The GTRI Connector

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We're all in the same boat!

One trouble with the world today is that there are too many people in it who are willing to put in their oars but not willing to row.

—Hugh Allen

Too many people stop looking for work when they get a job.

—Richard W. De Haan

Research awards recipients honored

The 8th annual GTRI Research Awards ceremony on December 6 honored 17 outstanding employees selected from 87 finalists, the largest field of nominees in GTRI's history.

All 87 finalists were individually introduced by Charlene Bayer, chairman of the Awards Review Committee, who said, "There are no losers in this competition—all are winners."

Her point was reiterated by Bob Shackelford, who welcomed the large crowd of coworkers and well-wishers on behalf of OOD. "Because of the fine job they've done, we're all winners at GTRI," he said.

The awards were presented by executive council members Jerry Carey, Devon Crowe, Pat O'Hare, and Bob Shackelford as follows:

Outstanding Performance in Research: *Krishan K. Ahuja* (Aerospace Science and Technology Lab), for bringing national recognition to GTRI in the newly emerging field of aeroacoustics and attracting over $5 million in new research, as well as serving as mentor to 11 students; *Wayne D. Daley* (Environmental Science and Technology Lab), for his innovative use of high technology to develop machine vision systems for poultry and apparel inspection, leading to substantive discoveries that could signifi-

Continued on page 2

The following persons received awards at the 8th annual GTRI Research Awards ceremony December 6. **Front row** ***(L-R), Diane Aenchbacher and Laurie Bigler (Microwave and Antenna Technology Development Lab).*** **Second row,** ***Stephanie Babbitt (Environmental Science and Technology Lab), Ruth Thompson (Materials Science and Technology Lab), Roy Thompson (Electronic Support Measures Lab), Krishan Ahuja (Aerospace Science and Technology Lab).*** **Third row,** ***John Adams (Economic Development Lab), Michael Shapiro (Materials Science and Technology Lab), Lisa Brezee (Electromagnetic Environmental Effects Lab).*** **Fourth row,** ***Evan Chastain (Radar and Instrumentation Development Lab), Joseph Brooks (Electronic Support Measures Lab).*** **Fifth row,** ***Eric Barnhart (Communications Lab), Nile Hartman (Physical Sciences Lab), Esko Jaska (Microwave and Antenna Technology Development Lab). Not shown, Marvin Cohen (Modeling and Analysis Lab), Charles Crawford (Aerospace Science and Technology Lab), Wayne Daley (Environmental Science and Technology Lab).*** **Photo by Joe Schwartz.**

"There are no losers in this competition --all are winners."
-- Charlene Bayer, Awards Review Committee Chair

Observed & Noted

GTRI experts have been getting wide exposure in the media, both in commentary on the Gulf War and for their research activities. *Stories on page 2.*

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EDL's federally funded business assistance programs continue. *See page 3.*

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GTRI spearheads new indoor air quality research consortium. *Details on page 3.*

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Paper recycling efforts gain momentum at GTRI, with all of CRB now covered. *Read about it on page 3.*

■

Tom Stelson leaves Georgia Tech behind as he takes new post in Hong Kong. *Story on page 4.*

■

What's it like to go back to school as middle age approaches? *Mark Hodges tells all on page 4.*

■

GTRI adopts new logo. *Get the facts on page 5.*

■

Soviets lend electron microscope to GTRI for evaluation. *Read about it on page 6.*

■

Final entries in the "Who Are We?" contest are on page 6.

■

Charles McCullough answers a slew of burning questions, and Ann Campbell offers Library research services-- *page 7.*

■

All about YOU-- *page 8.*

■

Happy new year!

News & Notes

GTRI staffers are news-makers.

Awards

From page 1

cantly improve defect identification; *Nile F. Hartman* (Physical Sciences Lab), for building a nationally recognized program in opto-electronics and developing applications to phased-array radar control, chemical sensing, and manufacturing technology.

Outstanding Performance as a Junior Researcher: *Esko A. Jaska* (Microwave and Antenna Technology Development Lab), for research on the array antenna for the SDI ground-based radar and his original contributions to the theory of fundamental limits of beam pointing accuracy.

Outstanding Performance in Program Development: *Eric N. Barnhart* (Communications Lab), for his success in winning indefinite quantity contracts, including leadership in forming effective proposal teams with members from GTRI, academic units, and outside industrial firms; *Charles C. Crawford* (Aerospace Science and Technology Lab), for his efforts in developing vertical flight technology at GTRI, generating sufficient contract volume to hire a staff of 14 professional and support personnel; *Marvin N. Cohen* (Modeling and Analysis Lab), for developing the non-cooperative target recognition research base at GTRI, returning GTRI to major involvement in NCTR research.

Outstanding Performance in Management: *W. Evan Chastain* (Radar and Instrumentation Development Lab), for simultaneous management of a major sponsored research program involving multiple, diverse laboratories and individuals, as well as a branch and a division of the former RAIL so as to launch the resulting RIDL lab on a high note.

Outstanding Performance as a Project Director: *John C. Adams* (Economic Development Lab), for his success in attracting, directing and expanding the Apparel Manufacturing Technology Center, a $9-million program that provides funding for over 45 research personnel from three GTRI labs and four GIT academic units; *Joseph L. Brooks* (Electronic Support Measures Lab), for direction of a $4.5-million program with Warner Robins Logistics Center, involving a total electronic warfare integration package, that required managing some 30 employees working on 39 sub-budgets in eight laboratories.

Outstanding Performance in Research Support as a Classified Employee: *Diane T. Aenchbacher* (Microwave and Antenna Technology Development Lab), for her expertise in program administration, including financial and manpower accounting, security arrangements, and proposal preparation; *Lisa A. Brezee* (Electromagnetic Environmental Effects Lab), for her exemplary work in support of the PAVE LOW and PAVE HAWK helicopter upgrade programs; *Ruth L. Thompson* (Materials Science and Technology Lab), for exceptional performance in administrative secretarial duties, word processing, and state and research property management.

