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President's Report to Board of Trustees, 1997

Clemson University

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Portraits of Quality

1997 President's Report
Dear Friends of Clemson:

At the heart of a great university are people: the faculty, staff and students who mold an educational program and build the university's reputation.

Clemson is fortunate to have attracted and retained a stellar faculty committed to learning and their students. They have advanced the frontier of knowledge and shared the results of their research with the people of South Carolina and the nation. Clemson also enjoys the loyalty and support of a dedicated staff — many who have been part of Clemson for over 20 years. Clemson students continue to excel — individually and collectively. Their achievement scores rank Clemson first among public universities, and their graduation rate far and away exceeds national averages.

Bring good people together, and good things will happen. That is Clemson's story. This year Clemson University was the top-ranked public university in South Carolina according to Kiplinger Magazine. U.S. News and World Report classified us as the leading national university in the state. Peterson's Guide to Competitive Colleges cited only Clemson among the state's public institutions, and Money magazine declared us the best educational value in the state and the 32nd best in the nation among over 1,000 public and private colleges.

We are flattered by these citations but know that all recognitions we have earned belong to the good people who constitute Clemson — our faculty, staff and students.

Clemson’s aspiration is to be the nation’s premier land-grant university. We are building a national reputation because more of our faculty and staff are being recognized for the quality of their teaching, research and public service.

This report introduces you to a few of the individuals who this past year helped build Clemson's stature as a "High Seminary of Learning."

With kindest regards,

Constantine W. "Deno" Curris
President
Clemson University
In card games, it means winning all the tricks. In baseball, it's scoring all the base runners with a single hit. In golf, it's winning the Master's, the U.S. Open, the British Open and the PGA in a single year. In tennis, it means wins at Wimbledon, the French Open, the U.S. Open and the Australian Open. Virtually every sport has its **Grand Slam** — signifying what is generally regarded as its ultimate achievement.

**Academia** has its own version of the Grand Slam, and it means scoring in all the major college guidebooks: a top-40 ranking in at least one of the three major magazine annual polls, a top-100 ranking in all of them and inclusion in the ultra-selective guides such as *Peterson's Guide to Competitive Colleges* and *America's 100 Best College Buys*.

**Clemson University** can now number an academic Grand Slam among its accomplishments. But what is more important is why it was achieved. While lots of different statistics and measurements are used, it always comes back to people. What puts a university on any list of "the best" is the strength and quality of its faculty, staff and students. Clemson's Grand Slam pays tribute to the caliber of its people.
While all universities claim to be about “people,” Clemson is distinctive in the depth and strength of its human legacy. While many universities are named for people, few were actually that person’s home. Yet Clemson students walk by the front porch that once held Thomas Green Clemson’s favorite rocker as they go to class each day — a constant reminder that the founder was a real person who dreamed of a college for the working class. The sidewalks beneath their feet bear the names of proud graduates — telling students that the alumni who went before them were real people who will always be part of them. An on-campus cemetery is the final resting place for former presidents and faculty — another testament that the names on many of the buildings belonged to real people who helped shape the University of today.

Clemson’s human legacy continues in the faculty, staff and student body of today. It is appropriate, therefore, that this President’s Report focuses on people. People whose accomplishments are being recognized across the land. People whose capabilities are the reason Clemson earned its Grand Slam and is building a reputation as a national university.

People who are portraits of quality in teaching, learning, research and service.
A.P. "Hap" Wheeler's curiosity about how oysters form their shells has led to a discovery that can make products used to fight mineral build-up more environmentally safe.

The Clemson biological scientist's research earned him this year's Environmental Protection Agency's Presidential Green Chemistry Challenge Award in conjunction with Donlar Corporation of Bedford Park, Ill.

Wheeler's research on the protein that regulates the growth of oyster shells led to the development of a synthetic product that works much the same way to limit mineral development. Donlar is marketing the product, which can be used in dozens of commercial applications where mineral build-up is a problem — cooling towers, offshore drilling operations or mining operations.

"One of the major areas where scale, or deposits in mineral water, is a problem is in industrial heat exchanges, nuclear power plant cooling towers or anywhere water is heated and recycled," Wheeler explains. "Since minerals won't transfer heat, a scale coating makes cooling mechanisms useless. Then you have to shut down and remove the scale, which is an expensive, time-consuming process."

To avoid problems, industries spend millions of dollars each year on anti-scaling products to prevent mineral build-up. But commonly used water treatment products are not biodegradable, which increases the risk of harm to freshwater systems when treated water is discharged.

To find a biodegradable alternative, Wheeler and colleagues at the University of South Alabama years ago began looking for natural ways to control mineral build-up. They found what they were looking for in oyster shells, which contain natural growth regulators that control and mold the complex architecture of the shell.

In the early 1980s, Wheeler collected pound after pound of oysters from coastal beds and brought them back to Clemson for study (although he admits a few were roasted along the way). The shells were ground into powder, and the growth-regulating compound was extracted and tested.

Their laboratory research — initially funded by the National Science Foundation, the S.C. Sea Grant Consortium, the Mississippi-Alabama Sea Grant Consortium and the Alabama Research Institute — confirmed their theory that the protein compound extracted from oyster shells could also control growth of other minerals.

The only problem was that collecting and grinding tons of oysters to get at the growth-inhibitor was impractical, expensive and environmentally undesirable. Deriving the active compound from ground-up shells was an involved process that took several days. And because the shell is less than 1 percent protein by weight, using actual oysters as a base wouldn't be feasible for large-scale applications.

The real breakthrough was their discovery, and patenting, of a synthetic version that was just as efficient as the oyster at regulating mineral growth.

But the patent was just the beginning. Before the discovery could have a significant impact, dozens of technological questions had to be answered, and production systems had to be developed. So the university researchers teamed with Donlar to produce synthetically the compound needed in large enough quantities to make it economically feasible.

