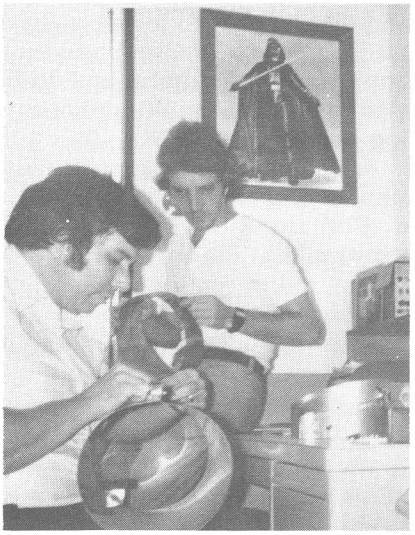
STATION NEWS

ENGINEERING EXPERIMENT STATION • GEORGIA TECH

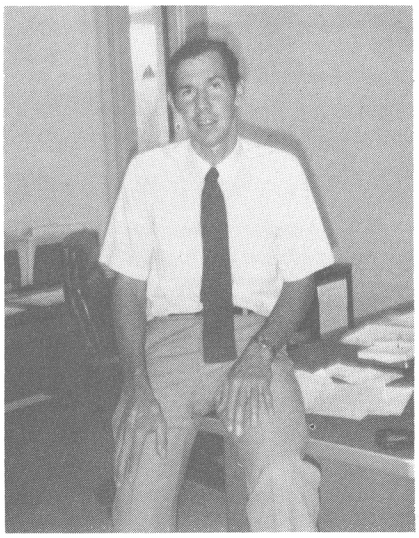
VOLUME 7 NUMBER 7 AUGUST 1978

Mary Ann Clarke shows the view of the lake (Loch Heed) from Bob Goodman's office.

At work, as usual, in new offices are Ann Evans and Dorothy Brown.



Settled in are Tim Smith, Ron Townsend, and the infamous Darth Vadar . . . overseeing the action.



Lee Edwards laughs as he announces that the waste baskets are now being emptied which must indicate that Phase I of the relocation has been completed.

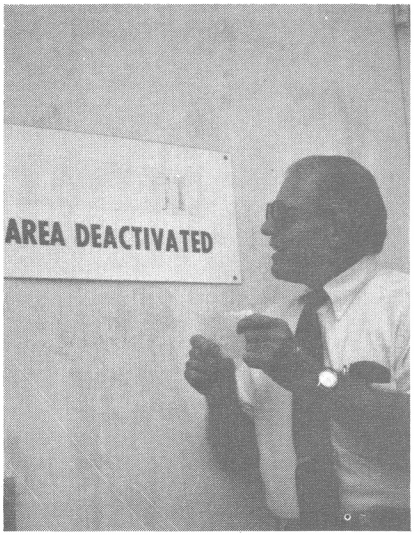
Research Facility — Marietta

The move of EES personnel to the Georgia Tech Research Facility - Marietta, is making steady progress. As of early August, Bob Goodman and some of his STD are in their new offices.

Lee Edwards' ACMD and Sam Alford's XM Programs Office are getting settled after some initial self-help efforts such as painting their own office spaces. About 70 people are already re-located to Marietta.

Ed Reedy and the RAIL people expect to be moving out by the end of August following some additional office and building refurbishing.

The facility grounds are being tended, and the area promises to be an attractive place at work.



"No, this can't be the place," declares Jim Donovan of the EES Publications Offices as he attempts to find the Georgia Tech facilities at Lockheed.

Herb Burrows

The many friends of **Herb Burrows** met recently at Dunfey's Royal Coach to honor the chemist on his retirement after nearly 38 years of friendship and service to the Tech community. Mr. Burrows was a professor in the Georgia Tech chemistry department from 1941 to 1956 and worked at the Experiment Station from 1956 to the present, most recently as a principal research chemist with TDL.

