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1994 was an extraordinary year — a year of celebration, discovery, and growth. We have devoted our energies and resources to a celebration of our history, and we continue to reap the dividends of this investment. The Centennial Celebration has been a once-in-a-lifetime opportunity to reflect on a century of achievement as a school, and on our individual experiences as a part of this institution.

For the past century, the School of Engineering has played an integral role in the development and success of Tulane University. The contributions of engineering faculty and graduates have marked both the school and the university for national and international distinction. During the course of the past year, we have explored this rich history and record of accomplishment; we have celebrated old traditions and begun new ones. Each effort has afforded a special opportunity for discovery and heightened awareness of the school at all levels — internally, within the School of Engineering and the university, and in the alumni community and the community at large.

We are now at the end of the centennial school year. As we reflect on the past, we must also look to the future and commit to take our place as stewards of the next generation of engineers. On October 1, 1994, the university launched the public phase of its major fund campaign, Tulane for the New Century, designed to position Tulane to meet the educational challenges of the next century. The centennial anniversary has provided the School of Engineering with a unique opportunity to articulate its 21st century goals and needs in concert with this university effort. The Centennial Campaign for Engineering is outlined in this publication and I hope you will support our efforts.

During the 1995-96 year we will continue to celebrate and work toward fulfilling our campaign goals. The inaugural phases of centennial projects such as the Hall of Fame and the Patent Register will be completed, as will the publication of the school's history, authored by Professor Robert N. Bruce, Jr. We will also take the celebration "on the road" to several major cities. The Campaign Executive Committee, headed by James O. Gundlach (ME '58), will launch an aggressive effort to realize the top priority of the campaign: the renovation of Stanley Thomas Hall and the Civil Engineering Building. These historic buildings have served the school well over the past century but are inadequate for our present and future educational needs.

I hope you enjoy this special centennial edition of The Tulane Engineer. If you haven't been part of our celebration already, please join us. Together, we can repeat, and even surpass the past century's success and give the Tulane Engineers of the next century a centennial worthy of celebration.

Sincerely,

William C. Van Buskirk, Ph.D., P.E.
Alden J. Laborde, Professor and Dean
From the President's Corner

For over 40 years, the Society of Tulane Engineers (STE) has served as the official alumni organization of Tulane's School of Engineering. The STE provides a means for alumni to stay involved in the school and to stay informed of its activities. As such, the STE has been an integral part of the celebration of the school's centennial.

In January 1994, the STE helped the school sponsor a celebration to commemorate the 100th anniversary of the laying of the cornerstone of Gibson Hall. The celebration included a lecture by New Orleans historian, Mel Leavitt, and was followed by an outdoor reception. Despite the windy and rainy weather, the reception was a huge success, with the 200+ guests enjoying the band, the food and drinks, and the camaraderie of fellow alumni.

In the past year, the STE provided other services to its alumni, students and friends. We published The Engineer (the official magazine of the School of Engineering) in the Spring, sponsored the Senior Awards Banquet for the graduating class of 1994, and hosted the Annual Meeting and Breakfast at Homecoming. This year the STE is planning a new project—the publication of an engineering school alumni directory. In addition, we are proud to co-publish this special issue of The Engineer.

All of these projects are supported by the annual membership dues of the STE. Participation in the STE and its activities makes the organization strong, which increases the significance of our efforts to better our school. Therefore, I urge everyone to participate in the activities of the STE.

The STE is proud of its contribution to the school and is committed to continuing this service into the next century.

Sincerely,

Carrie Haydel
President, Society of Tulane Engineers
On May 23, 1883, the Administrators of Tulane University adopted the following resolution:... “There shall be established, to take effect at the commencement of the session of 1894 - 95 (October 1, 1894), two distinct colleges, viz.: 1. A College of Arts and Sciences... 2. A College of Technology, devoted specially to training in the application of science to the mechanical and other arts, and, generally, in the studies now embraced within the existing engineering course, and in others similar and cognate...”

