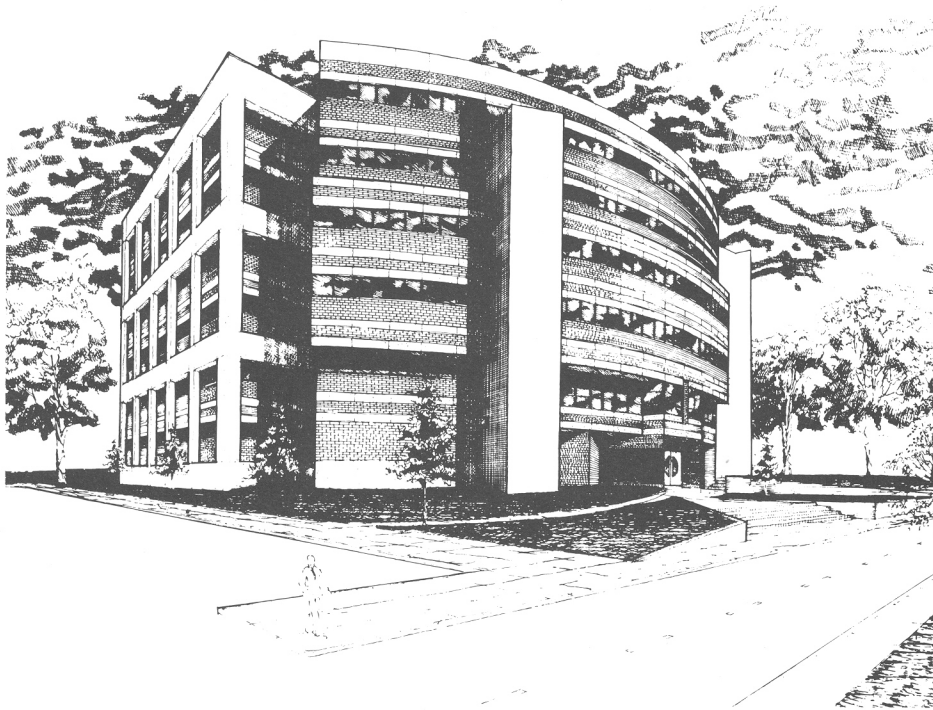


# Station News

Georgia Tech Engineering Experiment Station

Volume 14 Number 3

October 1983



The new Georgia Tech Research Building.

(Drawing courtesy of Robert and Company)

## Ground Breaking Imminent for New Tech Research Building

Georgia Tech is going to get a much-needed new major research facility, thanks to the Georgia Scientific and Technical Research Foundation (GSTRF). And the entire campus community is invited to the ground-breaking ceremony at 10:00 a.m. on Wednesday, November 9.

GSTRF will construct and lease to the Georgia Tech Research Institute a \$12.5-million, 191,000-sq. ft. brick building that will house more than 400 employees. It will be located at Tenth Street between Dalney and Greenfield, with the main entrance on Dalney, facing the Baker Building. The ATDC Building will be to the west.

The six-story facility will contain office and laboratory space, as well as some high-bay areas, for EES electronics and computer research. It is anticipated that it also will provide administrative offices for the EES Office of the Director, the Office of the Vice President for Research, the Research Communications Office, the Office of Contract Administration, and the Georgia Tech Research Institute.

The building should be completed in 15 to 18 months. It was designed by Robert and Company. Construction will be financed by 20-year industrial revenue bonds to be issued by the Fulton County Development Authority.

## NASA Tower to Find New Home on EES Antenna Range

Twelve truckloads of structural steel with "EES's name" on them have come to a temporary resting place behind a manufacturing plant in Dallas, Georgia, and it's a long story how they got there. They are the disassembled remains of the 131-foot steel tower which formerly supported the world's largest windmill. NASA erected the \$10-million windmill in Boone, North Carolina, in 1979. After completion of their research program, it was assigned to the General Services Administration (GSA) for disposal as surplus property.

