Academics: More Than Just Books

What do most people think of when you mention academics? Books, all-nighters, shaky profs... right? Well, that's true to some extent, but besides all the droll, dull work associated with academics, there is also a great deal of interesting, exciting work being done. Some of these endeavors are described on the next fourteen pages.

For example, architecture students designed and built a small hut for Stinger-waiting during Atlanta's frequent downpours. Practically every senior is required to complete a design project in an area of interest. These soon-to-be-graduate-engineers produce designs, mock-ups and/or systems for theoretical or real situations.

The freshmen are being introduced to their major fields sooner; they take a freshman level course which may involve plant trips, discussions or projects to acquaint them with what they're getting into.

Profs have done a tremendous amount of technical research which keeps their out-of-class hours occupied.

So, the next time your conversation turns to academics (if it ever does), think of something besides all-nighters.
FACING PAGE: A Stinger stop designed by Neil Bramlett and built by architecture students as a project for Arch 351. LEFT AND BELOW: The Unidome, designed by architecture professors and fifth-year architecture student Steve Montgomery. It is now mass produced and will house participants in the Munich Summer Olympics.
RIGHT: Emission testing on the modified Wankel rotary engine to power the ME entry in the Urban Vehicle Design Contest. It is designed by ME juniors and seniors headed by Bill Bulpitt (pictured above) and sponsored by the Atlanta Gas Light Company. FAR RIGHT: A computer designed by a group of Tech EE professors headed by Dr. Thomas Barnwell which can read to its operator and can recall musical chords and tones. Its main purpose lies in the field of speech therapy. BELOW: The partially completed EE entry in the Urban Vehicle Design Contest with UVDC student coordinator Charles Finley. EE, AE, ME, and ID students helped design this project under allocation from Dean of Engineering Thomas E. Stelson.
A Talking Computer and Non-Polluting Cars
Seniors Apply Four Years of Course Work
Steve Bowman, a senior Physics major, used neutron activation to discover trace elements in air pollution, and subsequently, the causes of that particular air pollution. William Boyd, a senior of the AE department, worked on an aircraft design with Professor Dutton for his senior project.
While Freshmen Get an Initial Look At Their Majors
A new part of each Tech freshman's experience is his particular major's orientation, as exemplified by the introductory IE course, *LEFT*, and the EE orientation class, *BELOW*.
What Do Professors Do After Class?

Research.
Dr. P. G. Mayer explains the model of a hydroelectric dam, currently being studied to determine any possible detrimental effects on the environment, to Charles Nelson, Alan Veazy, and Jim Parker. LEFT: Argon Laser. BELOW: Dr. O'Shea, Physics professor, and Vincent Mallette, a Research Associate, study the argon laser, the most powerful on campus, which is used for Physics research.
RIGHT: Dr. Wampler works on the system that he has developed to determine rock ages from the radioactive decay of K-40. BELOW: Dr. Stephen Spooner sets up his device to study neutron diffraction in the Tech reactor. FAR RIGHT: Dr. Reuter, working with an assistant, studies the gas chromatograph which is used in his research of organic geochemistry.
Prof and Student: A Working Relationship
ABOVE: Dr. Zeuber is researching the whys and methods of thermally induced oscillation. FAR RIGHT: Dr. Zinn, recently appointed an advisor to NATO on rocket combustion and propulsion, is shown here explaining rocket nozzles, a subject he is currently researching, to interested students. RIGHT: The stability of aircraft shells as studied in the mechanical crushing of plastic models is Dr. Craig's special concern. His research is supported by the National Aeronautic and Space Administration (NASA).
You Name It; Someone's Doing Research on It
RIGHT: Dr. Joseph Pettit, Tech's eighth president. FAR RIGHT: Dr. James Boyd, acting president during the transition period between Drs. Hansen and Pettit. BELOW: Dr. Pettit met with students during an early visit to the campus.
Pettit Assumes Presidency;
Boyd's Interim Term Controversial, Productive

This year the presidency of Georgia Tech was held by two exceptional men. The first was Dr. James E. Boyd, named acting president shortly after the resignation of Dr. Hansen in 1971. The second was Dr. Joseph M. Pettit, newly-selected as Tech’s eighth president.

