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UAHM Magazine

SUMMER 1997



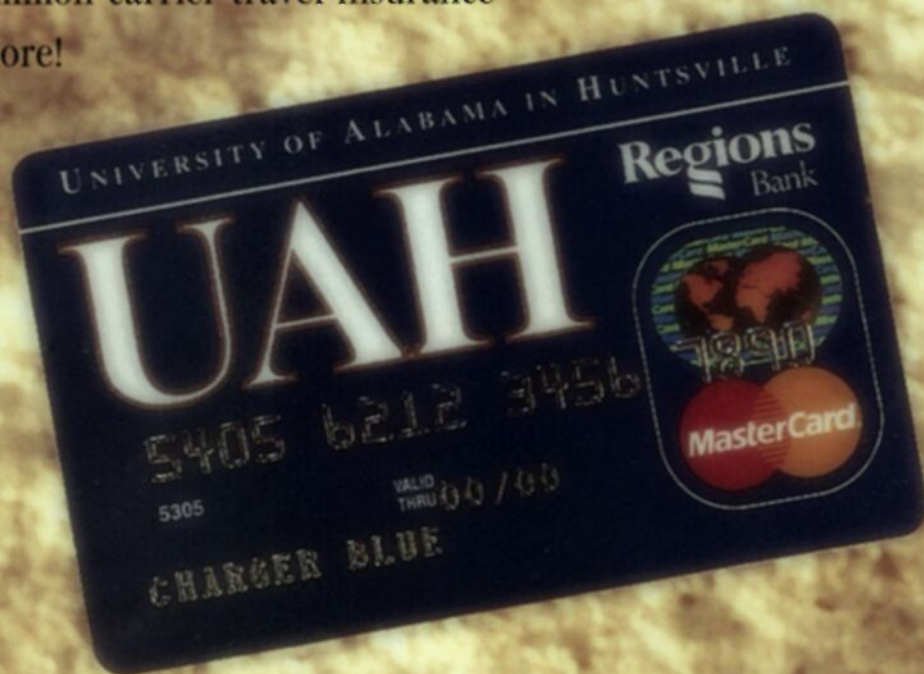
**Jim Hudson finds success
wading in the gene pool**

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ON THE COVER:
UAH alumnus James Hudson found success on the leading edge of genetic science and research

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UAH

The University of Alabama in Huntsville

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James Hudson's Keys to Success Were in his Genes

By Phillip Gentry

James Hudson, Jr., '88 M.S., Biology, has not fully fulfilled his lifelong ambition.

That isn't awfully surprising, since opportunities for entrepreneurial mad scientists are fairly limited.

Instead, he found the keys to success and happiness were in the pockets of his genes, first in the genes he inherited from his inventor/entrepreneur father, then in the genes he assembles from molecular building blocks in a former motel on Memorial Parkway.



The "new" lab building for Jim Hudson's Research Genetics was formerly a motel on South Parkway.

Most of his customers, however, want something a lot shorter than a complete pair of designer genes; not cut off genes, but the pieces from which genes are assembled.

Hudson's Research Genetics has grown from one office in a 8x9 "closet" in a former beautician supply house and music store in 1987 to today, when it is one of the world's leading producers of custom-made DNA for genetic research.

Despite his success, Hudson, 55, has not quite reached the goal he set as an eight or nine-year-old child, when he got his first chemistry set for Christmas.

"It was one of those Gilbert chemistry sets, and the doors just opened and opened," he recalled, relaxing in his open office. "It was really impressive. You got all these little colored bottles of chemicals. Frankly, the kinds of things they had in them when I was a kid, they'd be out of business if they did that today.

"I made my own gunpowder from my chemistry set. Invisible inks. It made a big impression on me, and I knew from that day that what I wanted to do was be a mad scientist when I grew up."

He worked toward that goal, earning a B.S. in chemistry at UA-Tuscaloosa. While studying chemistry, he found that he enjoyed physics so much that he got a master's degree in physics. While he was in graduate school, Hudson was called to active duty. He went to flight school, then a tour of duty in Vietnam.

While he was in Vietnam, his father wrote to ask Hudson to come to work with him in Hudson Metals.

"At about the same time I went to college, my dad started his own business," he said. "All my life he had been trying to invent something. I got a lot of that from him. Anyway, he wanted me to join the business and, while I was in Vietnam, I decided I would."

He did, in part because his father offered a unique incentive: "He said, 'You want your own lab and you want to do your own research. Unless you go back to school and get your Ph.D. you won't be able to do that. If you go into business with me, maybe we can build a lab associated with the foundry. But if not, when I get ready to retire, you can sell the business, take the money and build your own lab.'

"Well, that's kind of what I did."

He worked with his father from 1970 to 1982, when they sold the foundry. The company grew in that time from eight employees to a peak of 77. Being part of a family business is "great," says Hudson, whose son James III and daughter Cindy Jackson work with him. His father James Hudson Sr. "does a lot of the automation, design and engineering" for Research Genetics.

"Going into business with my dad was one of the best decisions I ever made. But I still wasn't that mad scientist," he said. By 1982, "Dad was ready to retire. I was 40. It was time to decide what I was going to do with the rest of my life. I decided I wanted to fulfill my dream."

He spent a year just reading textbooks and scientific literature, catching up with the latest advances in molecular biology. When he enrolled in graduate school at UAH, he walked into biology labs and offered his services, free. He ended up working with Dr. Holly Richter.

"She was fantastic," Hudson said. "In

my little speech to the alumni association (*Hudson was the UAH Alumni Association's alumnus of the year in 1992*), I thanked her for very patiently taking the top off my head and pouring in what she knew about molecular biology.

"I could never have done this business without her, that's about what it amounts to."

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WHEN I GREW UP."**

"He was probably one of the more focused students I've had," said Richter, who left UAH to earn a medical degree at UAB. "At first, it was kind of hard to fathom what he was after. Jim really wanted to learn as much as he could as fast as he could. He was great fun to work with."

The whole time he was in school, Hudson was looking for a business opportunity. Because his wife Suanne wanted to stay in Huntsville, it had to be here.

As he investigated his business options, he said, "I became aware that people were buying DNA. You could make DNA just by a machine. It isn't your everyday thing, but they do sell the machines and they run themselves; they're automated. Typically, when somebody ordered a piece of DNA, it was taking from 10 days to two weeks to get it back; longer in most universities.

"Since it only took six hours to make it and about six hours to purify it, why did it take 10 days to ship it? The obvious answer was that they only had one machine and they were just making your (order) first come, first served. Well, I thought, if I had enough machines then I could always ship the next day.

"Federal Express was a good thing that came along for us at the right time.

...CONTINUED ON PAGE 5



Hudson, right, confers with his new products director, Dr. Bob Zahorchak, who is a former member of UAH's biological sciences faculty.