At the luncheon, which was held July 20, Herb expressed his appreciation to all members of the Tech staff and reminisced with his friends, many of whom he taught in chemistry classes. Some "old" students included **Alton Colcord, Ben James** and **Jim Knight,** all of TDL, and **Dr. Maurice Long,** past director of EES.

Although strongly attached to Tech, the Experiment Station and the Chemistry Department, Mr. Burrows admits looking forward to enjoying retirement with his wife Catherine and continuing his consulting work as a chemist.

IPO News

Rural Water Supply Expert to Work on New IPO Project

Andrew W. Karp has joined the IPO staff as a research engineer. He received his B.S. in Nuclear Engineering from Columbia University and his M.S. in Mechanical Engineering from Stanford.

Andy spent four years in Guatemala working on rural village water supply systems, two of them as a Peace Corps volunteer assigned to C.A.R.E. After the disastrous earthquake of February, 1976, he created and administered an Emergency Water System Repair Program, promptly putting systems serving over 40 devastated towns and villages back into functional condition.

Andy will bring much-needed depth to IPO's burgeoning rural water supply programs. His first assignment is an 8-month, $48,000 project in the Dominican Republic involving comparative field testing of the AID hand water pump.

IPO Gets UNIDO Energy Project

The United Nations Industrial Development Organization (UNIDO) has contracted with IPO to carry out a $72,000, 11-month program of "Assistance in Indigenous Energy Resources Development ... Using Rural Wastes in the Philippines," with **Clinton Stone** as project director. He and **Ross Hammond** will kick off the project with an on-site preliminary investigation of the availability of raw materials and manufacturing capabilities August 14-September 3.

IPO Travel

Nelson Wall and **Frank Malvar** will be in Brazil August 13-26 to work with the Educational Foundation of South Santa Catarina on its Small Industry Grant project and to do the annual audiovisual documentation.

Phillip Potts and **Andrew Karp** will go to the Dominican Republic in mid-August to initiate on-site activities on the new AID water pump project, then travel to Guatemala, Nicaragua and Costa Rica to check on progress of the Central American pump project.

Harlan Davis went to Brazil July 26 for a 10-day follow-up of a World Bank study of the Brazilian economy in which he recently participated as the agricultural expert on the team.

Conversational French, German, and Spanish for Faculty and Staff

Dr. Louis J. Zahn, Head of the Department of Modern Languages, has announced that new sections of non-credit conversational *French* and *Spanish* (Level VIII) for faculty and staff are scheduled to begin on Monday, July 24. Those who participated in Levels I-VII are encouraged to continue their studies.

Both classes will be offered in room B, third floor, Swann Building. The *French* course will be offered on MWF, 8-9:30 A.M., and the *Spanish* course on Monday-Friday, 12-1 P.M.

Basic conversational *German* (Level II) will also be offered beginning July 24. The prerequisite is one year of college German or the equivalent. The class will meet Monday-Friday from 8-9 A.M. in Skiles 153. Call 2452.

Georgia Tech to Hold Southeastern Forum on Appropriate Technology

All interested persons are invited to attend the Southeastern Forum on Appropriate Technology to be held at Georgia Tech. The forum, which is free of charge, will be held in Georgia Tech's Student Center Ballroom on Sept. 17 from noon to 5:00 p.m. and in the University's Space Science Bldg. on Sept. 18, from 9:00 a.m. to 5:00 p.m.

The purpose of the forum is to give participants the opportunity to discuss and provide input into the National Science Foundation's program on appropriate technology. Subjects to be discussed include energy systems, resource recovery, transportation, housing, agriculture, food distribution, industrial applications and education.

For further information contact **Jeff Tiller,** EES, phone 894-3844.

An Equal Education and Employment Opportunity Institution

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EML News

J. A. Stratigos and **J. A. Gagliano** spent the entire month of June at NASA/Ames, Moffett Field, California, installing and testing a 95/183 GHz radiometer aboard a NASA Convair 990. Both Joe and Jim will be returning to NASA/Ames to support additional flight tests periodically.

