls that before Erskine died, "Sometimes I was a little sorry when Duke won because I was a better loser than he was. He loved Tech." **GT**

Carol Carter is an Atlanta freelance writer.

High Flier

Hollis Harris has his head in the air and his feet on the ground

By Mark Clothier

After a career of running airlines, Hollis Harris found a challenge that brought him out of retirement. The opportunity to rebuild World Airways was just more tempting than the golf courses of Peachtree City.

Harris says he joined World Airways because he loves the industry, "but also to help the business and the people through and to save the jobs of as many people as possible. I've been in the business 51 years. To be able to get the company back to being profitable and producing jobs for people and increasing shareholder value, that gives me a lot of pleasure."

The former head of Delta Air Lines, Harris left that post in 1990 for a chance to run Continental Airlines in Houston. The move surprised many people since Harris had worked at Delta since 1954, while attending Georgia Tech. Next, Harris headed Continental for about a year, before leaving on 1991 to run Air Eagle Holdings, an aviation consulting firm. Not content, Harris then left the consulting business to work at Air Canada, an airline he ran from 1993 to 1996.

He left Air Canada to run CalJet Airline, based in Long Beach, California. From 1998 to May, 1999, Harris was back working as a consultant in Peachtree City, south of Atlanta, golfing and spending time with his wife, Joyce, three children and four grandchildren.

The retirement lasted about 14 months. Harris assumed the job of chairman and chief executive of struggling World Airways in May.

Harris has agreed to spend at least two-and-a-half years to pull the airline out of a nose-dive. In the meantime, he

Gary Meek

commutes weekly from his Georgia home to World Airways headquarters near Dulles Airport in Herndon, Virginia.

World Airways, which is publicly traded on the Nasdaq stock market under the symbol WLDA, lost $11 million on reported revenue of $271 million in 1998. That is down from a $11.5 million operating profit on reported revenue of $310 million.

Harris says World Airways, mainly a charter line, has suffered along with the Asian economy.

"Due to the financial situation in the Pacific the last two or three years, a lot of charter flying, especially on the passenger side, was depressed—and that hurt charter airlines like us," Harris says.

To help, Harris is trimming staff, but he is doing it by attrition. So far, the employee base has been reduced by 150. The company employs about 800 people. Also, for 16 months starting in September 1999, World Airways is cutting by 10 percent the salary of anyone making more than $25,000. In a filing with the Securities and Exchange Commission, World Airways says it plans to issue stock to make up for the pay cut.

World Airways started in 1948, with seven former Pan Am and British Overseas Airways Boeing 314 flying boats making charter flights between Puerto Rico and New York. Aided by military contracts, by 1960 World Airways had become the world's largest all-charter airline. A World Airways 727 loaded with 368 passengers, including 60 in the cargo hold and eight in the wheel wells, was the last refugee flight out of Da Nang in March 1975. Now, World Airways flights are based out of Washington's Dulles Airport and Seattle.

Harris graduated from Georgia Tech in 1961 with a degree in aeronautical engineering, honing a love of aircraft that began when as a boy in Carrollton, Ga., he would come to Atlanta to watch planes land and take off at the old Candler Field.

While attending Tech, Harris worked the ticket counter for Delta, in a Quonset hut look-alike of a building at the Atlanta airport. Harris would eventually rise to president of Delta in 1987, before stepping down in 1990 to run Continental.

Harris says his experience at Tech helped make him a decision-maker. "I think studying engineering at Georgia Tech gives you the background to be trained as a person who can focus on facts and manage the facts," Harris says. "I think engineering is good to train people to assess a situation and come to a conclusion and make decisions. Tech gave me the training to learn how to be a manager. I think some of the best managers and corporate managers in the United States come out of engineering backgrounds."

Harris sits on the board of directors of American Business Products. He is a past chairman of the Canada-Korea Business Council and a member of the Board of Governors of the International Air Transport Association. He also is a member of Georgia Tech's National Advisory Board and the National Advisory Council of the National Multiple Sclerosis Society. **GT**

Mark Clothier is an Atlanta freelance writer.

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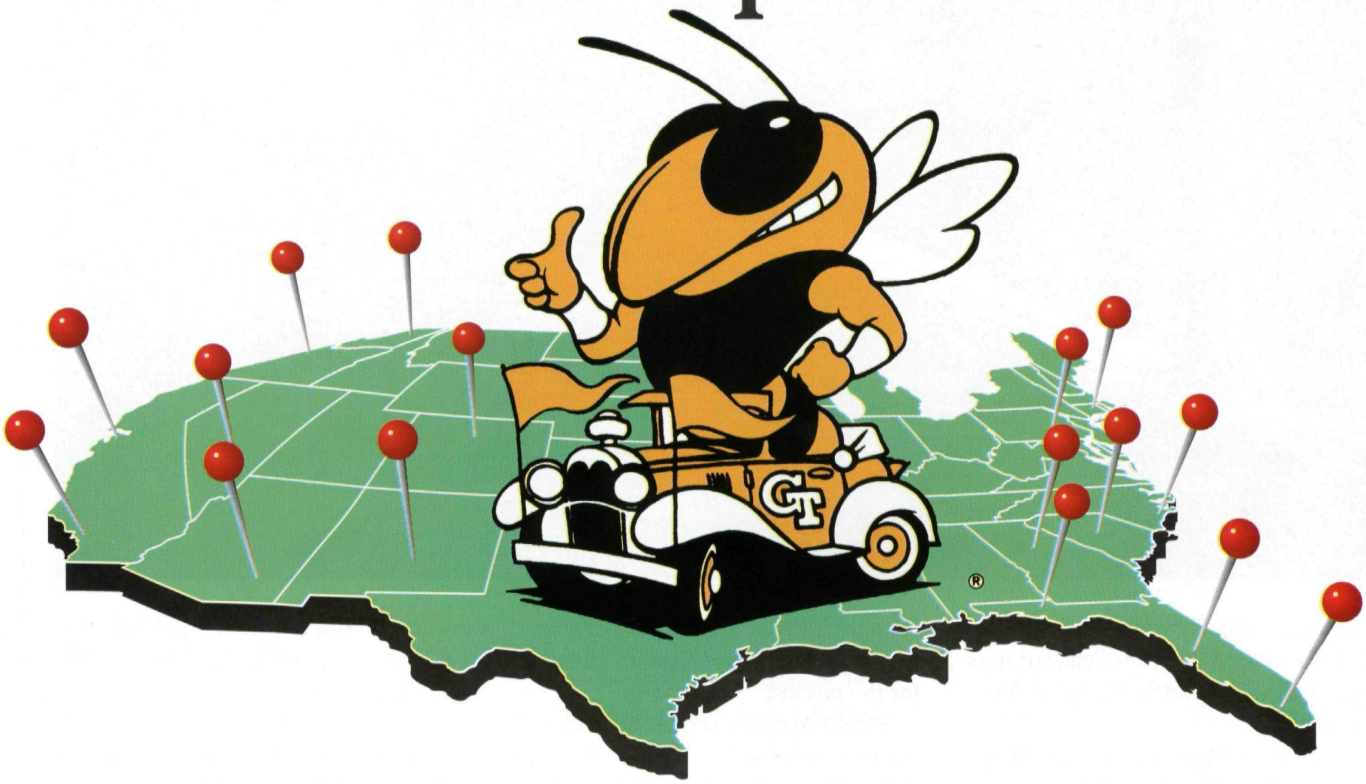

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Accommodating Culture

Andrea Arena found her business niche by responding to others' busy schedules

Phillip Spears

By Karen Hill

All Andrea Arena knew for sure when she graduated from Georgia Tech was that she wanted to own her own company. She also knew she had liked her part-time job working behind the desk at Atlanta's downtown Hyatt Regency Hotel.

Arena, Mgt 89, accepted a management training position with a bank, figuring it could only help to sharpen her

"The culture of our company is very autonomous, very creative, fast-paced."

financial skills while she decided what she really wanted to do. Then, in 1991, she gambled her $5,000 savings and set up shop as a personal concierge for individuals too busy to run errands for themselves.

