

Whistle

THE GEORGIA TECH WHISTLE

VOLUME 17, NUMBER 24 - AUGUST 5, 1991

General Assembly Session Scheduled Aug. 19

By Jackie Nemeth

State agencies could face budget reductions up to 10 percent when the General Assembly meets in a special session later this month to balance the state budget and reapportion congressional and House and Senate districts, according to Gov. Zell Miller.

Gov. Miller said July 24 he expected at least 1,000 state workers, possibly as many as 3,000, would lose their jobs. He said between \$400 million to over \$600 million must be cut to balance the state budget. On July 25, Fulton County Superior Court Judge Philip Etheridge ruled that Gov. Miller did not have the legal authority to order the one-day-a-month furloughs of state employees to deal with the state budget crisis.

Andrew Harris, Tech's director for State Relations, predicts the special legislative session, scheduled to begin Aug. 19, will last two to four weeks. Mr. Harris added, "I also think the Board of Regents will be given

quite a bit of flexibility in administering budget reductions to the University System."

One of the biggest factors, he said, depends on whether or not the General Assembly reduces grants to elementary and secondary schools. "This is a big factor because they have not been included in any cuts thus far. Those grants make up \$2.8 billion of the state's \$7.9 billion budget -- over one-third of the state budget," Mr. Harris said. "If they don't participate in any cuts, the University System's percentage of cuts is going to be relatively greater."

University System Chancellor H. Dean Propst said, "While we understand Gov. Miller does not intend to recommend FY 1992 budget reductions at the level of 10 percent, we must, nevertheless, illustrate the magnitude of such a reduction. A 10 percent state fund reduction amount in the University System budget is approximately \$95.2 million. That amount is greater than the original FY 1992

allocation of state appropriations to Georgia Tech (\$90.6 million)." It is equal to the combined original allocation of state appropriations to 17 University System institutions.

"Whatever the level of FY 1992 budget reductions required of the University System, we urge that we be given internal flexibility to manage the reductions," Dr. Propst said. "That flexibility is critical if the University System is to move through this unstable fiscal period with the least possible damage to its operations."

Dr. Propst said the following steps that might be taken to address FY 1992 budget reductions have been developed without benefit of consultation with System presidents concerning the impact of the actions and without official approval by the Board of Regents. While the total funding amount is \$95.2 million, the actual sources and amounts for reductions would vary depending upon the actual

See General Assembly p. 2, col. 1

Flying Robot Teams Get An "A" For Effort In Unique Competition

By Vera L. Dudley

After several months of designing, building and perfecting, five weary student teams from universities across the country came to Tech last week to demonstrate the abilities of their unmanned aerial robots in a unique competition, the first Aerial Robotics Competition sponsored by the Association for

Unmanned Vehicles.

The object: each robot must autonomously transport six spool-shaped disks from one six-foot ring to another six-foot ring over a barrier several feet away within three minutes. The prize - \$10,000, winner takes all. As simple as it sounds, none of robots were successful. Some were stymied by the mechanics of flight.

Despite the robots' inability to accomplish the mission, competition organizer, Rob Michelson was pleased with the efforts. "It's a tough assignment. A lot of components have to come together and these entries show a lot of creative effort," said Mr. Michelson. He is also a senior aerospace technology engineer at Tech's Cobb campus.

Judges split the prize between all five teams based on how close they came to the competition's original goal. The top award of \$3,000 went to the University of Texas (Arlington), whose "tail sitter" a Vertical Take Off and Landing (VTOL) vehicle, did lift off the ground and reach the bin where the discs were stored before it lost balance in its own prop wash and crashed. The University of Dayton's (Ohio) helicopter had stability problems and the California State Polytechnic University's (San Louis Obispo) hovercraft suffered guidance problems. Both won \$2,000 for meritorious achievement. Tech and Massachusetts Institute of Technology won \$1,500 for honorable mention. Magneto parts caught in the rotor gear and grounded the Tech machine. After the competition, MIT demonstrated its hovercraft via remote control.

The vehicles, for the most part, were built from any equipment students could get their hands on in addition to donated or borrowed

See Flying Robots p. 2, col. 1

Roll Call Tops Record \$4 Million

By Jackie Nemeth

Despite recessionary times, Georgia Tech's 44th Annual Roll Call campaign raised a record \$4,544,518, said Frank H. Maier Jr., IM '60 and vice president for this year's annual fund drive. More than 22,200 donors -- an all-time high -- gave to Roll Call.