Outstanding Performance in Research Support—Open Category: *Stephanie S. Babbitt* (Environmental Science and Technology Lab), for her award-winning work in research publications, including development of advanced desktop publishing capabilities, as well as serving as branch head during her supervisor's illness.

Outstanding Performance as a Graduate Student Employee: *Michael J. Shapiro* (Materials Science and Technology Lab), for significant contributions in chemical vapor deposition research, particularly for development of a barrier coating to achieve superconducting wire of vastly improved properties.

Outstanding Performance as an Undergraduate Student Employee: *Laurie A. Bigler* (Microwave and Antenna Technology Development Lab), for her initiative and independent work in statistical analysis and antenna measurements; *Roy A. Thompson* (Electronic Support Measures Lab), for his support in designing and maintaining a signal processing and analysis system to analyze intrapulse radar data.

The junior researcher award was offered for the first time this year, and the research support awards were redesigned to allow equal opportunity for recognition of both classified and research-titled personnel.

Each recipient received an engraved wall plaque, a $100 certificate for dinner for two at a restaurant of his/her choice, and a letter of commendation from GTRI Director Donald J. Grace. A traveling plaque with a photograph of the honoree will be displayed all year in the building where each recipient works.

Members of the Awards Review Committee were Charlene Bayer, Harold Engler, Linda Harkness, Dave Millard, Harry Ross, and Bill Howard (ex officio). ❑

GTRI's Jerry Carey (left), Ken Stein of Emory University, Dan Papp and Linda Brady, both of Tech's School of International Affairs, recently held a panel discussion on War in the Gulf for the campus community.
Photo by Gary Meek.

GTRI and the Gulf War

GTRI experts got lots of media exposure in the first days of the Gulf War and helped in public understanding of the factors involved.

Associate Director Jerry Carey's comments have been a daily morning feature on WSB Radio since January 16. He also appeared on Channel 5 January 16 and 17. He was quoted in a front-page story in *The Wall Street Journal* January 17, and was interviewed by *USA Today* and *The Philadelphia Enquirer*. Other interviews were with CNN and radio stations in Phoenix and Pittsburgh. Mr. Carey also participated in a panel discussion on campus January 24, sponsored by the School of International Affairs. A retired U.S. Air Force Major General, Mr. Carey formerly was Commander of the Tactical Air Warfare Center at Eglin Air Force Base. There he managed a full range of electronic warfare areas, including air-to-air missile guidance and control, chemical defense, and jam-resistant communications.

Jim Byrum, a research engineer II in the Radar Systems Applications Lab, was the resident military analyst for Channel 2 January 15 and 16. He spoke on the F-15 fighter's capabilities and electronic defense attributes. He has been working on software support systems for the aircraft for a number of years, both at GTRI and in his previous employment at TRW in Warner Robins. He currently is helping the military to determine what will be needed to support the software on the new F-15E.

Joe Harris (Materials Science and Technology Lab), a veteran ceramist with more than 35 years of experience at Georgia Tech in high-temperature materials development, was interviewed on Channel 5 January 23 in connection with the work he did years ago on the nose cone for the Patriot missile. He says his group provided research support to Raytheon for many years.

If you know of anyone else at GTRI who was interviewed by the media re the Middle East situation, report the details to Editor, GTRI Connector, RCO 0800, or PROFS MSTEGAR. We'll run it in the next Connector.

GTRI in the news

Below is a summary of significant GTRI national publicity that appeared during September and October.

- A patented process for thermite reactions, developed by Kathryn Logan and others, gained attention in *Advanced Materials & Processes* (53,000 circulation), *American Ceramic Society Bulletin* (17,000), and *Chemical Business* (38,500).
- *Design News* (170,000) carried an article about GTRI research into an improved technique for studying the electromagnetic susceptibility of integrated circuits.
- *The New York Times* (1,068,217) included the Apparel Manufacturing Technology Center in an article about apparel automation efforts.
- *The Wall Street Journal* (2,138,000) quoted Gerald Carey in an article about high-tech weaponry that could be used against Iraq.
- *The Washington Post* (824,282) quoted David Mayer in an article about asbestos control.
- The outdoor compact range designed by GTRI for the U.S. Army's Electronic Proving Grounds was described in *Designfax* (110,185). News of the range has been reported in publications with a total circulation of 517,000.
- *Insight Magazine* (510,000) carried an article and photograph describing GTRI research to make hydroplane boats more stable.
- GTRI research into the susceptibility of integrated circuits to electromagnetic interference was reported in *Surface Mount Technology* (55,000) and *Service News* (45,000). News of this work has now reached 270,000 readers. ❑

Business assistance programs receive federal continuation funding

By John Toon, RCO

An assistance program designed to help small and medium-sized Georgia businesses combat foreign competition and a smaller effort aimed at boosting regional economic development have both received continuation funding from the U.S. Department of Commerce. The two programs are administered by GTRI's Economic Development Laboratory (EDL).

Georgia Senator Wyche Fowler, Jr., requested the funding from the Senate Appropriations Subcommittee on Commerce, Justice, State, the Judiciary and Related Agencies. He is a member of the Senate Appropriations Committee, which allocates federal discretionary funding.

"Investment in small and mid-size businesses to prepare them for increasingly tough foreign competition is a smart investment in our future," said Fowler. "The Southeastern Trade Adjustment Assistance Center and the Economic Development Administration University Center will be assets in keeping businesses in Georgia and the Southeast competitive in these times of high trade deficits and an uncertain economy."

Southeastern Trade Adjustment Assistance Center

The Southeastern Trade Adjustment Assistance Center (TAAC) helps companies become more competitive in world markets. Available to firms which have experienced employment or sales declines as a result of foreign competition, the TAAC program helps companies identify and correct their weaknesses.

"We provide a diagnostic analysis which identifies the strengths and weaknesses of their operations in the areas of manufacturing, marketing, sales, finance, management and organization," says EDL Associate Director Charles Estes. "From the results of that analysis, we assist the firm in developing a business plan which reacts to the findings of the study."