A year later, she found an unfilled market niche for her business, 2 Places At 1 Time.

"I did market research to identify my target market, to see who has the greatest need," Arena says. "I realized it would be corporations whose employees travel extensively or have long hours. That's management consulting."

She approached Keith Hicks, human resources director for Andersen Consulting in Atlanta.

"I said, 'You need this.' He responded, 'I think we do.'"

Eight years later, Arena is president and owner of a company with 120 employees, working in 58 client offices throughout the United States and eight in Canada. Her employees will run any type of errand, as long as it's legal and moral, for employees of client companies and their significant others— "They figure, 'As long as you're helping my spouse, you're helping me,'" Arena explains.

They take shirts to dry cleaners, walk dogs, meet repairmen at people's homes, deliver cars to repair shops, make bank deposits, pick up prescriptions, buy and wrap gifts. One rushed chilled syringes of fertility drugs daily from a doctor's office to a busy executive trying to conceive.

Another fed live mice to a client's boa constrictor.

"Now, I would not feel real comfortable doing that, but he did, so ..." Arena says, laughing.

Typically, a client corporation pays a flat monthly fee to have a concierge on location. Employees who use the service then pay an hourly fee, with the money going back to their employer to offset the cost.

No corporate client has made an unreasonable request, she says. The only request she remembers ever turning down came from one of her individual clients, a woman suffering from manic-depression and schizophrenia who wanted Arena to buy her a gun.

The growth of Arena's company has come in a robust economy, with employers offering more and more generous perks to hang onto their workers. With unemployment hovering around 4 percent, it's much easier to give employees what they want than try to find new ones.

And what employees want most is time.

Arena estimates that about 95 percent of corporate employees who use her company's services are mid-level managers, often in dual-career families with young children, who just don't have the time to run their own errands. The other 5 percent?

"That's the small group of people who just don't have the inclination," she says.

It wouldn't be the same, she adds, if employers simply cut work hours so employees could run their own errands. Often, those who use her company's services travel frequently and for extended periods. They're just not home to run errands. In other cases, it makes no sense for someone who could bill $300 for an hour's work to spend that hour in the Jiffy-Lube waiting room.

Even if the economy takes a downturn, Arena believes her company will survive.

"We are still a fairly new offering among employee benefits, but the reaction has been so overwhelming that it's rapidly becoming commonplace. I think concierge service will become as commonplace as a retirement plan," she says. "I haven't met a company out there whose employees don't need more time."

Arena spends most of her time visiting potential clients, most of them national companies, and negotiating contracts. When she wins a new account, five "implementation specialists" swoop in her wake, hiring people to work as on-site concierges, who coordinate requests for help, and runners, those who actually run the errands.

Each concierge hired by 2 Places at 1 Time is from the same geographic area as the office in which he or she will work. About half are women; most are in their late 20s, although ages range from 22 to 58. Most have attended college; all have experience in customer service—but not necessarily as a hotel concierge.

Arena says her company is still too small for her to offer unusual perks to its own employees, but most stay for the excitement of building a new business from the ground up and for the interesting work.

"Every day they get to do something different, face a new challenge," she says. "The culture of our company is one that you either buy into early on or you just don't. It's work that is very autonomous, very creative, fast-paced."

But Arena's own work can come to a screeching halt when she's out of milk. Or needs new car tags.

"Yes, I run my own errands. You know, the cobbler's children have no shoes." **GT**

Karen Hill is a freelance writer in Atlanta.

▲

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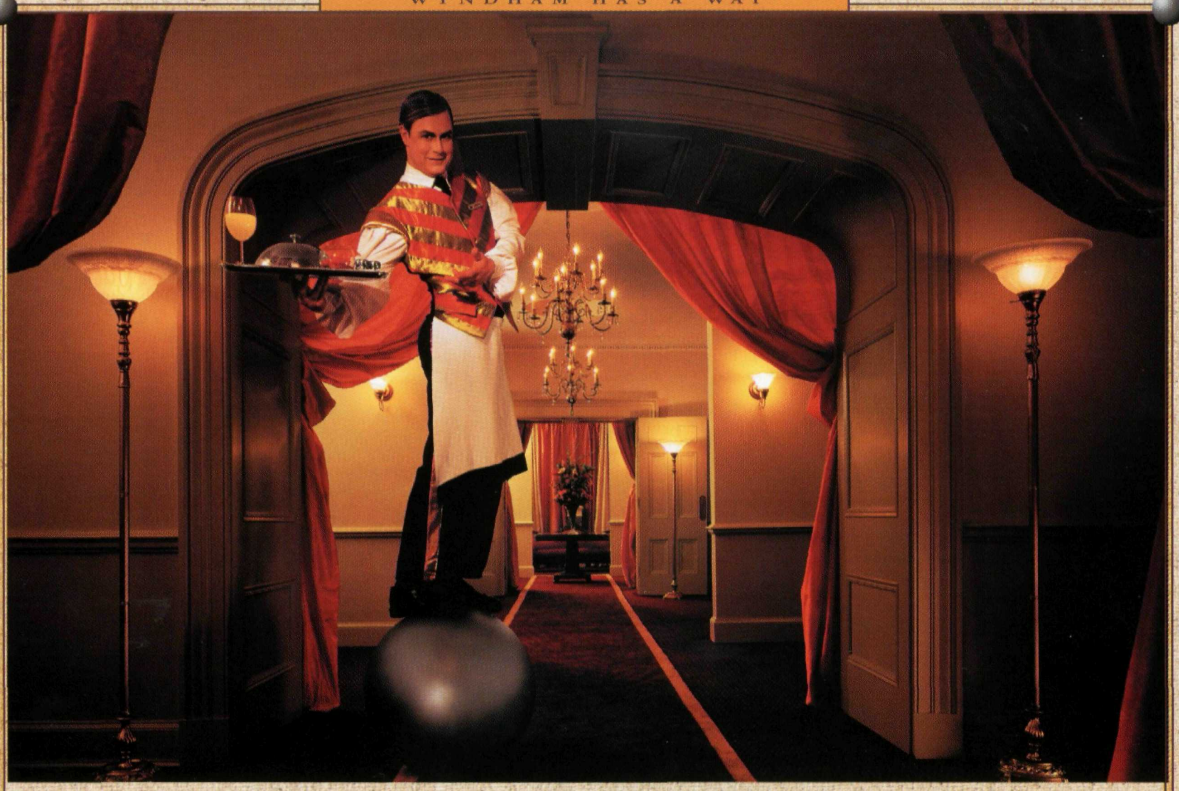

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Over Bite

Keith Beaty's company nips the international dental-implants market

By Russ Moore

Most successful entrepreneurs can point to a moment of truth, a turning point, a "wake-up call." For Keith Beaty, it came nearly 30 years ago when the Georgia Tech sophomore was called down by the assistant dean of engineering.

"He said, 'Son, your GPA's not looking too good. You need to leave and decide if you want to be a student here or not,'" recalls Beaty, now chief executive officer of 3i in Palm Beach Gardens, Fla., the world's largest privately held manufacturer and marketer of dental-implant components.

"So I went to Southern Tech one quarter and made all A's. It taught me the level of competence at Tech, of both the students and the faculty. I was from Moultrie, a small town in south Georgia, and wasn't academically prepared when I got to Tech. That talk with the dean and the quarter at Southern were real wake-up calls."

Beaty returned to Tech and earned his civil engineering degree in 1972, then he and his wife moved to Tallahassee, where he was an engineer with the Florida Department of Transportation. During the Arab oil embargo, an enterprising Beaty was tapped as a liaison on energy issues for the governor's office. Soon he was working with a legislative study commission. "I was writing legislation and consulting on engineering and policy matters with some of the most prominent people in the state."

He was 23.

After a brief stint with the Florida Solar Energy Commission at Cape Canaveral, Beaty and his wife moved to her hometown of West Palm Beach. "I went there without a plan," he says. His father-in-law owned Latham Manufacturing, which made a high performance, axial-flow supercharger, a precision racing part which made the cover of *Motor Trend*. Beaty joined the firm and began a new career in manufacturing and design.