Roll Call dollars, a major source of unrestricted gifts, go to the Georgia Tech Foundation Inc. budget. Items supported by the Georgia Tech Foundation budget and Roll Call dollars include student scholarship support; faculty support; academic program initiatives; Institute discretionary funds; facilities/equipment/special projects/other; development support to the Office of External Affairs; and general operations for the Georgia Tech Foundation.

"A winning sports program, the Olympics coming to Atlanta and the Olympic Village being located at Tech helped increase alumni awareness of Georgia Tech," said Mr. Maier. "We had terrific support from our staff and from over 700 volunteers (including gift club committees, class representatives, matching gifts coordinators, Student Foundation trustees and volunteers, Georgia Tech Club Roll Call chairs, the faculty/staff committee and the Parents' Association Board of Trustees.)"

Tech President John P. Crecine said he was grateful for this strong showing of alumni support. "Something that sets Georgia Tech apart is the quality of its undergraduate student body who then go on to become great alumni and who remain a part of the Tech family. Our students are what will continue to make Georgia Tech great." Dr. Crecine stressed Roll Call's importance, especially in troubled economic times. "We are dependent on public support and revenue, and we are going through some rough times here in that area," he said. "We have to set our programs for the 1990s; we have fantastic faculty to carry out many important research programs for the 1990s. Private support will play a crucial role in those areas."

Charitable donations to higher education this year for many schools have been lower than generally expected. According to the *Chronicle of Philanthropy*, donations to higher education have barely kept pace with inflation during the past several years. Tech's annual fund, however, has broken that trend by increasing donations almost 10 percent for the past three Roll Call years.



Gary Meek

The Tech helicopter, designed by students to function autonomously, made an appearance but did not compete in the recent Aerial Robotics Competition.

General Assembly continued from page 1

level of reduction. Those reductions, not in any order of priority, would include: 1) travel expenditure, \$5 million; 2) equipment expenditure, \$10 million; 3) library expenditure, \$5 million; 4) operating supplies and materials, \$5 million; 5) administrative/staff position lapse (will probably result in layoffs), \$18 million; 6) aid to private institutions, \$9 million; 7) three percent reduction in special organized activities, \$4 million; 8) elimination of general institutional reserve funds, \$5.6 million; and 9) general reductions (miscellaneous areas, including operation and maintenance of plant), \$28.6 million. "If a worst case budget scenario develops, consideration will have to be given to a tuition surcharge and to increases in user fees for other services provided by the University System. Such action is not proposed at this time," he added.

Flying Robots . . . continued from page 1

technology and assistance from private corporations. The Tech team started out with a small helicopter originally designed for use in research and in the movie industry and added sensors, computers and other equipment that would enable it to function autonomously. The Tech students, who had been working on the helicopter since last year, got the vehicle to hover just one day before the contest.

Unfortunately, they were unable to correct ground to aircraft communications and a malfunction that caused the tail rotor to fly off while spinning at 8,000 RPM. According to Stephen Ingalls, an aerospace engineering graduate student and the Tech team leader, not flying spared the helicopter of any damages similar to those sustained by other vehicles that competed.

"There are so many other systems that go into making the machine autonomous that it is really unfair to blame it all on the helicopter," said Mr. Ingalls. "We were 70-80 percent complete. With additional time, we would have won hands down."

The Association for Unmanned Vehicle Systems is an educational organization interested in promoting land, air, space, and sea unmanned systems that can perform various tasks that would be hazardous to human beings.

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News for the Georgia Tech community

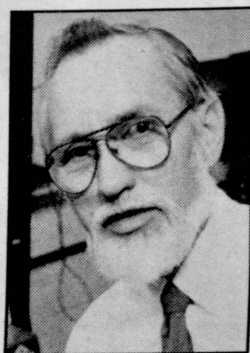
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Tech Reacts To The Budget Crisis



Dr. J. Aaron Bertrand,
professor in the
School of Chem-
istry and Bio-
chemistry and
chair of Tech's
Executive Board:

"It was unfortunate that Gov.