One of 12 centers operating in the United States, the Southeastern TAAC serves Georgia, Alabama, Mississippi, Florida, Tennessee, Kentucky, South Carolina, and North Carolina. Since 1980, the program has assisted 579 companies from a wide range of industries.

Companies tend to be family-owned, with sales of between $1 million and $10 million, and between 50 and 150 employees. Financing is a common problem, often worsened by the losses already sustained through import competition, Estes says.

The cost of the service is shared by the company and the U.S. Department of Commerce, which pays up to 75% of the expense. "This is a program which has a definite economic return," Estes notes. "If we can help a company improve its competitive situation, that creates tax revenues back to both the federal and state governments, more than offsetting the cost of the program."

Frank Mewborn directs the Southeastern Trade Adjustment Assistance Center.

Economic Development Administration University Center

The Economic Development Administration University Center helps regional economic development organizations put together programs designed to assist existing business and industry. A majority of the new jobs in Georgia are created by the growth of existing companies, and the program will help communities boost those job-formation efforts.

The service will help regional and community groups identify the infrastructure needs of business and industry, then assess how well the community is meeting those needs. Though it is aimed at existing industry, the results should also benefit a community's effort to attract new industry.

"If your existing industry is satisfied," said Estes, "that's going to make the community more attractive for new industry."

Art Brown directs the EDA University Center. ❑

Tech heads indoor air consortium

By Lincoln Bates, ESTL

Georgia Tech will take the lead in a newly established interdisciplinary effort to address indoor air quality issues. The Indoor Environment Research Consortium (IERC) comprises Emory University and the Virginia Polytechnic Institute and State University in addition to Georgia Tech, "the prime institution," says IERC Executive Director Charlene Bayer of ESTL, who was largely responsible for creating IERC.

According to Bayer, IERC is a unique university-based consortium focusing on the indoor environment, which includes everything within a building envelope—construction materials, furnishings, occupants, building systems, water supplies, and consumer products used.

"We're still seeking funding and still working out what projects we will go after and how," she says. "We will be starting a industry-affiliate program which will probably give some guidance to what we will do." Tech's annual indoor air quality symposium in February will be put on by IERC.

Research, technology transfer, and education are all components of IERC. Georgia Tech will focus on exposure, which concerns identifying compounds present in the indoor environment. Emory will concentrate on dose, or the health effects on occupants. And VPI will work foremost in the area of control, or developing healthy indoor environments.

Initial research areas may include air cleaning development with energy-efficient techniques, human sensory and neurobehavioral responses, exposure identification and quantification, building and systems design, worker performance, and policy concerns.

IERC, which is receiving considerable encouragement, although no funding, from major players such as the U.S. Environmental Protection Agency and U.S. Department of Energy, might be classified as an idea whose time has come. "I began this effort to look at indoor air from a fundamental scientific basis," says Bayer, adding that most of the current work in indoor air quality is piecemeal. "All aspects of the indoor environment interact, and an interdisciplinary approach is necessary for understanding and resolving these issues," she says. ❑

Defensive driving course offered

Georgia Tech is again offering the Defensive Driving Course for Institute employees. It's free, it takes only three hours, and it teaches you how to avoid accidents. Plus, if you want to be entitled to drive official GTRI or Georgia Tech vehicles, you MUST take the course every three years.

Sessions started in January, but also will be offered on the following dates: Tuesday, February 5; Thursday, February 7; Tuesday, February 12; Wednesday, February 27; Wednesday, March 13. Classes are held from 1-4 p.m. in the conference room of the Landscape Services Building at 8th and Plum streets on campus.

To register for the date of your choice, please call Anna Hawkins at 894-4635. ❑

CRB goes on-line in Tech recycling program

The Centennial Research Building has been added to the growing number of Georgia Tech buildings participating in a program to recycle white paper. Four or five attractive plastic containers have been placed at strategic locations on each floor. Employees are asked to deposit their waste paper in these containers. The janitorial staff will empty their contents into large containers in the high-bay area of the building. Recycall Services, the company with which Georgia Tech has a contract, will haul away the paper as often as necessary, once a week if response is sufficient.

CRB is the first building occupied by GTRI staff to go onstream with the official Georgia Tech effort, according to Tom Jones of Facilities Management. The Cobb County Research Facility will be next. Both CRB and Cobb County have had informal recycling pilot projects going for several months. Other GTRI buildings will be added as soon as funds generated from recycling will enable the purchase of additional containers.

"Please deposit your white paper, blank or printed, particularly computer paper (including the perforated tear-off strips)," Jones says. "But please do NOT throw in carbon and colored paper, glossy paper and file folders, newspapers and magazines, Post-its and gum tabs, film, photographs, blueprints and FAX paper, plastic and metal objects."

Security chief Bob Lang adds a note of caution: "Please be careful NOT to put classified waste or program-sensitive material in these containers." ❑

Charlene Bayer is executive director of a new multi-university indoor air research consortium.

Profile & Insight

Dr. Stelson takes Hong Kong R&D post

By Martha Ann Stegar, RCO

Not many people are offered the opportunity to help build a university and shape its programs from the ground up. But this is exactly what former Tech Executive Vice President Thomas Stelson is going to do. On January 1, he became the first pro-vice-chancellor for research and development at a brand-new university, the Hong Kong University of Science and Technology.

The university, now under construction, will enroll its first students in the fall of 1991. It will offer a full range of majors in science, technology and management, and envisions an ultimate enrollment of 10,000 students. The language of instruction will be English.

In his new post, Dr. Stelson will oversee a Research and Development Branch that will promote research, identify opportunities and sources of support, and administer grants and contracts. The Branch also will engage in specific mission-oriented R&D projects, contract research, database management, case studies, management consultancies, development and transfer of appropriate technologies, and even the formation of new industries.

"This is a really unusual and intriguing situation," Dr. Stelson says. "I don't know of any other instance where a university has started from scratch with plans to be a world-class institution with 10,000 students in seven years. Another unique factor is that in 1997 Hong Kong will be transferred by the British to the Chinese government. Initial fears on that score have been relaxed since China signed an agreement last year not to change Hong Kong's economic and cultural environment for 50 years.

