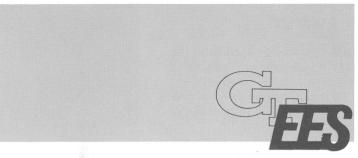
# STATION NEWS



ENGINEERING EXPERIMENT STATION - GEORGIA TECH

**VOLUME 5 NUMBER 7** 

AUGUST, 1976

# Solar Energy Thermal Storage Subsystem Research Experiment

Ground was broken Friday, 30 July at 10:00 A.M. for construction of a 2000 kilowatt solar energy thermal storage subsystem facility, located on the Georgia Power Company Plant Yates property, near Newnan, Georgia. Officiating for the ground breaking ceremonies were Vice President-Engineering, Mr. Charles F. Whitmer, Georgia Power Company; Mr. R.S. Albright, Assistant to the Vice President-Engineering, and Mr. L.L. Pitts, Vice President, Georgia Power Company. Also Mr. M. H. Polzin, Resident Project Manager, Martin Marietta Corp.; Howard G. Dean, Associate Director, EES; Nick Poulos, Chief of the Solar Energy and Materials Technology Division, Steve Bomar of SE and MT Div.; and Mr. B. F. Hubert, Project Manager, Broyles & Broyles, Inc.

The facility, funded by the Energy Research Development Administration (ERDA) through a Prime Contract with the Martin Marietta Corporation, Denver Division, was designed by EES through a Sub-Contract with Martin Marietta. The site and supporting facilities were provided by the Georgia Power Company at the Plant Yates generating facilities. Broyles & Broyles, Inc., serve as the construction firm.

The facility will be the first pilot plant constructed in the world designed to investigate the technology associated with storing solar energy so that superheated steam can be generated during times of cloud



Groundbreaking for solar thermal storage subsystem at Georgia Power Company plant in Newnan. L to R: N. Poulos, D. T. Loomis, L. L. Pitts, B. F. Hubert, H. G. Dean, C. F. Whitmer, M. H. Polzin, S. H. Bomar and R. S. Albright.

cover or after the sun has set in the evening. The objective of the system is to establish design criteria for the design of a 10,000 kilowatt solar electric (equivalent to approximately 40,000 kilowatt solar thermal) generating facility which will be constructed by 1980. The solar energy storage system makes use of molten salt and petrochemical oils to accomplish the energy storage. The system will store energy from 950°F and 1250 psi solar generated steam and will generate turbogenerator steam at 750°F and 600 psi.

The Project Director is Steve Bomar, and the Deputy Project Director is Charlie Murphy, Senior Research Engineer of SE and MT Div. The system design has been accomplished through a joint effort between Georgia Tech personnel and Martin Marietta personnel under Georgia Tech direction.

The facility is expected to be completed in October of this year.

#### New Divisions in EM Lab

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Effective July 15, the Electromagnetics Laboratory will include two new divisions; the *Radiation Systems Division* headed by Jim Schuchart and the *Electro-Optics Division*, whose chief is Bob Shackelford.

The EM Lab, under the direction of J. W. Dees, continues to grow and now includes over 40 full and part-time staff.

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Over the weekend of August 1 the chilled water pipe in the second floor Applied Instrumentation Lab broke resulting in extensive flooding in the laboratory and damaging the office of Tom Jones off the Baker Building lobby on the first floor.

# **EES Researchers**Win Awards

During the formal banquet at the 1976 IEEE International Symposium on Electromagnetic Compatibility, four EES staff members were presented with awards in recognition of technical achievements.

**Hugh Denny** of ETL was awarded a Certificate of Achievement for outstanding contributions in the development of grounding system methods and standards.

Chuck Ryan and Fred Cain of AEL were presented a check for \$50 and the annual "Prize Paper Award" for their paper entitled "Techniques for Estimating Electromagnetic Effectiveness of Antennas in the Presence of Near-Field Obstacles." This paper was presented by Chuck during the symposium technical session.

Jim Toler of AEL and Bob Schlentz of Medtronic, Inc., shared a Certificate of Achievement for outstanding contributions to measurements and standards for interference testing of heart pacemakers. This award was largely based on the pacemaker programs conducted by ETL under contract to Medtronic, Inc.

