

FOCUS

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Got milk?

Nope, just beer. Check out a review of two Atlanta brewery tours that provide fun for Tech students over 21. [Page 22](#)

LAWN in the grass

Wireless internet capabilities are spreading through campus as OIT raises the funds necessary for more installations. [Page 17](#)



Tech a hotbed of space research, breeds astronauts

Tech has a storied history with space involvement; the Institute has received funding for aerospace research from such notable programs as NASA and the Guggenheim fund, and many Tech grads have gone on to become astronauts.

By Kimberly Rieck
Senior Staff Writer

When the Soviet Union launched Sputnik into orbit in October 1957, Americans were stunned and fascinated by the feat. Scientists at Georgia Tech, including Jesse James, an EES engineer, served as technology experts for local radio coverage. At the time, the U.S. space program was split between satellite-development work and rocket research. However, Sputnik's launch changed history and the course of the space program.

The National Aeronautics and Space Administration was formed in 1958 to bring all space-related technologies and research under one department. The heightened priority of developing space technology brought millions of dollars in research funding to research institutions across the nation, including Georgia Tech.

Georgia Tech had already established itself in the aeronautics field. In 1930, the Guggenheim fund gave Georgia Tech a \$300,000 award and made it the fund's only school of aeronautics in the south. By the late 1950s, EES (now GTRI) re-

searchers had already developed material from silica grains that could stand the shock of re-entry into the earth's atmosphere from space.

In 1959, Howard Edwards, a physics professor, was supervising Project Firefly, which investigated the effects of wind turbulence in the upper atmosphere.

The Firefly researchers used special cameras, spectrographic equipment and radar to record the clouds' behavior to measure wind-shear forces, speed and other factors.

Tech scientists were on hand for the first flight of the Saturn I's second stage at Cape Canaveral in January 1964. The scientists analyzed the rocket

engine's performance at different levels in the atmosphere and the chemical reactions in the exhaust itself. In April of that year, NASA awarded Tech a \$1,000,000 grant to build a space research facility.



The Space Science and Technology Center (now the Knight building) opened in 1967.

By the building's opening, NASA had already spent \$6.5 million at Tech and averaged \$300,000 annually.

By 1965, Tech had its first astronaut in space, John Young, an alumni who graduated in 1952 with a B.S. in Aerospace Engineering.

Young was a former Navy fighter pilot who was selected by NASA in 1962. He made his first flight into space with Gus Grissom on Gemini 3 on March 23, 1965. Young said his undergraduate studies prepared him for the rigorous training because he was already used to working unreasonably long hours and keeping his nose "to the grindstone" at Tech.

Continuing into the 1980s, scientists from Tech continued to perform groundbreaking research. In 1984, GTRI and the School of Electrical Engineering sent an assembly of lasers, films, holographic crystals and other electro-optic components on a tray for a metal degradation experiment.

NASA established the Georgia Space Grant Consortium in 1989 with Tech as one of its charter schools. The Georgia Space Grant Consortium established a national network of institutions involved in aerospace research and outstanding programs

in related fields in science, math and technology.

Current professors have expanded on the work of their pioneers and continue working towards developing new space technologies today. John Olds, an Aerospace Engineering professor, founded the Georgia Tech Space System Design Lab (SSDL) in 1995. "What we're trying to do is identify the critical technologies that will impact the next generation of space travel," said Olds. The SSDL receives an average of \$350,000 annually from corporations and NASA's centers of excellence, including NASA Langley and NASA Marshall. The SSDL's research interests include hypersonic airjets, a magnetic launch assist system, pulse rocket engines and vehicles for space travel.

Bob Roper, a professor in the school of Earth and Atmospheric sciences, studies the conditions rockets face in the upper atmosphere. His earlier work included a model for the space shuttle's re-entry that he developed through a grant from NASA. NASA continues to use his model today.

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An Occasional Series



Mewborn exemplifies 1950s experience

By Joshua Cuneo
Contributing Writer

While Shirley Clements Mewborn wasn't the very first female student to gain admission into Georgia Tech, she acknowledges that she still had a responsibility to establish a precedent for all admitted women to follow.

"We had tea at the President's home, we had luncheons, we wore white gloves, we did the things that young ladies should do," she recalled in a 1995 interview, "even as we went to welding lab and drawing lab and all [of] those other things."