Recently, Donlar has introduced the compound for use in agriculture. The polymer also enhances plants' uptake of nutrients from the soil, which could allow farmers to use less fertilizer — saving them money and protecting the environment.

Numerous other products being developed are based on the same polymer technology. They range from detergent additives to superabsorbents for diapers.

Overall, Wheeler's study of how proteins control biomineralization — the formation of shells, bones and other natural mineral products — has resulted in research and development efforts and the filing of dozens of patents by numerous corporations.

"This award validates the many years of effort put into the development of the polymer technology by those of us in the university sector and my colleagues at Donlar, especially company founder Larry Koskan," Wheeler says.
WMX Technologies Inc. of Oak Brook, Ill., helped Clemson launch a $10 million environmental engineering research initiative, anchored by the largest corporate gift in University history. WMX donated its 60,000-square-foot analytical and research lab, an 11-acre site in the Clemson Research Park, plus up to $1 million for operations and a $1.2 million endowment to support research on methods to safely store mixed waste.

The nation's first motorsports engineering program is being assisted by an alliance with Ford Motor Company and other auto-related industries. A two-year partnership with Ford will provide $300,000 a year to fund internships and student projects with NASCAR Winston Cup teams. The two-year-old motorsports engineering program is part of the Robert H. Brooks Sports Science Institute and also involves affiliations with BMW and Chrysler.

The Sonoco Packaging Science Laboratory obtained a new plastic film extruder through a grant from Dow Chemical as part of an overall upgrade of plastic processing equipment in the lab. A new packaging evaluation laboratory will be added through a $250,000 donation from DuPont Packaging and Industrial Polymers in Wilmington, Del.

Alan Elzerman, professor and chair of environmental systems engineering, was awarded a Distinguished Service Award from the Division of Environmental Chemistry of the American Chemical Society. The 5,000-member division presents the award only occasionally to people who have made substantial and sustained contributions to the science.
Harold E. Cheatham, dean of the College of Health, Education and Human Development, has been recognized as a pioneer in multicultural counseling and development by Division 17 (Counseling Psychology) of the American Psychological Association.

The recognition comes to Cheatham for a career of influential and extensive research in his discipline, according to the July 1997 issue of the division's journal, *The Counseling Psychologist*, where Cheatham's career and “landmark work in multicultural affairs and the psychosocial development of African-American college students” is highlighted in “Legacies and Traditions: Harold E. Cheatham and the Cathedral of Learning.”

His expertise and leadership in education, counseling and psychology serve him well in the role as dean of Clemson's most diverse college, where his focus on multiculturalism is a natural fit. Graduates of the college — teachers, nurses, counselors, recreation and leisure managers, and health administrators — have expertise in human services delivery. Cheatham's goal for the college is to lead the professions as a vital resource for all the people of South Carolina in addressing quality of life and developmental life span concerns.

Before coming to Clemson last year, Cheatham served as head of the department of counselor education, counseling psychology and rehabilitation services and member of the graduate faculty at Pennsylvania State University, where he was the 1995 recipient of the Howard B. Palmer Faculty Mentoring Award.

The APA recognition is the most recent of numerous national honors and awards, including the 1995 American Counseling Association's Multicultural Counseling and Development Research Award and the 1993 American College Personnel Association Contribution to Knowledge Award. He is a Senior Scholar in ACPA and served as the organization's president in 1995-96. A former Senior Fulbright Scholar to India, Cheatham is editor of the book *Cultural Pluralism on Campus*, past editor and chair of the ACPA media board and co-editor of *Black Families: Interdisciplinary Perspectives* (now in its fifth printing).

Food microbiologists don’t usually find themselves making headlines, but Susan Barefoot’s research keeps pushing her into the media spotlight. Barefoot’s research, conducted through the S.C. Agriculture and Forestry Research System based at Clemson, is on proteins that act as natural food preservatives. But what has caught the public’s attention is the possible discovery of a new acne treatment.

The discovery came about as a result of investigations into proteins that act as natural food preservatives. One of these proteins can be used to extend the shelf life of yogurt. Called a bacteriocin, the protein is a tiny antibiotic-like bit of matter produced by bacteria. Barefoot and her colleagues discovered that a cousin of the bacteria that produces the yogurt preservative produces a bacteriocin that might inhibit acne bacteria.

Through Clemson’s partnership with the Greenville Hospital System, Barefoot secured blackheads from dermatologists, isolated 150 acne bacteria and experimented to see what effect the bacteriocin had. Each of the 150 cultures was tested, using two different methods as a control. The results? The acne bacteria was controlled in every single test. Every strain, every culture, both testing methods — all had the same results.

Barefoot calls the discovery “serendipity” and is cautious even in the face of such success, especially because scientists never expect 100 percent success rates. She says the findings need further study before anyone should be ready to claim discovery of a cure for acne, but that hasn’t dampened the public’s enthusiasm.

Barefoot’s research is also generating interest among the scientific community. Her initial findings were presented at the Interscience Conference on Antimicrobial Agents and Chemotherapy, and a provisional patent has been obtained to allow for further testing. If those tests continue to generate the same results, the Clemson discovery could hold tremendous promise as a topical treatment for the millions of acne sufferers around the world.
English and theater student John Fagan was named a winner in the Gypsy Road Company/21st Century Playwrights Festival 1996 Competition for his play *The American Car*.

The 21st Century Playwright Festival is a national competition designed to identify some of the nation's most talented student playwrights. Accepting only work that's submitted by the festival's academic advisory board — a network of more than 40 professional playwrights/educators in the major writing programs in the United States — the competition offers collegiate writers the opportunity to present their plays in the professional theater marketplace.