The period of transition between Dr. Hansen’s and Dr. Pettit’s administrations was a time of controversy requiring decisions which would affect the future of Tech itself. An acting president could easily have pushed off such important issues on the incoming man, but in this case, Dr. Boyd took the initiative and acted boldly in the best interests of Tech; the pass-fail proposal, the SAC-70 financing, the firing of Mr. Carson, and the revision of PT requirements were a few of the areas in which Dr. Boyd took action.

Dr. Joseph Pettit came to Tech one of the most distinguished and outstanding engineering deans in the country. While at Stanford, he led its engineering school to national prominence; time and again he has proven his excellence as an administrator. Most important, perhaps, our new president brought with him strong convictions, an open mind, and a dedication to serving Georgia Tech.
How do you spell "Pressure" with only six letters? Ask any Tech student. He'll always say "Ma Tech." But, while the students are scrambling around frantically for that ever-elusive grade point the administrators in their so-called "ivory tower" offices are trying to juggle the multiple problems of faculty, students, and alumni. They have pressures, too. And like the students they need a little time to recuperate after a grueling week.

The students go to parties or to any of the other various social functions that occur around town. The administrators, however, usually relax with their families or spend a quiet weekend at the lake. But, working with, and for, the students, the administrators develop special friendships with many students and it is not unusual to see them at your favorite spots.
Administrators Seek Relaxation at Home

*UPPER LEFT:* Dr. Clyde Robbins, Vice President for Planning; *FAR LEFT:* Dr. Vernon Crawford, Vice President for Academic Affairs, and Mrs. Crawford; *LEFT:* Mr. Joe Guthridge, Vice President for Development, and Sir Frederick of Westover; *ABOVE:* Mr. Ewell Barnes, Vice President for Business and Finance, and Mrs. Barnes.
Families Play Important Role in Deans' Lives

TOP: Dr. R. Earl Green, Dean of College of Industrial Management, and Mrs. Green; ABOVE Mr. James E. Dull, Dean of Students, and Mrs. Dull; RIGHT: Dr. Rocker T. Staton, Dean of Undergraduate Division, and daughter Karen.
RIGHT: Dr. Sam Webb, Dean of Graduate Studies and Research, and Mrs. Webb; BELOW: Dr. Thomas E. Stelson, Dean of Engineering College, and daughter Becky; FAR RIGHT: Dr. Henry S. Valk, Dean of General College, and daughter Alison.
Children, Music Provide Diversion From Tech Duties
A.E. Joins Fight Against Noise Pollution

AEROSPACE ENGINEERING
During the 1971-72 academic year the school introduced a new undergraduate curriculum which stressed applications of fundamental principles through the introduction of nine new laboratory courses. In addition, an elective sequence in noise pollution and another in combustion pollution are being prepared and both could be available to seniors in the winter and spring of 1972.

New research laboratories are being constructed in the noise pollution area and an aerosol tunnel is now in the final stages of completion. Bioengineering laboratory research is currently in progress and sponsored funding will be sought in the near future.
AIR FORCE ROTC

For the second year, women were officially included among the qualified and selected students in the cadet program. These students, while pursuing their chosen academic degrees, are given the opportunity to earn a commission in the United States Air Force upon graduation. During their first two years in the General Military Training Course, the cadets gain a broad outlook and overview of the military organization as an instrument in national and international relations. The second two years, during the Professional Officer Course, the cadets prepare for future leadership responsibilities as commissioned officers. The Air Force offers advanced cadets in the flying category a chance to earn a civilian pilot’s license through its Flight Instruction Program.

ARCHITECTURE

Tech’s School of Architecture offers three undergraduate curriculums; a five year course in Architecture with options in Design and Structures, a four year plan in Industrial Design, and a four year program in Building Construction. Master degrees are given in Architecture and in the newer field of City Planning. The graduates of the school are taught to design beauty into utility for a more liveable future.

