

Station News

Georgia Tech Engineering Experiment Station

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Outstanding EES Employees Honored

Fourteen outstanding EES employees were honored on December 1 at the first annual EES Awards Reception. They were selected from 35 finalists nominated by their co-workers in each laboratory, service department, and OOD. The EES Awards Review Committee made the final selection, as follows:

Outstanding Performance in Research: David C. Flowers (Systems Engineering Lab), development of a new theory in coherent countermeasures; Akkihebbal Ravishankara (Electromagnetics Lab), basic research in chemical kinetics and development of one of the world's leading research groups in atmospheric chemistry; Phillip L. Williams (Economic Development Lab), investigation of occupational exposure to pentachlorophenols (PCP's).

Outstanding Performance in Program Development: William M. Ewing (Economic Development Lab), generation of 20 proposals in FY 1983, including successful outcome with 15 different sponsors; Teddy L. Lane (Radar & Instrumentation Lab), generation of a \$1.8-million contract with the Army Missile Command in Huntsville for a multiple rocket launch program; Lloyd L. Lilly (Systems Engineering Lab), generation of \$9.7 million in contracts for electronic defense techniques analysis on a sole source basis over several years.

Outstanding Performance in Management: Robert G. Shackelford (director, Electromagnetics Lab), effective leadership, sound judgment, and maintenance of excellent communications with other campus units.

Outstanding Performance in Research Support: Billy Atcheson (manager, Accounting & Budgets



PATRICIA STONE

Winners of the first annual EES Outstanding Performance awards are (L-R): **Top**—Teddy Lane (RAIL), Billy Atcheson (Accounting), Bob Shackelford (EML), Phil Williams (EDL), Lloyd Lilly (SEL); **Middle**—Chris Thompson (TAL), "Ravi" Ravishankara (EML), Gwyn Dalton (EML), David Flowers (SEL), "Dusty" Rhodes (SEL); **Bottom**—Cheryl Cleveland (EDL), Katherine Taylor (RAIL), Bill Ewing (EDL), Michael Blyler (EML).

Department), spirit of cooperation which minimizes administrative difficulties for the researchers; Cheryl Cleveland (secretary, Southeast Georgia Area Office, Economic Development Lab), significant contribution to the successful completion of economic development and technical assistance projects; Gwyneth J. Dalton (administrative assistant, Huntsville Operations, Electromagnetics Lab), dedication and willingness to assume responsibility in the difficult environment of an off-campus operation; Robert H. Rhodes (Systems Engineering Lab), flight testing of polarization electronic countermeasures.

Outstanding Performance as a Student Employee: Michael F. Blyler (Electromagnetics Lab), software development for a millimeter wave project; Katherine P. Taylor (Radar & Instrumentation Lab), hardware

design; Chris Thompson (Technology Applications Lab), sensor inputs interfacing with robots.

Each winner received an engraved wall plaque, a certificate for dinner for two (up to \$50) at a restaurant of his/her choice, and a letter of recognition from the Office of the Director. James Wiltse and Gerald Carey presented the awards for the electronics labs, and Rudy Yobs presented those for the resources labs. Howard Dean made the service department award, and Donald Grace presented the management award.

James Scheer, chairman of the Awards Review Committee, presided at the ceremony, which was held in the Student Center ballroom. James R. Stevenson, executive assistant to President Pettit, assured the large gathering that "excellence is looked at by Georgia Tech at the highest level; it is recognized and rewarded."

First EES Director Visits Station

It was an historic occasion. The entire 49-year history of the Engineering Experiment Station was embodied in two men who were shaking hands on a rainy afternoon last November. Paying his first visit to EES in 30 years was Harry Vaughan, who founded the Station way back in 1934 and served six years as its first director. Greeting him was the Station's current director, Dr. Donald Grace.

Mr. Vaughan, who received his bachelor's degree in engineering chemistry from Georgia Tech in 1923, had come from his home in Thomson, Georgia, to attend Homecoming. After completing his graduate studies at the University of Illinois, Vaughn returned to Tech to teach. He became the head of the Ceramic Engineering Department, inheriting a struggling unit with only six students which he built up into a thriving school.

"I proposed an engineering experiment station to President Brittain in 1929. While studying the Georgia Code to see how one might be implemented, to my surprise, I found that EES had been authorized by the Georgia legislature in 1919! Actually, it was President Sanford of the University of Georgia who first suggested starting an engineering and scientific research station at Georgia Tech."

