

STATION NEWS



ENGINEERING EXPERIMENT STATION • GEORGIA TECH

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IDD Awarded Two More Community Education Grants

Bob Collier, IDD, has received notice that two community workshop proposals to help increase civic understanding have been approved by the Georgia Community Continuing Education Service for partial funding under Title I of the Higher Education Act of 1965. Both projects are to begin July 1 and continue for one year.

One project involves community and area planning and management under an energy shortage constraint. An area planning and development commission will be selected to cooperate in the project, and the program will be carried out in three communities in the area. The idea basically is to assist local officials and interested citizens—through

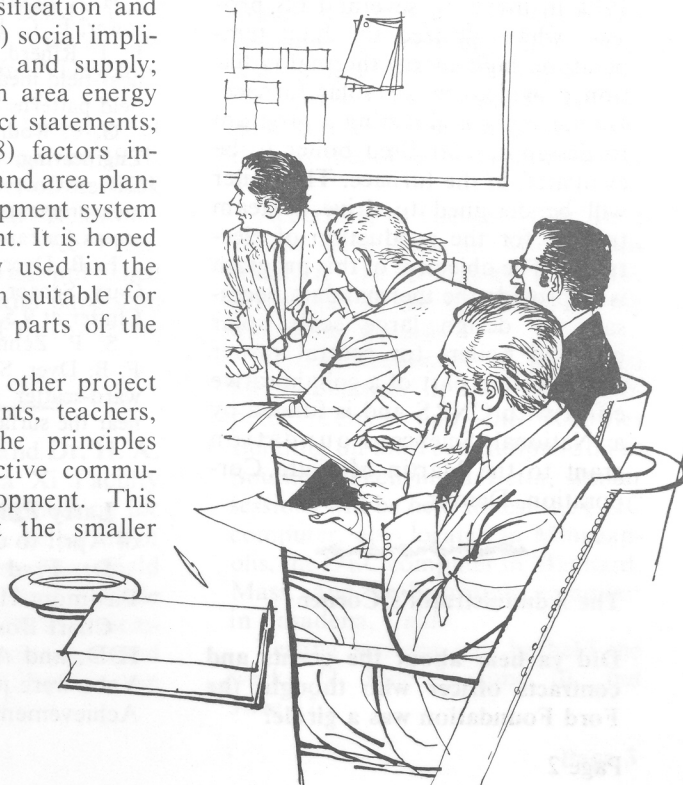
conferences, workshops, and seminars plus follow-up technical assistance—in making essential public policy decisions relating to developmental matters. The focus will be on how to manage natural resources, including energy resources, to achieve the proper balance between their current economic and social purposes and their conservation and protection to ensure that they continue to provide a foundation for the flow of benefits in the future.

Staff involvement will consist principally of personnel from IDD and other EES units, as well as other Georgia Tech faculty members. The aspects of the energy question to be discussed are: 1) classification and usage; 2) economics; 3) social implications; 4) regulation and supply; 5) how to conduct an area energy audit; 6) energy impact statements; 7) communications; 8) factors involved in community and area planning; and 9) a development system for energy management. It is hoped that the methodology used in the project will be proven suitable for effective use in other parts of the state.

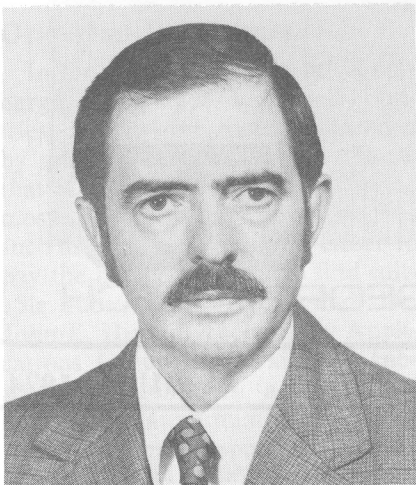
The purpose of the other project is to familiarize parents, teachers, and students with the principles and practices of effective community economic development. This program is aimed at the smaller

towns which must rely on trained volunteers to promote economic growth. Participants will be from four schools (two in each of two school systems). The program will involve preliminary meetings with school boards, two-hour seminars for PTA groups, five-hour workshops for more deeply interested teachers and parents, and guest presentations to social science classes.

Two interdisciplinary economic development teams, each consisting of one member of the faculty of a nearby regional college, one IDD field staff man, and one senior staff member of IDD's Atlanta office, will conduct the programs.