"This is also the first major technological university established where the language of instruction will be a foreign language—in this case, English. The native language of most Hong Kong residents is Cantonese, and most of the undergraduate students will be from Hong Kong."

The university has four colleges. Engineering, science and management will have both undergraduate and graduate students; humanities and social sciences will enroll graduate students only.

"This is a really unusual and intriguing situation,. I don't know of any other instance where a university has started from scratch with plans to be a world-class institution with 10,000 students in seven years."
--Tom Stelson

Research grows from $10 million to $150 million in 20 years

Dr. Stelson says Hong Kong reminds him of Atlanta when he first came here nearly 20 years ago: a commercial and trade center, but with little technical expertise. In recent years, Atlanta has become a significant technical center, with Georgia Tech help. This is his objective for Hong Kong. "I like difficult and important tasks," Dr. Stelson says, "and this is one!"

Dr. Stelson is the right man for the job: he has always been a builder. When he came to

Dr. Thomas Stelson is now pro-vice-chancellor for research and development at Hong Kong University of Science and Technology.

Georgia Tech in 1971 as dean of engineering and assistant vice president for academic affairs, Tech's annual research budget was about $10 million. He was appointed vice president for research in 1974, a post which he held until 1988, when he was named executive vice president. Under his leadership, the research budget mushroomed to an annual $150 million, and Tech ranked second only to MIT in the amount of industrial funding received. As executive vice president, he was responsible for the development, coordination and administration of all instruction, service and research programs.

He has had a long-time interest in Asia. While at Tech, he visited China many times and helped found China/Tech, a technology transfer venture cosponsored by Tech and the China Association of Science and Technology. Now Dr. Stelson looks forward to applying his experience and expertise in Asia.

Dr. Stelson's broad range of professional interests includes education and research development; energy systems and renewable energy resources; utilization of applied mechanics in the solution of problems in foundations, hydraulics, structural engineering; transportation systems; computers and engineering applications; and economic and industrial development.

In 1980, he took a leave of absence from Georgia Tech to join the U.S. Department of Energy as Assistant Secretary for Conservation and Solar Energy in the Carter Administration.

He taught at Carnegie-Mellon University for 19 years before coming to Georgia Tech. There he headed the Department of Civil Engineering and co-directed the Transportation Research Institute. He has performed consulting work with a variety of companies and governmental agencies, including the National Science Foundation and the National Academy of Sciences, and has served on numerous advisory boards. ❑

Going back to school at Georgia Tech

By Mark Hodges, RCO

For years after finishing college, the same nightmare still occasionally beset me. The dream had several variations. In one, final exams are less than an hour away, and I have not yet bought my books—much less cracked them. In another, the term is nearly over, and I suddenly remember a course that has somehow slipped my mind. I haven't attended a single class and rush through the school halls, not sure who to see or where to go.

With memories like these, it's not surprising that graduate school wasn't exactly at the top of my "to do" list for a long time. Through my twenties and mid-thirties, I never stopped reading books, but the thought of submitting myself to exams, term papers, and oral presentations was much too much to face.

Luck appeared to be with me. GTRI professional employees now sign on with the proviso that we will pursue a graduate degree, but I was one of those fortunate ones who had come on board before this stipulation was part of the standard employment offer letter. I only had to go back to school if I wanted to, and there was never any chance of that. Right?

Not quite.

As forty approached, a funny thing happened. I was suddenly ready to go to graduate school. I wasn't really sure why this desire had cropped up. Partly it was a desire for a change, partly the feeling that my mind was starting to stiffen into too-familiar patterns. I wasn't even sure that I would last for more than a term before running back to my usual life. But, in the fall of 1989, I swallowed my reservations and enrolled part-time in the Technology and Science Policy (TASP) program at Georgia Tech.

If this were an Alfred Hitchcock movie, the plot would call for the hapless student to enter a master's program and immediately be inundated with all the horrors that his dreams foretold. Fortunately, this has happened only occasionally to me. True, I spent one term as a two-or-three-night-a-week insomniac—taking a course load with four to five hundred pages of reading a week, several oral presentations, and two 20-page research papers. However, for the most part, the class schedule has been more stimulating than painful.

Four terms into this adventure, several generalizations come to mind:

- My initial instincts were correct. Going back to school is a massive wake-up call for the atrophying forty-something mind. One of the best signs that my brain is being stretched is the time it takes me to peruse each day's newspaper. More articles are now ringing bells.
- TASP has taught me more about the culture of science and engineering than I had learned in my 10 previous years at Research Communications. That knowledge in itself has made the program worth the time. ➨

• Tech students are as smart as advertised, but there is a lot to be said for experience. One thing that aging has taught me is that formulas are nice, but they seldom sum up the real world. Education is largely about coming to terms with the grays that take up most of the spectrum between black and white. Public policy helps the student to learn that lesson applied to science and engineering, too.

Regrets? Mainly that there have to be tests; the anxiety about them never fades away. My main surprise? So far, I haven't had a single bad dream. ❑

GTRI's tuition reimbursement program

Any research titled GTRI employee who is pursuing an advanced degree may apply for admission into the tuition reimbursement program. Approximately 130 professional employees are enrolled in the program in any given year. Bill Howard administers the program out of OOD, assisted by Marianne Thompson, HRD.

Of the 105 employees enrolled during the 1990 fall quarter, 86 are enrolled at Georgia Tech—56 in master's programs and 30 in doctoral programs. Seventeen are pursuing master's degrees at other schools, and two their Ph.D.s. Those studying at Georgia Tech are in the following fields:

Master's
Electrical engineering—37
Information & computer science—5
Management—4
Mechanical engineering—3
Industrial & systems engineering—2
Technology & science policy—2
Environmental engineering —1
Mathematics—1
Polymers—1

Ph.D.
Electrical engineering—20
Mechanical engineering—4
Aerospace engineering—1
Information & computer science—1
Materials engineering—1
Physics—1
Technology & science policy—1
Textile engineering—1

For further information on the tuition reimbursement program, contact Bill Howard, 894-3359. ❑

Search for lab directors starts

GTRI is starting a search for directors of six laboratories that are currently being managed by interim directors. The laboratories and the search committee chairs are as follows:

• Aerospace Science & Technology: Trent Farill
• Advanced Technology: Jim Cofer
• Communications: Randy Case
• Materials Science & Technology: Jack Lackey
• Physical Sciences: Chris Summers
• Radar & Instrument Development: Mark Richards

New GTRI logo introduced

GTRI is adopting a new logo that makes more prominent use of its connection with Georgia Tech.