One Link = 4 possible combinations

Two Links = 16 possible combinations

Three Links = 64

Four Links = 256

Five Links = 1,024

Six Links = 4,096

Seven Links = 16,384

Eight Links = 65,536

Nine Links = 262,144

Ten Links = 1,048,576

Eleven Links = 4,194,304

12 Links = 16,777,216

13 Links = 67,108,864

14 Links = 268,435,456

15 Links = 1,073,741,824

16 Links = 4,294,967,296

17 Links = 17,179,869,184

18 Links = 68,719,476,736

19 Links = 274,877,906,944

20 Links = 1,099,511,627,776

30 Links = 1,152,921,504,600,000,000

40 Links = 1,208,925,800,000,000,000,000

50 Links = 1,267,650,579,700,000,000,000,000,000

60 Links = 1,329,228,000,000,000,000,000,000,000,000

70 Links = 1,393,796,579,300,000,000,000,000,000,000,000

80 Links = 1,461,501,600,000,000,000,000,000,000,000,000,000

90 Links = 1,532,495,501,700,000,000,000,000,000,000,000,000,000

100 Links = 1,606,938,000,000,000,000,000,000,000,000,000,000,000,000

**Deciphering and
copying life's
secret code**

Jim Hudson makes DNA, but he isn't Dr. Frankenstein.

He doesn't create life in a test tube.

DNA isn't alive. It can't be brought to life.

DNA (deoxyribonucleic acid, in case you were wondering) is the building block of genes and chromosomes, the chemical "database" that tells each cell in every living organism how to grow and what to be. It records and determines the color of your eyes, the shape of your nose, and the texture of your hair. It also carries genetic diseases from one generation to the next.

DNA, says Hudson, is nothing but a "rather complex molecule that's part of every living cell." Each link in a DNA chain is a simple oxygen, phosphorus, and "sugar" ring, with one of four chemical bases attached. Human genes contain eight billion of these links in each and every cell of our bodies, and the sequence in which the four bases appear in each gene produces a genetic code.

Each spot on the DNA chain contains data about a specific function or response. Scientists, for instance, have recently identified the genetic mutation that is responsible for cystic fibrosis. Another might regulate a person's growth, or an immune system response.

"There's no magic," said Hudson. "It's just a chemical ... just one long chain. That's all it is, a chemical means for storing information. But the power of the code is quite enormous."

He drew a 15-base oligo, randomly choosing among the four possible bases, then announced: "There is a 50-50 chance that sequence exists in you. In a sequence of 15 bases, there are a billion different possibilities. It blows your mind, the amount of information that could be stored in eight billion different bases."

A one-link chain has four possible combinations. There are 16 possible combinations for a two-link chain, 64 for three links. "By the time you get to 20, it's up over a trillion. When you get to eight billion (links), you're just beyond all comprehension."

Hudson once considered an experiment to make every possible combination of 100 links (more than 1.6 trillion, trillion, trillion, trillion [10⁶⁰] possible combinations), only to find out the chemicals needed for that many reactions would weigh more than the mass of the universe.

"I obviously will never do that experiment," he noted, laughing.

Manufacturing DNA is a relatively simple, largely automated process. The first link in the chain is bound to a solid particle, similar to a piece of sand, that keeps it from floating away. On the other end of the oxygen-phosphorus-"sugar" ring is a chemical blocker, which keeps the rings from linking prematurely.

A chemical solution removes the blockers and is washed away. The second piece in the chain is introduced and links to the first. The process is repeated over and over until a chain of the correct length and sequence is produced.

While most genes are 6,000 to 7,000 links long, the longest chains the machine can make are from 100 to 150 links long. Those pieces can be joined, however, to make special products. Human growth factor, for instance, is "fairly short, about 319 bases," Hudson said.

"I ran a little, one-inch ad in Science."

The tiny white-on-black ad said: "Custom DNA, Purified & Delivered in 48 hours. \$7.50 per base. Research Genetics." It has become a regular item, appearing in every issue of Science since June 1987. "It's always the very last thing in the magazine, back in the want ad section, where people go looking for jobs."

While the company opened its doors on July 1, "we didn't do any business until August," Hudson said. In the first half year, from start up through December 1987, Research Genetics made 36 DNA sequences for eleven customers.

"It was fairly slow starting," said Hudson with characteristic understatement. "There were only two companies that actually custom made DNA when I started Research Genetics. Looking at it from my point of view as a foundryman, it was just a manufacturing process. It was a job shop."

In the company's early days, "even though I only did 36 sequences in six months, every phone call was exciting to me," he said. "People would call from M.I.T. or call from Stanford and want assistance with their DNA. This was big stuff. I really enjoyed that."

"I enjoy that to this day," Hudson said. "We have a number of Nobel laureates who are our customers. It's great to deal with the class of researchers that we deal with."

"One of the things I enjoy most is talking to researchers on the phone and getting an idea of what they're doing and how their research is going, especially if it's in a field that interests me. Most of them are quite open and interested to share with you and pick your brain and let you pick theirs."

"I don't know if I ever will really be that mad scientist, per se, but I work with a lot of mad scientists now. I get a chance to interface with a lot of people doing really meaningful research. I guess that's how I sublimate that desire to be the mad scientist."

Research Genetics might have been slow in starting, but it grew rapidly, grossing \$360,000 in its second six months of operation.

By 1992, annual revenue had jumped to more than \$2 million and Research Genetics had 16 employees. When the company filled most of the storefront building Hudson owns on Memorial Parkway, he went looking for new space. He settled on the former Red Carpet Inn on Memorial Parkway, ripping out the building's internal walls and erecting glass walls where the balconies had been.

"Labs require a lot of plumbing and wiring," says Hudson. "Hotels have a lot, so we could take advantage of those types of things. It has turned into great lab space."

The company's geometric growth has continued; Research Genetics grossed more than \$11.2 million in 1996. And Hudson has about 120 employees — including approximately 40 UAH graduates or former students and one former UAH professor.

His customer list includes thousands of researchers around the world. Hudson's product line has expanded from DNA to include peptides, solutions and reagents, DNA screening libraries, and other related products, including the company's new radiation hybrid mapping panels.

"We looked for things that fit our method of operating," he explained. Some of the new product ideas "come out of just talking to researchers. The solutions and reagents were things I had to make in graduate school."

The mapping panels, which help scientists locate where in the human genome a piece of DNA belongs, were an idea from a scientist at Stanford: "To produce a map, all you have to do is run 100 tests, e-mail it in, and the server will e-mail back your position on the map. With this, anyone can map a piece of human DNA for a few hundred dollars."

"It was the kind of thing that took six months to do before this."

Another new service helps researchers find the location of DNA related to inherited diseases, Hudson said. "Researchers send us DNA from a family with a particular disease. We use a genomewide scan using micro-satellite markers to find which region of DNA is always inherited with the disease."

"A typical test might be 300 individuals, analyzed with 400 markers. It takes about 120,000 tests to complete a scan. And that takes about six months."

"We're the only commercial lab in the country doing this. Before, if a physician had collected the samples, he had to give those samples to a research group that did all the work, wrote the paper and got most of the credit."

"If the physician comes to us and pays us, the physician writes the paper and gets the patents. He's still in control. It's a fun thing to be involved in. We just finished a prostate cancer study with a physician in St. Louis."

"It's very rewarding to be involved in a project like that."

While much of his time is spent now on product development and in running his multi-million dollar business, Hudson has not entirely given up on his dream of conducting research.

"I could, except the company's so big," he said. "It takes so much of my time. We do have a strong research department, with eight people in it. We can do whatever we want to do. I just don't get to spend enough personal time with it."

"I'm still having a wonderful time."

When he wants to get away from his burgeoning business, Hudson enjoys spending time at his house on Guntersville Lake, relaxing and fishing. While he obviously enjoys his work, Hudson says he "doesn't live it and breathe it 110 hours a day."

Nonetheless, even when relaxing at home, "I would be reading the research literature to keep up with the latest advances."