Miller handled the furlough situation in the way he did. I felt it could have been handled better by universities presenting the budget situation to faculty and staff, weighing some options and coming up with some solutions or suggestions. Clearer reasons need to be given as to what the problems really are. There is not much we can do but wait and see how the budget cuts are distributed and how that will involve the faculty. From a faculty governance standpoint, I will work with the faculty and the administration once we know what the status of the budget cuts are, so we can keep Tech running as smoothly as possible and keep people from losing their jobs."

Edwin P. Kohler, associate vice president for Student Affairs:

"We received a 10 percent reduction from our fiscal year allocation. That's a couple of people and a lot of operating funds, and in our case, whenever it's a person, it's a function. If we are given total flexibility [in applying cuts], maybe we can get creative. If the cuts are dictated [to us], then we have to respond. We do not know how cuts will come to Georgia Tech. The cuts we made last July have already had an effect, and more will just make it worse. For some period of time, many offices have been filling in with ramblers or students. I guess we won't really know how things will work out until the legislature convenes. Things will probably get worse before they get better. We all feel a degree of that."

Roger Wehrle, director of Auxiliary Services:

"Under budget cuts, the only operation we can see that would be affected would be the Post Office. Obviously, we would attempt to minimize it. A 10-15 percent reduction is pretty severe. It cuts into personnel and services. The post office is very labor intensive anyway. At this point, the governor has not even told the

state what to reduce. Auxiliary services are not state tax dollars, so to reduce those budgets would not save the state money. They are all revenue generating dollars."



Miriam Drake,
dean and
director of
Libraries:

"We have cut the hours that the library is open. Our hours for the rest of summer quarter are:

8 a.m.-10 p.m., Monday-Thursday; 8 a.m.-6 p.m., Friday; 9 a.m.-6 p.m., Saturday; and noon-10 p.m. on Sunday. If the budget situation worsens, we may have to close the library completely on Saturday and open late on Sunday. Clearly, if there are more budget cuts, we will have to cut back more on hours and services, and students are going to be the ones who are going to suffer. I don't know of any way to make cuts to our services and not have it affect students."

Parking Registration Forms, Payment Due Aug. 19

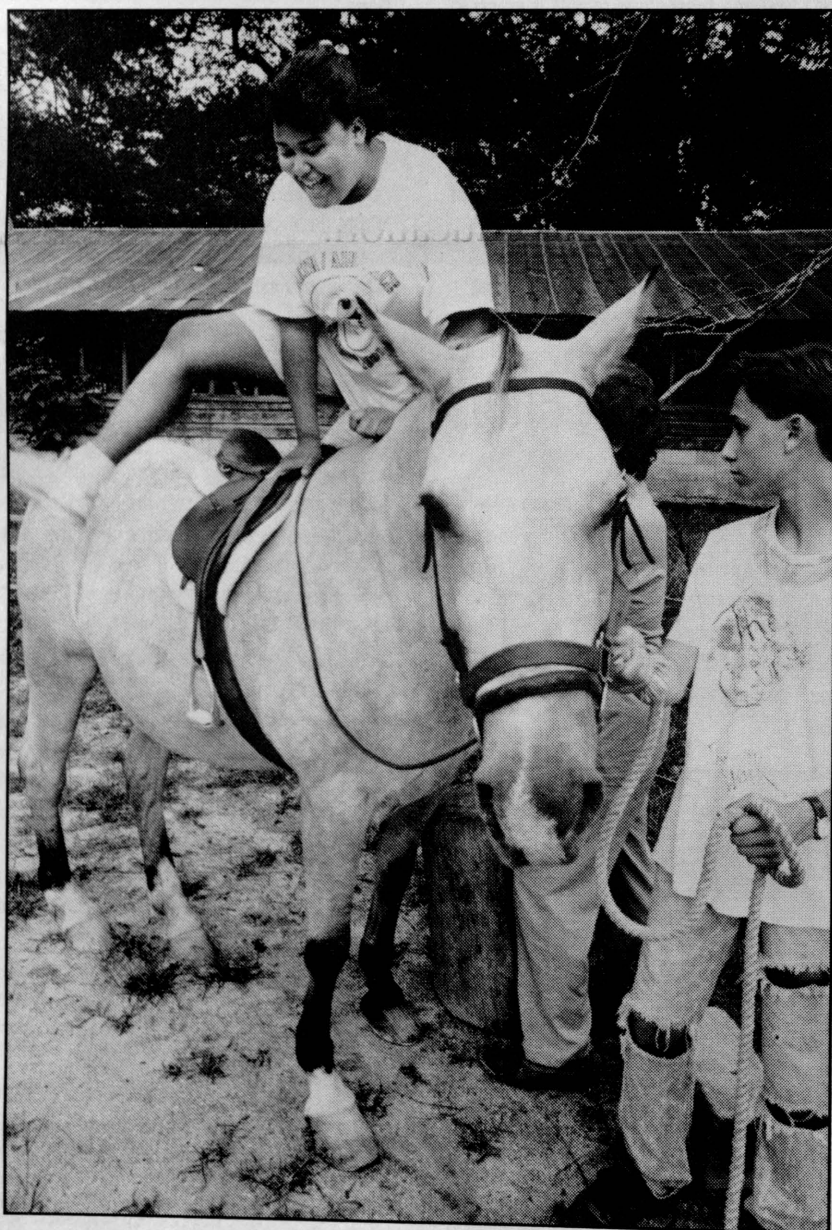
Vehicle registration forms for 1991-92 have been mailed out to faculty and staff and are due to the Parking Office by Aug. 19, the date when the Parking Office will begin assigning permits.