The chancellor of the University System of Georgia, Dr. Philip Weltner, backed the idea and successfully negotiated \$5,000 in funding from the legislature to start EES. "We were established as a separate unit of the University System reporting directly to the chancellor, not as a department of Georgia Tech," Vaughan said.

And so EES was born in the spring of 1934 in the basement of the old Shop Building, which was located adjacent to the Administration Building, where the memorial whistle now stands. The director's office was on the third floor of a nearby building. "Mechanical Engineering rented us the tools for our experiments," Vaughan said. "We built a complete viscose rayon facility, where we developed the first rayon of Georgia pine pulp.

"The Guggenheim Foundation gave \$6,000 for aeronautical research, and the Textile Foundation also supported



Harry Vaughan (left), the first EES director, and Don Grace, current director, discuss the Station then and now.

us. We developed cotton roving and spinning processes that were three to five times as fast as those that were current in industry. The Georgia textile industry saved \$1.5 million in two to three years using our processes."

The Station was staffed in its early years mainly by part-time professors and graduate research assistants. The professors received \$240 annually for directing research projects, and GRA's were paid \$60 a month for half-time work, Vaughan said. For concurrently heading Ceramic Engineering and EES, he earned \$4,200 annually.

Vaughan said he designed the original portion of the Hinman Building. The machine shop work floor design, with its floor channels, has been copied numerous times.

Vaughan left Tech in 1940 for the Tennessee Valley Authority, where he became chief of the Regional Products Research Division. When he departed from EES, its State appropriation had risen to \$40,000 a year and outside income totaled \$260,000. (In comparison, EES earned \$53 million last year.)

EES Solar Research Told in World Book

The 1984 edition of *Science Year: The World Book Science Annual* carries four paragraphs in its "Energy" section on the Small Particle Heat Exchange Receiver (SPHER) experiments conducted by Lawrence Berkeley Laboratory in cooperation with EMSL at Georgia Tech's Advanced Components Test Facility. A photograph shows the SPHER being tested atop the solar power tower, and a diagram shows how the SPHER operates.

Electronic Training Aids Add Interest

TAL's Industrial Energy Extension Service (IEES) is livening up its technology transfer workshops with training aids using electronic media. Unveiled at the Workshop on Improving Steam Boiler Efficiency, held in Savannah on November 9, were an instructive videotape on boiler testing and analysis procedures and a computer graphics program that simulates boiler operation. Both aids were produced by personnel of the Technology Applications Lab.

The videotape stars Joe Hoppe, who demonstrates how to test for combustion efficiency. Terry Moy was the cameraman. They plan to dub the tape in Spanish later and send it to Guatemala, where another energy-related industrial project is in progress. It is the first of a series of videotapes that TAL hopes to produce for training purposes.



Rick Steenblik of TAL shows computer display.

Rick Steenblik programmed the computer simulation to give boiler operators an opportunity to see how various factors change as operating conditions change. The "player" chooses boiler size, annual hours of operation, and natural gas price; then the computer gives him a set of operating conditions. When he varies the air flow, using a paddle-type joystick, a column of blue rises or falls, accompanied by a realistic variable boiler roar. Another blue column shows how this affects the percentage of oxygen in the stack gas, and a red column does the same for percentage of carbon dioxide. A yellow dial with pointer registers the changes in stack temperature. The computer then reads out percent excess air, percent efficiency, and annual dollar savings.

MINICOMPUTER NEWS

The MiniComputer Service Facility (MCSF) of EES will be using this column to issue news items concerning its computing facilities and related topics of general interest to Station personnel. We will announce such news as hardware revisions, software installations or updates, new services, and equipment additions. We intend to give Station personnel who read this column the latest information about computing services available to EES.

The two major facilities that MCSF administers are located at the Electronics Research Building on campus and at the Cobb County Research Facility. The research engineers in charge of the facilities are Lee Gantt at ERB (894-3753) and Michael McGraw at CCRF (424-0899). They can answer your questions and help you determine how best to use the computing services for your project.

The Cobb County facility recently moved into new quarters in Building 5. Problems that were occurring with the air conditioning are being resolved by Facilities Management through the installation of two supplementary units, ensuring an optimal environment.

Both ERB and CCRF have a MATRIX Model 3000 color graphic recorder. This device takes high resolution photographs of images displayed by the RAMTEK raster scan graphic display terminals. Presently, the ERB and CCRF MATRIX models have 35 mm cameras mounted, and CCRF also has an 8"x10" capability.