ARMY (MILITARY SCIENCE)

Increased individual leadership continued to characterize the 1971-72 year. Field training exercises at Fort Benning, Georgia and local areas replaced some of the on campus drill requirements. Army ROTC sponsored the Atlanta Forum on National and International Affairs II with China as the main topic. Collectively, Tech cadets scored higher at summer camp than any other class in the school’s history.

UPPER FAR LEFT: Dr. A. L. Ducoffe, Director Aerospace Engineering; LOWER FAR LEFT: Colonel A. J. Waldrop, Commandant and Professor of Military Science; UPPER LEFT: Colonel W. T. Preston, Professor of Air Force Aerospace Studies; LEFT: Mr. P. M. Hefferman, Director of Architecture.
Departments Increase Elective Hours

BIOLOGY
A revised curriculum leading to the degree Bachelor of Science in Applied Biology has reduced the total credit hours required in previous years. Removal of selected required courses and the increase in elective hours affords greater flexibility in developing a curriculum meeting individual student interests and career goals. The degree program retains its primary purpose of providing an excellent undergraduate preparation for graduate study and for medical and dental schools. Several technical options are being developed to extend studies under the program to broaden areas in the basic sciences and engineering.

CERAMIC ENGINEERING
Ceramic Engineering is participating in the broadening of engineering offerings by the College of Engineering. Thus, a student may specialize in his particular interests within the field, especially at graduate levels. A Ph.D. degree is being prepared to round out the graduate program. At the Bachelor level there are several projects underway in which students work closely with established industry. New equipment and new staff assure this progress. A new in-house computer, new audio-visual equipment and new test instruments complete an array of equipment which, with outstanding faculty, make the school superior.

CHEMICAL ENGINEERING
The department of Chemical Engineering, located in the Burger-Henry Building, has advanced facilities including labs for cryochemistry and cryogenics, X-ray characterization, fine-particle study, metallurgical research, unit operations and bench-scale testing. The department has a machine shop, computer terminals, and other such equipment.

CHEMISTRY
The curriculum of the school of Chemistry is a particularly flexible one since there are 59 quarter hours for electives. This makes it attractive to students of many career objectives. Those who wish to pursue a graduate program in either chemistry or biochemistry can elect the more advanced and theoretical courses. Those who wish to enter industry with the B.S. will elect more applied courses. And those who are seeking a good basic education before concentrating in some specialized field such as medicine or law can elect courses in other departments.
FAR LEFT: Dr. G. L. Bridger, Director of Chemical Engineering; TOP LEFT: Dr. W. M. Spicer, Director of Chemistry; TOP RIGHT: Dr. E. L. Fincher, Director of Biology; LEFT: Dr. L. Mitchell, Director of Ceramic Engineering.
TOP: Dr. D. T. Paris, Director of Electrical Engineering; RIGHT: Dr. W. M. Sangster, Director of Civil Engineering; NEXT RIGHT: Dr. M. E. Ra-ville, Director of Engineering Science and Mechanics; FAR RIGHT: Dr. R. K. Jacobs, Head of Department of Engineering Graphics.
Schools Devise More Flexible Curriculum

CIVIL ENGINEERING
More than 110 additional students are enrolled in Civil Engineering over the 1970 total. Of this increase approximately 50 are freshmen. A more flexible curriculum greeted this year's freshman class with further loosening of the requirements expected before next Fall.

Substantial numbers of graduate students have begun their studies in an evening program initiated last year and expanded this year.

ELECTRICAL ENGINEERING
The student in Electrical Engineering now finds himself with the newly created opportunity to take EE electives in his freshman and sophomore years. In addition, he has the opportunity to schedule almost his entire senior level coursework on an elective basis. The flexible curriculum structure, coupled with a comprehensive, four-year advising program, enables the electrical engineer to design a large portion of his program to meet individual requirements. Thus he can focus his electives toward a specific career goal or, alternatively, choose electives to provide breadth and perspective of a wider range of activity.

ENGINEERING GRAPHICS
In the department of Engineering Graphics new equipment consists of new overhead projectors, which are used in teaching design courses and reproduction machines for transparencies used by projectors. The new courses are computer graphics taught by Lockheed computer workers and a pilot course, not yet approved for the catalog.