*The American Car* explores an all-American, blue-collar family headed by a striking rubber worker and his wife struggling to make ends meet while raising five children. As the economic pressure of the strike begins to take its toll, the family undergoes an evaluation of its true values. *The American Car* is a searing portrait of living and working in America.

The play has been staged at the Trustus Theatre in Columbia and the Warehouse Theatre in Greenville, and has just completed a 16-performance run at Playhouse on the Square in Memphis, Tenn. In December it will be produced at the City College of San Francisco, Calif. It continues to generate interest from other theater groups.

Fagan has worn many theater hats, including that of actor, director, technical director, theater administrator and playwright. He is a founding member of the Actors' and Playwrights' Theatre of Akron, Ohio, and is also the recipient of the Kalamazoo Playwriting Award and winner of the Eighth Annual S.C. Playwrights Festival Award.

This fall, Fagan took a hiatus from graduate school to write, direct and "earn a little money." He's finishing another play that he began at Clemson, *The Gospel According to John Doe*, which also received a staged reading at the Brooks Center. Currently second vice president of the Board of the Warehouse Theatre, Fagan directed their production of *Sylvia* in November. He'll direct three other plays between now and April before returning to Clemson to complete his degree.

Fagan is the latest success story to come out of a unique program at Clemson that has just celebrated its 10th anniversary.

The New Plays Premiere workshop, started by theater professor Ray Sawyer, showcases student writing and gives the amateur playwrights a chance to hear their characters' voices on stage at the Brooks Center for the Performing Arts.

The playwriting program comprises several courses that concentrate on writing and serves as a foundation for students wanting to pursue advanced degrees in theater or writing.

A number of plays are selected for staged workshop readings each summer. The readings have minimal settings, narrated stage directions and emphasis on the texts as works in progress. A theater critic attends each reading to offer a professional response, and the audience has a chance to discuss the work with the playwright. Admission to the workshops is free.

According to Sawyer, the process is invaluable to the playwright for the information it provides for subsequent revisions and improvements.

One play is selected for full production by the performing arts department each fall. Many of the plays have gone on to be produced by other educational, community, regional or professional theaters.

Apparently, the program works. Fagan's work is the latest in a series of award-winning plays that have come out of the program to achieve recognition at the state, regional and national level.
The James F. Martin family made a $1.5 million gift that will fund the first endowed faculty position in the College of Business and Public Affairs’ Spiro Center. In addition, the gift will help establish a reserve fund to support construction of an inn at the Madren Continuing Education and Conference Center. Both the professorship and the inn will be named for Martin, chairman and chief executive officer of Martin Color-Fi Inc., of Edgefield, which produces high-tech fibers used in a variety of products.

The 1996 Olympic Games in Atlanta saw six athletes with ties to Clemson combine for three gold medals and three bronze medals. Kim Graham helped win a gold medal for the United States in women’s track in the 4x400 relay, while Carlton Chambers claimed a gold for Canada’s men’s track team in the 4x100 relay. Alumna Gigi Fernandez won a gold for America’s tennis team in the women’s doubles competition. Baseball players Kris Benson, Billy Koch and Matt LeCroy helped Team USA bring home a bronze medal.

Chris Davison, a Clemson graduate student, was one of only five students nationwide honored by the American Association for the Advancement of Science with the William D. Carey Award.

Tom Keinath, dean of the College of Engineering and Science, received the 1997 Gordon Maskew Fair Award from the Water Environment Federation. It was the second recent national award from the federation for Keinath, who also serves as president of the International Association on Water Quality, the principal professional organization for environmental engineers worldwide.
A Clemson student has been elected president of the American Institute of Architecture Students, the national organization serving the interests of architecture students.

Robert Morgan of Columbia is now serving a one-year term of office in Washington, D.C., where the AIAS offices are located. He is the first Clemson student to ever hold the office.

As president, he is responsible for the operation of the AIAS national office in Washington and will serve as a member of the Five Presidents Council, which is composed of the presidents and executive directors of AIAS, the American Institute of Architects, the Association of Collegiate Schools of Architecture, the National Architectural Accrediting Board and the National Council of Architectural Registration Boards. His primary concern as president will be improving communication between the academic sector and the professional sector.

Robert's history at Clemson and in architecture is a long one: Both his grandfathers earned Clemson degrees in the 1930s, one in architecture and one in civil engineering. His father, John W. Morgan III, graduated in 1971 with an architecture degree, the same year that his mother, Corinne Lafaye Morgan, earned her Clemson degree. That history, particularly his father's involvement in the architecture student group, led to Robert's interest in AIAS.

"My father was involved in AIAS and suggested that I look into it," Robert says, recalling by his sophomore year he was quite involved in the Clemson chapter's activities, including being elected chapter president. "I really saw that the organization served the student voice and what the national organization did to support the student voice."

During his junior year he was elected to serve as a national director and began to consider running for the presidency. On October 14, 1996, he declared his candidacy in a letter to the AIAS president.

When Chris Sieverdes won the Alumni Award for Cooperative Extension Distinguished Public Service, it was the latest in a string of recognitions for his achievement in the area of teaching people to become leaders.

Sieverdes, an agricultural and applied economics professor, designed and directs the Palmetto Leadership program, which has trained more than 1,400 community leaders in 26 South Carolina counties.

Palmetto Leadership graduates typically become a community's new generation of leaders — being appointed or elected to local commissions, councils and boards. Graduates have helped resurrect chambers of commerce, pass school construction bonds and facilitate grants for school and economic development projects in their hometowns.

His success at training leaders has been recognized nationally and internationally. The U.S. Department of Agriculture asked Sieverdes to serve on its Communities in Economic Transition design team and its Leadership and Volunteer Development design team. Nationally, he serves as treasurer of the Association of Leadership Educators and has worked internationally on leadership development through the Community Development Society.