The MATRIX Model 3000 is highly versatile in its recording capability, with other available options including 16mm/35mm animation from POLAROID SX-70 photography. The MATRIX extends the usefulness of graphic images by making them available as hard copy, such as 35mm slides.

IEEE Taps Sears

William E. (Bud) Sears has become the fourth EES staffer in recent months to become an IEEE senior member.



Sears is chief of the Concepts Analysis Division of the Systems Engineering Laboratory, which has gained a national reputation for doing outstanding technical work under his leadership.

Sears currently applies his engineering expertise to a broad spectrum of programs related to analysis of electronic warfare (EW) concepts. He recently directed a program investigating countermeasure techniques against humans performing tracking tasks. He has directed a multi-laboratory program in which state-of-the-art EW techniques were developed for the Air Force Avionics Laboratory.

Professional Activities

ECONOMIC DEVELOPMENT LAB

Phil Loveless (Gainesville field office) is chairman of a task force of governmental, educational and business leaders who are looking at the long-range improvements that Hall County must make in order to recruit high-technology businesses.

Briefings on services available through Trade Adjustment Assistance recently were given by **Bob Springfield** and **Charles Estes** to the Hardwood Dimension Association and by **Ed Lindsey** to the International Marketing Institute for Sports and the Georgia Department of Industry and Trade.

ELECTROMAGNETICS LAB

John Gilmore gave two invited tutorials on Artificial Intelligence at the Third International Conference on Robot Vision and Sensory Control held November 6 at the Cambridge Hyatt Regency.

ELECTRONICS & COMPUTER SYSTEMS LAB

Rick Moore traveled to Koblenz, Germany, October 9-14 to present three working papers to Working Group D of the NATO panel on countermeasures. The papers were entitled "Infrared Detection and Countermeasures Research," "Radar Detection and Countermeasures Research," and "Measurements of Permeability and Permittivity at Millimeter Frequencies."

Georgia Tech is scheduled to host the next meeting of these NATO participants in April 1984.

Norm Ellingson is secretary/treasurer of the Atlanta Chapter of the Armed Forces Communications and Electronics Association, and **Ed Shanahan** serves with him on the board of directors. AFCEA is an association of government and industry professionals in the field of command, control, communications, and intelligence, most generally known for its magazine, *Signal*.

At the MILCOM 83 Conference in Washington, D.C., October 31-November 2, **Bob Rice** presented a paper entitled "Identification of the Current Potential ECM/ESM Threats to the ABIT Data Link."

Randy Coleburn and **Billy Wise** presented papers at the 8th Annual Energy Management and Controls Society national convention in Cincinnati, Ohio, in mid-November.

Bennett Teates was an invited member of a panel that discussed C² Decision Aids at the Rome Air Development Center November 16-18.

On November 22, the Biomedical Research Division coshosted with ATDC a seminar on "Medical Development and FDA Approval Procedures," attended by 30 governmental and industrial representatives.

TECHNOLOGY APPLICATIONS LAB

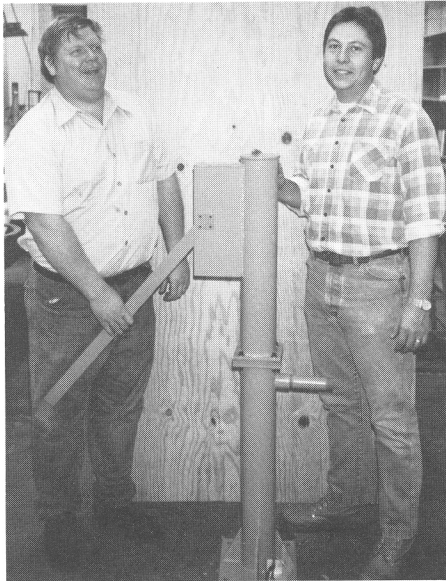
At the Southern Biomass Energy Research Conference at the University of Alabama on October 18-20, **Bill Bulpitt** chaired the Thermochemical Conversion Session and **Tom McGowan** presented a paper on "Utilization of Waste Streams in Biomass Gasifiers."

Walter ("Bo") Hendrix presented a paper entitled "The Role of Electricity for Productivity Improvement in Textile Processing" at the 1983 Marketing Division Conference of the Southeastern Electric Exchange held in Roanoke, Virginia, on October 12-14.

Charles Duke spoke on "Trends in Employee Training" at the Georgia Society for Textile Training and Development fall conference on November 3 at LaGrange, Georgia. **Bobby Cline** received a plaque recognizing his service to the society as its president in 1982.