ENGINEERING SCIENCE AND MECHANICS
The new Engineering Science curriculum, which will be fully implemented course-wise this year, is fulfilling a critical need for a broad-based, fundamental engineering curriculum that also provides the student with a great amount of program flexibility through its 72 hour elective structure. Over 500 engineering students will complete the "Statics" core curriculum course by "programmed instruction" methods this year in what represents a major educational innovation at Tech.

Plans are underway to introduce even greater breadth and flexibility into the undergraduate and graduate programs in order to keep pace with the rapidly changing demands of the times.
The School of English has revised its curriculum by offering a new series of upper-level electives. Many of the new courses are centered around contemporary issues and interests. Courses in Afro-American literature and ecology in literature have been offered this year. In addition, courses that relate science and literature of past eras, such as "writers in the Age of Darwin" and "writers in the Age of Freud and Einstein" have recently been introduced.

**GEOPHYSICAL SCIENCES**

Increased emphasis is being placed on environmental geology and oceanography. Formal undergraduate minor and option programs are being developed in conjunction with physics, chemistry and civil engineering.

**INDUSTRIAL AND SYSTEMS ENGINEERING**

A major curriculum change occurred within the ISE school this year. Total hours were reduced to 205, elective hours were increased so as to permit individual structuring of undergraduate study. Revision, addition and deletion of courses updated the school's listing of courses while creating a greatly improved program of study for both undergraduate and graduate students.
INDUSTRIAL MANAGEMENT

Changes in the College of Industrial Management involve the addition of one new program, emphasis on more efficient and effective learning approaches, changes in leadership and broadened research activities. Five students are initiating the new Ph.D. program in Management with fall quarter of 1971. One aspect of the search for more efficient and effective approaches to learning involves the preparation of many video tapes by the business and industrial community in Atlanta for our first class in marketing. Other innovative uses of video tape are also being pursued. Dr. Allen Lipis is directing Phase III of the Federal Reserve sponsored research project involving improvement of payments mechanism.

FAR LEFT: Dr. R. Lehrer, Director of Industrial and Systems Engineering. TOP: Dr. C. E. Weaver, Director of Geophysical Sciences. LEFT: Dr. D. B. Comer, III, Head of English Department. NOTE: The photo of Dr. R. E. Green, Dean of the College of Industrial Management, appears on page 203.
ICS
Will Offer
B.S. Degree

RIGHT: Dr. J. D. Neff, Acting Director of Mathematics; BELOW: Dr. V. Slamecka, Director of Information and Computer Science; FAR RIGHT: Dr. J. D. Wright, Head of Department of Modern Language; BELOW RIGHT: Dr. S. P. Kezios, Director of Mechanical Engineering.

INFORMATION AND COMPUTER SCIENCE
The School of Information and Computer Science offers comprehensive graduate programs of study in the information and computer systems sciences. Beginning Fall Quarter 1972, the school will implement jointly with the School of Medicine (Emory University) a new graduate degree program in Biomedical Information Systems Engineering.

Subject to approval, the school will inagurate, beginning fall 1972, a formal undergraduate (B.S.) degree program in the information and computer sciences.

A second processing unit has been added to the school's own computing laboratory. Current areas of laboratory supported research include: Cybernetics; Artificial Intelligence; Design of Information Systems; Computer and Programming System Design; Computer Languages; Learning and Science Information Systems; and Biomedical Information Computer Systems.

MATHEMATICS
Acquisition of a scholar of outstanding mathematical stature and administrative ability to serve as Director of the School of Mathematics is a major objective. Five young, highly qualified mathematicians have been added to our faculty during the preceding 14 months. Principle revisions which affect graduation requirements for mathematical majors are the deletion of Math 427-8-9, replacement of Math 401-2-3-4 by Math 450-1-2, replacement of Math 405 and 414 by Math 460-1, liberalization of electives, and reduction in required hour total.