### S&TL to Build Antenna Range

How did EES get into the act? "We have been purchasing instrumentation to implement a state-of-the-art antenna measurement range at the Cobb Research Facility," explained Bill Nolte of the Systems and Techniques Lab (S&TL), "and I was given the task of finding a suitable tower. As part of the search, I contacted agencies that dispose of surplus government property and learned that the NASA tower was available at no charge except for the cost of dismantling it—\$200,000.

"EES didn't have that much money available for the tower, so it was sold through a sealed bid procurement to Allen McNeil, a North Carolina textile manufacturer. Since all he wanted were the generator and switchgear, Dick Shaltens of NASA suggested that he give the tower to us. The result was donation of the tower, personnel lift, turntable and associated hydraulic systems."

After McNeil was announced as winner of the bid competition, a sudden hitch developed. A local citizens'

*(Continued on page 2)*

## EMSL Establishes Zeolite Research

A leading expert on molecular sieve zeolites, Dr. Tudor L. Thomas, joined the Energy and Materials Sciences Laboratory (EMSL) this month. He will establish a center of knowledge and expertise in this field under the Senior Research Faculty Leadership program sponsored by the Office of the Vice President for Research.

Dr. Thomas brings to Georgia Tech more than 30 years of research, development and management experience in molecular sieve zeolite products and applications in Union Carbide's Linde and Engineering Products Divisions. At Union Carbide, he participated in and managed growth of these products to a \$100-million worldwide business.

Molecular sieve zeolites are crystalline aluminum silicates with unique properties as adsorbents and catalysts that make them valuable in the petroleum, natural gas, petrochemical and specialty chemical industries. They have precisely formed pores of molecular size which are highly selective as to the sizes and shapes of molecules that can pass through them. They have long been used as adsorbents in purification and separation processes. They also are strong, very selective catalysts.

Not only is this a new research thrust for EES, but it will be one of only a few university research groups in the country in this field. Most of the research and development so far has been done by industry.

At EMSL, Dr. Thomas will manage a research program including study of the chemical and physical characteristics of molecular sieve zeolite products, their manufacture, and chemical processes that can be enhanced by using them. The program will emphasize inorganic catalysts and adsorbents, which are currently areas of high interest to industry. The broad objective is to establish a reputation for excellence and a strong sponsored research program.

Administrative responsibility for this new program has been assigned to EMSL, and supporting technology will be provided by resources and expertise in that laboratory.



Dr. Tudor Thomas. (Photo by M. A. Stegar)



The Eiffel Tower? No, the NASA windmill tower, earmarked for EES radar research use. Anita Edwards of S&TL took this photo during dismantling, after removal of windmill blades.

**Tower** (Continued from page 1) group started a drive to save the windmill as a landmark, but GSA ruled that their efforts came too late and the structure should be dismantled as planned.

Because of tax considerations, McNeil cannot actually donate the tower to Tech until next July. In the meantime, he is storing it on excess acreage at Simmons Engineering Company in Dallas, Georgia.

"We plan to use the bottom 41 feet of the tower as the base for our antenna facility receive tower," Nolte said. "This base will support a pedestal weighing approximately 12,000 pounds, a control room, and the large antennas anticipated for testing. The remaining 90 feet will be used for the transmit tower. This tower will feature an antenna positioner, up to an eight-

foot parabolic dish, an elevator, and probably a small weatherproof equipment enclosure. The platforms will be very rigid, an essential requirement in this measurement facility."

Pat Burns and Don Bodnar of S&TL have been responsible for coordinating the requirements of the various EES labs for the new antenna range. The facility will allow EES to design and test heavier antennas and evaluate performance of very low sidelobe antennas, providing for more accurate measurements. There will be at least a 1,000-foot separation between the towers.