Twelve years after the formation of the Tulane University of Louisiana, the dream of Brown Ayres, William Preston Johnston, John M. Ordway, and even Paul Tulane, was realized in the establishment of the College of Technology and the development of the university's new uptown campus.

The establishment of an engineering school was at the forefront of the discussion when the foundation for Tulane University was being laid. Early on, the Board identified the need for a manual training school and polytechnic institute to “provide technical instruction in the application of theoretical studies to the industrial pursuits of life” as one of the key objectives in the development of the new university. The minutes of the Board of Administrators meeting of November 20, 1882, specifically identify a demand for practical instruction in “Civil, Mechanical, and Mining Engineering and Architecture...”

In 1883, William Preston Johnston left his position as president of Louisiana State University to take over the fledging university.
According to Robert Boh, Johnston felt that the scientific side of instruction must constitute the chief addition to the university for some time to come. He regarded the proper development of an Industrial and Mechanical Department as one of the most helpful fields for the educational advancement of the city of New Orleans. Johnston chose professor John M. Ordway of M.I.T. to take charge of the proposed department. By 1888, a “mechanical course” was changed to an engineering course, and a separate faculty established. However, the faculty was composed of members of the university's Academic Department, none having the benefit of a formal engineering education. By 1891, a special course identified as Electrical Engineering was advertised and offered, and a course in Mechanical Engineering was added in 1893.

On January 27, 1894, ground was broken for the construction of the uptown campus. The distinguished physicist, Brown Ayres, who would become the first dean of the new College of Technology, was instrumental in the decision to move Tulane to the new location. Three of the four buildings forming the new campus were dedicated to the sciences, and 100 years later, the Civil Engineering Building, originally the Mechanical and Electrical Laboratories, is still used by the School of Engineering.

On October 1, 1894, the doors of the College of Technology opened for the first time — with its own building and laboratories, faculty, and a program specifically designed for engineering. The new college offered courses in four areas: mechanical engineering (which included electrical); chemical engineering; civil engineering; and architectural engineering. The first degree in engineering (Bachelor of Science in Engineering) was granted as early as 1889, but the new college conferred its first degree (Bachelor of Engineering) in 1895. Notable among the college’s original faculty, numbering nine, were names that would leave an indelible imprint on the history of Tulane engineering: Ayres and Ordway; William H. P. Creighton, professor of mechanical engineering; and Douglas Anderson, assistant professor of physics and electrical engineering. Both Creighton and Anderson would later serve as deans of the college.
Hall of Fame

The Centennial Celebration Committee has established the Engineering Hall of Fame to honor Tulane engineers that have made significant contributions to the fields of engineering and science through the practice of engineering, technology, science, education, business, management, or government on a level of national or international importance.

In recognition of the school's centennial, the inaugural class of the Hall of Fame was chosen to honor the pioneers of the school — whose vision and dedication laid the foundation for the success celebrated this year.

Brown Ayres (1856-1919)

Brown Ayres was largely responsible for the formation of the College of Technology and the move by the university to the present uptown campus in 1894. He became the first dean of the College of Technology, a position he served in until 1904 when he became president of the University of Tennessee.

Douglas Smith Anderson (1871-1954)

Douglas Smith Anderson was a member of the original faculty of the College of Technology. He was named dean in 1919 and acting president of Tulane in 1935. Anderson was a champion of the school when early critics sought to eliminate it.

James M. Robert (1885-1964)

James M. Robert served as dean from 1935 to 1950, and guided the school through the Second World War and the precipitous changes of its aftermath. He served Tulane for over 40 years as student, teacher and dean.

Nominations for the 1995 class of the Hall of Fame may be directed to the attention of the Hall of Fame Selection Committee in care of the Engineering Dean's Office, Tulane University, New Orleans, Louisiana 70118. The 1995 class will be announced at Homecoming.

Sponsors will be notified of the selection, and nominations of those not chosen will be kept on file for future consideration.
John Morse Ordway (1823-1909)
John Morse Ordway was an expert in industrial chemistry, with an interest in mechanical and manual training. He can be credited with the introduction of engineering to Tulane.