Walton Appointed



"J.D." Walton of HTMD

"J. D." Walton, Chief of HTMD, has been appointed to the Board of Directors of the Solar Energy Laboratory by the Centre National de la Recherche Scientifique (CNRS) in France. Walton is the first member of the Board not from France and will serve through June, 1977. The Solar Energy Laboratory operates the world's largest solar furnace (1000 kw) at Odeillo-Font Romeu in the French Pyrenees. The Directors meet biannually to review the activities of the CNRS Solar Energy Laboratory and to recommend the direction for solar energy research and development.

Walton has been active since 1971 in directing several EES projects which utilized the high temperature, high energy thermal radiation provided by the solar furnace. He currently is directing a program to design a solar fired boiler to be evaluated in the furnace. The boiler will be designed to drive a steam turbine for the production of electricity. The objective of this program is to provide the thermal data necessary to design large scale solar powered boilers for central power stations. It is part of a collaborative effort with CNRS and is funded by a National Science Foundation grant to the Martin Marietta Corporation, Denver.



The Administrator's Corner

Did ya hear about the grants and contracts officer who thought the Ford Foundation was a girld?

Symposium Papers by EES Staff

Fourteen papers are being presented by EES staff members at the 1974 IEEE/AP-S Symposium hosted by Georgia Tech June 10-11:

J. L. Edwards, C. E. Ryan and W. J. Storey, Radar Div., "Measurement of bistatic near-zone radar cross-section";

D. G. Bodnar, Sensor Systems Div., "Feed patterns and reflector shapes to test computer programs for doubly curved reflector antennas";

J. D. Adams and F. L. Cain, Radar Div., "Investigation of broadband antenna measurement techniques";

F. B. Dyer and N. C. Currie, Radar Div., "Some comments on the characterization of radar sea clutter";

J. E. Rhodes, Sensor Systems Div., "Requirements for optically processing information from a phased array,"

N. T. Alexander, Sensor Systems Div., and R. W. Larson, School of Electrical Engineering, "Phase analysis of cone scattering near base-on";

D. G. Bodnar, J. W. Cofer, and N. T. Alexander, Sensor Systems Div., "Computer-aided design of scanning reflector antennas";

J. W. Cofer, Jr., Sensor Systems Div., "Phase compensation of organ pipe antenna feeds";

F. L. Cain, E. E. Weaver, and C. E. Ryan, Jr., Radar Div., "Determination of out-of-band antenna performance using near-field measurements";

D. G. Bodnar, Sensor Systems Div., and C. C. Kilgus, Johns Hopkins University, "A 95 GHz artic surface-effect vehicle antenna and radome";

H. A. Ecker, C. P. Burns, N. C. Hightower, E. C. Burdette, J. L. Evans, and F. T. Riherd, Radar Div., "Automated near-field measurements to obtain near-field patterns of phased arrays";

G. P. Rodrigue, School of Electrical Engineering, and C. P. Burns, Radar Div., "Cost comparison of near-field measurements and far-field measurements for far-field patterns."

F. B. Dyer, G. W. Ewell, and M. G. Gary, Sensor Systems Div., "Radar Sea Clutter at 9.5, 16.5, 35, and 95 GHz";

S. P. Zehner, W. M. O'Dowd, and F. B. Dyer, Sensor Systems Div., "Forward-scatter properties of microwaves near the surface of the ocean."

Larry Phillips, ASD, left the end of April to continue his education.

Dr. Fred Bellinger, retired, is in Piedmont Hospital.

Chart Bonham, TAG, Bill Ward, IDD, and Assistant Director Rudy Yobs were judges in a recent Junior Achievement contest.

IDD PERSONNEL NOTES

Ed Nelson, IDD, received the Master of Business Administration degree from Atlanta University May 20. He has been working part-time as an assistant research scientist in IDD's Industrial Services Branch for the past year and a half, but will assume full-time duties June 1.

Deborah Wooten has replaced Nora Medlin as secretary for IDD's Special Projects Branch.

Participating in a recent Georgia Tech Seminar on Applications of Remote Sensing were George Dodson and Phil Koos, IDD, who spoke on Urban and Regional Planning on May 15.

Ross Hammond, IDD, presented a paper entitled "A Comparative View of Technology Transfer: Domestic and Overseas" at Iowa State University, Ames, on May 8 as part of a Symposium on Technology, Modernization and Cultural Impact. He also attended a Symposium on Technology Utilization in Developing Nations at the Massachusetts Institute of Technology, Boston, on April 23-26.

Jerry Lewis, IDD, was one of the invited participants in a workshop/seminar hosted by the Technology and Development Institute of the East-West Center in Honolulu June 3-7. The purpose of the meeting was to evaluate the first year's work of the three Regional Adaptive Technology Centers at universities in the Philippines, Korea, and Indonesia. He also presented a background paper on Georgia Tech's activities under the AID 211(d) grant.