The logo, as shown in this story, combines the script "Georgia Tech" logo already in use throughout the Institute with the words "Research Institute" displayed beneath it in capital letters. A slightly different version of this logo has been used for some time by GTRI research units involved in industrial and business outreach activities.

"In 1984, when the Engineering Experiment Station became the Georgia Tech Research Institute, we introduced a new logo based on the acronym GTRI," said GTRI Director Donald J. Grace. "This logo has proved useful in establishing a new identity for GTRI, but the time has come to take the next step in our organizational evolution."

Dr. Grace said that the logo change was approved by the GTRI Executive Council for several reasons:

• To give GTRI publications a more uniform and recognizable appearance to audiences outside the campus.
• To show the relationship of Georgia Tech and GTRI in a compact graphic element.
• To clarify the organization's identity to readers who are unaware of the meaning of the acronym GTRI.

Dr. Grace said that the new logo should be used in future GTRI publications as a replacement for the GTRI-acronym logo. A design using the new logo will be introduced on stationery and business cards when GTRI's present supplies run out. If staff members have special needs, however, they may make the change more immediately.

Copies of the new logo and instructions for using it in different applications have been developed by Research Communications (RCO) and are available upon request by calling 894-3444.

Research Communications is making the logo available on paper sheets or in computer software files. The camera-ready paper sheets will include copies of the logo in a range of different sizes. The software files are in TIFF or EPS graphic formats for either DOS or Macintosh computers.

The EPS version offers the best-quality rendering of the logo, but it can be generated only on computer printers that have Garamond plain and bold italics typefaces available as printer fonts. The TIFF version offers a highly acceptable rendering of the logo and can be imported into computers as artwork, regardless of font accessibility.

To obtain the software files, GTRI research units should mail or deliver a floppy disk in DOS or Macintosh format to Research Communications.

Those with further questions about the new logo should call Mark Hodges at RCO, 894-6987. ❑

Georgia Tech
RESEARCH INSTITUTE

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Word processing: tricks of the trade

The following editorial is reprinted, with permission, from IEEE Transactions on Aerospace and Electronic Systems, *Vol. 26, No. 2, page 209 (March 1990).*

Catching misspilled swords with spilling checker

As an extra addled service, I am going to put this column in the Spilling Checker, where I tryst it will sale through with flying colons. In this modern ear, it is simply inexplicable to ask readers to expose themselves to misspelled swords when they have bitter things to do.

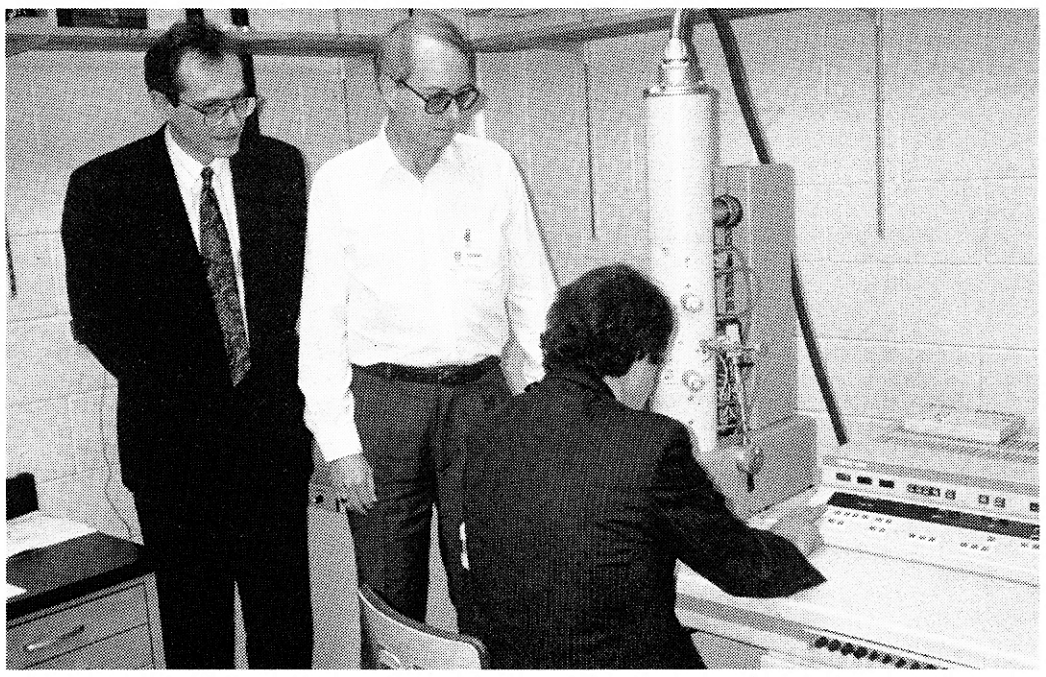
And with all the other timesaving features on my new work processor, it is in realty very easy to pit together a colon like this one and get it tight. For instants, if there is a work that is wrong, I just put the curse on it, press Delete and it's Well sometimes it deletes to the end of the lion or worst yet the whole rage. Four bigger problems, there is the Cat and Paste option. If there is some test that is somewhere were you wish it where somewhere else you jest put the curse at both ends and wash it disappear. Where you want it to reappear simply bring four quarts of water to a rotting boil and throw in 112 pounds of dazed chicken. Sometimes it brings in the Cat that was Pasted yesterday.