William Woodward (1859-1939)
William Woodward introduced to the deep South an awareness of professional values in design, and is responsible for the establishment of a degree program in architectural engineering.

The following three men were selected for their roles in defining the engineering disciplines we know today. All were men who devoted their careers to Tulane and are recognized by generations of Tulane engineers.

Donald Derickson (1878-1962)
Donald Derickson was head of the Department of Civil Engineering for thirty years from 1917 to 1946.

William Benjamin Gregory (1871-1945)
William Benjamin Gregory was a member of the original faculty of the College of Technology. He was a professor of mechanical engineering from 1906-1938 and an internationally recognized hydraulics expert and inventor.

C.S. Williamson, Jr. (1880-1959)
C.S. Williamson, Jr. was head of the Department of Chemical Engineering for thirty years from 1917 to 1946.

The next two men were mechanical engineering graduates from the class of 1899 who brought international fame to the school early in the 20th century.

Albert Baldwin Wood (1879-1956)
Albert Baldwin Wood was barely out of college when he designed the pumps for which he became world-famous. His pumps presently drain the city of New Orleans. His pumping system was also used in the Zuyder Zee region of Holland, in Egypt, China, and India.

C.W. Ricker (1891-1965)
C.W. Ricker co-authored the definitive text for electrical engineering in the United States. He served as head of the Department of Electrical Engineering from 1938 to 1956.

William Monroe White (c. 1879-1949)
William Monroe White was chief engineer of the Allis-Chalmers Co. An unrivaled expert in hydroelectric development, his genius is reflected in many of the most important hydroelectric installations in the world, including Niagara Falls.
A College of Technology Takes Root

"To help others in helping themselves," motto of the College of Technology listed in the 1914-15 bulletin.

"Year after year, thereafter, the college poured into the stream of Southern life an increasingly important ingredient of technically trained young men with a practical orientation to the South's problems." — John P. Dyer

1894 – 1918

According to Tulane historian John P. Dyer, "the College of Technology grew more rapidly than any other department of the university save Medicine" once it became an independent unit.

During its first year, the college enrolled seventy-five undergraduate and twelve graduate students, and within five years undergraduate enrollment had dramatically increased. Seven young men received their engineering degrees at the end of the first year, after completing the technological courses offered prior to the formal organization of the College of Technology.

The standard of education in partnership with research began with the early faculty and is a tradition in the school today. High admission requirements and a rigorous curriculum meant few graduates, seldom more than 11 each year, but Ayres, Creighton, Gregory and others responsible for teaching had the satisfaction of seeing graduates make an almost 100% record of success in their profession.
The faculty of the College of Technology at the 1912 dedication of Stanley Thomas Hall.

The history of the engineering school seems relatively smooth when set against the backdrop of the university's struggle to attain institutional maturity. Although its progress was relatively uninterrupted for most of its early history, the infant college was not exempt from growing pains. In 1899, before it had begun to enjoy its independence, Tulane's new president, Edward Alderman, consolidated the College of Technology with the College of Arts and Sciences and abolished the deanships of both. A period of confused co-existence lasted until 1911 when they were again separated and William Creighton was named dean.

The young college increased its physical facilities in 1912 with the addition of Stanley Thomas Hall. The modern building had three floors (a fourth was added in 1929) and housed the new Department of Architecture. Part of the original 1894 program, architecture lacked the support of President Alderman and had withered and virtually died by 1899. A viable program was established within the college in 1907 and was one of two pioneering efforts of its kind in the South (Auburn - Alabama Polytechnic Institute also established a program the same year).

At the turn of the century and the years following, New Orleans and the country as a whole were rapidly modernizing. The Tulane engineering faculty and students were an integral part of this modernization. "Tulane Techs" consulted on buildings and construction projects, implemented modern architectural concepts, pioneered new and better uses for materials, and laid the foundation for a modern city and region. They were researchers, inventors, teachers and students who left an indelible mark on the era of progress.