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New Projects

Projects recently initiated at EES include sponsorship by Ford Motor Co. Turbine Research Dept. to HTMD (**J.N. Harris**, Project Director) for development of investment casting techniques for forming precision cast ceramic shapes — Martin Marietta Corp. to HTMD (**S. Bomar**) for solar power system components research — U.S. Dept. of Agriculture, Forest Service to TAG (**J.A. Knight**) for investigation of a testing program for gaseous samples and analysis of samples of fuels and products of burning experiments of forestry materials — USAF Aerospace Medical Division at Brooks AFB to Communications (**J.C. Toler**) for UHF band radiofrequency radiation for cardiac pacemaker EMI studies — C&S Bank to IDD (**R.B. Cassell**) for rural economic development seminars — Electron Microscopy Society of America to PSD (**R.K. Hart**) for preparation and printing of the *EMSA Bulletin* — U. of Ga. Community Continuing Education Service to IDD (**W.C. Howard**) for a program to provide instruction and assistance to community leaders and employers in the better utilization of human resources — American Cynamid to HTMD (**E.A. Welsh**) for technical assistance services — Ga. Forestry Commission to Sensor Systems (**H.P. Cotten**) for study and analysis of fire plow parts — Ga. Dept. of Human Resources, Housing Office to IDD (**P.D. Koos**) for stimulation of profit-oriented housing ventures in order to increase housing starts for low income families — Coastal Plains Regional Commission to IDD (**R.E. Collier**) for training community leaders in industrial development — Macon-Bibb Co. Industrial Authority to IDD (**W.N. Craig**) for fire protection services — Appling Co. Industrial Authority to IDD (**S.L. Dudley**) for economic development and technical assistance —

Rudy Yobs, TSD, gave an inspiring talk on *How the EES Interacts with Inventors* to the Southern Council for Invention and Innovation at their meeting on 25 May.

Gerald N. Hill, formerly of Sperry in Gainesville, Fla., has joined the Solid-State Devices Group, ASD.



AID External Advisory Committee Meeting. L-R: President Pettit, Wm. Littlewood, VP, Ac. Aff. Vernon Crawford.

Advisory Committee Meets

The External Advisory Committee held its annual meeting to discuss the progress of the AID grant for IDD's international development program on May 13-14. In conjunction with this meeting, an AID evaluation team made its 18-month report. The Advisory Committee met to review the progress to date and to advise IDD on the direction of the program.

Wall Officer of AIIE

Nelson Wall will assume the office of Executive Vice-President; Chapter Operations of AIIE in New Orleans at the Institute's 25th Annual Conference and Convention.

Nelson received his BSME from Georgia Tech in 1948, and is now the Head, International Development Branch, IDD.

He has been the Director of AIIE's Atlanta Chapter since 1971, and he is also a member of the Task force on International Relations. From 1971-73 he was Vice President of Region IV. He has published twenty major reports and papers on various Industrial Engineering subjects.

Dr. R. C. Johnson and **Dr. H. A. Ecker** won the Sigma Xi Faculty Research Award in Engineering for an invited paper, "Determination of Far-Field Patterns from Near-Field Measurements," published in the *Proceedings of the IEEE* in December 1973. The award was presented at the annual Sigma Xi banquet on May 28.

New Tech Computer

With the beginning of the new fiscal year Georgia Tech will be purchasing a new multi-million dollar computer and terminals. To insure that the proper decision is made, faculty and students are testing computers manufactured by four different vendors.

The testers, representing disciplines all across campus, have been working at 14 terminals in the New Computer Center to examine the workings of the Univac 1110 computer located in Minneapolis, Minn.

At the end of the test period in which the participants follow a planned scenario they evaluate the computer on its ability to perform specific tasks related to their various disciplines. Assistant director of the Office of Computer Services Frank Gleason explained that, "In order to test the full 90 terminal capacity of the Univac 1110, 76 simulated terminals were in operation at the same time as the 14 manned terminals at Tech.

According to Gleason, four Tech people have been in Minneapolis watching the computer from the other end of the operation during the testing sessions.

Before equipment is purchased for installation in the New Computer Center and the Knowles Building on the Tech campus and at Southern Tech in Marietta, similar sessions will be held to test the CDC computer, also located in Minneapolis, the DEC computer in Maynard, Mass., and the Burroughs computer in Pasadena, Calif.

Testing sessions will be held the weeks of June 3, June 10, and June 17.

PERSONALITY

One-Man Department

In the wake of the recent oil embargo, many underdeveloped countries, rich in raw materials needed by industrialized societies, realize that their increased selling price most likely will be met. Countries such as ours will be forced either to pay the higher prices or to find suitable substitutes. To this end, **Dr. John E. Husted**, Technology Applications Group, is working on substituting kaolin as a source of alumina for aluminum production.