Ben Roberson presented a paper entitled "A Unique Funding Arrangement" at the "Sharing What Works: Continuing Education in Action" conference, held in Blacksburg, Virginia, October 23-25.

Larry Banta presented a research seminar, "David and Goliath: Interfacing Small Generators with the Utility," for the Georgia Tech community on November 17.



Donald Long (left) and Ned West of the EES machine shop fabricated TAL's new pump.

M. A. STEGAR

The new pump was designed by TAL engineers Ben James and Fernando Pareja, and the prototypes are being fabricated by the EES Mechanical Services Department in Hinman. Project Director Phil Potts commended Foreman Gene Dixon and the other machine shop personnel who worked on the pump for their contributions to the design. "We wanted a simple design, one that could be easily manufactured in developing countries, and they suggested a number of design improvements."

The new pump can be made without casting. It is fabricated from off-the-shelf materials, using only a hacksaw, drill, and cutting torch. "It's crude, but it works," Dixon said.

Ben James and George Murdock, a new agricultural engineer at TAL, will install the pumps for field testing in the Dominican Republic during the first two weeks of December.

TAL Starts New Water Projects

The Water and Sanitation Branch (WSB) of TAL's International Programs Division, which for years has been installing and field testing the AID/Battelle hand-operated water pump in numerous developing countries over the globe, has designed a new steel hand pump of its own. The new prototype will be manufactured, installed and tested in the Dominican Republic.

This marks the entrance of WSB into hardware design, although the unit set up a pump testing laboratory last year. The group also has designed pump installation equipment that will make it easier and safer to install and maintain the pumps in remote villages. A water-seal toilet is being developed for use in the same environment.

These devices will help underdeveloped nations to provide sanitary water supplies for their rural populations. In addition, the pump and toilet can be constructed from native materials with available technologies, thus forming the basis for small-scale manufacturing facilities.

WSB will continue development of these water sanitation devices under a new contract with the U.S. Agency for International Development (AID). AID also has retained WSB to assist the Dominican Republic in training and manufacturing activities related to sanitation.

Continuing Ed News

January 10-12. **Radar Cross Section Reduction.** Sponsor: U.S. Army Missile Command. Eugene Knott (RAIL), academic administrator. Attendance restricted to U.S. citizens with SECRET clearance.

February 6-7. **Current Topics in Hazardous Waste Control.** John Nemeth (EDL), coordinator. Instructors will include Marilyn Black (EDL) and James Burson (EDL).

Albert Sheppard (VP-Research) and James Wiltse (OOD) are academic administrators of the following four courses:

January 31-February 2. **Millimeter Wave Systems and Technology.** Senior instructors will include James Gallagher (EML), Robert McMillan (EML), Edward Reedy (RAIL), James Scheer (RAIL), and James Wiltse (OOD). Charles Brown (RAIL) will teach an optional day (February 3) on millimeter wave radar.

February 8-9. **Microwave Devices and Sources.**

March 5-6. **Laser Technology and Systems Applications.** Demonstrations will be in the electronic research laboratories.

March 7-9. **Infrared Technology and Applications.** Robert Shackelford (EML), assistant administrator. Senior instructors include David Schmieder (EML) and Donald Blue (EML).

Strictly Personal

ECONOMIC DEVELOPMENT LAB

Anne DeCurtis, research associate I, is EDL's new technical writer/editor. She also will be EDL's associate editor for *Station News*.

ELECTROMAGNETICS LAB

Susan Elm was married on November 19 to Joel Bauman.

ELECTRONICS &

COMPUTER SYSTEMS LAB

Carolyn Mahaffey is the editor of ECSSL's interesting and informative new newsletter, *ECSSL Newsbits*.

Doug Henry, graduate research assistant, has joined the Technology Assessment Branch.

The Computer Technology and Applications Division recently said goodbye to Marcia Andruzzi, Richard Winkles, and Jim Eakes. Clif Burdette has resigned to teach at the University of Illinois and to work with Ultrasonics Research.

Bill Gaylord was married on October 15 to Celeste Carter.

OFFICE OF THE DIRECTOR

Frances Reynolds is the new administrative secretary for Lanny Feorene and Don Lyons.

TECHNOLOGY APPLICATIONS LAB

Debbie Herman has joined the Energy Conservation Branch as a research engineer I.

Joy Daniell is a new clerk III in the Industrial Education Division.

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