But usually it comes out as you planned, or better. And if it doesn't, there are lots of other easy to lose options, one of which is bound to do exactly what you want. In no time at all you'll be tuning out prefect artifacts like this one.

So join the marsh of progress. Hitch your wagon to a stair. When you become adapt at world processing there's no end in sigh. ❑

News & Notes

Who was the GTRI lifesaver who supplied an essential prop for Governor Miller's inauguration? See column 2.



Victor Kopylov of Wintron Inc. demonstrates the transmission electron microscope he invented. Looking on are Andrij Brygidyr (left), prsident of the Canadian/Soviet firm, which is lending the instrument to GTRI, and John Sparrow, in whose lab the instrument was installed. **Photo by M.A. Stegar.**

GTRI to evaluate Soviet electron microscope

By Martha Ann Stegar, RCO

A Soviet-designed and built transmission electron microscope (TEM) is on a year-long loan to GTRI's Materials Characterization Branch at no cost except upkeep. In return, GTRI scientists will evaluate the system and be available to demonstrate it to visitors.

The microscope and related equipment are being marketed in North America and the U.K. by Wintron Inc. of Toronto, Canada, a joint venture between P.A. Electron of Sumy, USSR, and the Winchester Group of Canada. Georgia Tech is one of four U.S. universities selected to evaluate the instrument—the others are the University of California at Davis, Cleveland State University, and the State University of New York at New Paltz—and the first to have it operational.

Andrij Brygidyr, president of Wintron, and Victor Kopylov, the designer and major patent holder of the TEM, were on the Tech campus in late November to install and fine-tune the instrument. "It's a good, reliable, basic instrument that will satisfy most users' needs," Brygidyr said. "It incorporates six mini lenses that dramatically reduce the size of the instrument without sacrificing performance or applications flexibility. But its main advantage is that, at $80,000, it sells for less than half the price charged by its competitors. Our marketing strategy is to come in with low penetrator pricing, as the Japanese did 20 years ago. The free loans to several universities are also part of that strategy."

The microscopes will be sold through independent sales agents in the U.S. Wintron held its first sales meeting in Atlanta in conjunction with the installation at Tech.

In fact, the TEM is involved in many "firsts." When representatives of the two companies signed the joint-venture agreement in London in August 1989, it was the first time this had occurred outside the Soviet Union, and the first such agreement between a factory in the USSR and a private company in the West. "Previously, Western firms could make agreements only with the central Soviet government," said Brygidyr. "Of course, now they are being signed at the rate of 200 a month. This is perestroika at work."

The P.A. Electron factory is located in Sumy, a city 300 kilometers east of Kiev in the Ukraine. It is a fully integrated factory, with its own iron ore refinery, glassmaking plant, and other facilities for manufacturing scientific products and some consumer goods such as television sets "from scratch." The 6,000-employee plant is the only factory in the Soviet Union that makes electron microscopes.

The Winchester Group is an umbrella organization created with the philosophy not to sell to the Soviets, but to buy from them. Founded in 1987, it has formed several member companies that import selected USSR products for resale in North America.

John Sparrow, the GTRI scientist who will be using the new TEM, thinks the loan arrangement is a good deal for everyone. "We'll see how reliable it is," he said, "but right now it looks good." ❑

GTRI to the rescue

Editor's Note: Thanks to Glennette Harris (OOD) for contributing the following news item.

It's common knowledge that Zell Miller was inaugurated Governor of Georgia at 2:00 p.m. on Monday, January 14, in a ceremony at the Georgia Tech Coliseum. But not so common are the following facts:

The military man rushed into the Coliseum Annex showing great excitement and concern. The setup for Governor-Elect Zell Miller's swearing-in was proceeding as planned, until it was discovered that there was no Bible for the actual swearing-in procedure. Time was running out, and the military man found himself in the middle of an institution that had plenty of books, but what about the "Good Book"? Then, dramatically and in the nick of time, Michael McCaskill of the Human Resources Department walked through the door, heard the anxious man's story, and confidently walked to his car.... And that's how the 79th Governor of Georgia was inaugurated at Georgia Tech. ❑

Tech appoints new human resources administrator

Jerry A. Dark has been appointed Georgia Tech's first Associate Vice President for Human Resources, effective February 1. He comes from Boston College, where he was the Director of Employee Services for the past five years.

Dark will be "the Institute's principal administrator responsible for developing and implementing appropriate policies and procedures for all aspects of human resources management," according to the announcement released by vice presidents Richard Fuller and Donald Grace. Both the Georgia Tech Personnel Office and the Human Resources Department of GTRI will report to him.

Dr. Grace stated, "The Human Resources Department will continue to operate in exactly the same way for the foreseeable future." He said no major changes are contemplated for now, and any future changes will be carefully evaluated and discussed prior to implementation. ❑

Who are we? The last word

We have come up with a sure winner for **Shortest Person**: Patti Ryan (MAL), who is 4 feet 8 1/2 inches tall.

The new record holder for **Most Moves** is Bill Dittman (MATDL), who has had 17 different offices in three different buildings, beginning in 1965.

Bill Cooke is the new champ for **Least Sick Leave Taken**. He's taken only 28 hours sick leave since he arrived at Tech June 1, 1972.

Joe Harris says he tops his long-time friend and co-worker Steve Bomar by three years for the **Most Years of Service** title. Joe came to work as a full-time employee in June 1955.

In the Open Category, we have an unusual entry. Kelly Denny nominates the Computer Science and Information Technology Lab as the **Most Productive Lab**. Five employees are expecting new babies between March 1 and July 31! She says the water fountain in ERB is a suspect.

Michael Begley (CAL) nominates himself for **Man with the Longest Hair**. He writes: "Braided, it goes halfway down my back, 19 inches below my collar. Unbraided, it is a couple of inches longer. Six years in the making, for just a moment such as this!" He is an RE II, and received his MSEE in December.

Mike adds: "I wear it in my collar at work, so it usually takes people about six months to notice it. At my previous job in California, I wore it out at work, only tucking it in when sponsors came, but I figured even though this is a university, it's still Georgia, so I tuck it." ❑

Questions, Anyone?