Tech Police Chief Jack Vickery said, "For some permit areas, the date the Parking Office receives your completed vehicle registration form(s) could determine whether you get your first choice parking area [out of the 28 available]."

Applicants should indicate a first, second and third permit choice on the registration form. A reserved space may be requested, Chief Vickery said, but they are discouraged. "A reserved space should not be needed in this new parking program because of the limit on the number of permits that will be assigned for each parking area," he said. "If you have special circumstances that you wish considered, either in the assignment of a permit for an area or for a reserved space, attach a note with that information to your vehicle registration form." Special carpool permits are also available.

Checks should be made payable to Georgia Tech and must have the social security and campus telephone numbers written on the check. The check amount should be for the total fees for your "first choice area" permit and where applicable "reserved space" and "key card/opener deposit." Full-time, permanent employees who register their vehicle before Sept. 30 may pay parking fees via payroll deduction, beginning with the first paycheck in October and ending in June 1992.

The Parking Office plans to have all permits and parking regulations sent out to all faculty and staff by Sept. 2. Additional vehicle registration forms, parking maps and bus schedules are available through your department's administrative network representative and from the Parking Office. For more information, call Edna Hicks at 3-0040.



Gary Meek

Camp Promotes Environmental Awareness

Rising sixth, seventh and eighth grade students from the Atlanta Public School System helped provide creative solutions for environmental problems during the week-long Georgia Tech-Rabun Gap-Nacoochee School Environmental Sciences Camp. Kem Albert takes time out from the camp's busy schedule for a horseback ride. Some of the camp's hands-on experiments included working with soil, plants, water and maps; using compasses; and understanding principles of biodegradation.

Federally Funded Research In Universities: Impact Of Proposed OMB Indirect Cost Provisions

By Dr. John P. Crecine

Most of the nation's research and development functions are carried on outside of the government, in private and university-based research facilities and are conducted by non-federal employees. Most of the federal government's extramural research activities are conducted by the top 100 research universities in the U.S. Historically, there has been a clear and consistent position taken by the federal government in terms of the financing of research conducted by non-federal institutions, namely a policy which allows the full recovery of all costs associated with the conduct of the research under federal research contracts. During the last decade, there has been a clear trend toward more and more sharing of the total costs of research, where either the institution performing the research or some other agency (usually an industrial firm or state government, in the case of public universities) share in financing the recovery of total research costs -- cost sharing.

The rules for determining total costs have become increasingly elaborate, and in the case of research universities, subject to tighter restrictions and definitions of exactly which costs and institutional operations were directly associated with research. The government has traditionally viewed this as a cost accounting problem and has focused on increasingly precise measurement of those costs directly associated with research. E.g., increasingly elaborate procedures for measuring the time a faculty member spends directly on research as opposed to the educational and service activities of a university.