Graduates such as Albert Baldwin Wood (ME '99) and William Monroe White (ME '99), and faculty members such as William Benjamin Gregory would, like many other "Tulane Techs," change the face of technology and the world.

Drafting class, c. 1912.
Biomedical Engineering

The origins of biomedical engineering at Tulane can be traced to the College of Technology at the turn of the century when William Benjamin Gregory, professor of mechanical engineering, worked with physicians at the Tulane School of Medicine to help improve public health and sanitation in the city of New Orleans.

Collaboration between medicine and engineering grew, and by the 1940's a new engineering discipline was spawned. Innovations in the engineering curriculum of the late 1940's and an increase in combined research efforts led to the first formal undergraduate course in biomedical engineering in 1953. In 1970, William C. Van Buskirk, now dean of the School of Engineering, was hired as the first faculty member with specific training in biomedical engineering. Undergraduate demand for such a course grew rapidly. With the arrival of a new dean, Sam Hulbert, an expert in biomaterials, a new department was formed in 1978 with Van Buskirk as department head.

Today, biomedical engineering is one of the most successful departments in the school. One-third of entering engineering freshman express a preference for biomedical engineering, and the department is ranked nationally in both the graduate (13th) and undergraduate (6th) programs.

The department chair, Cedric Walker, has witnessed the phenomenal growth of the department over the past sixteen years. He credits the popularity of the field with the altruism associated with aiding medical progress, the appeal of completing a pre-medical program while obtaining a valuable engineering degree, and the national prestige of the department coupled with an outstanding and dedicated faculty. "We try to treat our students as we would want to be treated. The upper level students are our junior colleagues, and all of our students are our partners in learning," says Walker.

The department has ten full-time faculty members, over 50 advanced degree students, and over $1.06 million annually in externally sponsored research and grants. Primary areas of research are lung surfactants, bone remodeling, spread of cardiac and intracortical electrical activity, and the design of a new angioplasty catheter. The department now requires all undergraduates (beginning with the class of '96) to own laptop computers for use in the electronic classroom, the teaching labs, and for a broad range of course-related assignments. "Innovation in education and research has always been the hallmark of the program — since its beginnings," notes Walker.

Laser visualization of fluid flow is an important tool in biomedical engineering research.
Biomedical Engineering Research

Donald Gaver and Andrew Pollard of biomedical engineering are recipients of the National Science Foundation's Young Investigator Award. The National Science Foundation (NSF) created the Young Investigator Award to "recognize and support the scholarly activities of some of the nation's most outstanding science and engineering faculty members early in their careers." The award has been instrumental in supporting Gaver's research of gas transport in pulmonary airways and Pollard's research in myocardial electrophysiology. The award provides funding of $25,000 per year for five years and will match up to $37,500 per year of industrial or private foundation support.

National Young Investigator Award winner Donald Gaver (r), associate professor of biomedical engineering, demonstrates on the computer for students.

Below, an illustration of Gaver's research in lung surfactants.

A collapsed pulmonary airway where the patent upstream section has radius (\(R\)), airway pressure (\(P_w\)), and meniscus velocity (\(U\)). The downstream portion is collapsed in a ribbon-like manner with fluid thickness (\(h\)) and suction pressure (\(P_{ox}\)). \(P_{ox}\) equals the peribronchial pressure, \(P_x\). Pleural pressure (\(P_{px}\)) is conducted to Pdn through the parenchymal tissue.

National Young Investigator Award winner Andrew E. Pollard, assistant professor of biomedical engineering.

Below, an illustration of Pollard's research in myocardial electrophysiology.