"It's not something civil engineers typically do," he admits. Like many of his fellow alumni, though, his Tech experience gave him the drive to learn and excel at a new discipline in a short time.

In 1986, Beaty met his current business partner while they were both waiting for their daughters to compete in a swim meet. Richard Lazzara, a dentist, had an idea for a dental prosthetic that would be a great improvement over the Swedish-made market leader. Beaty brought design and manufacturing know-how to the equation, and soon the two were in business. They named their new company 3i for Innovative Implants Inc.

"From the very start, making quality products was a priority," Beaty says. Listening to his customers was important, too, and with suggestions from dentists and dental clinicians, 3i was soon turning out several products.

"I'd do the designs,

Keith Beaty cooked up a winner designing innovative dental implants. It is now one of the fastest growing technology companies in Florida.

Beaty turned a "bootstrap operation" into an international company with 2,700 products

and we'd make the products in the corner of the Latham machine shop. Then I'd take them home and inspect them at my kitchen table," he says.

3i started right financially, too. "It was basically a bootstrap operation," Beatty says. "We didn't raise any capital or borrow from any banks. We did a lot of the work ourselves."

3i was honored as an *Inc.* 500 company in 1993 and again the next year.

In 1996, it received honors from the Center for Entrepreneurship and Innovation as one of the 50 fastest-growing technology companies in Florida. That same year it achieved ISO 9001-EN46001 accreditation, necessary to receive a CE registration mark for European sales. This year 3i was named the South Florida Manufacturer of the Year by the Florida Manufacturing Technology Center, an honor that recognizes the company's growth, quality products, customer service and people.

Today 3i has 400 employees, 100 of whom work in Europe, Canada and Mexico. It makes and markets 2,700 products. Customer service reps field more than 600 calls per day and ship 500 packages to customers and affiliates worldwide. About half of 3i's sales are international.

Research has become another 3i hallmark, and its most recent product is a titanium implant that dramatically reduces the time needed for healing. With other implants requiring a year or more, the new OSSEOTITE implant has a patented acid-etched surface that cuts healing down to just 2 months.

Beaty wants 3i to pass a public competitor and become the No. 1 performer in the market. And he has an eye on other markets as well.

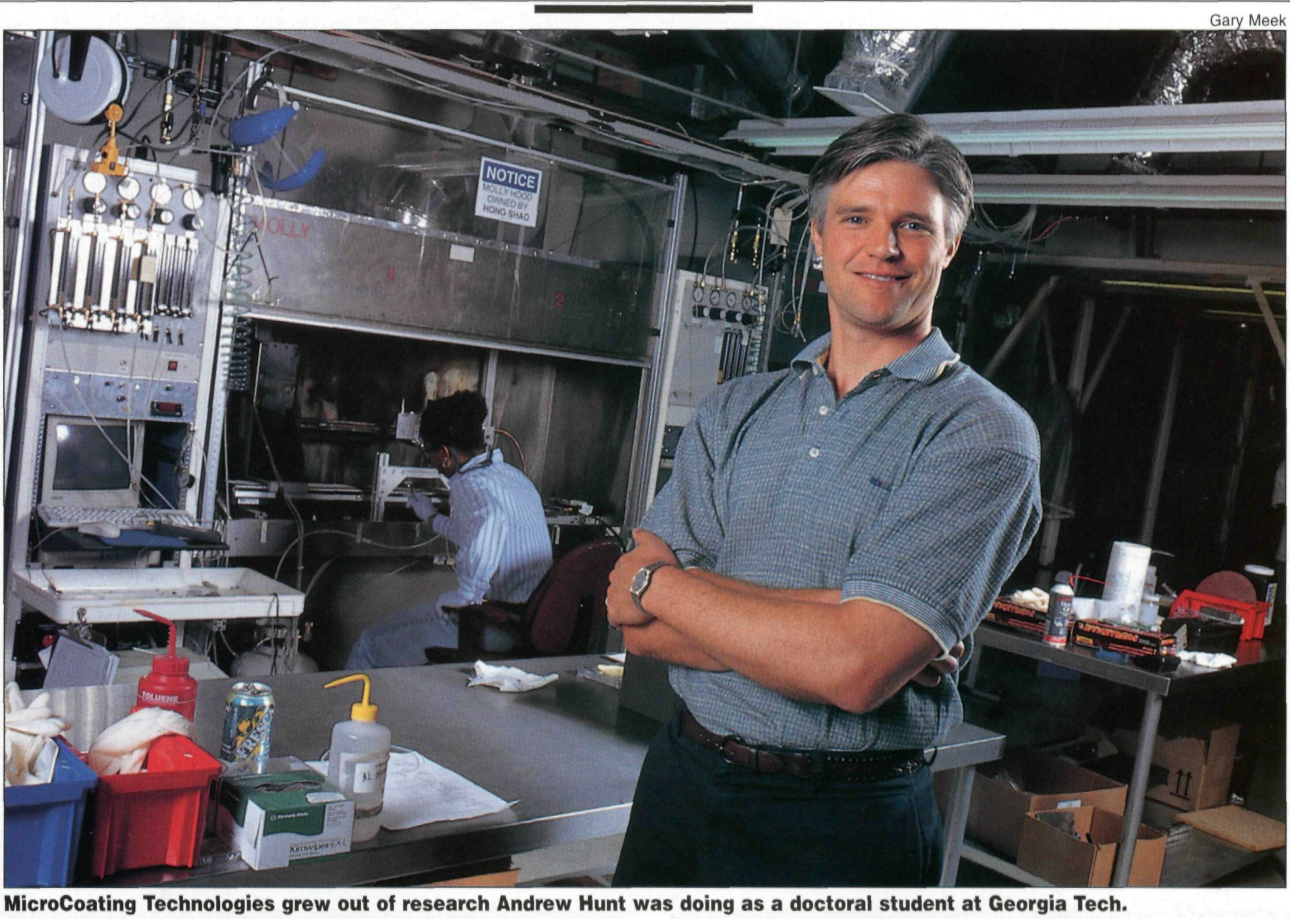
"With the research for our titanium product, we learned a lot about bone healing and how to impact the healing process. We plan to expand our technology into orthopedics," he says.

And does he have any advice for a sophomore today faced with a choice of leaving Tech?

"Stick it out. It's worth it. You hate Tech when you get out, but when you look back on it, Tech makes all the stress you go through in business today look easy." **GT**

Russ Moore is an Atlanta freelance writer.

Gary Meek



MicroCoating Technologies grew out of research Andrew Hunt was doing as a doctoral student at Georgia Tech.

Sticky Situation

Andrew Hunt's coatings company owes its birth and life to Georgia Tech

By Mark Clothier

Venture capitalists will tell you a good way to make money is to do something no one else does, ideally something that lets other people do what they do more quickly and less expensively.

Andrew Hunt, the 38-year-old chief executive of MicroCoating Technologies, thought up a way to make things stick to other things that they couldn't stick to before.

The patented process is called combustion chemical vapor deposition. It is used to put thin film coatings on a variety of materials, including silicon wafers, printed wiring boards, flex circuits, metals, glass and polycarbonate.

The process is different from other coating methods, which can require expensive equipment, including vacuum chambers and reaction furnaces. Hunt's coating process can be done in open air, which lets it be included as part of the assembly line. Hunt estimates the process is 10 times less costly than traditional methods.

Hunt developed the system while working on his doctorate in materials science and engineering at Georgia Tech. He received his degree in 1993. The five-year-old company, based in the north Atlanta suburb of Chamblee, now employs about 70 people. Hunt's company recently received a $4 million injection of venture capital funding from Atlanta's Noro-Moseley Partners.

MicroCoating's partners include Allied Signal, Amoco/Enron Solar, General Motors, Sematech and the Department of Energy. MicroCoating Technologies has been profitable since 1995. Hunt says he plans to take the company public, although he is uncertain when he'll make that move.