Over the past 20 years, the rules for calculating indirect or overhead costs associated with research have become more elaborate, precise and restrictive as well. Research universities have educational, service and research missions. Allocating central costs among the varied activities of a research university so as to determine costs that legitimately belong in the pool of indirect costs that can be fairly attributed to research has become more complicated and restrictive. Universities with significant numbers of federally financed research contracts often have a team of federal auditors permanently located on their campuses, examining procedures for keeping accurate records of direct costs attributable to specific research projects and auditing those costs the university includes in its indirect cost pool. Future research contracts between the institution and the federal government then include an indirect cost charge which is a percentage of the direct costs. This charge is based on federal auditors' recommendations.

More than a decade ago, the Office of Management and Budget (OMB) imposed new procedures for keeping track of researchers' time spent on particular research projects (OMB Circular A-21 guidelines). This was in response to an abuse where an individual was simultaneously billing the government for 100 percent of his salary for research at Stanford University on a federal contract and for 100 percent of his salary for research at Stanford Research Institute on another federal contract. The OMB response was to force research professionals to keep

more accurate track of actual time spent on federally funded research activities.

Recently, OMB has proposed new procedures for calculating the elements of indirect costs attributable to research that can then be recovered by the institution through an indirect cost charge on future research. Indirect cost rates for current and future contracts are now based on audited indirect cost experience by the institution in previous years, so charges temporarily lag actual experience. There are several broad categories of indirect costs and explicit accounting guidelines for each. One of these categories is administrative expenses. Another category is depreciation or use allowances for buildings and equipment associated with research.

The regulations governing research cost reimbursement have always been in the context of total cost recovery for the institution or university. It may be that the federal granting agency requires some other entity to "share" costs by participating in financing of the research project, but always in the context of an accurate calculation of total project cost.

In June 1991, OMB proposed a set of regulations that would limit the administrative component of indirect cost reimbursement to 26 percent of a research project's direct costs. The proposed 26 percent administrative cap -- embodied in the House NSF Authorization Bill (H.R. 2282) -- was in response to another set of abuses by Stanford University. The 26 percent cap is independent of the true cost structure of the institution conducting the research, the nature of the research or any consideration of the accounting system employed by the institution which determines whether a particular cost is the basis for a direct or an indirect charge. Whatever the real evidence, the answer to the question (as determined by federal guidelines and accounting procedures) of the size of the administrative component of indirect costs, the federal government will only allow the institution to recover up to 26 percent. If the real, indirect administrative costs are more than 26 percent, the federal government will not allow full cost recovery. Based on current federal auditing procedures, all or nearly all research universities' true

administrative costs exceed 26 percent of direct costs.

This artificial constraint on full cost recovery destroys the consistency in federal policy to date and will not allow full recovery of the

costs of research. It is interesting to note that the proposed regulation only applies to universities and not to the other providers of federal research services, whose indirect costs are generally 50-100 percent higher than those of universities.

The artificial constraint on full cost recovery, in effect, creates powerful incentives for a university to internally organize its research in a way that isolates research from other university missions (e.g., separates research from education) so that many administrative charges can be direct costs, thus escaping the 26

percent cap, rather than indirect charges and subject to the cap. For example, a department of electrical engineering or chemistry in a research university would usually use the same organization to supervise educational programs as to supervise its federally sponsored research programs. Under these circumstances, departmental administration would be an indirect cost that has to be distributed between education and research functions. With a 26 percent cap, there is a powerful incentive to conduct all research in an organization unit that only does research so that departmental administrative costs would all be direct charges and not subject to the 26 percent cap. The actual effect of the proposed OMB provision to cap indirect administrative costs at 26 percent is to dictate a particular kind of organizational arrangement in research universities and could be seen as overly intrusive. Real total costs of research would most likely be higher under an arrangement where research is separate from other university functions, creating the need for dual administrative structures.

If indeed, the purpose of the federal government is to determine accurately the total costs of federally funded research activities in universities and to prevent inefficiencies and overcharges, creating an artificial cap on one cost component does not seem to be a sensible or fair way to approach the issue. More careful auditing and more precise accounting would seem more appropriate.

If fairness and accuracy in determining total research costs is the objective, then careful

"The primary impact in research universities, public or private, of the under-recovery of total research costs -- whether that under-recovery is due to an artificial cap on administrative costs or grossly inadequate equipment and facility charges -- is a negative impact on undergraduate education."

examination of existing federal reimbursement practices for use of equipment and facilities would seem to be required. As research, especially in the physical sciences, engineering and medicine becomes more capital intensive, this component of research costs becomes more and more important. If one examines equipment and facility usage charges or depreciation expenses one instantly sees that universities seriously under-recover research costs. Federal cost-recovery guidelines assume a 50-year life (2 percent depreciation/usage charges) for buildings and research facilities, a 15-year life for equipment and instruments and a seven-year life for computers. Each of these guidelines leads to a 100-300 percent under-recovery of capital costs. If the federal policies toward recovery of indirect costs of research by universities are to be re-examined, then clearly the largest single "abuse" is the gross disparity between true equipment and facility costs and the charges allowed by the federal government.