Three dimensional spread of depolarization in a "brick" computer model intended to represent a transmural section of a myocardium from the right ventricle. In this region of the heart, the orientation of muscle fibers on the epicardial surface is orthogonal to the orientation of muscle fibers on the endocardial surface. There is an abrupt shift in fiber orientation approximately halfway between the two surfaces. The spread of current in the heart is anisotropic, with fast conduction along the myocardial fiber axis and slow conduction across the myocardial fiber axis. At 20 msce after a stimulus was applied on the epicardial surface, excitation had spread toward the center of the brick as a three-dimensional anisotropic front. In later time intervals, however, there was a marked change in the shape of the depolarization fronts due to the rotation of the myocardial fiber axes. Model calculations were completed on a super computer. The model contained 500,000 elements that were on the size scale of an individual myocardial cell.
Chemical Engineering

Chemical engineering was one of the four original programs offered when the College of Technology opened its doors in 1894. The Tulane program is the second oldest in the country and the first of its kind in the South.

The program originally provided for "training in machinery and power production combined with a thorough knowledge of chemistry." John M. Ordway, an industrial chemist from M.I.T., was professor of industrial chemistry and sole faculty member in 1894. Today, chemical engineering is one of the largest departments in the school. There are ten men and women on the faculty, who are successful teachers and leading researchers in their fields. Chemical engineering students number over 150 and 42% of these are women. Biotechnology, chemical and enzyme catalysis, membrane separation and environmental engineering have supplanted the industrial chemistry and sugar engineering of a century ago.

“Our undergraduate program is appealing to students because of its strength and flexibility. The program is highly regarded as evidenced by its ranking (top quarter) in several national publications like the Gourman Report. And, we are flexible. The undergraduate curriculum enables pre-med students to complete their admission requirements by taking required elective courses in biology," explains department chair, Richard Gonzalez. Unit Operations, instituted early in the century, offers an educational practicum and continues to be the heart of the curriculum. Unique to Tulane chemical engineering is the undergraduate Practice School – the only one of its kind in the nation. Initiated in 1951, the Practice School places senior students in industry to solve a variety of very real problems while forging an ongoing partnership beneficial to both the school and to private industry.

By 1970, the department had moved from a small undergraduate program for local residents to one of national prominence with a significant volume of sponsored research and high Ph.D. productivity. The Ph.D. program was launched in 1960, and current professor Victor J. Law received the first Ph.D. in 1963. Today, there are 45 graduate students enrolled in the graduate program, the majority pursuing doctoral degrees.

The first sponsored research was a contract from the American Concrete Pipe Association in 1954. Today, the research budget for the department is approximately $1.8 million annually. The principal research areas are biochemical engineering, catalysis, colloids and surface phenomena, environmental, and bio-materials.

“We are outfitted to meet the advanced educational and research challenges of the approaching century," notes Gonzalez.
Chemical Engineering Research

The goal of professor Vijay T. John's work in biomolecular materials is to develop new and useful materials by mimicking nature, and to tailor these materials to acquire desired specific properties. The end result is the creation of new ceramics, novel semiconductor and magnetic materials, and high strength polymers. Biomolecular materials research is a nascent field with no established commercial support or academic leadership. However, its importance is becoming recognized, and many funding organizations have instigated initiatives for research in this area.

John's research is a collaborative effort of an interdisciplinary group which includes professors John, O'Connor, and Gonzalez of chemical engineering, Professor McPherson of chemistry, and the U.S. Army. They have been successful in national competition under the Materials Initiative of the National Science Foundation, and have recently received a $350,000 grant toward their research.

The Tulane/Xavier Center for Bioenvironmental Research (CBR) was founded in 1989 when the U.S. Department of Defense awarded $33 million to Tulane and Xavier Universities to develop advanced methods to assess, control, prevent and repair environmental hazards. The CBR is a scientific and policy research institute dedicated to finding new ways to protect human health and ecosystems from the harmful effects of environmental pollutants.

Housed in the J. Bennett Johnston Health and Environmental Research Building on the campus of the Tulane University Medical Center, the CBR is an interdisciplinary research center where engineers, chemists, biologists, and environmental health scientists cooperate to develop technologies to clean up the environment. Representative of projects undertaken by the CBR is the recent $25 million aquatic study grant awarded to it by the U.S. Department of Energy.