J. M. Schuchardt has just returned from the West Coast after making several technical presentations which included the Naval Weapons Center, China Lake, California, and the Naval Ocean Systems Center, San Diego, California. While in the area, he also visited NASA/Ames, Moffett Field. After many days of technical discussions and contract development, a well deserved vacation to Las Vegas, New Orleans, San Juan and St. Thomas was enjoyed by Jim and his wife Donna.

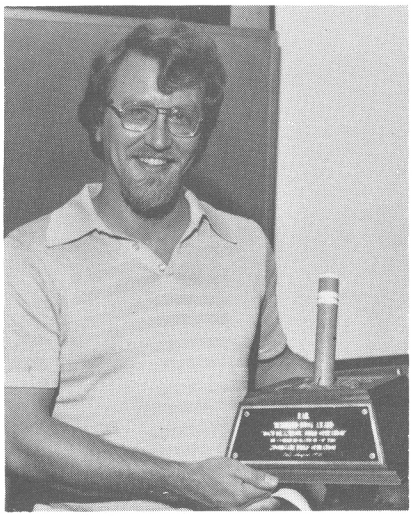
During the recent Fourteenth Symposium on Electromagnetic Windows held at Tech on June 21-23, 1978, two staff members of EML/RSD participated in presenting papers. **L. L. Webb** presented a paper entitled "Radome Boresight Error Slope Measurement with a Phase/Amplitude Reference." **J. M. Newton** coauthored a paper entitled "Parametric Investigation of Radome Analysis Methods."

EML welcomes to its staff **William D. Fife, Jr.,** who has transferred into the Electro-Optics Division of EML from Systems and Techniques Laboratory.

J. W. Dees attended the ASEE meeting in Vancouver, British Columbia, Canada, and the IEEE Microwave Theory & Techniques International Symposium in Ottawa, Canada, during the month of June. He also vacationed in the Virgin Islands and West Indies between meetings.

Grace Appointed

Dr. Donald J. Grace was recently appointed a member of the Solar Energy Research Institute (SERI) University Advisory Panel for a three-year term.



Sam Fite and his award.

Tethered Buoy Award to Fite

On 2 May 1978, the First Annual RAIL TETHERED BUOY AWARD was presented to **Samuel Fite.** The RAIL BUOY AWARD was created in order to commemorate the outstanding performance of Project STONEGATE personnel during the 1975 and 1976 field operations whereby, in addition to the numerous nervous breakdowns and job transfers which resulted therefrom, the excellent data obtained are still being processed and reduced — and reprocessed and re-reduced. The award consists of a scale model of the infamous tethered instrumentation buoy which was utilized during a major portion of the 1975 operation. The buoy is depicted in its characteristic position of 30° tilt (it was supposed to remain vertical) on the ocean surface. The name of the recipient each year will be engraved on the base, and the winner will retain custody of the award until the succeeding year.

Sam Fite received the award for 1977 for his outstanding performance on the defense field operation at the Naval Coastal Systems Center, Panama City, Florida. Some of his sterling accomplishments included: discovering that water hyacinths have a radar cross-section four times that of a surfaced swimmer; determining that disc drives do not perform well when waterlogged; and establishing wiring antenna rotation switches so that "off" means "on", can have very interesting results.

A Wave of EES Authors In *Microwave Journal*

The August issue of *Microwave Journal* seems to feature Georgia Tech EES radar research including the guest editorial by Jim Wiltse (OOD) entitled "Millimeter Waves for the 80's."

Also to appear are three articles written by some of our ASL and RAIL people: "C.W. IMPATT Chips in Series for Increased Power," by **John Amoss, Walter Cox, Gerry Hill** and **Charlie Rucker;** "Millimeter Wave Reflectivity of Land and Sea," by **Lucien Bomar, Bob Hayes** and **Bob Trebits;** and "Development and Application of Millimeter Wave Instrumentation Radar Systems," by **Nick Currie, Bill Holm** and **Jim Scheer.** Papers were group efforts, and co-authors' names are alphabetized here. Congratulations!