MECHANICAL ENGINEERING
The M.E. department offers varied studies such as design, dynamics, fluid mechanics, heat transfer, kinematics, philosophy of design, thermodynamics, material for engineering, and energy conversion. Visual aids and other effective teaching measures have been initiated to enhance the quality of lectures. Graduate students are offered an ever increasing curriculum to choose from. Dynamics and vibration, power and propulsion, fluids and fluid power, combustion, and bioengineering are just a few of the available fields. The graduate program has been expanding rapidly the past few years.
The department of Modern Languages is in transition between two definite eras in its history — one in which the instructional program was initially restricted to the lower-divisional; and one in which its instructional program may well become largely upper-divisional. This development, although taking place at different rates in different disciplines, will, in the end, undoubtedly take place in all disciplines. And, as it progresses, it will provide, at Georgia Tech, for the study of either foreign languages and literatures or the science of linguistics, an opportunity more advanced than ever before. As always, the principal interest of the department is the instruction of Spanish, French and German.
NAVY

During the past several years, the Tech Naval ROTC Unit has ranked within the top three in size with an enrollment this year of 280 midshipmen.

Special events for the year include the Navy Ball held January 1972, Armed Forces Honors Night held in May 1972, and the Spring Review held in May 1972.

NUCLEAR ENGINEERING

Many of the challenges awaiting today's college students, such as providing adequate electric power, fresh water and transportation, reducing pollution and raising health standards, may be solved, or at least ameliorated by applications of nuclear technology. The School of Nuclear Engineering prepares its graduate students for technically exciting and personally satisfying careers directed toward solutions of these problems. In order to meet new challenges, the School recently enacted a new option on Nuclear Reactor Operations and Management.

Nuclear Engineers share with the staff and students of other departments Tech's excellent nuclear research facilities, including a 5,000 kilowatt heavy water moderated research reactor. In addition, an AGN-201 training reactor is available for extensive use by undergraduates interested in nuclear engineering.

PHYSICAL TRAINING

The Physical Training curriculum has undergone considerable change during the current academic year. The most significant innovation was the addition of a Health Education course as an elective offering open to all Ga. Tech students, both male and female. The three credit hour course is a lecture series utilizing speakers from the medical and allied professions in the Atlanta area.

The department has also redesigned P.T. 103 (Track) to an individualized Aerobic physical conditioning course.
A biophysics option has been added to the undergraduate curriculum in physics. A new freshman orientation course was added in the winter quarter. New undergraduate curricula in materials science and instrumentation are under consideration. A cooperative program with Georgia State University will permit students in high school teaching to take the necessary education courses at Georgia State while earning their B.S. in physics at Tech. The self-study tract for Phys 227 is now available on an elective basis and was selected by approximately 350 students during the Fall quarter of 1971.
Departments Increase Faculty

PSYCHOLOGY
The psychology curriculum may be the broadest of any on campus. It allows students 56 hours of electives, features a truly workable advisor system, and gives student suggestions greater than normal consideration. It has been part of Ga. Tech while Tech has been experiencing growth away from technical emphasis toward more theoretical application; in a sense, as Tech has tended to approach university status.

The unique undergraduate program, the personal element, and the greater reliance of engineering and scientific areas upon psychology have made the school a necessary part of Tech.

SOCIAL SCIENCE
A special senior and graduate level course in Science, Technology and Human Values attracted more than 400 students in the Spring of 1969. Forty-two faculty members, representing most of the schools on campus acted as discussion leaders in the course on a volunteer basis. The department also offered for the first time some experimental courses which were based largely in selected foreign films. A series of lectures on aspects of history of technology were also offered for some 250 students, who had an option of taking an examination for one hour of academic credit for the lecture series.
TEXTILES

The Textiles department has employed 3 outstanding new faculty members and expects to add at least 2 more during the year. All members have Ph.D. degrees and extensive industrial experience in science and engineering. Plans are being made to offer a Ph.D. program in Textile Engineering and Fiber Science by fall, 1972. The Textile School expects to have the most complete laboratories in the country within a short time. Computer applications are being incorporated in many of the research programs. At the present time, graduates with textile degrees have a good chance of obtaining employment.
EES Provides Technical Advice and Assistance

The Engineering Experiment Station was created by the General Assembly of Georgia in 1919 and recommissioned in 1960 "to provide technical advice and assistance to business and industry; to provide an industrial extension service to meet the technical, informational, and other needs of industry and local development groups; to render assistance to national programs of science, technology, and preparedness." Early federal support did not materialize and the station was not activated until 1934. A limited base of industrial and governmental support was then built and in 1946 EES began to receive major funding from federal agencies. At that time the Georgia Tech Research Institute began to function as the contract organization for EES.