These patented cones work to trap sand and reinforce the eroding beachline at Shell Beach in lower Plaquemines Parish, Louisiana. The cones were invented by William Mouton, a civil engineer and professor of architecture at Tulane; the late Robert Grush, a Tulane mechanical engineering graduate; and Delores Alton of Bennington College in Vermont. Professor Victor Law has been instrumental in the implementation of the cones, which, if successful, could lead to the rebuilding of eroded coastlines throughout the world. Support for large-scale testing of the devices comes from Tulane, the U.S. Department of Energy and Freeport-McMoRan, Inc.
The problems of the university prior to World War I: faculty tenure, salaries, academic freedom, and retirement seemingly eluded the College of Technology. — John P. Dyer

1918 – 1939

As engineering quietly continued its mission of turning out technically trained engineers, the world was in a state of upheaval. Fantonc fervor had swept the university, and the campus was filled with uniforms, bugle sounds, and hundreds of young men drilling and studying military tactics. By 1918, Tulane was a virtual war camp.

In September 1918, a S.A.T.C. program (Student Army Training Corps) was implemented by the university through the College of Technology to train 6,000 men, 1,200 at a time. The S.A.T.C. program was authorized by Congress in August 1918 as an amendment to the Selective Service Act lowering the draft to 18 years. It provided a subsidy to colleges and universities in danger of losing all their healthy male students. Under the plan, men could take their training at selected colleges instead of going to military training camps. It provided for room, board, tuition, uniforms, and a monthly stipend, and instruction was provided by university faculty and military officers.

With the advent of S.A.T.C., fourteen wooden buildings were erected on the quadrangle between Gibson Hall and Freret Street to house the young men from all over the southeast United States who were sent to Tulane for training. New courses emerged in telegraphy, radio mechanics, auto mechanics, hygiene, conversational French, and practical nursing.

In September and October of 1918, the camp at Tulane was paralyzed by a flu epidemic, and in November came the Armistice and demobilization. Though its war effort was short lived, Tulane could be proud of its record. Over 40% of the medical faculty had seen active service; 75% of other faculties were involved in training programs or active service; S.A.T.C. had trained 7,145 men and women; and more than 1,000 alumni had seen active service, and 44 of them had not come back.

The College of Technology would rise to meet the new postwar educational and social challenges under the capable leadership of Douglas Anderson. Anderson succeeded William H. P. Creighton as dean in 1919. Anderson was a student and original member of the College of Technology faculty.
In the years between the two World Wars, Tulane began the transformation from a small local institution to one of national prominence. The post-war world changed dramatically and nowhere was this more evident than in student life.

As the Great Depression ushered out the Roaring Twenties, other activities held sway. Campus publications like the *Hullabaloo* and the *Jambalaya* gained popularity; over sixteen social, professional, and honorary fraternities were added to the existing roster; and clubs—glee clubs, debating clubs and others became active. In 1927, the school colors of “the Olive and Blue” and the present-day Alma Mater were adopted. The first Homecoming was celebrated on June 5, 1923.

Intercolligate athletics became the center of campus life. For twenty years, the Tulane football team, under the direction of Wilber C. Smith and “Big Monk” Simons, was a national powerhouse. There was a Rose Bowl game and two Sugar Bowl games, and Tulane was conference champion or co-champion six times.

In 1920, the College of Technology changed its name to the College of Engineering. Indicative of its “steady but successful” reputation, enrollment doubled between 1919 and 1936. The college continued to produce well trained engineers. The engineering program was rigorous—153 semester-hours (with only 12 devoted toward humanities) for degrees in mechanical and electrical, chemical, civil and architectural engineering.

In 1936, James M. Robert of mechanical engineering replaced Douglas Anderson as dean. Anderson had been named acting president of Tulane when President Dinwiddie fell ill. That year, the engineering honorary, Tau Beta Pi, was established and Electrical Engineering became its own department.