ETL News

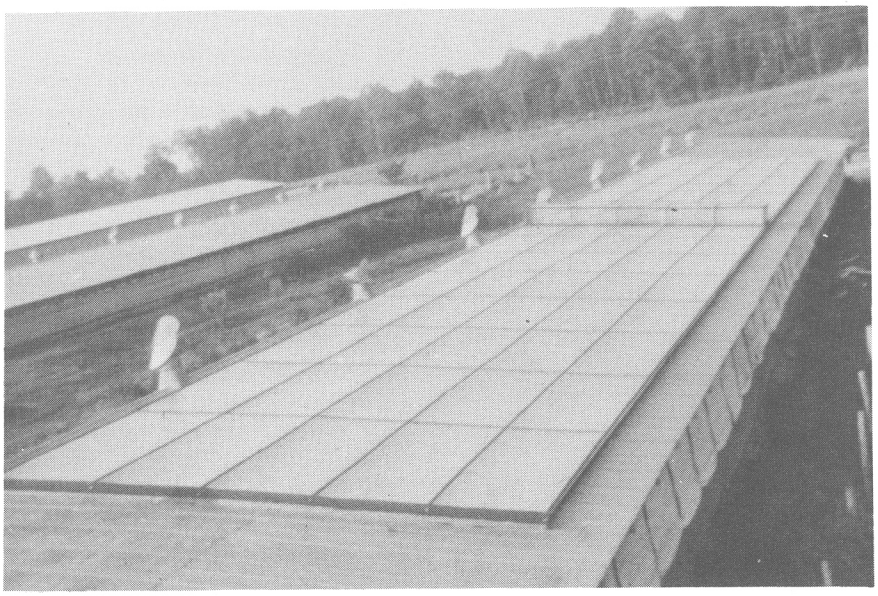
Hugh Denny and **Jimmy Woody** were in Washington, D.C., July 5-7 to discuss contract development.

Richard Moss and **Hank Jenkins** visited TRADOC in Norfolk, Va., July 18-19. **R. W. Wallace** was in Washington, D.C., July 27 and 28, giving a briefing at NASA.

ETL personnel participated in the Thunderstorm Research International Program (TRIP-78) at the Kennedy Space Center, Fla., for the third year. **Bob Wilson** spent the last two weeks of July at KSC working with NASA scientists in acquiring large amounts of atmospheric electricity data on numerous thunderstorms in the central Florida area.

SED Organization

Effective in July, a Special Projects Office has been formed as a third unit of SED with **W. E. Sears, III** being the Head. At this time, projects assigned to this unit are "Electronic Warfare Techniques Analysis," and "Human Operator Task Learning." Initially, this office will serve as a focal point for large, multidisciplinary programs associated with defense and for special projects that can serve as a basis for future growth.



New Solar Chicken House Developed

Designed by an EES engineer, the solar collector atop this poultry growout house in Villa Rica, Ga. is the first of its kind in the state. Heat from the 3000 square foot collector is transferred into the house through perforated polyethylene ducts with the use of a fan located in the ductwork. **John Giles** predicts an appreciable reduction of propane consumption with the use of this solar heating system. This solar house is part of an energy conservation project being carried out at the Experiment Station with funds from the Georgia Department of Agriculture.

S and T News

Welfare and Security Committee Elections

At their July 10 meeting, **Don Bodnar** was elected to a two-year term as chairman of the Faculty Welfare and Security Committee which reviews the campus safety, parking, health services and food service. Bodnar is a senior research engineer associated with the Antennas and Countermeasures Division of Systems and Techniques Laboratory in the Engineering Experiment Station. He also teaches undergraduate and graduate courses in the School of Electrical Engineering.

New Mileage Reimbursement Rate Effective July 1, 1978

The rate of reimbursement for travel when using a personally owned vehicle has been changed from twelve cents ($0.12) to fifteen cents ($0.15) effective July 1, 1978.

On Saving Energy

The Physical Plant in its constant effort to serve the Tech community can provide information on energy conservation procedures. Call Tom Cave at x4106.