An Atlanta native, Hunt says Georgia's capital has been a good place to run a business, but his connections from Georgia Tech have been invaluable.

"Atlanta is an excellent place to be," he says. "You have all the Georgia Tech grads and other people in the Atlanta area looking for opportunities to work with a physical sciences, technology-based company.

"Tech is a top engineering school, and you are surrounded by smart people who know their fields and have worked in a wide range of in-

dustry segments. I was able to interact with the faculty to get a footing in understanding those industries."

Noro-Moseley's Jack Kelly says MicroCoating's process will be used to coat computer chips and the catalytic elements in fuel cells. Coatings are also used on windows and doors to cut down on energy loss.

"They have some very interesting technology in the applied-science area, particularly as it relates to enabling technology for applying coating to all sorts of materials and different applications, and they have relationships with various companies in different fields," Kelly says.

Kelly says MicroCoating's process saves money and time by letting the coating process take place in the open air instead of in a vacuum. A vacuum requires a vacuum chamber, which means the coating can't take place on the production line.

"It allows coating to be applied to surfaces that were impossible before," Kelly says. "MicroCoating has relationships with 12 companies for the catalytic elements for fuel cells used in home heating and some in automobiles. This process can offer a coating for the catalytic element that is much superior to the present way."

A former chief operating officer of Scientific-Atlanta, Kelly sits on MicroCoating's board of directors.

MicroCoating, in part, owes its birth and youth to Georgia Tech. Hunt's patented process was invented at Tech, while he was working on his doctorate. For the next three years, the company was based at Tech's renowned high-tech incubator, the Advanced Technology and Development Center, nest to such high-flying technology companies as MindSpring Enterprises and Ciena.

While at the ATDC, Hunt was able to use elaborate equipment owned by Tech without having to buy it.

Now Hunt is giving back to the university a bit. He is chairperson of a $500 million capital campaign for the materials science and engineering department. The campaign, which has raised $411 million so far, ends December 2000. Hunt has contributed to Tech fund-raising campaigns in the past as well.

"I would not have my company and my education if it were not for what I learned at materials science and engineering," Hunt says. "I believe it's very important, and I'd like to see Tech's program end up being No. 1 in the nation." **GT**

Mark Clothier is an Atlanta freelance writer.

Counting Pollutants

Scientists gather in Atlanta to study fine particulate matter

Scientists from around the world gathered in Atlanta to figure out the best ways to measure the microscopic pollutants in air that leave city dwellers with hacking coughs and watering eyes.

Fine particulate matter (called PM 2.5 because it is less than 2.5 microns in diameter, or 30 times smaller than the diameter of a human hair) includes soot, dust, aerosols, metals and sulfates primarily emitted by vehicles and industrial sources.

In the first of five regional "SuperSite" studies initiated by the Environmental Protection Agency (EPA), about 60 scientists from Georgia Tech and other institutions converged at an Atlanta air-quality research facility owned by Georgia Power. They began measuring PM 2.5 around the clock at 7 a.m. Aug. 3 and continued through 7 a.m. Sept. 1.

William Chameides, a professor in the Georgia Tech School of Earth and Atmospheric Sciences, is leading the SuperSite study.

Chameides hopes to discover whether the production of ground-level ozone and PM 2.5 are chemically related. Both are secondary pollutants, meaning they are not directly emitted into the atmosphere, but are instead generated in the atmosphere by chemical reactions.

"It's possible that controlling one pollutant without controlling the other might make one worse," Chameides says. "The trick is to fully understand how they interact so you can come up with a strategy to deal with both of them."

Researchers expect to gather again next March to analyze their data. They'll make a preliminary report to the EPA in June.

Meanwhile, EPA's 1997 revised standard for PM 2.5 is being challenged in federal court by trucking associations and other industry groups. The new standard calls for an annual PM 2.5 average set at 15 micrograms per cubic meter, and a 24-hour PM 2.5 average of 65 micrograms per cubic meter.

The new standard was prompted by recent studies that associated both short- and long-term exposure to fine particles with serious respiratory problems, particularly in children and the elderly. "When we know all the facts about it, I expect that the transportation and energy industries will be most affected," says C.S. Kiang, a SuperSite study participant and professor in Tech's School of Earth and Atmospheric Sciences. "Also, it will ultimately affect economic development."

In addition to Georgia Tech, other universities participating in the SuperSite study include Harvard University, the University of Miami, the University of Delaware, the University of Minnesota, Texas Technological University, the University of California-Riverside, Rutgers University, Brigham Young University and the University of Alabama at Huntsville.

The EPA is paying for most of the Atlanta SuperSite study; other contributors include the Energy Department, Tennessee Valley Authority, and the National Oceanic and Atmospheric Administration.

Georgia Power's facility was already being used for affiliated studies, funded in part by utility companies and related industries. **GT**

Unraveling DNA

Slinking strands may help in understanding genetic mutation

A Georgia Tech research team has proposed that electronic charges move through strands of DNA like a Slinky rather than a straight wire. It's a proposition that could help scientists learn more about how DNA is damaged and repaired.

In the July 20 issue of the *Proceedings of the National Academy of Sciences*, the researchers report that electrical charges move through DNA bases by creating temporary distortions in their structure as the strands naturally flex.

"It's not at all like a conductor or a wire," says Gary Schuster, lead author of the paper and dean of Georgia Tech's College of Sciences. "We think this answers the question of how charge transfers through DNA, at least in a broad-brush way."

The new charge-transport model, dubbed "phonon-assisted polaron-like hopping," could help scientists better understand the mechanisms by which DNA is damaged and repaired. It could also lead to development of new diagnostic techniques.

Schuster compares the charge transport mechanism to the movement of a Slinky, a child's toy that consists of a large spring that compresses and expands.

"When you inject a charge into DNA, the DNA responds by changing its structure to accommodate that charge," he explains.

"That change in structure distributes the charge over several of the base pairs in the DNA. That creates a local distortion in the DNA. That local distortion, just like the compression in the Slinky toy, can move in the DNA as the structure moves normally in stretching, bending and rotating."

Gary Meek

Valerie Sartor examines DNA sequences to study electronic-charge transport.

The distortion, known as a polaron, can carry the charge a distance of up to a few hundred angstroms. The charge transfer stops when it encounters a specific pairing of the DNA structure known as a GG step—the location where two guanine bases exist side-by-side. The charge trapped at this location then oxidizes the guanine, causing damage that can lead to genetic mutations.

An experiment conducted in Schuster's lab by Paul Henderson, now a post-doctoral student at the Massachusetts Institute of Technology, showed that the charge moves rapidly through a duplex strand of DNA with an efficiency that is independent of the base sequence.

The structural independence and efficiency of the transport process were unexpected and could not be explained by existing theories of elec-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tron transport. Schuster believes two "averaging" mechanisms inherent in the polaron process tend to even out the speed of the charge transport. This new mechanism is possible only because of the dynamic nature of the DNA structure.

Understanding how electrical charge moves through DNA could help researchers understand and perhaps develop a technique for reversing the damage done by oxidation. Natural biological processes repair much of the damage, but some damaged sections aren't repaired fast enough to avoid further damage—and genetic mutations.

"It may be possible to intervene and accelerate the repair mechanism or inhibit the damage through pharmaceuticals or procedures," Schuster says.

Other applications could include new diagnostic techniques for spotting the DNA of disease-causing organisms, or even mutated DNA copies.