The research activities presented here are a representative sample of the work ongoing at the EES in fulfillment of the goal to serve the technological needs of Georgia.

As the state's major technological resource, the Engineering Experiment Station (EES) fulfills a public service function. In this role the EES works with other state agencies to provide them with needed technological support. For instance, EES engineers have cooperated with Solid Waste Disposal personnel in the State Department of Public Health in setting up a survey of industrial waste products. In addition, the EES has held air pollution workshops throughout the state in conjunction with the Air Quality Control Division of the Health Department. These workshops were instituted because the EES had received so many requests for air pollution information from Georgia industry.

The EES also has assisted the Public Health engineers responsible for checking microwave oven installations. Dr. Allen Ecker of the Electronics Division has appeared on the TODAY IN GEORGIA show to explain the hazards and the proper precautions for microwave oven use to Georgia housewives.

The Certified City program is another EES public service effort. This program was established to help Georgia cities evaluate themselves and initiate self-improvement projects in order to attract industry. The EES assists participating cities in starting their projects and provides basic economic data.
One of the many projects centered in the Industrial Development Division aimed at furthering the industrial progress of Georgia is the management and technical assistance program. During the 1971 fiscal year, this program made a significant contribution to the creation of 1,934 identifiable jobs and in the saving of 527 jobs. Another 2,112 new jobs are in the process of being created or show definite promise of early establishment.

In addition to the number of jobs created or saved, the contributions of the EES to the state can be evaluated in terms of income generated by use of state tax dollars. The total direct and indirect impact of the EES research programs during fiscal year 1971 alone is estimated to be 27.1 million dollars and, if the impact of identified technological spin-off companies is added, the total impact is estimated to be 104.3 million dollars for that year. As a result of this economic activity, the state received about 4.2 million dollars in state taxes, a little over two times the state allocation for the EES during the fiscal year 1971.

ABOVE: Machining of radioactive materials in N.E. facilities; LEFT: EES electron microscope; FAR LEFT: Nuclear Engineering experimentation done at Neely Reactor.
The Engineering Experiment Station is actively involved in environmental protection. An example of this type of work is the ongoing effort with Georgia communities to help them improve their sewage treatment facilities. This activity has resulted in the development of experimental on-line instrumentation for measurement and control of the waste water treatment process.

Noise pollution is another problem for which EES engineers have been trying to find solutions. They have made noise measurements in industrial plants, analyzed the results, and offered recommendations for reducing the noise level. This type of assistance makes Georgia manufacturing plants more pleasant and healthier places to work. Other studies have been made for a Georgia community on levels of noise pollution from the Atlanta airport. EES also has measured and analyzed the noise emanating from expressways so that the best routes for these superhighways can be found.

Highway safety and improved traffic control are two areas of interest to the EES. For a number of years, EES scientists have been conducting research to improve traffic paints for highway markings, with particular emphasis on increasing visibility at night and under wet conditions. Protective coatings for extending the life and improving the safety of highway structures such as bridges also have been investigated. This work includes design of the special instrumentation needed to test and evaluate the coatings, as well as development of new and improved coatings and highway markings.

A recent study of traffic flow patterns in Atlanta demonstrated the feasibility of a computerized traffic control system. One of the most expensive parts of a computerized traffic control system is the cable to carry the information between the computer and each intersection. EES engineers went to
work on the problem and devised an improved communications scheme that will significantly reduce the costs of the control system. Research also has been pursued on the development of electronic censors to warn wrong-way vehicles on expressways. The objectives of this program have been to detect automobiles entering the expressway on the wrong ramp, to warn oncoming motorists, and to stop the offender.