Martin Serves as Co-Chair

Edith Martin of RAIL was asked to serve as co-chair for the "Military Computer Family — Objectives and Approach Review" panel by the Electronics Industries Association of Washington, D.C. Their annual workshop was held July 18-20 in Arlington, Va.

Farewell Luncheon For Larry Holland

A farewell luncheon was held by SED for **Larry Holland** on Friday, July 14, at the Steak and Ale Restaurant on Piedmont Avenue.

Nuclear Research Center

President Pettit has approved action which provides for the transfer of responsibility for the Nuclear Research Center from the Engineering Experiment Station to the School of Nuclear Engineering, effective July 1, 1978. While this change will enhance the Reactor's use for instructional purposes, there will be no reduction in research interests or activity, and the School of Nuclear Engineering will continue actively to seek sponsored research programs involving the Reactor.

Permanent, full-time personnel currently assigned to the Nuclear Research Center will be transferred to the School of Nuclear Engineering, with no significant change in position, assignment, or salary and benefits.

HLM to Robert B. Cassell

The highest degree of membership in AIDC, Honorary Life, was awarded to Robert B. Cassell of TDL by the AIDC Board of Directors at its Spring Meeting in Albuquerque on May 20th, 1978. Mr. Cassell, a Past President of AIDC, becomes the 28th Honorary Life Member of the Council.

In addition, he is a Fellow of the Council, and a Certified Industrial Developer®, having passed the first examination given in May of 1971.

Cassell serves as Executive Director of the Southern Industrial Development Council and is also a Past President of that organization.

Francis Krellenstein July 19, 1978

Francis Krellenstein, better known to her many Georgia Tech friends as "Mrs. K," died in July. She had been Dean Emerson's secretary at the architectural firm, Roberts and Co., and came with him to Tech. She then worked as a secretary for many years with GTRI. She was 87 years old.

ASL News

ASL was well represented in Washington during the month of July. **J. D. Walton** was a participant on a panel of the Public Meeting on International Solar Energy Policy on July 10-11. "Global Prospects for Solar Energy" was the panel topic. Then on July 20, he visited the World Bank in connection with a proposed solar water pump program.

Joe Harris was a speaker at the DARPA Materials Research Council Summer Meeting in LaJolla, CA. His paper, "Experience and Problems in Developing Large Fused Silica and Silicon Nitride Radomes," was given in the session on "IR-Radome Materials" on July 13.

Jo Early is the new secretary in the Solar Energy and Materials Technology Div. Married with four children and four grandchildren, Jo's interests are music and horses. She is planning to renew her Notary Public license which will add a convenience to EES staff having need of notarization of materials.

EEAD's environmental-analytical group including **S. C. Havlicek, R. R. Ingols, C. E. Livesay, J. D. Lupton, J. Moorhead, L. W. Strattan** and **D. R. Throop** will be joining TDL's Chemicals and Materials Science Division out at Lockheed. This reorganization will permit a pooling of facilities, equipment, personnel and contract development resources which will enable EES to move forward even more rapidly in the area of environmental analytical analysis.

Dr. L. W. Strattan was recently promoted to the position of Research Scientist in recognition for his strong contributions in the area of GC/MS analysis.

Dr. J. W. Ralls, senior research scientist, has accepted a consulting position back in his home state of California. His friends at EEAD will miss his cheerful personality and valuable contributions in the lab. We all wish him the best of luck.

Anita Fey has been attending Harvard University this summer (June 26-July 24) to advance her knowledge in the area of educational psychology. She plans to promote this area of research at EES.