Other researchers on the project include Denise Jones, Gregory Hampikian and Youngzhi Kan, all of Georgia Tech. The research was sponsored by the National Institutes of Health and the National Science Foundation. **GT**

Non-polluting Paint May Fly

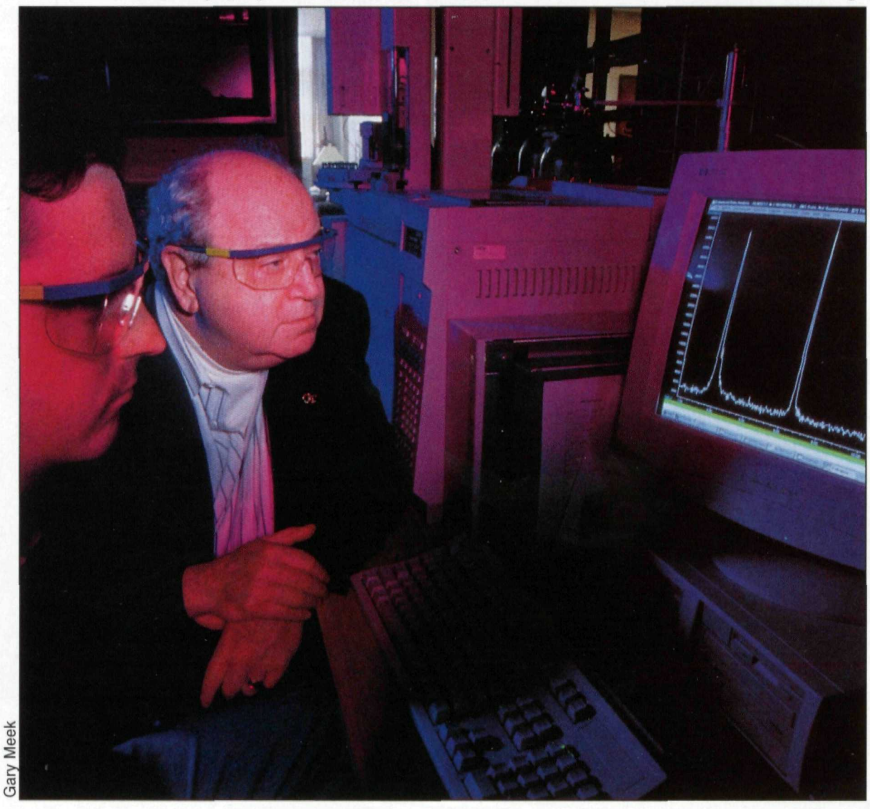
New coating material could reduce release of pollutants, protect planes against wing-icing

With every brush stroke, painters release volatile organic compounds (VOCs) into the air. Researchers at Tech have developed a new coating material that could stop that.

In addition to cutting pollution, the new coating could make airplanes safer by keeping ice from accumulating on their wings.

"The potential applications are enormous," says Robert Schwerzel, a scientist at the Georgia Tech Research Institute. "These coatings could, in principle, replace many of the solvent-based paints, enamels and varnishes that are currently used to coat everything from stoves and refrigerators to aircraft."

Dr. Charles Eckert (*right*) and a technician analyze material for ultra low VOC coating.



Gary Meek

The patented ultra-low VOC coating, based on a durable polyester material, would meet new environmental regulations expected to severely limit VOC emission from solvent-based paints and anti-corrosion coatings.

The coating is produced in a novel way that gives scientists great flexibility in selecting its properties. Tech researchers' work was described at the recent meeting of the American Chemical Society.

Conventional polyester coatings are cross-linked and cured in a process that involves removing a small volatile molecule and evaporating an organic solvent. The small molecule and solvent usually evaporate into the atmosphere, becoming pollutants. But the Tech researchers' process removes and captures that small molecule during the manufacturing process—and does not require a solvent.

"Our coating molecules are applied to a surface, and with light or

heat and a suitable catalyst, rearranged to form a strong, durable coating without any need for solvents or any need for removal of the small molecules," explains Charles Eckert, a chemical engineering professor at Tech and director of the Specialty Separations Center. "This leaves us with a virtually zero-VOC paint."

Using unique chemical processes, the researchers produce a polymer material that can be either a powder or liquid at room temperature. Once applied to a surface, the coating is cured using heat or ultraviolet light. "We have been able to make structural changes and get virtually any melting point we would like," Eckert says.

The research team has worked with the Air Force and Delta Air Lines on aerospace applications. By altering the surface properties, the researchers believe they could produce a coating that would make aircraft less susceptible to icing. Such a coating could also reduce the amount of environmentally undesirable ethylene glycol needed to melt the ice that does form on them.

Eliminating the hazardous solvent from coatings could also make them easier to use and reduce the amount of equipment and ventilation required to protect workers, Eckert noted. This would save money for airlines and others using large quantities of coatings.

So far, researchers have produced only small quantities of their new coating. Providing commercial quantities at a competitive cost poses the next challenge, said team member Dr. Charles Liotta, professor in the School of Chemistry and Biochemistry and Georgia Tech's Vice-Provost for Research.

"For this to be commercially viable, we need to be able to produce thousands of tons per year," Liotta said. "We are still exploring how to do that." **GT**

Stanley Leary

Jessica Shearer measures noise pollution with "quiet curtains" installed.

Quiet Curtains

New noise-shielding material promises to reduce unwanted sounds

Hospitals and nursing homes are notoriously bad places to sleep. Routine noises, from carts rolling down a hall to a roommate snoring, can disrupt the sleep of patients who need rest.

To change that, Georgia Tech researchers have developed "quiet curtains" that sandwich noise-shielding material between two pieces of fabric.

The noise-shielding material can range from cardboard to metal, depending on how much noise needs to be blocked, explains Krishan Ahuja, head of the acoustics and aerodynamics branch in the Georgia Tech Research Institute's Aerospace and Transportation Laboratory.

Aided by two Georgia Tech undergraduate students—Jessica Shearer, a physics major, and Mary Lynn Rivamonte, an aerospace engineering major—Ahuja conducted tests to determine the noise-reduction capabilities of various insert materials and exterior fabric. Besides analyzing acoustical properties, researchers checked durability, fire retention and strength. Finally, they selected a plastic material to be the noise shield in a prototype developed for a nursing home. The prototype reduced noise by about 7 decibels. With a floor extension and valance, noise dropped approximately 12 decibels. This is a deceptive number as decibels are logarithmic units of measurement rather than linear.

"A reduction of 12 decibels implies a reduction of sound intensity by a factor of 16," explains Ahuja. "It's akin to saying that if 16 toddlers were screaming 'I want Mommy' all at the same time on one side of the curtain, with a 12 decibel reduction on the other side, it would appear as though only one toddler was screaming." Ahuja began working on quiet curtains last year at the behest of the Atlanta VA Rehab R&D Center of Excellence on Geriatric Rehabilitation. "What impresses me is that quiet curtains are such a practical solution to a real problem," said Bettye Rose Connell, a researcher in environment and behavior at the Atlanta VA Medical Center.

Quiet curtains have broad consumer applications, said Ahuja. They could control noise generated by computers and printers or provide just-in-time privacy in open offices. Large curtains could be built for factory floors. **GT**

You Can Make A Perfect Match Every Time

through your company's matching gift program

Georgia Tech alumni in each of the 110 companies listed here have participated in their company's matching gift program. Each company has an alumnus who has volunteered to act as the matching gift coordinator and rally support for **Georgia Tech's 53rd Roll Call**.

If you work for a matching gift company that matches an academic contribution to Georgia Tech, you can greatly increase the impact of your gift to Roll Call. Some companies match contributions dollar-for-dollar, while others will double, or even triple the amount of their employees' gifts.

The companies listed here are leading the way in raising more than $1.57 million in matching gift funds for the 53rd Roll Call. Several companies have up to 66 percent of their Georgia Tech alumni participating in their matching gift program. Working with your fellow alumni and your matching gift program, you too can make a positive difference in the future of Georgia Tech.

If your company is not listed here, you may still work for a company that will match your gift to the 53rd Roll Call. Please contact your company's human resources department to determine your company's matching gift policy. To locate your company coordinator, or to volunteer to become the matching gift coordinator at your company, please contact Brett Breen at the Georgia Tech Alumni Association.