The U.S. imports approximately 95% of its bauxite ore to make into aluminum from countries such as Jamaica, which recently proposed raising its prices—and the upward price trend is expected to continue for bauxite from all sources. International conditions have suddenly changed such that aluminum from Georgia's vast kaolin clay deposits now appears to be economically competitive as well as technically feasible. Dr. Husted sees this changeover beginning within the next several years. Presently, kaolin's primary usage is coating printing papers.

Dr. Husted's background and experience make him a respected authority on mineral resource geology. He has taught high school biology, chemistry and physics; college geology and chemistry; worked as a geologist or chemist for firms such as the U.S. Geological Survey, Humble Oil and Refining Co. and Virginia Iron, Coal and Coke, and served in another research institute. He came to Tech some sixteen years ago, headed the Mineral Engineering Group and taught geology. This fall, he will teach the first mineral resource class in the School of Chemical Engineering.

Educational programs concerning the mineral industries are his pet projects. He feels there is a positive need for such programs to train people to meet the problem of utilizing raw materials within acceptable environmental controls. Concurrently, there is a need for new idea research to be completed by industry and by universities; such as exploring for mineral resources on the basis of continental drift theories.

"Personally, I know a dozen ways of approaching some problems I'd like to try if I had the money and the students at my disposal. Granted, these ideas may not all work, but they need to be tried."

The environment and man's effect upon it are of vital concern to the Roanoke, VA. native. "Modern civilization is energy and raw material dependent. We cannot continue our exponential growth in usage of raw materials, but



Dr. John Husted

neither can we grind to a halt without dire consequences. As with anything, we have to look at this dilemma with moderation. There has to be a balance between maintaining civilization by supplying it with raw materials that it needs on the one hand and seeing that there is proper management of the environment to keep civilization from destroying itself on the other. There has to be a meeting ground; a perspective; a balance."

And he has little regard for those who lecture about air pollution and cleaning up the atmosphere, then light a cigarette. "One cigarette puts more pollution in your lungs than we'll ever have in the air."

One thing that bothers him is that projections for future usage of raw materials are based upon population growth, not mineral resources. Even if the world's population levels off, non-replaceable resources such as oil and gas will someday be depleted. Dr. Husted thinks fuel shortages may be the first step in a braking process that will make people realize the supply is not inexhaustible. Now it is up to people like him to keep decision makers informed about non-renewable mineral sources and the necessity for more rapid development of substitutes or alternates.

Dr. Husted's synthesis of avocation and vocation, his frequent cross-country travels, professional memberships and unbridled enthusiasm for his profession lead one colleague to remark that rather than being only one man, Dr. Husted was his own department. Even his hobby is work-related; he enjoys photography, but most of it is done for professional reasons. He said it's been so many years, he's pretty well forgotten how to fish, a

former hobby. However, he has found time to devote to being a deacon in his church.

Dr. Husted and his wife Kitty have been married thirty-two years and have two children of whom he speaks with pride. Mary is working in EES Supply Services, and Stewart is the Distributive Education Coordinator at Towers High School.

Dr. Husted commented he has had two very significant occurrences in his life; one personal, one professional. The first was when Stewart recovered from polio, and the second was when he was awarded a National Science Foundation fellowship permitting him to earn his PhD from Florida State University four years ago. We have a feeling he will continue to have a significant life.

B. W.

Softball News!

EES has entered a team (Georgia Tech Engineers) in the city slow-pitch softball league this year. The team comprises all categories of EES personnel from Co-op Students to Principal Research Scientists. After an inspirational come-from-behind opening victory (20-17) over the West Paces Ferry Hospital, the team met stiff competition in losses to the Georgia State Greeks (6-0), Tindol Services (18-8), and London Records (10-7). The team was then spurred on by a 12-6 victory over Sun Valley Fireplaces before dropping the last game to Law Engineering (17-7). The team record stands at 2-4 with eight games remaining. The Engineers have yet to face the undefeated league leaders who are also on campus (Lambda Chi Fraternity).

Team members who have played in the first six games include: Neal Alexander, Cliff Burdette, Fred Cain, Jim Cofer, Dennis Cox, Nick Currie, Allen Ecker, Don Gordon, Doug Kraul, Tom Miller, Bill O'Dowd, Ron Pearl, Chuck Ryan, Steve Shelley, Gene Weaver, and Dave Wilkins. A limited number of vacancies are still available for persons wishing to try out for the team (contact Neal Alexander or Jim Cofer at Ext. 3591).

Conservation is NOW