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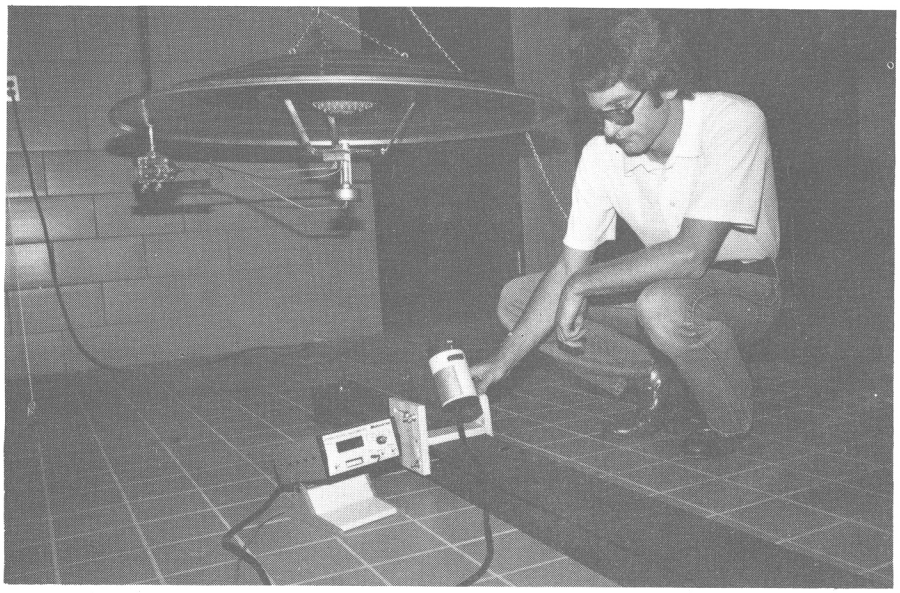


EES Performs Brooder Study

A radiometer is being used here by a Georgia Tech engineer to measure the infrared radiation given off by this propane-fired brooder. By measuring the infrared radiation (the heat felt by the chickens) of different types of brooders and also the amount of energy consumed by these brooders, Tech engineers will be able to identify for the poultry industry the best brooder designs out of the many now available to the industry. This research is part of an energy conservation project being done by EES for the poultry industry with funds from the Georgia Department of Agriculture.

"Millimeter Wave Systems and Technology" will be the subject of a Georgia Tech Continuing Education course held January 15-17, 1979. The course will be taught by experienced members of the Georgia Tech staff. The academic administrators will be Dr. Albert P. Sheppard and Dr. James C. Wiltse of Georgia Tech. Drs. Wiltse and Sheppard have extensive experience and publications in millimeter wave system design and applications. Georgia Tech researchers have been involved in millimeter wave programs continuously for more than two decades.

Program Administration Division

Of The Office of Contract Administration

The Program Administration Division (PAD) has administrative responsibility for all contracts and grants for sponsored research, training, and special programs for the entire Georgia Tech campus and for Southern Technical Institute. Their offices are located on the third floor of the Administration Building, and may be reached by telephone at extension 4819.

The assignments to individual contract administrators are made on a unit basis and are subject to change from time-to-time. Collateral assignments are made to individuals within the organization depending on their particular expertise, training, interests, etc.

D. L. Allen — Head
- Division Supervisor
- Contract/Grant Administration for:
- Office of International Programs

A. A. Camp — Senior Contracting Officer
- Training and assignments for PAD staff
- Contract/Grant administration for:
  - College of Science and Liberal Studies
  - Engineering Experiment Station

- Radar Instrumentation Laboratory
- Electromagnetics Laboratory
- Systems Engineering

K. E. Newkirk —Contracting Officer
- Contract/Grant administration for:
  - Southern Technical Institute
  - College of Industrial Management
  - College of Architecture
  - Engineering Experiment Station
    - Technology and Development Laboratory
    - Nuclear Reactor
    - Systems and Techniques Laboratory
- Subcontracting (Procurement under a GIT/GTRI prime contract)

N. S. McHan — Contract Administrator
- Contract/Grant administration for:
  - Engineering College
  - Engineering Experiment Station
    - Applied Sciences Laboratory