Brett Breen, Matching Gift Program Coordinator
Georgia Tech Alumni Association
190 North Avenue
Atlanta, Georgia 30313
Telephone: (404) 894-0766
or 1-800-GTALUMS
e-mail: brett.breen@alumni.gatech.edu

For information updates on the 53rd Roll Call, please visit www.alumni.gatech.edu/Roll Call

Leading Matching Gift Companies

3M Company
Abbott Laboratories
Air Products & Chemicals
Alabama Power
Albemarle Corporation
Alcoa
Allied-Signal
American Express
Amoco Corp.
Andersen Consulting
Ashland Oil
Atlanta Gas Light Company
AT&T
Bechtel
Bellcore
BellSouth
Boeing
Burlington Industries
Cabot Corporation
Carolina Power & Light
Celanese Acetate
Champion International
Chevron
Chrysler/Huntsville Electronics
Clorox
Coats American
Coca-Cola Company
Conoco
Cooper Industries
CSX
Delta Air Lines
Dow Chemical
Duke Energy Corporation
Eaton Corporation
Eli Lilly & Co.
Equitable Life
Ernst & Young
Exxon
First Union
Florida Power & Light
Fluor Daniel
FMC Corporation
Ford Motor Company
General Electric
General Motors
Georgia-Pacific
Georgia Power Company
Goodyear
GTE
Gulf Power Company
Harris Corporation
Hercules
Hewlett-Packard
Honeywell
Hughes Aircraft Company
IBM
Intel
International Paper
Johnson & Johnson
KPMG Peat, Marwick, Mitchell
Law Companies
Lockheed Martin
Lucent Technologies
Mead Corporation
Merck & Co.
Merrill Lynch
Mobil
Monsanto
Motorola
NationsBank
NCR
Norfolk Southern
Northern Telecom
Northern Trust Co.
Novartis
Olin
Owens Corning
Oxford Industries
Pepsi Co.
Philip Morris USA
Phillips Petroleum
PPG Industries
PricewaterhouseCoopers
Printpack
Procter & Gamble
Prudential Insurance
Rayonier
Reynolds Metals
RJR Nabisco
Rohm & Haas
Rockwell
Sara Lee
Scientific-Atlanta
Shell Oil
Siemens
Southern Co. Services
Southern Nuclear Operating Co.
Sonat
Springs Industries
Square D
SunTrust Bank
Teledyne Brown Engineering
Texaco
Texas Instruments
Textron Systems Division
Trane Company
TRW
United Technologies
Unocal
UPS
Wachovia
Westinghouse
Weyerhaeuser

Protecting Against Progress

Software predicts development impact

How can a community attract industry without giving away the farm? That's the question economic developers are answering with help from a software program developed at Georgia Tech.

More and more often, companies considering a move to another town want incentives such as waste treatment, tax breaks and infrastructure enhancements. Government officials must decide—often in a fast-paced whirl of offers and counter-offers between themselves, the company and any number of competing towns—if the jobs and increased tax base the company would bring are worth the incentives.

Then there are the long-term costs. For example, if the company brings more people to the town, sooner or later the town will have to pay for more police officers, more sewer lines to new subdivisions and more schools for the employees' children. LOCI—for Local Impact Model, formulated by Bill Riall and Robert Lann, economists at Tech's Center for Economic Development Services (CEDS)—fills a gap left by traditional input-output models. The old models are unreliable for small economies and exclude the all-important cost side of the equation.

"We think LOCI levels the playing field by giving communities a tool to estimate the fiscal and economic impacts of a new business location for themselves," Lann says. "They no longer have to rely only on the claims of the prospect."

LOCI's calculations are based on two sets of data. One is a community profile that includes tax rates, government fees, utility usage and demographics. The second contains information about the new investment, including construction and operating costs, inventories and payroll.

During the fiscal year ending June 1999, 50 LOCI projects were completed in 44 Georgia counties. If the companies in question in those projects do come to Georgia, they'll add $190 million and 15,689 new jobs to the state economy.

Earlier this year, CEDS partnered with the American Economic Development Council to offer courses on local impact and LOCI across the country. Lann said LOCI has been licensed to some 120 out-of-state organizations.

Riall says new versions of LOCI will improve how government costs are allocated to residential, commercial and industrial sectors. This fall, CEDS researchers hope to complete a version showing statewide impacts, rather than just local impacts.

Several Georgia communities have used LOCI to win development projects. Among them are:

- Catoosa County: A LOCI analysis helped the local development authority with its decision to assist American Recycling Technology's move to Ringgold. The venture will mean up to 400 new jobs.
- Griffin-Spalding County: Results of a LOCI analysis helped persuade voters to approve a special option local sales tax that, among other things, funded an industrial park and later helped elected officials decide what level of incentives to offer Caterpillar Inc. The company's location could bring 300 new jobs.
- Savannah: A LOCI analysis paved the way for a state-supplied REBA grant that funded a road into the Crossroads Business Park where Lummus Corp. is locating. The Swiss-owned manufacturer of cotton-cleaning equipment will employ 250 workers. **GT**

Own A Classic

A 1/25 scale replica of the official Ramblin' Wreck

After an overwhelming response, the Georgia Tech Alumni Association is offering a second edition of the Ramblin' Wreck. The perfectly reproduced model is six inches long and features:

- **Die cast in high quality metal**
- **Painted to match the Official Ramblin' Wreck**
- **Rumble seat opens to reveal a lockable coin bank**
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✓ Great as a Gift!

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Shipping ($5.00 per Wreck) = $ _____
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■ **SEND MAIL ORDERS TO:**
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Georgia Tech Alumni Association
Alumni House
Atlanta, GA 30332-0175

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ADDRESS _____

CITY _____ **STATE** _____ **ZIP** _____

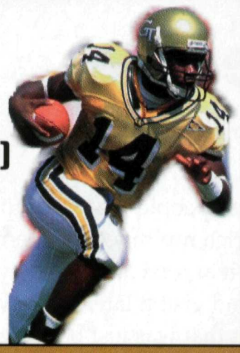
CREDIT CARD ❑ **VISA** ❑ **MASTERCARD** **#** _____ **EXP. DATE** _____

SIGNATURE _____ **DAYTIME PHONE** (_____) _____

1999 Georgia Tech Football

1999 Remaining Home Schedule

Oct. 9	North Carolina (HC)
Oct. 30	N.C. State
Nov. 13	Clemson
Nov. 27	Georgia



Youth Day!

For the N.C. State game, all youth tickets are only $14! All other tickets for this game are 4 for $48! Tickets are limited, so hurry! For more information, call (404) 385-0031.

For tickets, call 1-888-TECH-TIX

BASKETBALL

HOOPSFEST!

Saturday, October 23

(Alexander Memorial Coliseum at McDonald's Center)

4:00 p.m.

Select your seat! There are a limited number of men's basketball season tickets available. All seats are based on priority and/or giving level. Call 404-894-5414 for details.

5:00 p.m.

Join the Men and Women's Basketball teams as they kick off the 1999-2000 season! You'll see:

- Men & Women's intrasquad scrimmages!
- Contests between games for great prizes!
- Postgame player autographs & photos!

For more information, call 404-385-0031.

1999 VOLLEYBALL

HOME SCHEDULE

OCTOBER

8	N.C. State	7:30 p.m.
9	Florida State	7:30 p.m.
*29	Maryland	7:30 p.m.

*Alumni receive $1 admission & free Chick-fil-A sandwich! For info, call 404-385-0032.

30	Virginia	7:30 p.m.

NOVEMBER

12	Duke	7:30 p.m.
13	Wake Forest	7:30 p.m.
26	Georgia	7:30 p.m.

Single tickets: $3 Adults, $1 Youth/S.C.

Season tickets: $20 Adults, $10 Youth/S.C., $40 Family Plan (2 Adults, 4 Youth)

1999 Tennis Home Schedule

FREE ADMISSION!

WOMEN

10/22-10/24	Yellow Jacket Invitational

MEN

10/16-18	Georgia Tech Invitational

1999 Swimming & Diving Meet Schedule

DATE	OPPONENT	LOCATION	TIME (EST)
*10/8	Virginia Tech	ATL, GA/GTAC	2:00 p.m.
*10/16	FSU & N.C. St.	ATL, GA/GTAC	12:00 p.m.
	*Free pizza for first 200 people!		
10/30	Emory U. & Davidson	ATL, GA/Emory	9:00 a.m.
11/5	College of Charleston	ATL, GA/Emory	7:00 p.m.

www.ramblinwreck.com

Educational **Experience**

Gregory Abowd's innovation makes note-taking automatic, freeing students to interact with the teacher

By Shawn Jenkins

Gregory Abowd was one of those annoying, straight-A students. He could easily retain and recall important facts and figures, free from the pain of those poor, less-gifted souls whose hands gnarled from frantically scribbling notes in fear of missing some nugget of wisdom.