### RAIL Plans RCS Range

As icing on the cake, part of the acquisition is the huge turntable which sat atop the NASA tower to position the windmill in relation to wind direction. The Radar and Instrumentation Lab (RAIL) will install it in the ground near the transmit tower as part of a radar range to measure the radar cross section (RCS) of military vehicles. The antenna range transmit tower will be modified to add an elevator to support the measurement radar systems. Measuring 14 feet in diameter by 5 feet deep, the turntable will be able to support heavy vehicles such as tanks of up to 60 tons.

RAIL will conduct research leading to development of RCS reduction techniques and/or weapon detection, discrimination and guidance techniques, according to Nick Currie. Measurements will be made at both microwave and millimeter wavelengths.

"Currently there are only three such ranges in the country—all military," said Currie. "This will free up the time we've been having to spend to go to other ranges, and will save our sponsors money. We also expect it to bring us more and different kinds of work."

### Team Members Wanted:

Georgia Tech currently is preparing a proposal to the Army Research Office to establish a long-term program in artificial intelligence (AI) research and education. The proposal is a joint effort of EES, the School of Electrical Engineering, and the School of Information and Computer Science. Any EES faculty with interests and/or related experience in AI research with Army relevance should contact Dr. Andy Spiessbach at ext. 3450.



## Egyptians Train at Georgia Tech

The first of three teams of technical specialists from Egypt arrived at Georgia Tech in mid-September to begin a three-month program of specialized training under supervision by the Technology Applications Lab (TAL). The training is slanted toward conducting diagnostic audits and providing technical services to a variety of Egyptian industries.

Upon their return, the technical specialists will be working to improve industrial productivity in their homeland under the auspices of the Industrial Technology Application Program (ITAP). This project is funded by the U.S. Agency for International Development and administered by TAL's International Programs Division.

The Egyptians are receiving intensive technical instruction in such areas



TAL hosted a reception for the ITAP trainees and 20 representatives of the Egyptian apparel and textile industries who were in Atlanta for two weeks in September. (Photo by M. A. Stegar)

as materials handling, plant layout, inventory management, quality assurance, production planning, and cost control. Additional topics include the use of computers in industry, the application of energy conservation

measures, and issues related to safety and health. Numerous visits are scheduled to industrial plants around the state, as well as to several EES field offices.

*Claudia Huff*

## Professional Activities

### ELECTROMAGNETICS LAB

**Marshall Weathersby**, **Gene Loefer**, and **Darrell Lamm** participated in a recently completed seeker captive flight test at White Sands Missile Range, New Mexico, in support of the Army's Multiple Launch Rocket System—Terminally Guided Warhead program.

### ELECTRONICS & COMPUTER SYSTEMS LAB

At the 1983 URSI (International Union of Radio Science) Symposium on Electromagnetic Theory, recently held in Spain, **Johnson Wang** presented a paper entitled "Computation of Radiation in Stratified Media by Fast-Fourier Transform."

**Don Clark** was elected secretary of the IEEE Electromagnetic Compatibility Society at the 1983 International Symposium on Electromagnetic Compatibility, held in Washington, D.C., August 22-25. Clark and **Hugh Denny** chaired sessions, and the following papers were presented: **Darrell Acree** and **Denny**, "Effects of Cable Shields on Cable Coupling in Lossy Media"; **John Daher** and **Jimmy Woody**, "Investigation of the EMI Aspects of Electric Vehicles"; **Bruce Melson** and **Denny**, "Supplemental Grounding of External Collectors"; **Bill Free** and **Clark**, "Management and Design for EMR Hardening."

### ENERGY & MATERIALS SCIENCES LAB

**Hans Spauschus** delivered a paper at the 16th Congress of the International Institute of Refrigeration (IIR) in Paris, France, in September. He is vice chairman of the U.S. National Committee of the IIR and vice president of the Scientific Council of the international organization.