#### **ETL News**

Ray Howland attended the 1976 Conference on Precision Electromagnetic Measurements, June 28-July 1 in Boulder, Colorado. Ray was Conference Editor for this session. The 1978 Conference will be in Ottawa, Canada, and Ray will be the Technical Program Chairman.

Jimmy Woody and Spurgeon Robinette visited Picatinny Arsenal and ERDA on 17-18 June for discussions on electronic grounding procedures in ordnance facilities and electromagnetic noise effects on power distribution lines.

Bobby Wilson spent two weeks during June in Fort Collins, Colorado collecting data related to severe weather conditions. He and Charles Wilson also collected severe weather data during July at Kennedy Space Center, Florida. This work is in connection with a current ETL contract with NASA/GSFC.



Dr. Donald J. Grace, new Director, EES

#### **New Director Arrives**

The new EES Director, Dr. Don Grace, is expected to arrive at Tech by August 16, and be on board EES shortly afterward.

Dr. Grace is moving his family to Atlanta from Honolulu, Hawaii, where he has resided since 1969. He has been serving as director, Center for Engineering Research at the University of Hawaii since March, 1973. Prior to that he was director of research with Kentron, Hawaii Ltd.

The EES staff all join in a welcome "Aloha" to Dr. Don Grace and family.



Red Jenkins and Richard Smith were in Louisville, KY for a week in June conducting field tests for South Central Bell Telephone Company.

Ernie Donaldson, Hank Jenkins, Joe Walsh, Ray Howland, Don Clark, and Reg Curry traveled to Washington, DC and Dahlgren, VA during July to visit NSWC and ONR.

ETL welcomes new employee, **Dr. J. Regnald Curry**, a Senior Research Engineer in the EMC Group, who moved here from Colorado Springs, Colorado.

## Applied Engineering Laboratory

Tom Hedges recently attended a meeting at Hughes Aircraft Company in Culver City, California. The discussion concerned the use of the AN/YUK-30 as the Navy's standard bipolar microcomputer.

Chief of the Countermeasures Division, **Richard Hodges**, attended the Twenty-Second Tri-Service Radar Symposium in Colorado Springs, 6-8 July. He co-authored a paper entitled, "Foreign and Friendly Polarization Applications for ECCM."

Jerry Eaves and Bob Trebits attended the same Symposium at the U.S. Air Force Academy. They presented a paper entitled, "Development and Evaluation of Stationary Target Indication Techniques."

A tornado struck while Gene Greneker and Jim Metcalf recently attended a tornado symposium in Lubbock, Texas.

Janice Manders, Secretary II, replaced Jean Loefer as Bob Zimmer's secretary in the Systems Engineering Div. Janice started work on July 28. Jean has gone to work for a law firm.

Bill Storey, an assistant research engineer who worked for Lee Edwards in the Advanced Technology Area, is moving to Crested Butte, Colorado.

**Chuck Harris,** an Assistant Research Engineer who also worked for Lee Edwards, is going to Scotland to begin work there.

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#### **PTAL News**

P. H. Har-oz presented a paper on "A Remote Waste Bags Collector Utilizing a Proportional Control Pneumatic System," at the 1976 Joint Automatic Control Conference held at Purdue University in Indiana on July 27-30.

Rudy Yobs attended the Southern Growth Policies Board Conference in Helen, Georgia, July 28-30.

Another new member of PTAL is Dr. Ken Purdy who is working with Waste Utilization. He received his degrees in mechanical engineering at Georgia Tech and prior to coming to EES has been Associate Dean of Engineering and Professor of Mechanical Engineering, Tennessee Technical University, Cookeville, Tenn., for three years.

Ms. Lee Burks recently joined PTAL as an assistant research engineer. Ms. Burks received her masters' in applied statistics from Ga. Tech and was formerly employed by Dr. W. Sangster at the School of Engineering.

Richard Combes, assistant researcher, PTAL, headed a seminar on Poultry Energy Conservation held at the Riveria Hyatt House, August 1.