Now a 34-year-old assistant professor with the College of Computing, Abowd has developed an interactive computing application that could eradicate writer's cramp from the halls of academia.

With initial seed money from Georgia Tech's Graphics, Visualization and Usability Center, and the College of Computing, Abowd created a revolutionary technology called Classroom 2000 that incorporates video, audio and the Internet to record and recall every detail—sounds, gestures, notes—of a lecture.

"I am not really considered a researcher in educational technology," Abowd says. "But, being in a university, an obvious application was to do this in the classroom, because that's a situation where people are trying to experience a rich multimedia experience, capture it and record it so they can go back and visit it later on. It was an application that was just begging to be supported by my idea of automated capture and access.

"I had a fairly intuitive notion that what I wanted to do was save people from having to write down verbatim notes. I thought, 'It can't be a good thing that people sit there with their heads down writing down everything that's going on in the class simply to have a record to go back and look at later on.'"

The answer is a system that takes the instructor's lesson—in the form of a graphic representation, like slides—and adds hand-written notes from the class lecture that are captured on an electronic whiteboard. The audio and video are automatically synchronized and recorded, and relevant Web pages and recommended readings can be thrown in for good measure. For students, it's a one-stop reference library that never closes.

"Teachers can become true 'knowledge navigators,' in that they can find relevant information that supplements their message, and they can point that out to students," Abowd says. "Once class is over, you just close down the software and everything is done automatically from that point. Within minutes, the notes for that lecture are available in a searchable form for the students.

"That was a priority with this project. This had to be done in such a way that the lecturer did not incur extra effort—because they might not use it if that were the case."

Kennesaw State University has been using Classroom 2000 for almost two years, and Georgia State will soon follow. Montreal's McGill University has had it since January 1999, and one of Abowd's doctoral students recently set it up at Brown University for use in some of their undergraduate classes.

"I've had about five calls from various companies and universities wanting to start using it, and I don't know how I'm going to handle that," Abowd laughs.

"The way it was built was not to be a shrink-wrapped commercial product; it was a research prototype, and I would have to go into a different mode if I wanted to turn this into something that could be adopted on a wider scale."

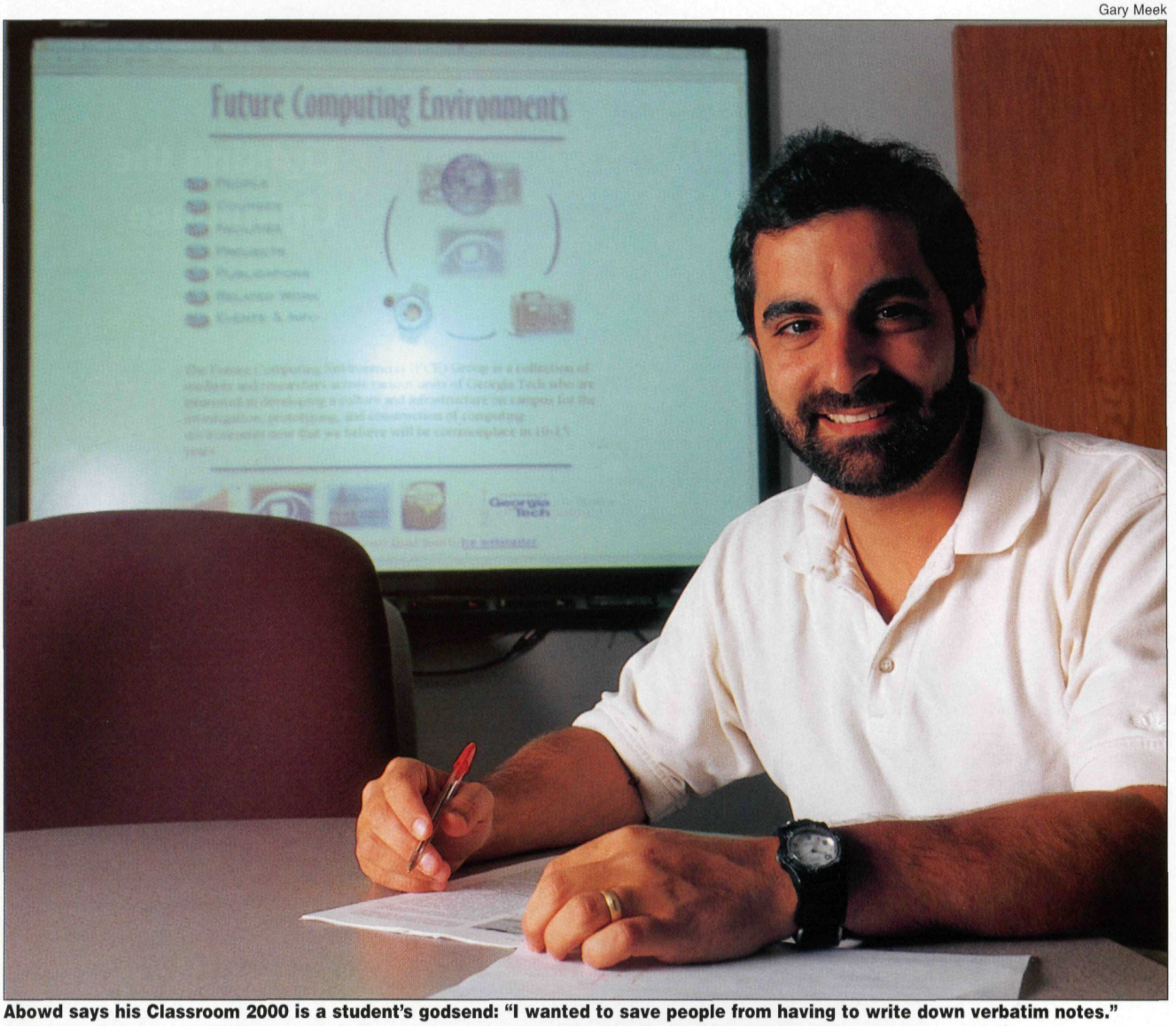
But Abowd's "mode" is to "predict the future by inventing it," he says. "Rather than sit there and think about what it would be like, build some slice—albeit a small slice—and live it so you can learn and show people what that's like."

In the next 10 to 15 years, he foresees an educational environment that will fully incorporate "context-aware" computing, another aspect of his current research that would allow environments to know what's going on inside of them, who's there, who

The **Abowd** File

- **Born:** Sept. 12, 1964, in Detroit.
- **Education:** BS, mathematics, University of Notre Dame, 1986; M.Sc., computation, University of Oxford, 1987; Ph.D., computation, University of Oxford, 1991.
- **Honors/Achievements:** College of Computing Outstanding Faculty Teaching Award; Sigma Xi Young Faculty Research Award; recipient of National Science Foundation CAREER Grant; Georgia Tech Award for Innovative Use of Eduactional Technology.
- **Personal:** wife, Dr. Meghan Burke; son, Aidan.
- **Leisure Interests:** basketball—"either as a spectator or a participant," Abowd says; reading popular mathematics, popular science, science fiction and Stephen King novels.

Gary Meek



Abowd says his Classroom 2000 is a student's godsend: "I wanted to save people from having to write down verbatim notes."

spoke when, and what they were talking about.

"A classroom could take a very ill-structured or extemporaneous discussion and produce an artifact that could create a five-minute summary for people," Abowd says. "We could also provide the ability to link previous experiences with current ones.

"Imagine, after a lecture, being able to say, 'If you want to follow up on this, here are some other courses you have taken in the past that talked about this or that led into this, or things that other people have taken that would be related to this."

With Abowd's capture technology acting as a surrogate student, some would question the need to attend class at all.