"I guess it's the mad scientist again, trying to know a little bit about everything that's going on."

**HUDSON'S
RESEARCH GENETICS HAS
GROWN FROM ONE OFFICE
IN A 8X9 "CLOSET" IN A
FORMER BEAUTICIAN SUPPLY
HOUSE AND MUSIC STORE IN 1987
TO TODAY, WHEN IT IS ONE OF
THE WORLD'S LEADING
PRODUCERS OF CUSTOM-
MADE DNA FOR GENETIC
RESEARCH.**

Branham grows buildings where Redstone had cows



By Ray Garner

DAVID BRANHAM, '76 MAS AND '78, BSE, MECHANICAL ENGINEERING, DIDN'T GET OFF TO AN AUSPICIOUS START WHEN HE JOINED THE U.S. ARMY AS A CIVILIAN EMPLOYEE.

The former civil engineer for the Tennessee Valley Authority joined the Redstone Arsenal staff after he saw the nuclear power industry lose steam and political support in the late 1970s. When he signed on with the Army, however, his first project was to design a sprinkler system for a golf course.

It was a far cry from helping to design multi-billion-dollar nuclear power plants.

His wife Cindi, '82 MAS, laughs about the beginnings of David's job with the Army. But she knew her husband's skills and ambition. She was confident that better things were in store.

She was right. In only eight years, David Branham went from his entry level job right to the top: director of public works and environmental activities for Redstone Arsenal and MiCOM, the U.S. Army Missile Command.

David went to work for the Tennessee Valley

Authority's headquarters in Knoxville in the summer of 1975. He transferred to Huntsville in September of that year to work on construction of the Bellefonte nuclear power plant in Jackson County.

David, 42, had a civil engineering degree from West Virginia Institute of Technology when he moved from the middle of the Appalachians to the foothills of the mountain range in North Alabama.

But he took a long-term view. He knew education and his engineering career went hand-in-hand, so he entered UAH. He received a master's degree in administrative science in 1976 and two years later added a degree in mechanical engineering.

He left TVA before the federal utility mothballed its nuclear plant construction program and

joined the U.S. Army Missile Command in 1980.

Although David's first project was for a golf course, he didn't spend much time on the links. Most of his spare time was in the classroom, adding to his educational credentials.

David began assuming additional responsibility for the Army as his education deepened and his work skills became more finely honed. He was named director of the office in 1988.

His responsibili-



ties are huge. He manages all of the land and buildings on Redstone Arsenal, except for NASA's facilities. All of the base's maintenance, repair, land management and long-term planning fall under his watchful eye.

Redstone Arsenal covers more than 38,000 acres and includes 1,900 buildings. The base continues to grow, despite pressure on the Department of Defense to cut spending.

Officials at Redstone Arsenal are preparing for the influx of more than 2,000 new jobs from St. Louis this year. The closing



of the U.S. Army's Aviation Command in Missouri will force many workers to relocate to Huntsville between now and August.

The Sparkman Center will be Redstone's new centerpiece in that expansion. It is the largest administrative office on the base, with seven buildings in the complex and approximately 800,000 square feet of office space.

David said an additional two buildings will be added before the end of the government's 1997 fiscal year and will push office space totals to more than 1 million square feet.

"Redstone Arsenal is positioned well for growth," he said. "We have the infrastructure in place. We have adequate capacity for water, sewage and heat. And we're ready to go. All we have to do is move the cows out of the way and start construction."

David said his office has identified 3,000 additional acres of prime building sites that can accommodate future growth.

Those sites include high, flat ground and all have access to utilities and are located from the new Sparkman Center north to Interstate 565.

Whether Congress will approve a new series of base realignments and closures remains uncertain at this point, David said, but Redstone and his office stand ready and waiting.

THE NEW DONOR MATH:

$$\$1,250 \times 5 = \$15,000$$

FOR AN ENGINEER AND A BUSINESS MANAGER, IT WAS A UNIQUE FINANCIAL FORMULA: \$1,250 A YEAR FOR FIVE YEARS EQUALS \$15,000.

But David and Cindi Branham found the proper variables needed to turn \$1,250 a year into a \$15,000 scholarship endowment in just five years. Last year, the young Huntsville couple pledged \$1,250 annually through the year 2000 to endow a scholarship for a deserving UAH student.

How does \$1,250 a year accumulate to such a grand total so quickly? It was possible through corporate matching funds and money from the Chan Alumni Challenge.

The couple established the David S. and Cynthia C. Branham Scholarship at UAH through their gifts, along with 1-to-1 corporate matching gifts from Cindi's employer, Motorola, as well as a 1-to-2 matching funds from the Chan Alumni Challenge.

"We don't truly feel a part of the community unless we can contribute to that community's quality of life," Cindi said recently. "We feel a need to help nurture the community and we have become more happy as a result of becoming more involved."

The Branhams have been long-time supporters of UAH, but said they didn't realize how easy it would be until UAH advancement executives laid out a planned giving program.

When the fund is fully endowed after the turn of the century, the scholarship will be awarded to a student based on academic merit, citizenship and leadership. Preference will be given to students with demonstrated financial need.

David Branham, left, supervised construction of the Sparkman Center, Redstone Arsenal's newest and largest office complex.

David Branham and his wife, Cindi, above, who carried the Olympic torch for one leg of its journey through North Alabama.

Expansion bringing computer science, engineering together

By Ray Garner

AS THE WORLD OF INFORMATION TECHNOLOGY CONTINUES TO BECOME MUCH MORE INTEGRATED, THE COMPUTER SCIENCE AND COMPUTER ENGINEERING DEPARTMENTS AT THE UNIVERSITY OF ALABAMA IN HUNTSVILLE ARE FOLLOWING SUIT.

Those departments will expand into new office and laboratory space that has been created from the renovation of the three-floor, 138,000-square-foot office building at 5000 Technology Drive.

The building once housed administrative offices for SCI Systems Inc., a global electronics manufacturer based in Huntsville.

The company's CEO, Olin B. King, moved the company's offices to downtown Huntsville several years ago and SCI gave UAH the opportunity of a gift-purchase of the building in 1995.

Moving computer science and computer engineering under the same roof should create more collaborative research and additional pursuit of joint projects between the two areas, according to Dr. Sara Graves, a professor of computer science and director of UAH's Information Technology and Systems Laboratory.

"Being located under the same roof should stimulate conversation," Graves said. "It will allow us to become more aware of each other's areas of interest and expertise and it should foster more interaction."

Graves said information technology is becoming much more an amalgamation of software, hardware and networks.

"You don't have the distinctive areas that have worked separately as in the past," she said. "There is a much more integrated



Renovation will revive 5000 Technology Drive

approach of the whole world of information technology."

Workers have gutted the building's interior and are busily erecting walls for a new floor design. The first two floors will house three academic programs: civil and environmental engineering, mechanical and aerospace engineering, and industrial and systems engineering. The Center for Space Plasma and Aeronomics and the Propulsion Research Center will also be there.

The third floor will house activities of the electrical and computer engineering departments and will also have office and labs for UAH's computer science department and The Information Technology and Systems Laboratory.