Other agencies Sieverdes has been involved with include the U.S. Forestry Service, the President's National Service Program (AmeriCorps) and the State Department of Commerce. He also served as chairman of the Southern Region Extension State Community Development Program Leaders for 1996-97.
Throughout his career, Larry Allen, a professor of parks, recreation and tourism management and associate dean in the College of Health, Education and Human Development, has worked to expand recreational opportunities for people outside the mainstream.

His interest in the role of leisure services to the health and well-being of a community has drawn him toward groups or individuals who are often confronted with economic, physical or psychological barriers to participation. Removing those barriers has become a major focus of his life’s work.

Most recently, his efforts to open up popular activities such as golf to the disabled have helped Clemson earn a national reputation as a leader in research, education and service in the area of accessible recreation. As an adviser and consultant to the Madren Continuing Education and Conference Center, he also helped make its Walker Golf Course a model of accessibility by incorporating:

- accessible routes to tee areas and greens,
- wider cart paths without curbs,
- fully accessible clubhouse and shelter facilities,
- bunkers with minimal lip to accommodate wheelchairs or other assistive devices.

Allen helped found the National Forum on Accessible Golf to focus industry attention on opening the sport to the 49 million Americans with disabilities. The forum brings together major golfing associations, such as the PGA, USGA, LPGA and GCSAA, researchers, representatives from golf-related industries such as sporting goods suppliers, and the golfers with disabilities themselves.

Allen says the forum’s major contribution to date has been to explode many of the misconceptions and stereotypes involving golfers with disabilities.

“There’s a misguided concern that making a golf course accessible will require changes that make it less challenging for other golfers,” Allen says. “We have been able to prove that it’s possible to have a fully accessible course that still provides a challenging, championship-caliber golf experience.”

The forum held its 1996 meeting at Clemson’s Madren Center, marking the fifth time participants have gathered to assess progress in making golf more accessible and identify areas needing improvement.

Clemson’s PRTM department has long recognized the link between recreation and emotional and mental health, and the University was a pioneer in developing residential summer camps for special populations at its Outdoor Lab on Lake Hartwell. Clemson’s leadership in this area is part of what drew Allen here in 1989.

Allen’s interest in broadening the reach of recreational programs was around long before the Americans with Disabilities Act made such concerns politically popular. Before coming to Clemson, he held a number of positions in universities, Extension offices and recreation departments that gave him opportunities to interact with people who are often pushed aside by society. He has helped develop summer day camps for the handicapped in Maryland, conducted leisure counseling for the elderly, studied the impact of recreation on the quality of life of physically disabled young adults for the Office of Special Education in Washington, D.C., and conducted research on the role of recreation in corrections facilities.

Allen is currently involved in a project using recreation as an intervention method involving members of inner-city gangs. He has initiated a demonstration project to test benefits-based management principles on recreation delivery systems in Chicago, Maryland's Capital Park, Rock Hill and Seattle. Issues such as stemming gang violence, teaching citizenship and improving academic achievement were part of the agenda for the project. The goal is to find ways communities can counter the influence of street gangs on young people.

A member of the Academy of Leisure Sciences, Allen is co-author of the book *Research and Evaluation of Recreation, Parks and Leisure Studies.*
Debbie Stevens, associate professor of curriculum and instruction, was named the S.C. Physical Education Teacher of the Year for her efforts to put the "education" back in P.E. Stevens advocates what she calls "movement education," which emphasizes skills development rather than traditional P.E. games. "Movement education is child-centered rather than activity-centered," she says.

A Southern Living® Home is being constructed in the S.C. Botanical Garden with support from more than $900,000 in private gifts. The project includes an adjacent Robert Campbell Geology and Natural History Museum to house the University's geology collection — much of it donated by Campbell. The Southern Living® Home will be open for public viewing for a year and will then become the Fran Hanson Visitors Center for the Botanical Garden as well as a discovery center for the Upstate's Heritage Corridor.

Rod Wing, an internationally known plant molecular geneticist, was named to the Robert and Lois Coker Trustees Chair in Molecular Genetics. The endowed chair emphasizes food and fiber crop research in memory of former trustee Robert Coker, president of Coker's Pedigreed Seed Company in Hartsville until his death in 1987. The first holder of the Coker Chair came to Clemson from Texas A&M and specializes in map-based genetic cloning to isolate important genes in crops.

Carol Seager, director of Student Health Services, received the 1997 E. Dean Lovett Award from the American College Health Association. ACHA selects one person each year to recognize for excellence in student health service administration.
Nursing faculty member Lynette M. Gibson practices what she teaches — giving people their best chance toward a healthy life. According to her students and colleagues, she epitomizes the land-grant goal of blending teaching, scholarly interests and meaningful public service.

Her work with the Best Chance Network of the American Cancer Society, which strives to decrease the risk of breast cancer in lower-socioeconomic women over age 50, earned her the 1996 S.C. Volunteer of the Year Award.

Gibson has also conducted many conference presentations such as Matters of the Heart, recruited volunteers for efforts including the 1995 and 1996 Pink Ribbon Campaign, promoted other health issues and authored grants for their financial support.

In addition to her teaching and volunteer work, Gibson, who earned her master's degree in nursing science at Clemson, is pursuing a doctorate in nursing science at the University of South Carolina.

Name your insect, and most likely, entomologist Joe Culin can tell you something you didn’t know. And what he knows, he gladly teaches. That’s why he was chosen by the Entomological Society of America to receive its Distinguished Achievement Award in Teaching.

It’s hardly the only such honor. Culin received Clemson’s teaching award of merit given by the National Association of College Teachers of Agriculture, and he was named the year’s most outstanding teacher by the Clemson chapter of Gamma Sigma Delta. He also received a Southern Regional food and agricultural sciences excellence in college and university teaching award from the National Association of State Universities and Land-Grant Colleges and is a finalist for the 1997 South Carolina Governor’s Professor of the Year award.