By Charles McCullough, HRD

I can't ever remember when a doctor's statement is needed for an absence and when a statement isn't needed. And why is one needed anyway?

Instead of trying to remember when it's needed, why don't you just remember that it's written down in very clearly defined terms in the GTRI Procedures Manual, Procedure 20-14? In a nutshell, anytime you charge more than 40 consecutive hours to V-500, you must provide HRD, through your lab director's or department manager's office, a doctor's statement saying that it is permissible for you to return to work, the specific date on which you may return, and any limitations that might be in effect upon your return. If you have been out on sick leave for more than 40 consecutive hours, you may not return to your workstation and begin work until this doctor's certificate is in your supervisor's possession. As to the why, it would be easy to cop out and say, "because the Board of Regents says so" (which they do); but the better explanation is that it is to protect you, the employee, and Georgia Tech, your employer. If you've been out for a week due to illness, it's apparent that something was seriously wrong with you; and we don't dare risk having you fall out at your desk or your lab table because you're still too ill or injured to be working. Supervisors who have had an employee out for more than 40 hours are doing exactly what they are supposed to be doing when they send you packing back home or back to your doctor for the doctor's statement if you show up without the necessary paperwork. While there is a form available for your doctor to complete, the actual form itself is not necessary IF the note or letter your doctor provides you answers all the questions posed on the form.

I got in a half hour early the other day. Naturally, I wanted to leave a half hour early. My boss pitched a fit and said no. Was she within her rights?

Your boss was very well within her rights and duties as your supervisor to deny your request to leave early in compensation for your unheralded early arrival. It is the supervisor who sets the working hours of his or her employees. We give our supervisory personnel a lot of latitude about working hours so that the wide variety of jobs that exist at GTRI can get done and get done on time as long as all offices are open for business during the Institute's officially recognized workday of 8 until 5. But your job, or your workload, may not permit any flexibility and you, the employee, cannot take it upon yourself to change your own work hours. If you have an occasional need to alter your work hours, most labs and departments will try to accommodate you. When they can't, it's called Life as a Member of the Work Force.

The last company for whom I worked required that an employee be present on the business day preceding a holiday and the business day following a holiday before the employee could get paid for that holiday. How is it here at Georgia Tech?

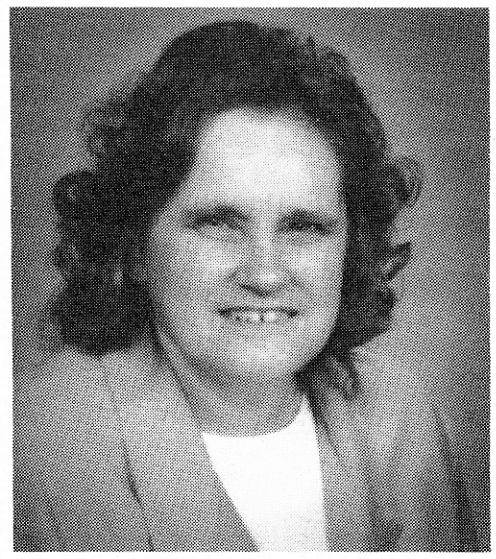
We're less demanding than your past employer. In order for a benefits-eligible employee to be paid for a holiday, he or she must be in a paid status on the business day preceding the holiday. Note that you don't necessarily have to be at work; you can be on a compensated absence, for example. As long as you are not in a non-pay status, you'll get that holiday.

Now, I can hear the brain cells going into overdrive with all of you wondering about what happens if your last working day is the day before a holiday. According to the preceding paragraph, you'd get paid for the holiday because you were in a pay status the day preceding the holiday. Right? Wrong. Your terminating paperwork puts you in an inactive, unpaid, terminated, kaput status effective at close of business on that last working day; therefore, you can't get paid for the holiday because you're not one of us anymore.

I had an employee who terminated. She provided adequate notice and we provided HRD with adequate forewarning of her termination. Her final paycheck still got delayed.

That wasn't a question, but I'll address it anyway. When an employee's terminating paperwork meets the usual deadlines published by Payroll and that employee's final paycheck is fouled up, ninety-nine times out of a hundred the reason is that the final vacation pay is wrong. And ninety-eight times out of those ninety-nine, when a terminating employee's vacation pay is wrong, it's because he (or she) has taken more or less vacation during the final pay period than he said he would. If more vacation is taken, the final paycheck is prepared for too large a dollar amount. If less vacation is taken, the final paycheck is prepared for too small a dollar amount. When your lab or department calls over for a "final vacation balance," we in HRD can only tell you the balance at the end of the employee's last pay period. You then add in what the employee will accrue between now and his/her termination and subtract what the employee projects he or she will take in vacation between now and termination. So much as a minute of difference in what is projected and what is actually taken is going to make a mess out of that final paycheck. Since vacation time may only be taken at the supervisor's discretion, you, the supervisor, are well within your rights as a supervisor to insist that whatever amount is projected by the employee is taken without an iota of difference. Or, if you prefer, you can deal with the hassle of a former employee calling you to kvetch about a late paycheck that was, of course, entirely YOUR fault. ❑

Information, Please!



Ann Campbell, GTRI Library liaison.

Calling all research personnel! Ann Campbell, the research librarian at the Georgia Tech Library who is assigned to assist GTRI researchers, is available to perform advanced literature searches in the field of your choice.

For example, she has been assisting a graduate student who works at GTRI in researching the state of the art in neural networks. As a result, she has compiled a summary of trends and applications, derived from the published literature, for distribution to interested persons.

Major headings in her six-page paper are: Research at Georgia Tech and GTRI, Military Applications, Research Activities (international), Commercial Developments, Trends, Journals and Upcoming Conferences.

Here are a couple of the more interesting commercial developments Ms. Campbell describes:

"Commercial applications of neural networks include systems for airport baggage, medical imaging, investment analysis, and power plant load forecasting. Science Applications International Corp. has developed a $750,000 security system for airports. A neural network system examines checked-in baggage for nitrogen, which is contained in all known explosives. It is expected to detect explosives 96% of the time. This SNOOPE bomb detector has been installed in several airports.