Dr. Lynn Russell, dean of the College of Engineering, said his college's expansion into the building will provide more student-centered space for undergraduates in

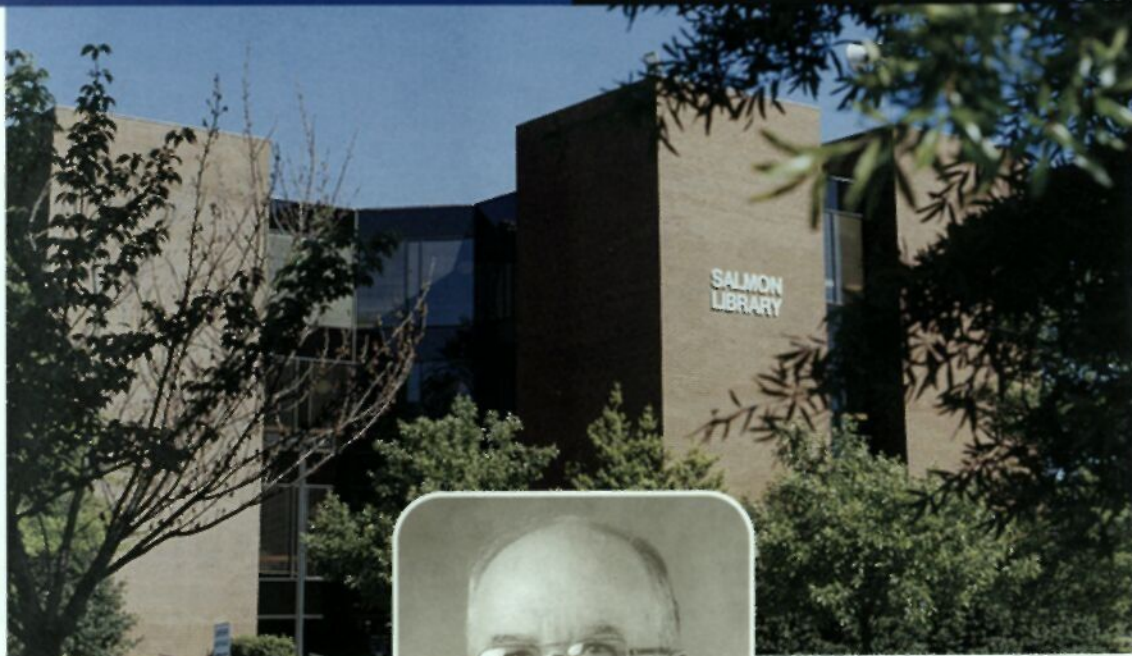
the existing Engineering Building. The extra space will also give UAH's part-time faculty some office space.

"They haven't been able to keep office hours because of a lack of office space," Russell said. "That made it tough for those part-time faculty to stay in touch with the students."

The extra space will allow the students to experience more team building, participation and will improve the atmosphere, Russell said. The 100,000-square-foot Engineering Building was built in 1985.

"Renovating and opening 5000 Technology Drive is a big step forward for the college to meet the students' needs and support both student activities and program development," Russell said.

The building renovation work on 5000 Technology Drive is expected to be completed by late next fall. Operations should begin in the second semester of the 1997-1998 school year.



UAH names library to honor Salmon

UAH has dedicated its library in honor of M. Louis Salmon, a long-time Huntsville business and civic leader.

Salmon's years of service and leadership for UAH and Huntsville, as well as more than \$1 million in gifts made to the university by Salmon and on his behalf, prompted the University of Alabama System Board of Trustees to rename the library.

"Throughout his life, Salmon's interests ranged across the field of human experience," said Ray Jones, chairman of the UAH Foundation. "He appreciated the importance and value of a commitment to life-long learning — learning substantially supported by the critically important resources of libraries.

"Because of his love of books, I believe a library named in Louis' honor would depict his life more closely than any other memorial he could possibly receive."

"Mr. Salmon was a good friend to the university," said UAH President Frank Franz. "His many contributions of time, energy and affection to UAH and the UAH Foundation will long be remembered by those of us fortunate enough to have known him and by the students who benefit from his wisdom and foresight.

"Those who loved and knew Louis best believe it is especially fitting that (the library) bear his name. It is also appropriate that

my last visit on campus with Louis was to the library, where we were able to view the library's renovation together."

Salmon, who died on Sept. 26 at the age of 70, was a Huntsville attorney and chairman of the UAH Foundation, which he helped to create in 1956.

"Louis Salmon devoted an enormous amount of time and energy to the leadership of the foundation over the last several years," said Patrick Richardson, also a founding member and past foundation chairman. "His contributions are hard to assess, they are so great. It is certainly appropriate that we make some lasting tribute to the work he has done."

An attorney with the firm of Lange, Simpson, Robinson & Somerville, Salmon had been chairman of the foundation since 1986. He helped to create Huntsville Industrial Sites, Inc., which became a non-profit foundation in 1962. It became the UAH Foundation in 1965. Salmon received an honorary doctorate from UAH in 1988.

Salmon received the Distinguished Service Award from the Huntsville/Madison County Chamber of Commerce in 1987. He was chamber president in 1974-75, and president of the Huntsville Industrial Expansion Committee from 1968 to 1970.

ON CAMPUS

Boucher named distinguished professor

Dr. Philip Boucher has been named a distinguished professor of history by UAH and The University of Alabama System Board of Trustees.

Boucher becomes the fifth UAH faculty member to receive the title of distinguished professor. The award is based on his accomplishments in teaching, research and professional service to the community.

Boucher, who teaches early modern European history, joined the UAH faculty in 1974. He has published three books.

UAH's other distinguished professors are Dr. T.J. Chung in mechanical and aerospace engineering; Dr. J. Milton Harris in chemistry; Dr. Carroll D. Johnson in electrical and computer engineering; and Dr. S.T. Wu in mechanical and aerospace engineering.



Chris Persons

UAH Student receives national co-op honor

UAH's Chris Persons has been named the Cooperation Education Association's national outstanding student of the year for 1996.

Person, who has completed the coursework for his B.S. in electrical engineering, was employed as a co-op student at Computer Sciences Corporation in Huntsville. His work there included developing the Interactive Graphical Electromagnetic Scatter System software program, pioneering a procedure for generating radar cross sections of 3-D objects.

The Mobile native had a 4.0 grade point average and was a UAH honor student.



Engineering students paddle UAH's concrete canoe to victory in the '97 Southeastern regional competition

UAH falls in canoe title defense

In the tenth annual National Concrete Canoe Championships, UAH finished second to Florida Institute of Technology. The University of California at Berkeley finished third in the national competition, which is conducted by the American Society for Civil Engineers and sponsored by Master Builders, Inc. Teams from 25 universities competed.

While UAH dominated the racing, winning three of five races, along with one second and a third, FIT built an insurmountable lead in the technical portion of the competition (about 60 percent of the final score).

In the racing competition on Lake Erie in Cleveland, Ohio, FIT won only one race, but added two second-place finishes to lock up the championship.

UAH had won three of the previous four national titles. In the competition's ten years, Cal-Berkeley has won four times, followed by UAH's three. Michigan State, South Dakota School of Mines and Technology, and FIT each have one championship.

UAH's canoe was one of the longest (21 feet, two inches) and lightest (69 pounds) at the competition. Most of the boats averaged 17 to 19 feet long and weighed from 80 and 100 pounds.

The concrete used to build UAH's canoe weighs only 28 pounds per cubic foot, said Greg Laue, a senior in mechanical engineering who is president of UAH's ASCE chapter and a paddler in two races. By comparison, a cubic foot of pine boards weighs about 40 pounds.