This behavior was enforced by her caretaker and role model, Ms. Ella van Leer, wife of Tech president Col. Van Leer. When Mewborn transferred to Tech from the Western Carolina Teacher's College in 1953, Tech had only been admitting female students for one year, so there were few facilities and no housing available for women. Ms. Van Leer personally found housing for Mewborn and some of the other female students, thereby serving as housemother and imposing the same disciplined mindset that the administration placed on the rest of the student body.

Ms. Van Leer understood the importance of governing these wom-

en with strict regulations. Prior to women's admittance to Tech, there had been heated debate about transforming Tech into a coed institute. Among the opposing arguments was the fear that women would receive special exemptions and treatments and would demand the introduction of classes featuring "feminine" topics. The Women's Chamber of Commerce had insisted in response that women be given the same competitive standards for admission and be treated with the same discipline and academic rigor as their male counterparts.

Both Ms. Van Leer and the regular faculty successfully carried out these demands. Mewborn recalled the academic challenges she faced her first year.

"My first quarter, my schedule included calculus, physics, chemistry, drawing lab and English, and I thought, boy, this is pretty hard. I didn't know that everybody didn't have that load." On top of that, "I grew up on a farm in Rochelle, Georgia...[so] I was totally unprepared for laboratory work. I had never been in a lab until I went to Georgia Tech." To compound those difficulties, some professors refused to admit her into their classes.

She also had to suffer some small verbal torment from students who

still opposed the presence of women on campus, although the majority of the student body had grown to accept the admission of women. The standard arguments against women (lack of female toilet and housing facilities, the influx of students following the conclusion of World War II, the academic distractions women might pose, and so forth) had been systematically countermanded. The *Technique* championed the admission of women, and the Student Government Association drafted a resolution showing similar support. Even an old alumnus called it a "splendid innovation." Furthermore, Col. Van Leer had begun taking steps to eliminate any remnants of sex discrimination on the campus. Mewborn recalled that her academic workload kept her too busy to worry about it.

Yet she still received some special treatment as one of the first women on campus. She was exempted from the then-mandatory physical education classes, and the administration—who generally disliked finding work for transfer students—gave her a job in the library to help her cover expenses.

She also warmed up to the base-

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Tech keys mystify many

By Eric Vogel
Contributing Writer

If you live on campus, you may or may not have noticed, or been frustrated by, Tech's extremely intricate lock system. According to Dan Morrison, Associate Director of Housing, each key has an intended "key path," that is, all of the doors it is meant to unlock.

For example, every resident of Caldwell Hall's key path includes the front and basement doors of the building, the door to the student's room, the basement door of adjacent Folk Hall (to use its workout room) and the basement door to nearby Fitten Hall (for access to its laundry facilities).

A master list of every student's key path is kept in the Tech lock-shop under the care of campus locksmith Gerard Hauck but, for security reasons, is not available for public viewing. Unfortunately, however, the system is not perfect. Some keys can't open all of the doors they should be able to, while at the same time some doors can be opened by keys not intended for them. While all of the locks on and in the buildings were

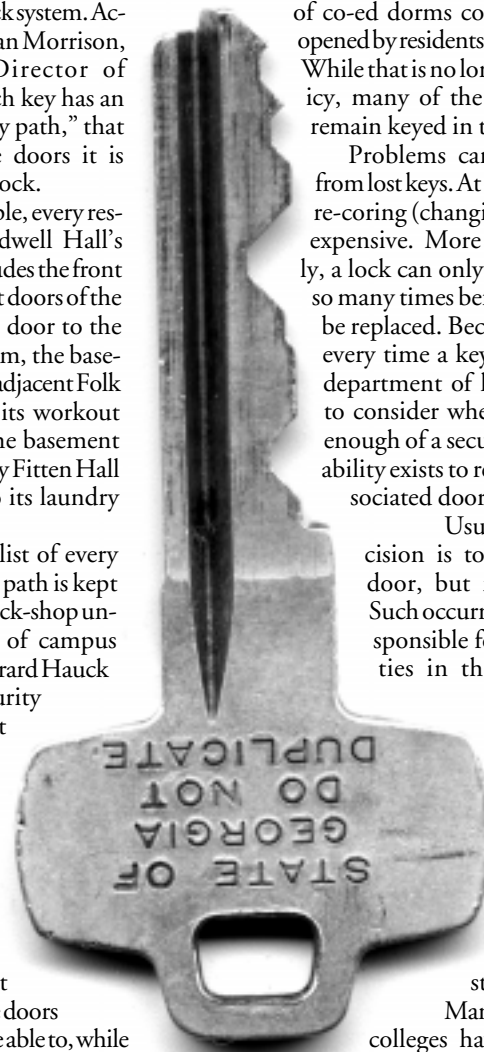
keyed the way they were for a reason, Morrison explains the "reasons sometimes change but the keys don't." For example, under the housing department's previous policy, doors to the odd-gendered floors of co-ed dorms could only be opened by residents of that floor. While that is no longer the policy, many of the dorms still remain keyed in this way.