Culin teaches general entomology, current topics in entomology, insect ecology, insect pest management and entomology for teachers. Even with his teaching load, he carves out time for community service and research as a scientist with the Agricultural and Forestry Research System at Clemson.

Culin is now in the third year of a project to determine which plants best attract butterflies to a garden, a matter of particular interest to homeowners as well as the nurseries that cater to them. Concentrating particularly on butterfly bush and lantana, both common garden plants, Culin is studying how the amount of nectar, the percentage and kind of sugar in the nectar and flower color affect the number of butterflies attracted. “The kind of sugar seems to have an effect on not only how many, but which varieties of butterflies are attracted,” he explains.

Culin is also studying butterfly learning, particularly whether or not they continue to visit the flower color to which they were initially exposed.

Culin often gives presentations on insect behavior, ecology and cultural entomology to elementary and secondary school classes, Boy Scouts and wildlife organizations.
Drawing on Nature’s Fury

The Wind Engineering Team

It speaks volumes that no one member of Clemson’s wind engineering team would agree to be photographed for this profile without the other four. Their focus on teamwork and their textbook personification of the word “synergy” are primary reasons that the Clemson program is achieving national prominence.

While all five are civil engineers, each specializes in an area critical to the overall understanding of how buildings perform in high winds. The result is a breadth and depth of expertise that make Clemson one of the premier sources, if not the nation’s leader, in information on wind engineering issues.

Peter Sparks specializes in the performance of buildings in hurricanes and tornadoes and associated issues such as building regulations, insurance and meteorology. He acts as an adviser and consultant to government agencies and to the insurance and roofing industries on wind-related issues. Sparks has investigated building performance in five devastating hurricanes and numerous tornadoes, and he has testified before the U.S. House of Representatives on wind-load requirements for manufactured homes.

Ben Sill, Alumni Distinguished Professor, coordinates Clemson’s Wind-Load Test Facility, the nation’s only facility built solely for the study of wind on low-rise structures such as homes and schools. Sill’s background is in fluid mechanics, and he specializes in turbulent boundary layers and wind loads on low-rise structures.

Sill and Sparks, who pioneered Clemson’s focus in wind engineering and founded the state’s Coastal Hazards Assessment and Mitigation Project, did intensive study on the damage from Hurricane Hugo in South Carolina and Hurricane Andrew in Florida, and co-chaired a conference on hurricane damage for the American Society of Civil Engineers.

Tim Reinhold designed Clemson’s wind tunnel and has conducted more than 150 wind-tunnel studies for commercial projects. His current research involves improving the simulation of wind loads on low buildings using scale models, investigating the effects of location and surroundings on wind loads and evaluating concepts for a full-scale test facility.

David Rosowsky adds a focus on the role of specific construction materials and design methods in wind damage. His research is in the areas of performance of wood structural systems, safety of buildings, modeling of environmental loads on structures and probability-based design.

Scott Schiff coordinates research with BRERWULF — Building Research Establishment Real-time Wind Uniform Load Follower — at the Clemson wind-load test facility. BRERWULF is a piece of equipment that can simulate bursts of pressure that push and pull on buildings during a storm, and can be used to test full-sized sections of roofs and walls. His research focuses on the design of structures and the performance of individual building cladding and components in severe wind storms.

Schiff and Rosowsky are the key investigators with Project Blue Sky, a $2.8 million project that teams Clemson researchers with the Federal Emergency Management Agency, private corporations and other universities in a demonstration/laboratory facility at a beachfront home in Southern Shores, N.C. Work has included wind-tunnel studies, dissection of one house and construction of a “training” house to learn which construction techniques work best.

Clemson’s wind engineering research has long had the attention of the engineering profession, the construction and insurance industries, and the disaster-management agencies. But it is beginning to draw more national attention from the general public as well. Structural engineers from Clemson were featured in a documentary that aired last spring on The Learning Channel, and the research will be featured in a documentary set to air this fall on the Discovery Channel. And in the aftermath of major storms, the researchers find themselves fielding calls from major newspapers and networks across the nation as the media try to explain what happened.

They’re glad for the opportunity to explain. But the goal isn’t publicity. The goal is education — about the fact that most wind-related damage can be prevented without adding significantly to the upfront construction costs. That’s a lesson that can save money, property and lives — which is what the Clemson research is all about.
Michael Kilgore, a Clemson molecular endocrinologist, has isolated the molecular receptor from human breast cancer cells that is activated by dietary fats. This receptor “turns on” the genes that cause cancer to develop in other cell types. Kilgore’s work, part of Clemson’s biomedical partnership with the Greenville Hospital System, could provide revised dietary guidelines for women in the next three to five years.

In athletic arenas, Clemson and Stanford were the only two schools in the nation to go to a bowl game, the NCAA men’s basketball tournament and the NCAA baseball tournament in 1996-97. Clemson won five ACC Championships (three in one weekend) and had 13 teams participate in post-season competition. Student athletes also set records in academics, posting their highest overall grade-point-average and the most student athletes ever named to the academic honor roll for the spring semester.

Evelyn Jackson, a housekeeper in Mauldin Hall, won national recognition via the National Residence Hall Honorary group for being the “Spotlight of the Month” for October 1996. She was nominated by residents in the hall for her outstanding work with students.

N. Dwight Camper, professor of plant pathology and physiology, is the newest recipient of the “Cutting Edge” Endowed Professorship awarded by the S.C. Commission on Higher Education. The award recognizes Camper’s ability to integrate high-quality research with a commitment to student learning at the graduate and undergraduate levels.
It seemed almost like *deja vu* — a new NCAA golf champion; another Tiger. Only this one was a Clemson Tiger laying claim to the national title Tiger Woods had won a year earlier.