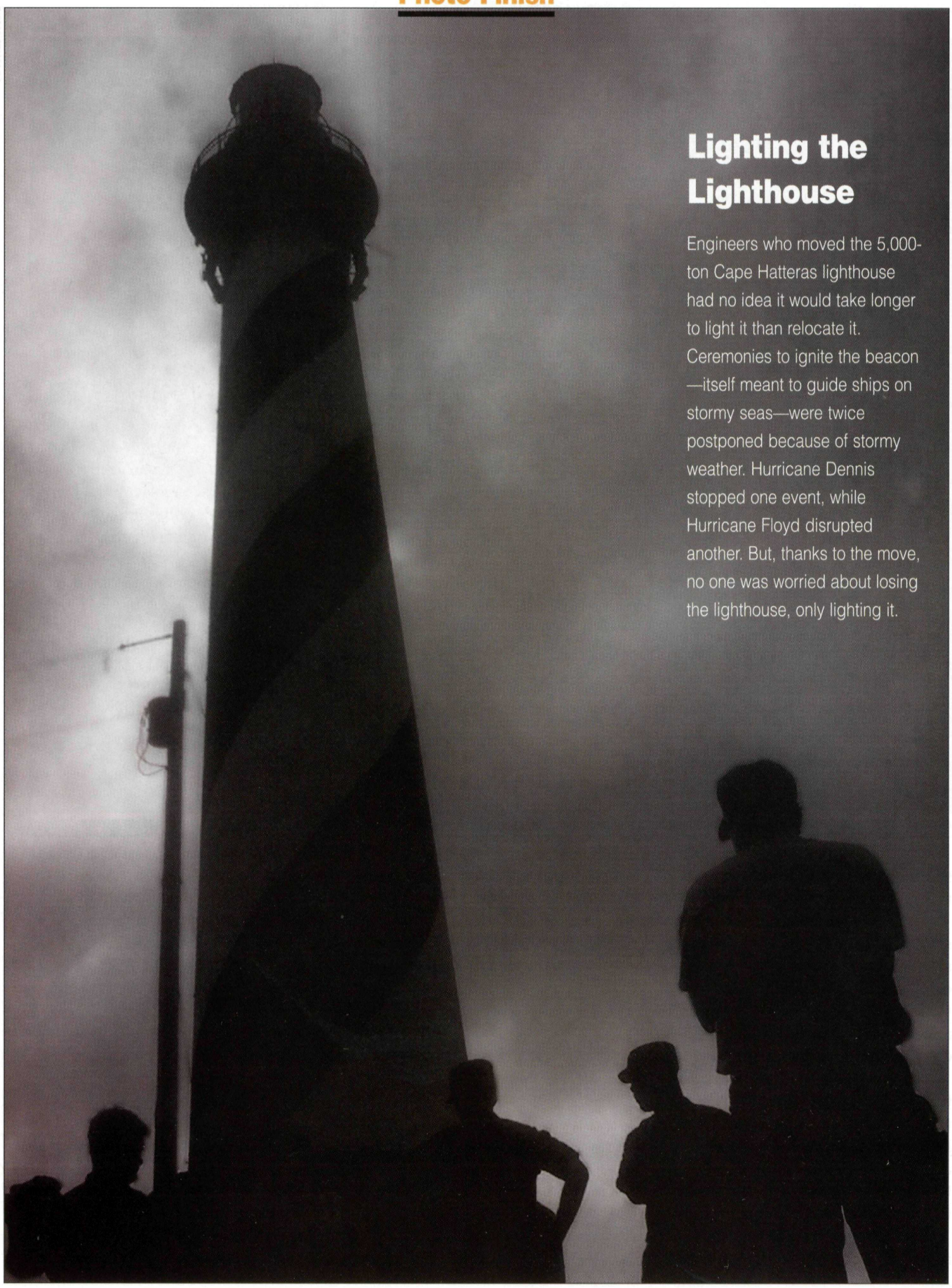
"That's a valid critcism," he explains. "But, there's so much that a good teacher adds to an experience—their ability to interact and to reach you in this physical environment. It's going to be a tool to augment what we can already do physically, and free us up to get greater benefit out of face-to-face interactions. The details will be there for you to access when you want them.

"It's like engineers out in practice. When they want to learn how to calculate some integral or something, they don't memorize all those rules—the ones that they use a lot tend to become second-nature—but they have handbooks that they go to. I would like this to be a handbook of your personal educational experience.

And once his handbook liberates students from the shackles of copying and gets them to look up from their desks, he wants to reach them.

"I've been inspired by teachers I've had in the past, and I want to be inspiring to those whom I teach," says Abowd. "One of the most important things about educating people is that you come across as sincere and very motivated. You should express to them that you're excited about the material, and you're excited about the potential they have to learn it." **GT**

AP/Wide World



Lighting the Lighthouse

Engineers who moved the 5,000-ton Cape Hatteras lighthouse had no idea it would take longer to light it than relocate it. Ceremonies to ignite the beacon—itself meant to guide ships on stormy seas—were twice postponed because of stormy weather. Hurricane Dennis stopped one event, while Hurricane Floyd disrupted another. But, thanks to the move, no one was worried about losing the lighthouse, only lighting it.

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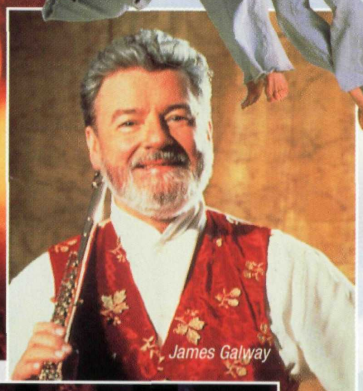
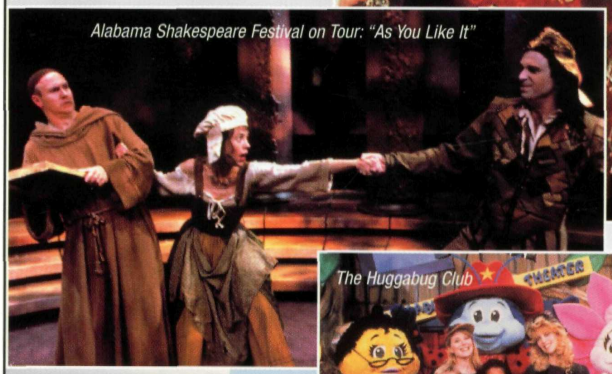
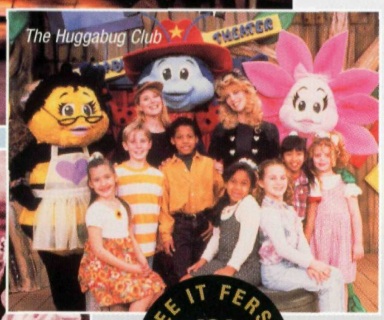


James Galway

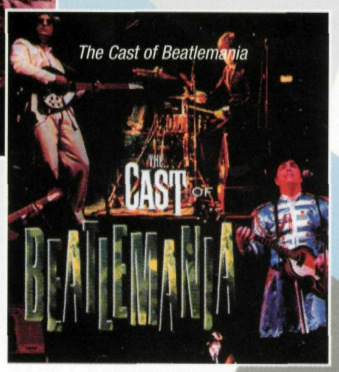


Alabama Shakespeare Festival on Tour: "As You Like It"



The Huggabug Club

Mozart's "Don Giovanni"



The Cast of Beatlemania

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OCTOBER EVENTS

Paul Taylor Dance Company
Saturday-Sunday, 10/9-10

James Galway
Tuesday, 10/12

Keiko Matsui
Friday, 10/15

Alabama Shakespeare Festival on Tour: "As You Like It"
Saturday, 10/16

The Huggabug Club
Sunday, 10/17

The Cast of Beatlemania
Saturday, 10/23

NOVEMBER EVENTS

Richard Elliot & Larry Carlton
Friday, 11/5

Mozart's "Don Giovanni"
San Francisco Western Opera Theater
Saturday, 11/6

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