Problems can also arise from lost keys. At around \$75, re-coring (changing) a lock is expensive. More importantly, a lock can only be re-cored so many times before it has to be replaced. Because of this, every time a key is lost, the department of housing has to consider whether or not enough of a security vulnerability exists to re-key the associated door or doors.

Usually, the decision is to re-key the door, but not always. Such occurrences are responsible for the oddities in the key path system (keys that can only open one of two or three doors to the same building, for instance).

Many hotels and colleges have replaced traditional locks with card-operated electronic locks. "The

See Keyed in, page 16



Astronaut

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Yellow Jackets a common sight among the stars

Since President John F. Kennedy urged Americans to go to the moon forty years ago during his famous speech on September 11, 1962, several Tech graduates and faculty have followed his advice. Among John Glenn, Neil Armstrong and other heroes of space, there are 12 Tech graduates and faculty members that have gone on to become astronauts.



Tech stuff in space

-A rat cap, owned by Connie Tolson, traveled to space onboard the shuttle Columbia from February 22-March 9, 1996. Scott Horowitz, MS AE '70, piloted the mission.

-On Horowitz's next mission on the shuttle Discovery in 1997, he brought along a GT American Institute of Aeronautics Astronautics flag.

- The following items traveled 4.1 million miles on board the shuttle Atlantis during a mission from May 19-29, 2000:

- Georgia Tech T-shirt
- "Hamilton for Heisman" cd

By Scott Meuleners / STUDENT PUBLICATIONS

Another renowned expert in the space technology field is Paul Steffes, a professor in the school of Electrical Engineering. Steffes uses a small satellite dish on top of the Van Leer Building to measure atmospheric effects on the Ka band, a frequency not previously used by satellites. Steffes' work is part of the Advanced Communications Technologies Satellite Program developed by NASA in 1993.

For over 30 years, Ben Zinn has been working towards decreasing the noise from takeoffs. Zinn's work in solving problems associated with combustion instability brought the School of Aerospace Engineering a designation as a center for excel-

lence in combustion and propulsion.

As an associate director at the Johnson Space Center, John Young is currently working on 225 technical tasks. Many of his tasks include the investigation of new sources of power, reliable energy, recyclable materials, different transportation devices and inflatable engineering. "In this century we'll end up building cities around the moon" said Young. Young said it is necessary to colonize other places in space due to the problems awaiting Earth in the upcoming centuries. Therefore, Young said it is important for scientists, researchers, students, especially those at Georgia Tech, to continue to work on developing new space technologies.

Admiral Richard Truly

Truly is the first astronaut to serve as Administrator of NASA. He was a veteran of several shuttle missions. President George Bush appointed him as administrator in July 1989. Truly was responsible for restoring the nation's confidence and credibility in the space program after the Challenger Explosion in 1986. In addition, he was the director of GTRI from 1992-1996.

John Young

Young was the first astronaut from Georgia Tech to go into space. He has been on six space flights and served as commander on Gemini 10, Apollo 10, Apollo 16, and Columbia. At 72, Young is still eligible to command future space crews. "I'd like to go [to space again] but my wife, Susie, said she'd kill me, and I'm more afraid of that" said Young. Instead Young oversees several technical tasks as Associate Director of the Johnson Space Center.

John H. Casper

When Casper flew into space for the first time as a pilot, he brought along a Georgia Tech flag with him. Casper had attended Tech for a year in 1961 before accepting an appointment to the Air Force Academy. He entered the Astronaut program in 1985 and has been on four flights. He has commanded the shuttles Endeavor and Columbia.

Michael Richard Clifford

Clifford earned his undergraduate degree from West Point and a masters in aerospace engineering from Georgia Tech in 1983. He became an astronaut in 1990 and his first mission was on Discovery in 1992. He has made three shuttle flights and a spacewalk. His first spacewalk was while docked to MIR.

Jan Davis

Davis received a degree in Biology in 1975 and she is the first female Tech alumna in space. She made headlines with her husband, Mark Lee, when they became the first couple to fly together in space onboard Endeavor in 1992. She is a veteran of three space flights. Her last mission was aboard the shuttle Discovery in 1997. She is currently the director of Human Exploration and Development of Space at NASA Headquarters.