Charles Warren, a senior from Columbia, shot a final-round 67, capped by a one-hole sudden death playoff victory to win the 100th NCAA national tournament and become Clemson's first NCAA solo event golf national champion. Warren also finished the year as the ACC Champion and an All-American for the second year.

It was the perfect end to a Cinderella year. Warren entered his third NCAA tournament never having shot better than a 77. His ACC tournament victory in April was the first championship of his college career, marking a dramatic turnaround from what had been a difficult junior season. He had finished no higher than 12th in any spring tournament up until the weekend before the ACC tournament.

Even the final tournament was a come-from-behind effort — sort of a microcosm of the entire season. He struggled on the third day and entered the final day of competition six shots behind the leader. He steadily regained momentum, but still had to win on a sudden-death playoff.

"The biggest mistake I've had in the past is in getting too far ahead of myself, worrying about what's coming up instead of staying in the present," he says.

The business major also managed to stay focused on academics, making the athletic honor roll while winning all those spring tournaments.

Ray Turner probably wasn't the first person to notice that kids often take toys apart to see what makes them work. But he was a pioneer in applying that tendency to the college physics classroom, a practice that has earned him statewide and now national honors.

The man who has been known to carry Muppet cars and Slinkys in his briefcase has earned the American Association of Physics Teachers' Excellence in Undergraduate Physics Teaching Award.

Turner is the first recipient of the award just created by the nation's foremost physics teachers' association. It is the latest in a series of recognitions for Turner, who was the 1992 Governor's Professor of the Year for South Carolina and is an Alumni Distinguished Professor. Earlier this year, he was selected to receive the University's D.W. Bradbury Award for contributions to the honors program.

But it is for that briefcase full of toys that Turner is probably best known. Turner has taken his toys to class — and to workshops to show other teachers how to use toys as teaching tools — for the past 20 years. By using common objects that students associate with having fun, Turner can demonstrate complex physics principles in a non-intimidating way.

"Most folks won't go near a physics class. I want to show everyone that physics can be fun," he says. He has a collection of more than 400 toys that help him demonstrate principles such as magnetism, kinetic energy, Newtonian law and other concepts that can be difficult to comprehend.

Turner typically brings the toys out at the end of a discussion to drive home key points, an approach that usually elicits a chorus of "now I get it" from the classroom.

After all, they'd been wondering for years what made that gadget work.
Modeling Business Reality
Larry LaForge

The hundreds of students who have studied management under Professor Larry LaForge — and the major corporations that hire those students into management-track positions — have always known that LaForge is a truly outstanding teacher. But recently, the rest of the academic world has begun to recognize what those students and employers could have told them years ago.

In the past few years, LaForge has been named the South Carolina Professor of the Year by the Council for Advancement and Support of Education/Carnegie Foundation. He has been the recipient of the Class of 1939 Award for Excellence — one of the University's highest faculty honors and one for which his name has been permanently inscribed on the Tillman Bell Monument. And he has been designated an Alumni Distinguished Professor.

Now, his accomplishments and success are earning national recognition for him, the College of Business and Public Affairs and Clemson University. Last year, LaForge was awarded the highest recognition his profession can bestow when he was named the 79th Fellow of the Decision Sciences Institute, an international society of business scholars.

A primary reason LaForge has been so successful at teaching management is his focus on those things that can’t be learned from a textbook. He is recognized as a leader in providing real-world experience in the classroom. Since few companies would hand over the reins to inexperienced students just to give them a taste of reality, LaForge came up with a computer-based simulation, such as a furniture company called Orange Office Products — affectionately known among Clemson students as OOPS. The fictitious company allows LaForge to assign ongoing job duties and special projects to individual students or teams. Instead of just memorizing facts and case studies for tests, students learn to apply the textbook principles to real situations — situations that may involve production snafus, personnel problems, economic recessions, strikes, impossible deadlines and all the other challenges real managers face every day. Through such simulations, LaForge helps students bridge the gap between theories in books and the real world of management.

OOPS is just one facet of the Manufacturing Management Lab LaForge founded. The lab experience also provides students with the opportunity to work on and become familiar with the computers and information systems actually used by some of the nation’s top companies. Through his own research on computer simulations, applications of information technology and evaluation of business software, LaForge has acquired hundreds of thousands of dollars worth of hardware and software from IBM, MAPICS, Jobscope and other software manufacturers. The students in the management lab ultimately benefit from such acquisitions. And the hands-on experience with technology actually used in industry often helps put Clemson students ahead of the pack in job-hunting.

In addition to his teaching responsibilities, which include teaching honors courses, graduate seminars and advising, LaForge has built an impressive record of research and publication. He has co-authored four books, published more than 40 journal articles, book reviews and papers, and has generated more than $400,000 in research funding. In addition to helping Clemson provide students with access to equipment, LaForge’s research activities help him stay current in the rapidly changing discipline he teaches.

LaForge also makes time to provide service and leadership to the University. He recently chaired the search committee to recruit a new provost and served on the NCAA Certification Self-Study Committee, chairing that group’s subcommittee on fiscal integrity. LaForge is a Clemson alumnus, earning his bachelor’s degree here before going on to the University of Georgia to earn his master’s and doctorate.

Given that track record, it’s easy to see why LaForge’s recent accolades don’t surprise his dean, Jerry Trapnell, who says, “Larry is a model professor. As a teacher and a scholar, he is simply one of the best.”
Peach researchers at Clemson have found that grafting a section of a cold-hardy Chinese peach variety onto peach trees more commonly grown in the United States can delay blooming long enough to help trees withstand late-season cold snaps. The research by Greg Reighard has generated interest in the possibility of using the technique of grafting “interstem” materials between the roots and main trunk as a means of reducing crop losses from late spring freezes.