Weight saving came from using lightweight aggregates, such as microscopic glass beads so small they have the consistency of talcum powder, instead of sand. Instead of steel to reinforce the concrete, UAH used an advanced carbon fiber mesh donated by Fiberite, Inc., of Greenville, Texas.

"Normally you would use this material impregnated with epoxy resins, then bake it to form your shape," Laue said. "We got it before it was impregnated with the polymer. It's much finer than cotton ... And it's very flexible."

Layered and tied above, below and between two sheets of thick plastic mesh, however, tests found that it carried loads surpassing those carried by steel mesh.

ON CAMPUS

UAH jumps in U.S. News rankings

UAH made a dramatic jump among national universities in the most recent "America's Best Colleges Guide" from U.S. News & World Report.

UAH was ranked in the magazine's third quartile for national universities, moving up from the fourth quartile a year ago. After being ranked as one of the top regional universities in the Southeast for several years, UAH was thrust into the national universities category only two years ago.

"U.S. News is considered one of the benchmarks by universities and students in the college selection process," said UAH President Frank Franz. "This new ranking recognizes the high-quality work done by our faculty, students and staff."

Other national universities ranked in the third quartile included Arizona State, Brigham Young, the University of Oregon, Virginia Commonwealth, The University of Alabama, and The University of Alabama at Birmingham.

Fran Johnson, Fay Raines named associate provosts

Dr. Fran Johnson and Dr. Fay Raines, dean of the College of Nursing, have been named associate provosts at UAH.

Raines will perform in a dual role as dean and associate provost for institutional effectiveness. As associate provost, she will deal with planning, analysis and evaluation of institutional effectiveness. She will also handle program reviews and accreditation issues.

Johnson comes to UAH from the University of Tennessee, Martin, where she was associate vice chancellor for academic affairs. She will coordinate UAH's undergraduate programs and academic student affairs. Immediate priorities include enhancing student mentoring to improve retention, success and satisfaction.

The two appointees are dividing duties previously assigned to Dr. Carolyn White, who recently retired.



Dr. Fran Johnson



Dr. Fay Raines



David Wagner

Former USN submariner wins '96-97 von Braun scholarship

David Wagner, a senior majoring in mechanical and aerospace engineering, is the 1996-97 Wernher von Braun scholar. The award is presented each year by the National Space Club — Huntsville.

A native of Franklin, Ky., Wagner is an undergraduate research assistant in UAH's Propulsion Research Center.

"For someone who wants to work in propulsion, to win that scholarship was very exciting," said Wagner. "I'm very honored and humbled at the same time."

Before enrolling at UAH, Wagner served eleven years in the U.S. Navy, including tours of duty aboard the nuclear submarines U.S.S. Minneapolis/St. Paul and U.S.S. George C. Marshall.

His research at UAH involves experiments to verify computer estimates of fluid dynamics inside and through a valve in an air turbo rocket engine.

ALUMNI NOTES

George Kappler, Jr., '74, MAS, is president of Kappler Safety Group in Guntersville. His company makes protective clothing.

Thomas R. Ray, '74, B.S.B.A., is president of Advance Business, Inc., of Huntsville.

Marilyn Monroe Howard, '76, B.A., French, is the coordinator of computer services at the Scarritt-Bennett Center, a non-profit conference center in Nashville. She is also an ordained minister in the Christian Church (Disciples of Christ).

Edwin P. Wilson, '82, MSM, Administrative Science, has been promoted to senior vice president and commercial loan officer at Regions Bank.

Bruce N. Hooper, '83, B.S.B.A., Accounting, is chief financial officer of Brice Building Co., Inc. in Birmingham. He was instrumental in starting the Birmingham chapter of the Construction Financial Management Association, and serves on the board of the Association of General Contractors. He is also vice president of financial development for Camp Fire Boys and Girls.

Rosemary McMahan, '83, B.A. and '86, M.A., English, received the 1997 Hackney Literary Award, which is presented annually by Birmingham Southern University for the best work by an Alabama poet. She placed second in the 1996 competition.

Laura M. Voorhies, '83, B.S.B.A., Marketing, is an education consultant with ATHENA Computer Learning Center in Birmingham.

Allen Twisdale, '84, B.A., Communication Graphics, recently was presented with NASA's prestigious Silver Snoopy Award for



Contributions to society and to UAH were recognized in the UAH Alumni Association's annual awards program in April. Award winners included, above from left: **Dr. John Severn**, associate professor of history, who received the distinguished faculty award; **Richard Rhoades**, associate director for missile systems research in the U.S. Army Missile Command's Development and Engineering Center, received the outstanding leadership in government award; **Mark Smith**, CEO and chairman of the board of ADTRAN, Inc., received the distinguished civic service award; **Antonia Morgan**, director of student activities, received the distinguished staff award; and **Yongke Thio** and **C. Todd Whetstone** shared the outstanding student scholar award. Other award winners included **Dr. S.T. Wu**, distinguished professor of mechanical and aerospace engineering and director of UAH's Center for Space Plasma and Aeronomic Research, received the distinguished research award. The alumnus of the year award went to **Cheryl Williams Scarboro**, '86, B.A., political science. Scarboro is senior legal counsel for the chairman of the Securities Exchange Commission.

service to the space shuttle astronauts. A flight support engineer with Boeing North American, Rocketdyne Division, he is responsible for overseeing flight requirements on the shuttle's main engines.

Cindy Upton, '84, B.S., and '90 M.S., chemistry, was named Outstanding Young Woman of 1996 by the Girl Scouts of North Alabama. She is employed at NASA's Marshall Space Flight Center in the Space Environments and Effects Program. She serves on the CASA board of directors.

Stephen May, '87, B.A., Art, is managing director of VideoWorks at the Savannah College of Art and Design. During the '96 Summer Olympics, he worked with a TV network from Denmark in preparing reports on the Southern lifestyle and the yachting competition.

John R. Scales, '88, M.S., Operations Research, and '92, Ph.D., Industrial and Systems Engineering, has been promoted to brigadier general and assigned as deputy commander for reserve components at the U.S. Army Special Forces Command at Fort Bragg, N.C. He had been commander of the Alabama National Guard's 20th Special Forces Group in Birmingham. He is a senior systems engineer with Science Applications International Corp. in Huntsville.

Matthew E. Petersen, '89, 'BSE, Mechanical Engineering, is a product support engineer with The NORDAM Group of Tulsa, OK. He recently completed his MBA at Wichita State University.

Elvira L. Ceci, '90, B.A., Political Science, '96, M.A., Public Affairs, won a fellowship for Ph.D. study in comparative politics and political economy at Vanderbilt University.

ALUMNI NOTES

Patrick Reardon, '90, M.S., '93, Ph.D., Physics, has been named the Harry Watson Engineer/Scientist of the Year for Teledyne Brown Engineering, where he is chief optical designer.

J. Brent Romine, '91, B.S.E., Electrical Engineering, has received a Ph.D. in electrical engineering from Georgia Tech. He and his wife, Becky Norris, live in Chelmsford, MA.

Rebecca Heintschel Howell, '92, B.S., Chemistry, is practicing dentistry in Huntsville. She is active with the Community Ballet Association. Her husband, John Howell, '89, B.S.E., Industrial and Systems Engineering, is an engineer at NASA's Marshall Space Flight Center.

Andy Kattos, '92, B.S.B.A., Finance, is assistant vice president at First Commercial Bank of Huntsville.