Guest speakers at the seminar included Dale Morris of Mar-Jac Inc., Gainesville; R. Sheldon Light with Central Soya in Fort Wayne, Indiana, and Wayne Austin with Gold Kist Inc., of Atlanta.

Featured topics centered on EES energy conservation programs, corporate energy management, energy consideration in new processing plants and conservation in existing processing plants.

#### **EES Services**

Betty Yarborough attended the "24th Annual College Business Management Institute," held at the University of Kentucky in Lexington, Kentucky on August 1-6. Al Camp in the Office of Contract Administration also attended this institute.

Mrs. Betty Moss is a new employee in the Accounting and Budgets Department.

Congratulations to Linda Brown, Reports & Procedures Department, who was married to Doug Mazur on July 31.

#### **Ground Breaking at Tech For Solar Thermal Test Facility**



Shown breaking ground at Tech ceremonies held July 22 are: (1 to r) Nick Poulos, Dr. J. M. Pettit, Governor Busbee and Dr. Robert Hirsch of ERDA, Washington, D.C.

On Thursday morning, July 22, Governor George Busbee joined Georgia Tech President J.M. Pettit and Dr. Robert Hirsch, Deputy Administrator of the Energy Research and Development Administration (ERDA), in ceremonies breaking ground and initiating construction for the Georgia Institute of Technology 400 KW Solar Thermal Test Facility on the Tech campus west of the Civil Engineering Building.

Dr. Tom Stelson, Vice President for Research, introduced the distinguished guests to the people attending the ceremony and short remarks were made by the officials citing the important step forward in solar energy research in the U.S. It marks another noteworthy accomplishment of Tech in the solar research field — and as noted by Governor Busbee, "It will be an extremely important test device for the United States solar power program...it is of great importance to both the state and the nation.

"In the State of Georgia, solar energy is already a fledging industry that has the potential of being of greater economic importance than any of our current great and diverse industries," he said.

The Test Facility, expected to be completed later this year, will be the largest high temperature solar test system in the U.S. and second largest in the world.

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#### **ASL News**

Jack Spurlock participated as Assistant Conference Chairman of the Intersociety Conference on Environmental Systems held in San Diego, California, July 12 through 16. Dr. Spurlock will be General Chairman of the ICES Conference in 1977 to be held in San Francisco July 12 through 17, next summer.

J.D. Walton, and J.N. Harris were in San Francisco, July 15-17, meeting with representatives from EPRI and Black & Veatch, to discuss material requirements for heat exchanger tubes to be used in an Open Cycle Gas Turbine Solar Power System.

Walton also met with representatives from Aerospace Corp., El Segundo, California, and with International, Canoga Atomics Park, California on July 19-20, to brief them on the capabilities and future applications of the Tech Solar Thermal Test Facility. He then presented a paper entitled "Georgia Tech 400 KWth Solar Steam Generation Plant and Test Facility" at the Lawrence Berkeley Laboratory, Berkeley, on July 21-22.

J. N. Harris was in Dayton, Ohio July 20-21 meeting with Martin Marietta representatives in order to kickoff the recently awarded Laser

Hardening Program.



Ice cream freezers whirred on the third floor of the Baker Building July 30 for EDL's farewell party preparatory to moving to the C&S Bank "silo" in August. Besides, it was payday!

## Relocation to C&S Building Underway

Two complete laboratories and one division within the EES organization will be relocating to available space in the C&S Bank Building on North Avenue, beginning August 9.

Involved in the move are: PTAL under the direction of Rudy Yobs; EDL under Ross Hammond and Systems Engineering Division of AEL under Robert Zimmer.

A professional moving firm has been hired to transfer all office equipment and libraries of both Basic Data and the International Branch. Tom Jones, administration specialist, estimates the move will require from 8 to 10 days to complete.

All personnel involved in the relocation will maintain their current telephone exchanges in the new building. Covered parking will be provided for EES personnel at a cost of \$25.00 per year.

The new offices for each group are as follows:

PTAL 15th floor

EDL 16 and 17th floors

SED 18th floor

Floors 14 and 19 will remain vacant until space is needed for future Station expansions.