The Department of Economics was named to the 1997-98 Templeton Honor Roll for Education in a Free Society, a national organization that recognizes outstanding achievement by individuals and institutions in higher education. Clemson’s graduate program in community and rural development in the Department of Agricultural and Applied Economics was ranked among the nation’s top four by the professional journal Review of Agricultural Economics.

Don Fuh’s latest book, No Margin for Error: Saving Our Schools From Borderline Teachers, is attracting attention across the nation for its focus on teacher competency as the basis for meaningful improvement in K-12 education. The professor of educational administration argues that marginal teachers are the overlooked element in most educational reform movements.

James F. Barker, dean of the College of Architecture, Arts and Humanities, received the Association of Collegiate Schools of Architecture Distinguished Professor Award in 1996. Barker’s area of architectural specialization is the American small town and courthouse square, and his work has been recognized by the National Endowment for the Humanities.
A child, Chris Przirembel fled Eastern Europe with his family after World War II to escape the Communist takeover of his native Germany. Now, he has been honored by the International Engineering Academy for his efforts to promote scientific and economic progress in the former Soviet Union.

The associate dean in Clemson's College of Engineering and Science, Przirembel was selected to share the "Five-Year of the International Engineering Academy Award" with U.S. Vice President Al Gore and five leaders from Russia's new independent states, including Georgia President Eduard Shevarnadze and Russian Leader Viktor Chernomyrdin.

The academy is an independent, non-government organization that began in 1990 as the Engineering Academy of the USSR but now includes representatives from the Commonwealth of Independent States and more than 40 foreign members, including Americans. The medals were awarded to individuals who have made significant contributions to rebuilding that area's engineering infrastructure after the collapse of Communism.

"As a German immigrant to America, it is an honor and privilege to contribute to enhancing the free market system in Russia," says Przirembel. The honor stems from his involvement in an alliance to collaborate on technological initiatives of interest to both Russia and the United States, including research to extend the lifetimes of nuclear and non-nuclear power plants. His involvement has in turn led to the development of opportunities for faculty and student exchange programs between Clemson and the Moscow-based State Academy of Management.

It is not the first national recognition for Przirembel since coming to Clemson in 1981. He is a Fellow of the American Society of Mechanical Engineers, the American Society for Engineering Education, the Accreditation Board of Engineering and Technology, and the American Association for the Advancement of Science.

It has been said that most people fear public speaking more than death. But then, Jenni French isn't like most people.

The senior from Poquoson, Va., is considered a national champion of sorts in debate and public speaking. In the last two years, French has represented Clemson well in a host of national debate and forensics tournaments. In spring of 1996, she placed fifth in communications analysis at the American Forensics Association Individual Events Novice Championships — an event so competitive that a top-five finish is considered a national championship.

This past spring, she made it to the semifinals in extemporaneous speaking and impromptu speaking at the Delta Sigma Rho-Tau Kappa Alpha National Forensics Tournament in Flagstaff, Ariz., and the semifinals in impromptu speaking at the American Forensics Association National Finals in Arlington, Texas.

French has a dual major at Clemson in industrial engineering and speech and communications studies — two disciplines that might not seem to be compatible at first glance. But Clemson has long been a leader in integrating communications studies into technical curricula, with a goal of turning out graduates who can not only come up with great ideas, but also communicate them to others. Jenni French is a strong endorsement for the concept's effectiveness.

French has been elected secretary of the national Delta Sigma Rho Forensics Association for the upcoming academic year.
Sue Lasser (center) with PEER mentors Jonathan Oglesby and Nakita White
Developing PEER Success

Sue Lasser

For many freshmen just entering college, stepping into a university classroom can be a daunting venture. It means adjusting to a new environment, accepting a greater amount of responsibility, and encountering roomful after roomful of mostly unfamiliar faces. For minority students, the challenge can be compounded even further if all those other unfamiliar faces are white.

For the past 10 years, a program in Clemson's College of Engineering and Science has sought to help underrepresented students overcome these challenges. And it's all done by people who have been there — upperclass "survivors" who remember the feelings of bewilderment and intimidation.

PEER, or Programs for Educational Enrichment and Retention, has helped make minority students not just "survivors" but excelers in their engineering and science disciplines.

PEER was started in the mid-1980s by electrical engineering professor Bob Snelsire and graduate student Sue Lasser, who noticed a disturbing trend in the college: African-American students dropped out at a much higher rate than their non-minority counterparts, even though their academic performance was comparable. So Snelsire and Lasser looked at other aspects of the students' lives to determine what was causing the problem.

"Many of our students come from backgrounds where everyone is supportive," says Lasser, who now serves as director of the program. "Their parents, grandparents, teachers, ministers, neighbors — all give them support in their decision to go to Clemson. But when they got here, that support seemed to be pulled right out from under them."

Without that support, many minority engineering students either changed their majors or, in extreme cases, didn't finish school.

So they set about to provide a surrogate support system. After talking with minority students who did finish and graduate with an engineering degree, Lasser noticed not only a survivor mentality, but also an untapped wealth of support for younger students. Along with Snelsire, she devised a program that coupled entering engineering minority students with minority upperclassmen.

As a professional counselor, Lasser trains the mentors and then oversees the dynamics. Rather than waiting for students to come to PEER, PEER goes to them, automatically providing a mentor for each new engineering or science major.

PEER has taken Clemson from a low minority graduation rate to a ranking of fifth in the nation among predominantly white institutions in the number of African-American engineering graduates. Clemson's minority freshman retention rate is now more than 80 percent.

Another indicator of PEER's success is the fact that five Clemson engineering students were awarded Graduate Education for Minorities (GEM) Fellowships in a national competition this past year. Out of the 180 awarded nationally, Clemson's GEM scholars received fellowships for graduate study and summer internships.