The primary impact in research universities, public or private, of the under-recovery of total research costs -- whether that under-recovery is due to an artificial cap on administrative costs or grossly inadequate equipment and facility charges -- is a negative impact on undergraduate education. Quite simply the costs of the under-recovery of research costs are nevertheless real costs, incurred by the institution and must be financed somewhere else in the budget. In private universities, this must come partly from private fund-raising efforts, but more often from higher tuition charges to its students. In public universities it primarily comes in the form of higher student-faculty ratios, state appropriations and higher tuition costs. The proposed regulations (26 percent cap) and existing policies (under-recovery of capital costs associated with research) ultimately attack the educational programs of the nation's public and private research universities.

If the policy objectives of the federal government are aimed at weakening the undergraduate educational programs of the nation's research universities or at reducing the amount of federally sponsored research done in universities vs. other for-profit and not-for-profit institutions, then it would seem preferable to use more direct approaches. If the policy objectives are to reduce overall costs of federally sponsored research and create incentives to fairly report true costs in determining both direct and indirect charges, then there are much better ways to proceed -- approaches that should be applied to all institutions performing research services under federal sponsorship.

Dr. Crecine prepared this statement in response to the proposed Office of Management and Budget (OMB) cap of 26 percent on research overhead rates and has been distributed to Georgia's congressional representatives and senators and to OMB as part of Tech's comments on the proposed cap.

Briefly . . .

Applying For Fellowships? - The Graduate Office is sponsoring special workshops on the graduate fellowship application process and how to prepare a winning application. The focus will be on applications for National Science Foundation fellowships, but the workshops will be useful in applications for other kinds of funding as well. There will be a presentation on Aug. 8 from 11 a.m.-noon in the Skiles Bldg., Rm. 256. Seniors and first year graduate students are urged to attend. Faculty are also invited, since fac-

ulty assistance is a vital component of the application process. Call Glenna Thomas at 4-3090 for more information.

Help Needed With Midnight Munch!

The Student Center Programs Area needs help from faculty/staff with the fall quarter midnight munch. Midnight Munch is a break for students studying for finals. It is held during exam week in December, normally Tuesdays or Wednesdays from 10 p.m.-midnight. Students with meal cards are given a free snack and others can purchase it for a small fee. People are needed to help serve and prepare food. If interested, please call Jill Allen at 4-2805.

Nine Assistant Professors Named 1991 Lilly Fellows

The Center for the Enhancement of Teaching and Learning, a 1990 recipient of a three-year \$122,393 grant from the Lilly Foundation, recently selected nine, untenured assistant professors to become Lilly Teaching Fellows for 1991-92.

The grant, to be matched by Tech, allows recipients to focus on enhancing their teaching skills. The fellows will receive a stipend and reassigned time for working on projects that will improve their classroom effectiveness.

This year's Lilly Teaching Fellows are: **Dr. Nelson Baker**, School of Civil Engineering; **Dr. Dan Bullen**, School of Mechanical Engineering; **Dr. Richard Catrambone**, School of Psychology; **Dr. Kurt Gramoll**, School of Aerospace Engineering; **Dr. Donna Llewellyn**, School of Industrial and Systems Engineering; **Dr. Mindy Millard-Stafford**, Health and Performance Sciences; **Dr. Gil Neiger**, College of Computing; **Dr. Mark Shields**, School of History, Technology and Society; and **Dr. David Wilford**, School of International Affairs.

Monthly seminars on teaching issues are part of the program, and each fellow is expected to attend at least two National Lilly Teaching Fellows conferences. Veteran Tech faculty members will serve as mentors or resource persons.

Classifieds . . .

For Sale - Beautiful white wedding gown and veil, chapel length, \$400; 1/3 ct. engagement ring, matching wedding band and man's wedding band. Best offer. Call 528-7710 or 443-2767.