#### **Braves Beware**

On Thursday, July 8, a motley crew from the Baker Building challenged the Electronics Research Building Softball Team to a contest matching wits and agility. After a disastrous first inning in which the ER Team scored four runs, the Baker Boys seemed to be mounting a comeback. In the third inning they scored one run and were bent on victory when the Georgia Tech Security Force decided the game should come to a close.

The Baker Boys were wondering who had put Security up to this clever ploy; they were especially curious when the Security Guard, upon being asked answered, "Bobby Dodd." The Baker Building Boys anxiously awaited the next skirmish. On July 26, they had a second chance with the ER Team, but were edged out 9 to 8. The Baker team had several substitutions since two key (??)

players were in the midst of writing proposals!

#### EDL News

The Alumina from Kaolin project directed by **Bill Ward**, EDL, has been renewed for another year by the Georgia Bureau of Industry and Trade.

After years of being hidden away in an eighth-floor office in downtown Macon, the Central Georgia Area Office of EDL-EES has moved to elegant new quarters in a Macon office park. The Southeast Georgia Area Office at Douglas also will move to new office space September 1

Phillip Potts represented EDL at an International Workshop on Hand Water Pumps at The Hague, Netherlands, July 12-16, sponsored by the International Reference Centre for Community Water Supply of the World Health Organization. The meeting's objective was to arrive at guidelines for developing a hand pump that would stand up under heavy stress in rural and underdeveloped areas of the world.

Ken Stephens, EDL, was in Guyana, South America, July 10-18 to provide preliminary advice to the Government of Guyana on quality control, standardization, regulation of weights and measures, and related technical topics.

H. A. Corriher, Office of Associate Director for Programs and Services, and Ross Hammond, EDL, will be conducting a small industry development survey in the Pacific region July 30-August 20. They will interact with the Asian Development Bank and the Energy Development Board in the Philippines, the Singapore Polytechnic Institute in Singapore, and the Bandung Institute of Technology and the Department of Industry in Indonesia.

Edwina Udunka, EDL, will be in Nigeria and Brazil August 1-14 for the annual audiovisual documentation of the progress of the AID Small Industry Grant acitivities of Georgia Tech's counterparts in those countries

Also under the AID Small Industry Grant program, Nelson Wall, EDL, will be in Brazil August 8-September 5 conducting staff training for FESSC (Fundação Educa-

cional do Sul de Santa Catarina) and providing technical assistance to local industries.

Bob Cassell, EDL, presented a speech to the Annual Conference of the Georgia Chamber of Commerce Executives in Athens July 15. He will direct the Advanced Symposium on Transportation of the American Industrial Development Council in Norman, Oklahoma, August 9-11.

More than 130 persons attended a five-session seminar on wiresawing improvement techniques recently conducted by **Lynn Tessner**, EDL, under contract to the Elberton Granite Association.

#### S&T Lab

Ed Reedy and Jim Cofer attended the Tri-Services Radar Symposium at the U.S. Air Force Academy in Colorado Springs, on July 6, 7, and 8.

Frank Williamson, Bill Parks, Larry Sikes, Chuck Summers, and Jim Matthews have been spending considerable time at Fort Stewart, Georgia providing technical support for field tests of Raytheon/NAVEL-EX HWLS Radar under GT-EES Project A-1804.

Staff members helped the ERB beat the Baker Building in a well-remembered softball game on Monday, July 26. The game lasted four innings with the ERB winning 9-8.

**R.M.** Goodman, Director, S&T Lab, visited Raytheon-Waltham, in Massachusetts, on 27 July for contract development purposes.

**Bob Plumlee** attended Microwave Antenna Measurement Continuing Education Short Course July 19 through 23.

**Don Lewinski** started in June with S&T/ASD as a Senior Res. Eng. Mr. Lewinski came from Martin Marietta Aerospace, Orlando, Fla. His areas of work are radar system analysis clutter modeling and radar signal processing.

Mrs. Edie Martin joined S&TL/ASD in June as a Research Scientist and is currently working for a PhD. in ICS. She works with computer software systems.