Blaine Hammond

Hammond graduated from Tech with a masters in Engineering science and materials in 1974. He served on two shuttle missions as a pilot. His first mission was on the shuttle Discover during April 28-May 6 1991, the first unclassified Defense Department mission.

William McArthur, Jr.

McArthur graduated from West Pointe in 1973 and subsequently received a master's degree in AE from Tech in 1983. He has served as mission specialists on board the Atlantis in 1995. In 1999, he went with the shuttle Atlantis to help with the continuing assembly of the International Space Station.

Sandy Magnus

On October 2, Magnus will travel on Atlantis and go to the International Space Station. She will serve as a mission specialist. As a member of mission number STS-112, Magnus will help deliver a segment of the space station's truss that space walkers use to move around the stadium's exterior. Magnus received her doctorate from the school of Materials and Science engineering in 1996.

Michael Massamino

Massamino said he applied several times to the astronaut program before he was selected. He received his undergraduate degree in Industrial Engineering from Columbia University and his masters and doctorate in Mechanical Engineering from MIT. He was an assistant professor in the school of ISYE before he entered the astronaut program in 1996. Last year he served as a mission specialist on a mission to repair the Hubble Telescope. His crew placed a new advanced camera on the Telescope and installed a new cooling system. Massamino said it was an unbelievable experience. "It was a view from heaven" said Massamino.

Scott Horowitz

Horowitz graduated with a masters in AE in 1979. He piloted two shuttle missions. His second mission on Discovery in 1997 was responsible for maintenance of the Hubble Space Telescope.

Alan Poindexter

Poindexter, a Naval Commander, began thinking about becoming an astronaut after hearing Admiral Truly speak to his NROTC class at Tech. After graduating in 1986 with an undergraduate degree in aerospace engineering, Poindexter joined the Navy. He served in the Gulf War and has piloted a wide range of aircraft including F-18s. In 1998, Poindexter joined the space program. He had never considered the program before until Truly encouraged him to apply. He said he encourages all students to consider working in the space field because "it's a very exciting and motivating place to be." Poindexter is a candidate for a future mission and he expects to launch in the next two to three years.

Keyed in

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electronic cards are easier and more logical than keys," said Sarah Moelk, resident of the SPARTA building at GSU which features one such system.

The card-operated locks eliminate the expenses of re-keying doors and allow for much more precise key paths as the locks can be reprogrammed without making any actual physical alterations. They're also more secure since they can't be picked like traditional locks, and, when a key is lost, they can simply be reprogrammed not to accept the lost key.

Since nearly everyone at Georgia Tech already has a magnetically coded BuzzCard, an electronic lock system would seem ideal, especially at a university which is known for actively pioneering the frontiers of

new technology.

In fact, many of Tech's newer buildings do have BuzzCard-operated locks. With the exception of Harrison Hall and Howell Hall, however, none of the residence halls do, and residents of those halls must still carry traditional keys to get into their rooms.

Morrison explained that the roll out of the electronic locks has been put on hold due to the great expense of installing them, citing the current dorm renovation projects as a higher priority.

Because residents would still need metal keys to get into their rooms, the potential savings of an electronic system would not outweigh the installation costs. As for the security benefits, Morrison said that "vulnerability isn't at a problematic level" with the current system.

Women

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ball coach and several professors who provided moral support, including Dr. Ben Dasher, the then-director of the School of Electrical Engineering. "I owe a lot to him," Mewborn said fondly. "He was supportive; he was encouraging. Not all [of] the staff and...faculty in the School of Electrical Engineering were."

Nevertheless, her biggest mentors remained Col. and Ms. Van Leer, who had advocated for six years after World War II to admit women. She recalls how the latter helped her and others establish the first sorority on campus—a local chapter of Alpha Xi Delta, for which Mewborn alternately served as secretary, treasurer, and president—and how the former acted as the

sorority's advisor.

Mewborn also became heavily involved in the school's activities. She was an active member of the American Institute of Electrical Engineers and a participant in the Drama Tech program. She attended the homecoming dance and shows and concerts at the Fox Theater and Chastain Park.

"It [downtown] was pretty big," she said, noting the changes that have come about since that time. And going there was, in those days, a strict dress-up affair. "Again, you wore your white gloves, and some ladies wore hats. I never had a hat."

In 1956, Mewborn was one of the first two women to graduate from Tech and the first woman with a Georgia Tech degree in Electrical Engineering.