Lt. (j.g.) Kimberly Abercrombie, '93, B.S., Mechanical Engineering, recently received the U.S. Navy and Marine Corps Achievement Medal for her contributions while projects manager at the Public Works Branch at the Marine Corps Base at Quantico, Va. She currently serves at the Public Works Center in Pensacola, Fla.

Matt Dean, '93, B.S., and '96, M.S., Biology, has been named the 1997 Teacher of the Year for the Madison County (Alabama) school system. He teaches biology, chemistry and physics at Buckhorn High School, where he is also a track coach, academic team sponsor and former basketball coach.

Norma Stagner, '93, B.A., Sociology, is director of Lutheran Ministries of Alabama.

Jeff Paddock, '95, B.S.B.A., Marketing, is assistant marketing director at Madison Square Mall.

Former student named 'Engineer of the Year'

Former UAH student Bernard Dagarin has been named "Engineer of the Year" by Design News magazine, and has donated \$32,000 in prizes to UAH's College of Engineering.

Dagarin was honored for his role in designing and building the Galileo space probe for Hughes Space and Communications Group.

As winner of the "Engineer of the Year" award, Dagarin received two educational grants totaling \$32,000. He gave both grants to UAH's College of Engineering, where they will buy lab equipment and instructional computer software.

Dagarin took only three courses at UAH, a technical writing class in 1957 and math courses in '58 and '59. He credits those courses with helping his career.

"I have very fond memories of the instructors of my classes at UAH," he said in an interview from his Garden Grove,

Calif., home. Most of his instructors were soldiers based at Redstone Arsenal who were teaching night classes.

Dagarin went to work for Hughes Space & Communications Co. in El Segundo, Calif., in 1962. He worked on the first spacecraft sent to the moon and Venus, then was assigned to a group that would design Galileo, the vehicle built to travel to Jupiter.

The program gave engineers some daunting challenges. The 747-pound probe was dormant during a six-year, nearly 2.4-billion-mile flight before being released for its final 50-million-mile journey to Jupiter, tearing through the Jovian atmosphere at 106,000 miles per hour, withstanding temperatures of 15,000 degrees Celsius and gravitational forces 230 times that of Earth.

The Galileo probe survived and began sending back important discoveries on Dec. 7, 1995.

Dagarin recently retired from Hughes Aircraft in southern California.

Whatever happened to ...

Whatever happened to old whatizname? You remember: Sat in the back, wore sandals all winter, nearly drove Dr. McCollum crazy with those off-the-wall questions?

If you've ever wondered what happened to your classmates and friends from UAH, they've probably also wondered what happened to you.

The UAH Alumni Association will try to satisfy some of that curiosity when it publishes a comprehensive, biographical alumni directory, its first since 1989. The directory will include names, occupations, addresses, telephone numbers, web pages, etc., for most of UAH's more than 15,000 alumni.

It will also include geographical listings and listings by class years. The directory will have a limited printing: Only enough to satisfy orders placed in advance. It will be made available only to UAH alumni.

But, there is one essential link in making this directory come true: YOU!

You will soon receive a questionnaire from the directory publisher, Carleton Graphics. You can help the alumni association by completing the returning the questionnaire. Your participation is vital to the success of this project. The directory won't be complete without you!

So please participate. Who knows, old whatizname might be wondering whatever happened to you.

STAYING ALIVE

at the plate...



By Phillip Gentry

It was the bottom of the ninth, two outs and the go-ahead run on third base when UAH outfielder Jason Barton stepped to the plate to face the Montevallo pitcher.

For Barton, however, this was more than a chance to be a hero; to live the late-innings clutch hit fantasy shared by everyone who ever swung a bat or threw a ball.

It was also an opportunity to take another step toward reclaiming an important part of the life he almost lost more than a year ago.

After he slipped into a coma in early January 1996, you see, Barton's doctors didn't really expect him to survive the viral encephalitis that wracked him with fever and seizures, temporarily paralyzed the right side of his body and caused his brain to swell.

"When the ambulance got me to Huntsville Hospital, the doctors told my mom I had no chance of living," Jason said recently, recounting what his mother, Kathy Sullivan of Birmingham, and others have told him transpired. "As soon as I got to UAB, the doctor there said that because I was in such good shape, he'd say I had a five to 10 percent chance of surviving.

"He said my mom should pray for a miracle."

He remembers nothing from the four days he was comatose or of the two days before. He had been tired but active those two days, going to classes he cannot remember before — according to roommate Ferrell Trimm — going to bed at 7:30 on successive nights.

"I never do that," Barton says now, grinning. "My mother came to my house, ironically, to take me to get a flu shot. She found me sitting up on the couch.

"My eyes were open but I wasn't responsive."

Beneath a partially overcast sky, Charger infielder Jamie Nelson took his lead from third after bouncing a two-run

triple off the top of the right field fence. It had rained the night before, and the grass on the playing field at Joe Davis Stadium was still damp as Barton dug in at the plate with the score tied at 8-8.

Montevallo is a Gulf South Conference foe, so this was an important game for the Chargers, who were ranked in the top 10 in the nation for the entire season but didn't earn a bid to the GSC tournament. UAH Coach Bobby Pierce didn't want this game going into extra innings.

"I stopped and had a conference with Jason," Pierce recalls. "I told him, 'I want you to execute the drag bunt. And whatever you do, I want you to beat that thing out.'"

"I remember waking up," says Barton. "My mom was there and I remember asking her, 'Where am I?'"

"She told me I was in the hospital at UAB, and I told her, 'Well, you've got to get me out of here. I've got practice tomorrow and I've got to go to class.'"

That wouldn't happen for a while.

"The doctors told me that only 10 percent of the people who contract this virus survive, and only 10 percent of that 10 percent have a normal brain.

"I'm supposed to have brain damage, which I haven't ruled out yet," he joked. "My memory's real bad now. I had a lot of cognitive problems this past fall. The doctors said it would come back, like muscle strength.

"It affects your short-term memory, but I still remember my childhood."

After waking from the coma, he would spend two more weeks hospitalized in Birmingham. For two weeks after that he had to lie immobile for 90 minutes at a time, three times a day, while medication was pumped through an IV tube directly into a major vein carrying blood from his head to his heart. A trim 175 pounds with only 3 percent body fat before the illness, Barton dropped 15 pounds.

"I lost a lot of muscle," he said. "I had to learn how to throw again. When I got out, I couldn't throw the ball but about 40 yards.

"I also had to teach myself to write again. The letters were coming out, but they were really scraggly."

Despite the physical and mental problems, Barton never considered his baseball career in jeopardy: "I never thought



that I wouldn't play baseball again. As soon as I woke up I wanted to go to practice. When my mother told me I might never play baseball again, it made me mad."

"From the time he woke up, he knew he would come back and play baseball," said Pierce. "As soon as he could get up and get going, he started working out and getting back into shape."

"I don't think I'm back to where I was before," says Barton, "but I played summer league baseball in Birmingham five months after I got out. I hit a home run in my first game. That kind of bumped up my 'want to' to play the game."

Barton had plenty of "want to" when he came to Pierce's try-out camp in 1995. The Tuscaloosa native wasn't considered a prospect to move to the next level after playing two years at Jefferson State Community College in Birmingham, largely because of his weakness with the bat.

"I heard that Coach Pierce was the best hitting instructor in the Southeast, so I came up here for a tryout," Barton said. "I ran and fielded and hit. He said he couldn't believe I hadn't been signed. He said I was a diamond in the rough."