**Tom Brown** attended the Solar World Congress of the International Solar Energy Society in Perth, Australia, August 14-19, where he chaired a session on Solar Thermal Electrical Power Systems and read two papers. One paper, coauthored with **Paul Mackie**, **Doug Neale**, and **Hamp Teague**, was on "Advanced Component Research in the Solar Thermal Program," and the other, coauthored with **A. J. Hunt** of Lawrence Berkeley Labs, was on "Solar Test Results of an Advanced Direct Absorption High Temperature Gas Receiver."

### TECHNOLOGY APPLICATIONS LAB

At Georgia's annual American Vocational Association conference, held in Atlanta, **Carol Aton** spoke on August 10 to the Georgia Displaced Homemakers Network on "Reviving the Cottage Industry in an Electronic Age." **Keith Nelms** spoke on the same sub-

ject to the Region IV Conference of the Network, held in Savannah on September 22-24.

**Bill Bulpitt** and **Tom McGowan** co-chaired a wood gasification session and presented a paper on "Use of Wood Gasification in a Large Chemical Plant" at the Forest Products Research Society's Energy Forum 83, held in Nashville, Tennessee, on September 19-21.

**Alan Pashkevich** was one of two presentors of a workshop on how to implement a community-based hand pump project, held in Riobamba, Ecuador, October 17-18 under auspices of the U.S. Agency for International Development. Trainees were community development staff members from the Peace Corps, Vozandes Hospital, CARE and other private voluntary organizations.

**Charles Duke**, Industrial Education Department, recently conducted management development programs for Gulfstream Aerospace Corp. (Savannah), Chemical Products Co. (Cartersville), and Columbus Mills (Eufaula, Alabama).

TAL demonstrated its latest agricultural research at the 1983 Sunbelt Agricultural Exposition, held October 11-13 near Moultrie. Their display focused on farm energy and computer applications.

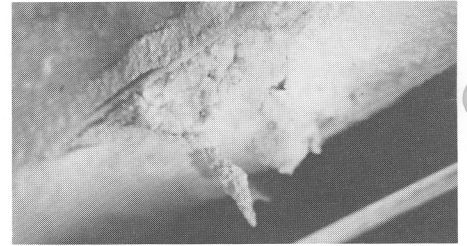
## Schools Get Tech Help on Asbestos

Did you see Jim Hubbard of the Energy and Materials Sciences Lab (EMSL) on television September 7? He was on the 6:00 p.m. news on all three network affiliates, reporting on the results of his analysis of potential asbestos hazards in the buildings of the DeKalb County School system.

That was just the most visible exam-

ple of an asbestos analysis service that EMSL's Materials Characterization Branch has been providing to schools and other clients in the Southeast on a regular basis for several years.

The school activity began in 1979, when the Georgia Department of Human Resources asked Hubbard to analyze bulk samples of asbestos-containing materials to help them meet the Environmental Protection Agency (EPA) regulation that every school be analyzed for asbestos



This asbestos insulation has been damaged and is hazardous to human health.

hazards. Hubbard also analyzes air samples in areas where asbestos is present, and has developed tests to determine how many asbestos fibers are released when a material is abraded.

The bulk samples are analyzed by optical polarized light microscopy, and the air filter samples by transmission electron microscopy (TEM). Because of the high resolution of TEM, it identifies the tiny asbestos fibers that are the most dangerous (smaller than 5 microns). Thus, after asbestos has been removed, TEM analysis can provide a site with a "clean bill of health."

At the request of EPA, Hubbard organized the first Georgia Tech short course on asbestos, conducting one in December 1980 and another in May 1981. Since then, the courses have been conducted by EDL's Environmental Health and Safety Division. Hundreds of people attend these multi-course seminars annually.

## Strictly Personal

### ECONOMIC DEVELOPMENT LAB

Business Development Division: Welcome to **Carrie Kaiser Bellware**, research associate I, and **Jon A. Schmidt**, senior research associate. **Frank Brown** is the new director of the Rural Assistance Program, replacing **Jim Thomas**, who resigned. **Art Brown** also has joined RAP. **Dianne Lanier** and **Steve Losser** also have resigned. **Diane Stewart** has transferred to the Office of Academic Affairs.