Wanted - Coweta County commuter craves campus carpool! Call Russ at 4-6013 or 253-6407.

For Sale - 3 BR, 2 BA brick/frame ranch, sep. LR, DR, FR, finished bsmnt. Well cared for home, great Stone Mountain location, \$78,500. Call Myrna Kelley at 292-6326.

For Sale - Sofa/loveseat, \$185; Paul Bunyan solid oak queen size bedroom set, \$950 (retails \$2,200); 4-piece wicker set w/cushions, \$300; contemp. dinette set, \$150; CJ7 jeep soft top, \$125; 2 1989 Yamaha waverunners and trailer, \$5,500. Call 975-3794.

For Sale - 1990 4 dr. Pontiac Grand AM LE, 3 AT, 2.3 LTR DOHC 160 HP, loaded, 16K mi., perfect condit., must sell, \$8,000 neg. Leaving country. Call Kunio Goto at 4-7404 or 454-7014.

For Rent - Furnished, 3 BR, 1 1/2 BA home in Decatur near Agnes Scott. A/C, garage, lovely lawn, remodeled kitchen, DW, disposal & microwave. Pets/children neg. Ref. essential, \$1,300/mo.+ utils. Call Sonny Rozelle at 461-9966.

For Sale - GE Microwave oven, touch control panel and temperature probe. Good condit., \$35. Call 528-7560 or 522-8612 (nights).

For Sale - Almond colored Amana 25 cubic ft., side-by-side refrigerator, \$795; antique camel

back sofa, \$595. Both in outstanding condit. Call 431-1988 eves.

For Sale - Pit bull puppies, white w/black spots, tails cut, no shots, 6 wks. old. One male, \$100; five females, \$125 ea. Add \$50 for shots and worming. Call Lee at 964-8230 or 4-8611 after 3 p.m.

For Sale - Buckhead townhome, 2 BR, 2 1/2 BA, 2 flpc., spacious rms., walk-in closets, W/D, jacuzzi on patio, pool, curb-side recycling, attic, ceiling fan, in quiet neighborhood. Furnished option. Call Jody at 727-6490 (days) or 892-4894 (nights).

For Sale - Crib, brown, Jenny Lind style, complete w/mattress and primary color bedding. For girl or boy, \$65. Call Leslie at 3-3175 or 378-7398. Other baby items avail.

For Sale - 1984 Toyota Corolla, white 4 dr., 5-spd., A/C, AM/FM cassette, pwr. sunroof, good condit., \$2,500. Call Connie at 4-4869.

For Sale - One lot, Hall Co., Smokechase subdiv., Shadburn Ferry Rd.; surrounded by Lake Lanier, water & underground utils., \$19,500. Call 4-2362 or 932-0176.

For Sale - 1986 Buick LeSabre Ltd., 4-dr. 3.8 lit. V-6 (fuel-injection), 50K mi., P/S, P/W, P/D, excel. condit., regular maintenance, \$6,500. Call Ken at 3-9703 or 439-1744.

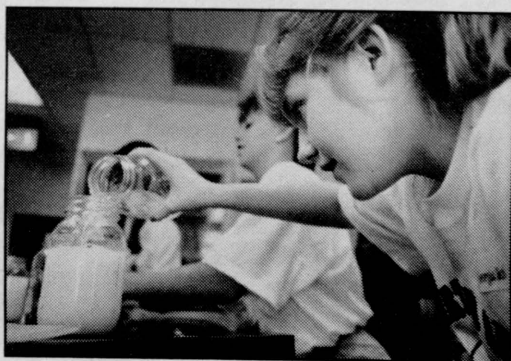
For Sale - Sears craftsman band saw, 12 in., 1 1/8 HP, 6 in. depth of cut, 80 in. blade, \$375; 5 HP Mighty Mac composter/shredder, \$300. Call 279-7921.

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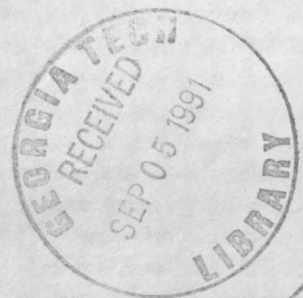
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Mary Speer learns how to make recycled paper, one of the many activities at the Georgia Tech-Rabun Gap-Nacoochee School Environmental Sciences Camp.

Gary Meek



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