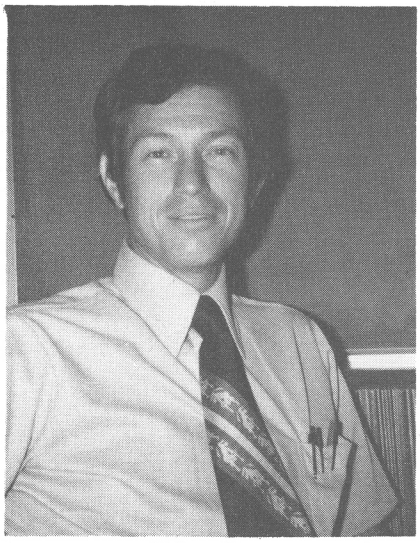
P. R. Oliver — Contract Administrator
- Contract/Grant administration for:
  - Engineering College
  - Engineering Experiment Station
    - Electronics Technology Laboratory

M. A. Salter — Secretary III
- Incoming work distribution for all of PAD
- Receiving visitors/telephone callers and answering their questions, or referral to others as appropriate.

S. K. Broome — Secretary II
- Receiving visitors/telephone callers and answering their questions, or referral to others as appropriate.
- Secretarial/Administrative Support; Files/Records Maintenance; and Report Control.

Personality

Solid Citizen: Walter Cox



Walter Cox

If another Great Flood were in the offing and if someone were to be selected to survive, a likely candidate could well be from Georgia Tech's Experiment Station — another man named Noah: N. Walter Cox, Jr. Furthermore, if he were instructed to build an ark, one could count on this Principal Research Engineer to utilize his skills as well as his good nature to accomplish the task (along with a state-of-the-art rainbow, too). Regarding the rounding up of animals two-by-two, however, it would not be unusual for the Walter Cox that EES knows to (1) gulp (appropriately) and humbly offer to the Master Project Director, "Wouldn't it be better to get four?" or (2) grin (boyishly), "You know, I'm not *ever* called Noah," or (3) declare (in his Southern drawl), with a high spirit of professional acceptance, "Well, things go right...and...sometimes they don't."

As chief of ASL's Solid State Sciences Division, Walter is reputed to know what he wants and what to do to get a job done. His co-workers appreciate that he asks, rather than demands. Another engineer recently commented, "Walter really listens to what people say, and then he responds...he's not one to be easily quoted because he doesn't use cliches nor does he go around philosophizing." Walter relates to people in a non-technical way, but his expertise is very technical.

Memberships in eight professional societies have resulted in leadership roles, and Walter has also published and presented many reports and papers, mostly concerned with the world of IMPATT, TRAPATT, diodes and microwaves. A Georgia Tech alumnus, he received his Ph.D. in 1967 and finally returned to Tech after working with Sperry-Rand until 1973.

People from all walks of life call on Walter for he is both highly respected *and* well-liked. Of importance to him are his family, work, religion and recreation, and he says his family is first priority. His wife, Mary Ann, is a commercial artist, and together with their daughters — Carolyn, 8, and Anna, 4, — they enjoy their Williamsburg home in Dunwoody.

Finding pleasure in woodworking, Walter has carved a few clocks — is presently working on a grandfather clock — and has built a dollhouse for his girls out of a large, challenging carton. Besides working around his home, he works on sports cars (especially his Datsun 240 Z) and plays tennis and racquet ball. He makes time for his children's activities and is determined to be on time for them.

To get away from the usual, Walter and his family retreat to the mountains of N. Carolina where hiking, boating, snow skiing, enjoying life with no TV all contribute to relaxation and restoration of energy.

Perhaps Walter's life is happily in balance because of its solid foundation, which he attributes to an active family and church life. At Peachtree Presbyterian Church, he is a Deacon, the assistant superintendant of Sunday School, a teacher of a senior high class in "Science and Religion" and has been a member of the Nurturing Committee.

People on and off the Tech campus refer to Walter as a solid citizen...a model for excellence, and as his secretary Gail Tucker recently remarked, "There are just so many, many good things to say about him..you might put it this way: If I could choose anyone in the world for cloning, Walter would be the one!"

Apparently, Walter Cox lives by a system that works.

—Sharon Sebaly