"Siemans Ultrasound developed a neural network to improve image quality in medical ultrasound. The network has 64 input feeds, two hidden layers of eight neurons each, and 64 outputs. A back propagation algorithm is used to train the network. Aberrations are removed in the echo arrival time prior to beamforming. Physicians in the Radiology Department of Thomas Jefferson University are testing neural networks to analyze problems in pattern recognition on a noisy background. Other medical applications of neural networks include eye disorder diagnosis and error detection in the examination of Pap smears. In a computer-generated set of 'nodules' the neural net performed more accurately than the human observer."

To receive a copy of the Neural Nets paper or to discuss your own research needs, contact Ann Campbell at 894-4511 or PROFS ACAMPBEL. ❑

Queries & Quotes

Sick leave . . . office hours . . . holiday pay . . . final paychecks . . . whatever your question, Charles has the answer.

Focus on Folks

Comings and goings . . . and assorted activities.

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Professional Activities

Countermeasures Development Lab

Congratulations to **David Flowers**, who received the Defense Advanced Research Projects Agency (DARPA) award for the best paper published in the Volume 18 issues of their journal, the *Journal of Defense Research*. His paper, "Monopulse Countermeasures: Introduction to Dual Coherent Countermeasures," appeared in Vol. 18, No. 3. Papers are judged on the originality and importance of the subject matter and the impact the paper will have on the scientific and defense communities.

Economic Development Lab

In November, **Gerry Doubleday** and **Frank Mewborn** taught an Education Extension course on "Improving Profits by Maximizing Productivity."

David Chatham of the Macon Regional Office has been named coordinator for the Existing Industry Program, an effort funded through the Economic Development Administration University Center to start or improve existing industry programs in localities statewide.

Materials Science & Technology Lab

Jack Lackey presented a paper entitled "Continuous Fiber Coating System" at the 15th Annual Conference on Composites and Advanced Ceramics of the American Ceramic Society , held in Cocoa Beach (FL) January 13-16.

Radar Systems Applications Lab

The *1991 EW Design Engineers' Handbook* (Horizon House) contains a paper by **Guy Morris** titled "Radar System Testing."

Research Communications

RCO won three awards in the District III Awards Competition of the Council for the Advancement and Support of Education (CASE). *Research Horizons* (**Mark Hodges**, Editor) won a Special Merit Award in the Other Magazines category, and the *1990 GTRI Annual Report* (**Jim Kloeppel**, Editor) won an Award of Excellence in the Annual Report category. RCO's Media Relations Program (**John Toon** and **Ginger Pinholster**) received a Special Merit citation in the Total Public Information Program category.

Research Property Management

At the annual seminar of the National Society for Property Administrators, held in San Diego in early December, **Harry Ross** was elected as the Southeastern Region's representative to the society's Advisory Committee, and **Bert Watkins** was elected a member-at-large. ❑

Dave Flowers (right) is shown receiving a plaque for the best paper in Volume 18 of the* Journal of Defense Research *in a ceremony at the Pentagon last fall. Dr. Charles Herzfeld, Director of Defense Research and Engineering, presented the award, given by DARPA. **Special Photo.**

Personnel News

Advanced Technology Lab

Co-op **Timothy Sanders** has terminated.

Environmental Science & Technology Lab

Claudia Huff is the new manager of ESTL's Training Programs Office. She formerly was with the Industrial Education Branch.

Radar & Instrumentation Development Lab

Rachel Brennan is a new senior secretary in the Systems Branch, transferring from TSDL.

Carla Moore, Britton Stilwell, and **Richard Bly** have resigned.

Research Communications

Ginger Pinholster resigned, effective January 9.

Threat Systems Development Lab

TSDL welcomes three new co-ops: **Ari T. Flechner, Eric I. Francke,** and **David W. Runton.** ❑

The Threat Systems Group held their Ladies' Christmas Lunch December 18 at the Cobb County Research Facility. Shown enjoying the good food and fun are Judy Parks, Lynette Powell, Sharon Tabor, Glenda Powell, Cynthia Milam, and Marlene Aldridge. **Photo by Anita Edwards.** ▼

Personal Notes

Achiever

Congratulations to **Sherri Odom** (MATDL), who was the first woman to cross the finish line in the 26.2-mile Atlanta Marathon. Her winning time of 2:58:26 was 5 minutes ahead of the next female finisher and 35 minutes better than her last year's marathon performance. The race is held every year on Thanksgiving Day. What next, Sherri—the Olympics?

Wedding Bells

Robert Kossler (CMDL) and Catherine McGough were married January 5 in Dallas (TX).

December weddings in RIDL included **Wayne Cassaday**, who was married to Tracy Gillihand on December 23, and **Ted Lane**, who was married to Bonnie Claude on December 1. **Evan Chastain**'s daughter, Shirley, was married to Dennis Kirby.

Tony White (MATD) and Mary Ann Patellis were married on December 31.

Cradle Roll

Babies are busting out all over EDL. Franco and **Erma Hightower** had their first child, Irving Grant, November 24; Tony and **Melanie Largin** (Rome Office) are parents of a girl, Austin Leigh, born December 17; and Gayle and **David Fahrion** (Augusta Office) had a boy, Andrew David, January 7.

Bryan Williams (ENSL) and his wife, Linda, had their third child, Travis Compton, on November 15.

Dana and **Keith Edenfield** (MATD) welcomed a daughter, Melanie Kaye, November 27.

Steve Millar (ESML graduate student) and his wife, Annette, had a boy, Steven Christopher, December 21.

Bob McMillan (RIDL) is a grandfather again—a boy, John Robert Burns.

Our Sympathy. . .

To **Sam Alford** (TSDL), whose wife, Ann, passed away January 25.

To **Jim Page** (RIDL), whose grandfather passed away, and to Ruby and **Jim Scheer** (RIDL) on the death of her grandmother. ❑