Application of engineering techniques to problems in the life of sciences is another facet of EES activities. One of many investigations in progress in this area is concerned with the development of a microminiature device for directly and simultaneously measuring pressure and sound within the human heart. The device is a barium titanate cartridge transducer, which translates mechanical stress into electrical impulses that may be recorded and analyzed by medical doctors. The tiny sensing device is mounted on the tip of a small cardiac catheter that is inserted into the heart or a large blood vessel through a needle in an arm artery. The device also can be used to explore arterial pulse in the renal pelvis and to directly monitor "second heart sound," a measure of the level of anesthesia in human patients. Tests are being conducted in cooperation with local hospitals and medical schools.

LEFT: Hot thermoplastic traffic line receiving a corrugating surface while still molten to enhance its wet night visibility; ABOVE: Experimental On-Line instrumentation being tested at Atlanta's South River Sewage Treatment Plant.
Air Pollution
Major Project

Air pollution has become a significant problem for several Georgia industries. One of these is the peanut industry. For years peanut shellers have disposed of their discarded peanut shells by burning, causing excessive pollution of the atmosphere. EES studies led to the development of a process for converting peanut hulls to charcoal. (The solution they found not only solves the air pollution problem, but also is creating a new industry in Georgia.)

This work also led to the development of an advanced cyclone separator for removing particulate matter from stack exhausts. The unit shows great promise for meeting all existing air quality control standards. It will be applicable to many Georgia industries, not the least of which is the forest product industries. Sawmills and pulpmills have traditionally burned bark, wood chips, and sawdust both as fuel for their boilers and as a means of waste disposal. Both activities emit noxious fumes; hopefully, the cyclone separator will offer the solution these mills require.

Many electric burglar alarm systems have been put into use in the past few years. The usefulness of these alarms is being seriously questioned by police departments because of an unacceptable number of false alarms. Programs sponsored by the Department of Defense in areas of radio frequency interference, crystal oscillators, and electronic communications have provided the EES with the unique capabilities necessary for the development of reliable low-cost alarm systems which exhibit low false alarm rates.

Engineers at the EES scooped super-detective Dick Tracy by six years in the use of neutron activation analysis (NAA) as a crime detection/prevention tool. Since the cooperative efforts between the EES and the Georgia State Crime Lab were initiated in 1965, over 300 evidence samples have been analyzed using the reactor at the EES. NAA not only detects the gunpowder residue left when a gun is fired, but it can also indicate that arsenic poisoning is present and for how long the victim has been receiving the poison. Early analysis, in several cases, has saved the intended victim’s life.
The nuclear reactor at EES has been playing an important role in detecting mercury pollution. The special facilities and capabilities of EES have been applied to protecting both the health and the industrial interests of Georgians. In one study more than 400 fish samples were analyzed for mercury content. This was done in cooperation with the State Water Quality Control Board.

Studies have also been made of the mercury levels of poultry. Results have shown that Georgia-raised poultry does not have dangerously high mercury levels. Studies of this type are made for Georgia industries so that they can take the corrective action needed before receiving an ultimatum from a regulatory agency. On a national level, EES has helped the U.S. Center for Disease Control to verify that Eskimos in certain areas of Alaska have abnormally high body mercury levels due to the seal meat that they eat.

The Engineering Experiment Station maintains liaison with Georgia industry through a statewide network of field offices. Field representatives are able to observe problems firsthand by visiting industrial plants and talking with plant personnel. Problems that cannot be solved in the field are referred back to the EES, and an engineer is assigned to work on a solution. As a result of one such contact, the EES was made aware of the need for an electro-mechanical baby chick counter capable of counting and hatching hundreds of thousands of baby chicks per week. The Georgia poultry concern that had this problem could not find a commercially available product to satisfy its need. An EES engineer was assigned to the task and preliminary design for a counter was developed. The final product is to be capable of counting better than 80,000 baby chicks a day and separating them into trays containing 100 each.
The Georgia Tech ANAK Society was organized in 1908 with the purpose to honor certain select men from the senior class who are particularly outstanding among their fellow students in their accomplishments and service to Georgia Tech. To be a member and wear the ANAK T is one of the highest honors that may be bestowed upon any member of the student body. The activities of this group are secret, and the membership seeks no recognition for its many services.