"I saw his tremendous running ability and his average to above average throwing arm and his savvy," said Pierce. "You can have a fast guy, but if he can't read the pitchers, he won't be a true base stealer. Jason is a true base stealer."

Hoping to join the first-ever Charger baseball team, Barton enrolled at UAH in the fall semester of 1995.

"I walked on," he said. "But I signed a small scholarship a couple of days before I went to sleep."

With the bunt on and Nelson charging home at the sound of ball hitting bat, Barton pushed the first pitch — an 80+ mph fastball — foul. The UAH coach noticed the Falcon third baseman playing even with the bag.

"He needed to come up another five steps to have a chance," Pierce says. "They were playing in the normal, 'If they bunt I can get him out from here' position. But Jason's not a normal runner. He's about a world class runner, so that wasn't close enough in for the third baseman to get him."

Pierce called for another bunt.

Out of school for the spring semester and living with his mother in Birmingham, Barton was forced to watch from the sidelines as the Chargers won the GSC East Division title.

"I went on the first road trip to Columbus, Georgia," he said. "That made me sort of feel (the coaches) were still interested in my abilities, even though I had none at that time. And I came



up for one game last year when my roommate this year, Erasmo Moreno, threw a no hitter."

Back at UAH last fall, Barton concentrated on conditioning and his studies. A biological sciences major, he plans to teach biology and coach high school baseball. He chose biology because science teachers are in high demand, "and so I can have something that I enjoy doing at work every day."

Apparently inspired by the biological science faculty, Barton may also take his coaching career on an excursion to graduate school.

"Bill Garstka (*associate professor of biological sciences*) is one of the most interesting men I've ever met," Barton says. "He goes up north every summer and finds these fossils. He discovered that triceratops had a back that was straight and not sloped. I mean, this man who grades my tests is personally responsible for discovering these things."

"Wow."

On the baseball field, Barton "is as motivated as he's ever been," says Pierce. "He's been a tremendous kid to have in the program. Physically, there seems to be no problem."

"The coaches let me know I had a place here," said Barton. "After fall semester, I signed a healthy scholarship. That felt good, to know that I was good enough."

"This season I go in during the late innings as a pinch runner or if they need somebody to steal a base. Or I go in as a defensive outfielder. They'll put me in center field to run down fly balls."

Inserted into the March 9 Montevallo game as a late innings pinch runner, Barton saw the Chargers rally and bat through the order, bringing him to the plate with the game on the line.

On the second pitch, Barton laid a drag bunt down the third base line. The Montevallo pitcher charged over to cover, but slipped going for the ball. The third baseman grabbed the ball and looked at Barton charging toward first.

No chance.

He turned and flipped the ball to the catcher covering home plate — an instant after Nelson scored.

"That was a great feeling, everybody jumping around," said Barton. "It made me feel like I mattered."

He needn't have worried about that.

"I look at Jason Barton every day in practice or in uniform and thank God," says Pierce. "He's such a motivated, dedicated person. For him to come out of this and be able to play baseball and get his education and do the things he loves ...

"It's the first time in my 15 years of coaching that I've had a player who is an inspiration to me."

"AS SOON AS HE COULD GET UP AND GET GOING, HE STARTED WORKING OUT AND GETTING BACK INTO SHAPE."

Young Chargers overachieve right into NCAA tournament

NCAA Division II ice hockey is not infected by the NHL/NBA playoff disease.

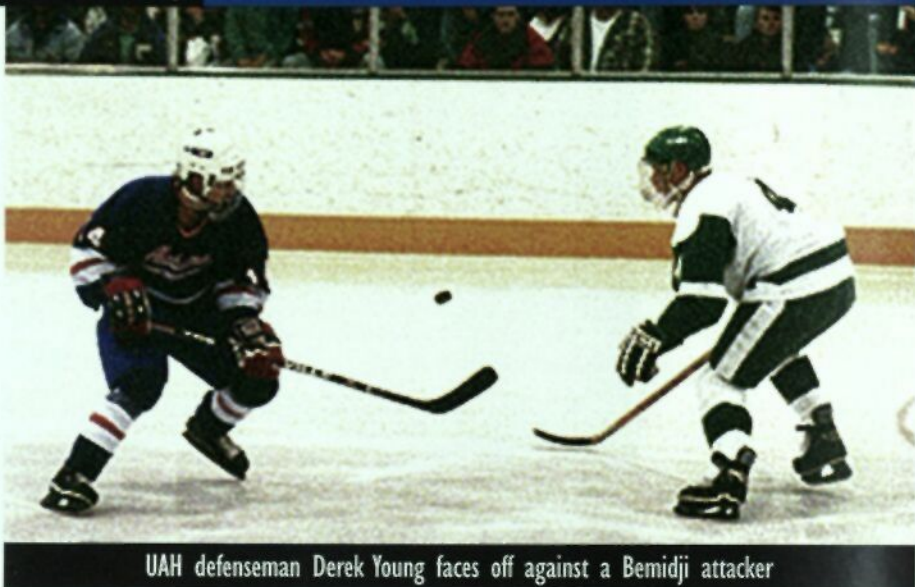
You can't get into the NCAA D2 playoffs with a losing record. The NCAA doesn't invite more teams than it excludes.

Two teams are invited. That's it. Every regular season game is a pressure cooker. Lose a couple you ought to win and you become a spectator. If you want to win a national championship ring, there are no inconsequential games.

And if you have a young team, with ten or eleven new players, sometimes it's difficult to get that message across. Of course, if you have ten or eleven new players on a squad of 25, it's going to be tough to contend for a national championship — even if you are the defending national champions.

"We had high expectations, but we didn't really know how good we were going to be with as many as eleven new players," said UAH Coach Doug Ross. "It takes a while for guys to get acclimated. Plus, we lost a lot of big-name, impact players off the '96 championship squad, so we didn't know how far we could go."

Ross' youthful charges not only contended, they finished the regular season with a 20-8 record, earned an NCAA tournament berth despite a couple of late-season losses, went on the road to Bemidji, Minnesota, and lost two tough games to the several-times-champion Bemidji State Beavers after spending most of



UAH defenseman Derek Young faces off against a Bemidji attacker

the season ranked No. 1 in the nation.

"Our team was over achievers this year," Ross said. "We didn't expect them to be playing for the national championship this year."

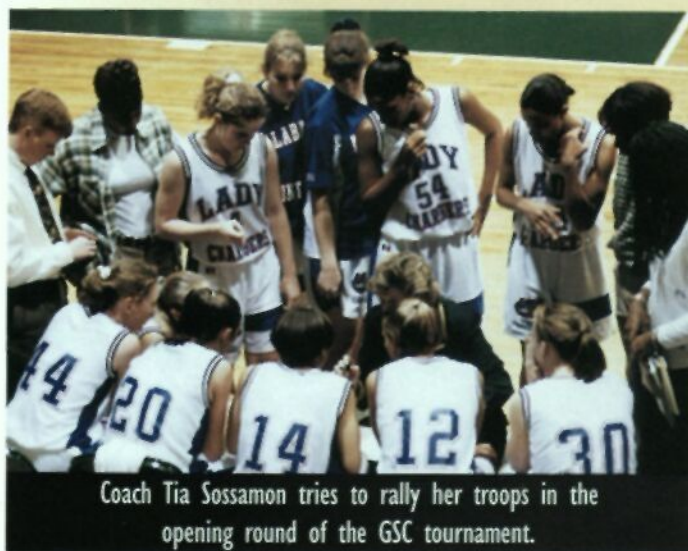
That won't be the case next year. With the Chargers losing only three seniors, it'll be tough for UAH to sneak up on anyone.