Building on this success, PEER recently began a companion program, WISE — for Women in Science and Engineering — to improve retention of freshman women studying engineering and science.

PEER's success has garnered national attention. Lasser was recently recognized at a White House ceremony with the first Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring, presented by the National Science Foundation. She was one of only 16 recipients nationwide.

President Bill Clinton said of this honor: "These awardees will serve as examples to their colleagues and will be leaders in the national effort to train the next century's scientists, mathematicians and engineers."

As part of the award, Lasser received a $10,000 grant, which she has designated for an endowment to fund the Robert W. Snelsire Prize for the outstanding PEER and WISE mentors who pursue graduate studies.

Lasser's long-term goal involves including more faculty in the mentoring process. "Mentoring," she says, "is proven to be a factor in getting students involved in education and is a great tool for retention."
Snapshots of the Year

Ron Thomas, food science professor, is conducting research that may help iced-tea lovers cut down on caffeine without having to switch from their favorite brands. Thomas says chemical decaffeination changes the flavor and quality of tea, but altering the brewing temperature doesn’t. Brewing tea at room temperature can cut caffeine by 50 percent, while brewing it in the refrigerator cuts caffeine by as much as 80 percent.

The Bishop Ceramic Laboratory, a $2.65 million one-of-a-kind facility that allows for production-scale research and testing on tile, ceramic, brick and related materials, was dedicated by Clemson and the brick industry. In addition to providing a valuable testing facility for industry, the center will offer Clemson students real-world experience.

Greg Schmidt, a Clemson student, was named the national non-daily Designer of the Year by the Student Society of Newspaper Design for his work with the student newspaper, The Tiger. The award is given annually by the University of Missouri School of Journalism.

The Commission on the Future of Clemson University was convened on campus May 2 with more than 200 alumni and friends from across the nation in attendance. The volunteers, leaders in industry and the professions, will spend a year reviewing Clemson’s plans and offering advice to help the University plan for the 21st century. Their recommendations will be made to the Board of Trustees in the fall of 1998.
During a year when student financial aid was on the minds and agendas of politicians from Columbia to Congress and the White House, Clemson financial aid director Marvin Carmichael found himself on-call virtually 24 hours a day to state and federal politicians, special-interest groups, universities across the nation and the national news media.

It was a year in which South Carolina's General Assembly expanded the Palmetto Fellows program and established a need-based grant program for public college students. On the national front, President Clinton called for a federal scholarship proposal similar to Georgia's HOPE Scholars program, while Congress debated numerous financial aid proposals. It was a dramatic turnaround in attitude from previous years when financial aid had been offered up on the federal chopping block.

Although Carmichael is reluctant to take credit for the change in attitude, the fact is that he served as the nation's chief spokesman and advocate for financial aid issues by virtue of office.

Carmichael served as chairman of the National Association of Student Financial Aid Administrators during the year when financial aid became one of the most frequently discussed issues in America. In his role as chairman, he automatically became an adviser to legislators, a source of expertise for the national news media ranging from the Associated Press to USA Today to the Los Angeles Times, and a sought-after speaker at education conferences across the nation.

"Serving as chairman of NASFAA was rewarding not only because it allowed me to play a role in generating public support for student financial aid, but also because it gave me a chance to increase awareness of Clemson University all across the nation," says Carmichael.

At the heart of a great university are people: the faculty, staff and students who mold an educational program and build the university's reputation.
REVENUES & EXPENDITURES

The 1996 Legislature passed measures that will fund the University based on performance, an action that will be phased in over a three-year period. An institution that has always taken pride in its ability to excel, Clemson anticipates this action will not have an adverse effect on long-term financial stability.

Closing the 1996-97 fiscal year with a small increase in fund balances, the University again held the line on across-the-board fee increases, although it was necessary to implement a special technology fee.

ACTUAL REVENUES FY 1996-97
(in Thousands of Dollars)

TOTAL REVENUES: $356,717

ACTUAL EXPENDITURES FY 1996-97
(in Thousands of Dollars)

TOTAL EXPENDITURES: $346,133

In addition to funding for salary increases, Palmetto Fellows scholarships and Children's Education Endowment, the Legislature approved a state bond bill, the first since 1992, that provides the University with $10 million for the maintenance of the Central Energy Facility and $17 million for the Agriculture Biotechnology Research Complex.
PRIVATE SUPPORT
Donors contributed $20,098,951 for academic programs and pledged an additional $14,530,263 during the 1996-97 fiscal year that ended June 30.

More than $19.4 million of the $20.1 million was restricted by donors for scholarships, endowments, building projects and other specific purposes. The money cannot be used for general University expenses.

Total support for student aid, scholarships and fellowships was $5.9 million. During the 12-month period, 16,230 donors made 20,471 gifts. Alumni donors increased from 10,974 to 12,066, a 10 percent increase over the previous year. Clemson's deferred giving inventory grew 25 percent to $82 million.

PRIVATE SUPPORT GROWTH
(in Millions of Dollars)

ENDOWMENT GROWTH
(MARKET VALUE)
(in Millions of Dollars)

PRIVATE GIVING BY COLLEGE/UNIT
FY 1996-97
Restricted Funds Raised Per College

*TOTAL: $20,098,951
*Includes Strom Thurmond Institute and other nonspecified.
Students

Clemson’s enrollment totaled 16,526 undergraduate and graduate students in 1996-97. South Carolina residents made up 66 percent of the student population’s state of origin, with Clemson students coming from all 50 states and 80 foreign countries. The largest minority group on campus, African-American students represented 7.6 percent of the student body. The College of Engineering and Science enrolled the largest number of students, while the College of Health, Education and Human Development had the greatest percentage of graduate enrollment.
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