Environmental Health & Safety: **Charlene Bayer**, senior research scientist, and **Craig Schuey**, chemical technician II, have joined the staff of the analytical laboratory. Additions on the research scientist I level are **Kevin Downs** and **David Jacobs**. **Janice Pye** has transferred from ECSSL.

Gainesville Field Office: **Lisa Merritt** has replaced **Darlene Fischer** as administrative secretary. Director **Phil Loveless** is the proud father of twins born on October 6. Wesley Thompson weighed 5 lbs., 4 oz., and Laura Leigh weighed 4 lbs., 11 oz.

### ELECTRONICS & COMPUTER SYSTEMS LAB

**Dianne Geiger Feyer** has joined the Electromagnetic Effectiveness Division as a word processor specialist. She was married to Paul Feyer in September.

Other recent weddings: **Brad Skelton** to **Kathy Traylor**; **Mark Morgan** to **Kayren Parmer**; **Ben Atha** to **Tracy Hadaway**; **Ricky Moore** to **Barbara Shaeffer**.

**Tony Andruzzi** and **Connie Foulke** have resigned.

### ENERGY & MATERIALS SCIENCES LAB

Congratulations to **Carolyn Hodges**, who has just received her Juris Doctor degree from the Woodrow Wilson College of Law.

Welcome to **Lois Speaker**, senior research scientist in the Bioengineering Division, and to **Rosemarie Szostak**,

research scientist II, who will work on the new zeolite research program.

### OFFICE OF THE DIRECTOR

**Barbara Turner** has received her CPA certificate. Well done!

### RESEARCH COMMUNICATIONS

**D'Arcy ("Dee") Cantrell** has joined RCO as a senior secretary.

**Ray Moore** was married to **Sara Sears** on October 1.

### SERVICE GROUPS

**Carol Hogan** is a new accounting clerk in Accounting.

**Gerald Dock Hill, Jr.**, of Facilities Management, was married on September 17 to **Carol Casey**.

**Willie Harvey** is a new welder I in Mechanical Services.

Kudos to **Carol Baxter**, Facilities Management, whose softball team made it to the GIT Intramural Finals this summer. Carl managed the team, which cinched second place for the fourth year in a row.

### SYSTEMS & TECHNIQUES LAB

New employees include **Karen Palmertree**, word processor operator, **Sheron Boyd**, administrative secretary, **Robert Clay**, research associate I, **Robert Kerr**, research engineer I, **Pamela Watt**, research associate I, and **Bonnie Sitherwood**, lab technician I. **Andrew LiCausi** has transferred from RAIL.

Resignations include **Cindy McNeill**, **Robert Reck**, **Robert Rogers**, and **Richard Smith**.

**Keith Rainer** was married to **Robin Smith** on September 10.

### SYSTEMS ENGINEERING LAB

The lab welcomes the following: **Mark Allen**, research engineer I, **Arline Farmer**, senior secretary, **Sheri McGuirk**, administrative secretary, **Aila Wartell**, artist I, and **Jon Wyatt**, research engineer I.

### TECHNOLOGY APPLICATIONS LAB

**Beadie Lloyd** has resigned to take a position at Emory University.

## Station News

Vol. 14 No. 3

October 1983

*Published monthly for employees of the Engineering Experiment Station, Georgia Institute of Technology, Atlanta, Georgia. Georgia Tech is a unit of the University System of Georgia.*

### Editor

Martha Ann Stegar 3405

### Graphics

Gerald K. Webb 3405

### Associate Editors

Dee Ramunno, OOD 3400

Gayle Warren, EDL 3841

Gail Tucker, EML 3500

Ginny Gross, ECSSL 3542

Charlotte Sanders, EMSL 3460

Maggi Harrison, RAIL 424-9621

Janice Manders, SEL 3519

Cindy King, STL 424-9647

Keith Nelms, TAL 3412

Marianne Thompson, Services 3445