"We've got a good nucleus of returning players who have set some goals for themselves," said Ross. "They're really working hard toward those goals. They're more determined than ever to come back bigger and better and stronger and smarter than last year. I think they're going to come back even more motivated next year."

"When you don't lose a lot of players, you can take a run at it (the NCAA title). We're going to take a run at it."

RAISE THE BAR

AFTER EARNING 1ST GSC TOURNAMENT BID, LADY CHARGERS SET HIGHER GOALS FOR '98



Coach Tia Sossamon tries to rally her troops in the opening round of the GSC tournament.

Coach Tia Sossamon's Lady Chargers finished the 1996-97 season angry, despite the team's most successful (17-9) NCAA campaign ever, including a first-ever invitation to the Gulf South Conference tournament.

"It kind of made them angry that we got there and lost," explained Sossamon, referring to UAH's 61-59 loss to Henderson State in the tournament's first round.

Making it to the tournament was the goal for UAH's young team, which included only two seniors, four sophomores and SEVEN freshmen.

A win over West Georgia on Feb. 15 locked up a tournament bid for the Lady Chargers with three games left in the season. UAH finished 10-4 in conference play, second in the GSC East, one game behind Valdosta State.

"We knew if we beat West Georgia, we were in," Sossamon recalled. "We kind of had a little celebration in the locker room. It was like a heavy weight was lifted off our shoulders."

"That might have not been a good thing, because we ended up losing two of the last three."

Next year, however, getting there will be only half the fun. "They're very excited about next year," said Sossamon. "Next year, you won't see the wind go out of our sails. The GSC East Division champs host the conference tournament. So, our goal would be to win the east side, host the tournament, win the tournament, and go to the NCAA tournament."

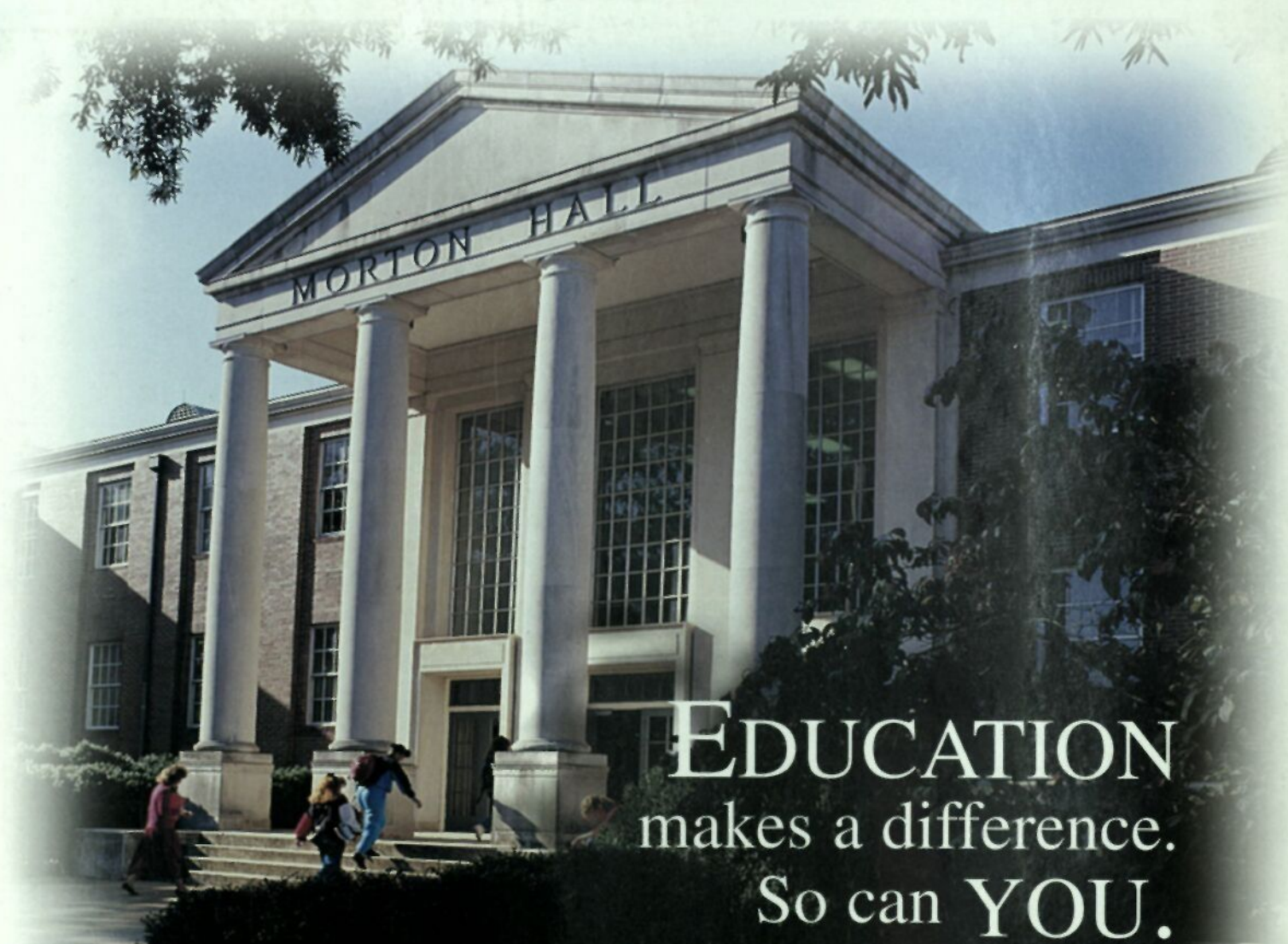


Floating along

Jennifer Lewter, a UAH sophomore nursing student, floats inside the cabin of NASA's KC-135 aircraft during a parabolic maneuver which produces 15 to 20 seconds of "weightlessness." UAH engineering student Jason Duckworth watches Lewter's microgravity antics. At right, a NASA technician helps Jonathon Biffle, another UAH engineering student, with the fluid transfer equipment experiment. The experiment was designed by students working with Dr. Douglas Feikema, an assistant professor of mechanical and aerospace engineering.

The flights were provided by NASA through a competitive program designed to encourage work in microgravity science.





EDUCATION makes a difference. So can YOU.

Private gifts to UAH can make a difference; the difference between an acceptable education and an exceptional educational experience for our students. Private gifts provide an essential element of UAH's total program, complementing traditional sources of operating revenue.

The UAH Annual Fund focuses on "university priorities," providing money to support the most pressing universitywide needs as determined by the president. The annual fund also provides resources to meet the most pressing needs within the colleges, operating support for alumni programs and for intercollegiate athletics.

A record number of alumni supported UAH and its colleges through the annual fund last year. The '97 annual fund promises to be even more successful. Many of you have pledged support to the '97 annual fund through the recent phonathon. Your investment in your alma mater is greatly appreciated.

For those who have not yet made a gift, please give serious consideration to participating in the '97 annual fund when you are contacted. Your gift, working in combination with others, can make a difference in students' lives and in UAH's future.

UAH

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