This year, Stephen B. Gossett was named the recipient of the first Arthur G. Hansen Service Award. The award is presented to a student who has served Tech over the years but received little recognition for his efforts.
Omicron Delta Kappa

Omicron Delta Kappa is the outstanding senior leadership society. The chapter was founded in 1930, and includes faculty members elected for four year terms. ODK serves as a creative community where school leaders can generate ideas and solicit the participation of all campus organizations. Exemplary character, leadership, and scholarship are requirements; activities range from developing the student center to studying a Tech honor system.

The highest junior honorary, Koseme, attempts to recognize outstanding members of the junior class on the basis of their efforts and achievements. New members are chosen by existing members and unanimous approval is required. About four new people are selected each quarter.
Phi Kappa Phi

Phi Kappa Phi was founded in 1897 and first appeared on the Georgia Tech campus in 1914. Its primary objective is the "recognition and encouragement of superior scholarship in all fields of study." Academic excellence and good character are essential qualities necessary for election to membership. Members are elected from all curricula within the school assuring equal emphasis on all educational endeavors. In addition, to on-campus service, Phi Kappa Phi contributes to fellowships for graduate study, funds for publications, and funds for the publication of a national honor society journal.
Of the honorary societies established to recognize outstanding students in fields allied with engineering, Tau Beta Pi is the nation’s oldest and perhaps the most highly respected. The Georgia Alpha Chapter was established on the Tech campus in 1925, and today it is one of the largest of the one hundred chapters now in existence.

Membership in Tau Beta Pi is restricted to the engineering students ranking in the upper tenth of the Junior class or the upper eighth of the Senior class. As of January, 1972, there were 178 active members in the Georgia Alpha Chapter.
The members of Beta Gamma Sigma are chosen from the junior and senior classes on the basis of leadership on campus, and outstanding scholastic achievement. Besides providing an incentive for better academic work, the society conducts plant tours, discussions with business leaders, and other activities to give the IM student a better understanding of his field. As one of its most outstanding undertakings, the society seeks to further these objectives through the encouragement of better student-faculty relations.
Phi Eta Sigma is the National Freshman Honor Society. Membership is open to those men whose first quarter average is 3.5 or better and also to those men who have achieved a 3.5 average by the completion of their regular three freshman quarters. Phi Eta Sigma's purpose is to recognize academic achievement at the freshman level and so to serve as an incentive for scholastic excellence throughout the college career. Initiation banquets are held in the fall and winter quarters, with plaques going to the freshman who has completed a full three quarters with the highest grade-point average.
Scabbard and Blade

The military honorary, Scabbard and Blade, recognizes those Techmen who have shown military professionalism and leadership. Members are recommended by their individual department on the basis of their performance and devotion. Scabbard and Blade's purpose is to foster good leadership and to allow interaction between the various military departments. Projects undertaken by this group were coordination of the Empty Stocking Fund and 100% participation in the Blood drive.
The Order of Omega is the honorary for outstanding fraternity members. Its members are chosen by the existing active membership after consideration of their character, scholarship, fraternity participation, and the offices they have held in their fraternities and in the I.F.C. Special requirements specify that candidates for membership must be at least a junior, with at least one full year at Tech, and must rank academically above the all-men’s grade point average. The Order of Omega allows the fraternity leaders to work together efficiently to shape the direction of fraternities on this campus. The Order of Omega also plays a significant role in rush at Georgia Tech.

Order of Omega
Briaerean Society
Section I

The Briaerean Society is for co-op students who are at least third quarter sophomores and who have 3.0 or better grade-point averages. The whole idea behind the Briaerean Society is to bring co-ops together into a group which can further the needs of the co-op at Georgia Tech. One of the society’s functions is the presentation of a scholarship cup to a deserving co-op. A higher standard of work, more fulfilling participation in athletics, and a feeling of brotherhood are all profits enjoyed by many Briaerean members. The main activities of the Briaerean Society are outings which serve to draw members together and which provide for interaction with freshman co-ops. Section I attends school during summer and winter quarters while section II is at work.
Section II