Since graduation, Mewborn has remained active with Tech by en-

couraging other young women to pursue academic success and by becoming a member of the Alumni Association. At one time she served as its president.

Mewborn recalled some of the valuable skills her college years taught her. "There's lots of things you learn at Georgia Tech, but very important is discipline and tenacity [and] persistency, and the ability to prioritize what you get, to allocate your time," she said. "And what I still tell both male and female students today is one of the most important things is balance. If it's too much one way or too much the other way, it just doesn't work." That sense of balance has allowed her to juggle a full-time career at Southern Engineering (which she reduced to part-time early in her motherhood) with a family of four and active work with the Alumni Association.

Wireless internet access spreads through campus, provides freedom

By Jennifer Lee
Contributing Writer

It's a beautiful day; the sun is shining, the sky is blue, and the tree outside your dorm is just begging you to do your homework under the shade of its leaves.

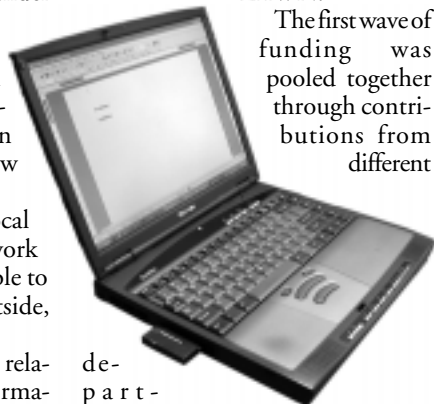
Unfortunately, your homework requires a computer and an internet connection. So instead, you spend the afternoon inside, gazing out your window wistfully.

However, with Tech's Local Area Wireless/Walkup Network (LAWN), you may soon be able to spend those sunny days outside, where you want to be.

Tech's wireless network is relatively new; the Office of Information Technology began the initiative about three years ago. LAWN is the product of the vision of Dr. Ron Hutchins, Chief Technology Officer for Academic and Research Technologies, who wanted to im-

plement a wireless infrastructure on campus.

A combination of the need to create a coordinated plan and the inexpensive prices for wireless hardware caused OIT to develop LAWN.



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ments on campus.

A year later, OIT had equipment donated from Lucent Technologies. A third wave of funding came from OIT's year-end funds.

Buildings that are fully wired

allow any person with a laptop or other mobile device to access the internet from anywhere in the building. Currently there are 19 buildings that have full coverage, including the Bookstore Mall, College of Computing, Van Leer Building, Georgia Center for Advanced Telecommunications Technology, Instructional Center and the library. There are also an additional 14 buildings that are partially wired, which means that certain floors or areas have coverage. Partially covered buildings include the Bunger-Henry Building, the Bioengineering and Biosciences Building and the MRDC.

In addition to the wireless network, some of these buildings, such as the library, also offer walk-up ports, which allow anyone with a laptop and an ethernet cable to "plug in" to the network.

The Student Center, surprisingly, is not wired at all. Victoria Anderson, Project Director for OIT, said, "We were really concerned about

the Student Center, because of course that was at the top of the list. However, the wiring in the Student Center was old, and the equipment requires a specific type of infrastructure wiring in order to make it work." The good news, however, is that the building should be upgraded with new wiring in the near future. Anderson added, "We're also looking at possibly doing an external antenna so people can sit outside around the Campanile and have wireless access as well. So that's part of the vision—how much of that will get funded, I don't know."

She said, "We've completed what we consider to be Phase I, which is to simply develop a wireless infrastructure and get as many buildings as we had the funding for online. But it is very much an ongoing project."

The next phase of development will include expanding the coverage area and upgrading standards. OIT also has long-term plans to

connect the wireless hubs around campus, so that users can maintain their wireless connection while walking between buildings. Anderson said, "We're also looking at applications for wireless devices like PDAs. [We] envision that students who have a PDA can also walk around and have internet access, check their email—the basics."

"It's what I would consider to be the 'next generation of wireless,'" Anderson said.

The future of wireless networking at Tech looks promising. Students no longer have to be tied to their dorm rooms in order to work. "The focus is very much on the student—it's a quality-of-life thing," Anderson said, "and I think it's a great service that we're offering. I really do."

A map of wireless locations around campus can be found on OIT's website at <http://faq.oit.gatech.edu/0256.html>

Tech Up Close



email: focus@technique.gatech.edu

Winner of the Tech Up Close contest receives a *Technique* T-shirt and a coupon for a free student combo at Li'l Dino's.

Last week's Tech Up Close:
Burdell's General Store



By Amanda Bryson / STUDENT PUBLICATIONS