World War II would soon alter the course of life on campus, and engineering would be called on to play a major role in the war effort.
Traditions and Organizations

Spirit was strong within the School of Engineering during most of its first one hundred years—peaking during the 1940's and 50's. Organizations were founded and traditions were rooted which combined the business of engineering with the pleasures of being a college student.

Some of these unique engineering institutions live today. And although some are no more, new ones have emerged, and some old ones have adapted for the changing times.

Engineer's Technological Atelier

The Engineer's Technological Atelier was founded in 1938 to advance engineering professionalism and promote a greater spirit of cooperation among the students and faculty in the College of Engineering.

The ETA was the only organization in the College of Engineering whose members were selected from all four of the schools (now six departments). Membership was by invitation only, and criteria for membership was based on moral character and integrity, interest in the engineering profession, and activities within the college.

The Atelier sought to provide technical activities that would expand the engineering interests of its members. The ETA Annual Student Engineer's Forum featured a representative of each branch of engineering in a competition of technical papers presented for a lay audience.

The Atelier was also a social organization which attempted to bring its members and other members of the college of engineering into more intimate contact with each other. The ETA sponsored the annual engineering dance, St. Patrick's Activities, Engineer's Day, and other social events. The organization was active until 1955.
Civil Engineering Summer Survey Camp

Between the junior and senior years, civil engineering students (and occasionally an architecture student) attended a four-week summer program in Gurley, Louisiana. The Summer Survey Camp, as it was known, originated in the 1930's under the direction of department head, Donald Derickson.

The military-styled camp, originally located in Denham Springs, La., was set up on the grounds of a plantation in Gurley, La., owned by the Derickson family. The conditions were rustic and the campers set up living accommodations in canvas tents stretched over concrete slabs. Students constructed latrines and outdoor seating between trees. There were two permanent buildings, a mess hall, and a kitchen where cooks prepared meals from the plantation's livestock and produce.

Campers rose early before heading to the fields with transits and levels. The purpose of the camp was to provide a challenging practicum to complement the previous year's study. The survey camp was an integral part of the civil engineering education until 1972 when the camp was discontinued. Surveying remains at the core of the basic civil engineering curriculum. However, today's student surveyors enjoy a course enhanced by computers and modern technology.

"Civil engineers were required to take one course in electricity, including a three-hour Friday afternoon laboratory. Friday happened to be the day that a group of C.E.'s would go to Casamento's (Broadway and Freret) for oyster loaves and beer. One Friday, the late Arthur Waters, Jr. (my lab partner) and I had a few more beers than we should have and shortly after the class started we ended up causing a major short circuit and resultant minor explosion. Needless to say, it was an exciting day for all in the electrical lab that day."

Herbert O' Donnell CE '43
"St. Patrick Was An Engineer"

"On a foggy morn in Ireland, many years ago, a marvelous engineering feat was performed. St. Patrick drove the snakes from the Emerald Isle, and thereby qualified as the first engineer by inventing the worm-drive. Ever since, St. Patrick has been recognized by engineers as their patron saint. The Blarney Stone and the shamrock have been adopted from Irish legend as appropriate symbols." (Author unknown)

In 1903, an engineer at the University of Missouri, Leo Brandenberger, taking a recess from his drawing board, thoughtlessly sketched a likeness of the Saint of Ireland on the blackboard. Another student wrote under the caricature, "St. Pat was an engineer." The following morning as the students entered the halls of the school they were greeted with posters stating: "ST. PATRICK WAS AN ENGINEER — HOLIDAY TODAY." By 1905, the celebration grew to include the Blarney Stone, and St. Pat, as ruler of the day, with a consort St. Patricia and a St. Pat's court.

The movement grew and in 1919 a national conference was held with representatives from eleven schools, who laid plans for a national movement of larger proportions. A majority of universities honored St. Pat by the time the tradition began at Tulane in 1941. The Blarney Stone appeared on the Tulane campus in 1945.

As patron saint of the engineers, St. Patrick has a special place in the traditions of the Tulane School of Engineering. The Tulane Blarney Stone was the focal point of these traditions, which achieved a peak of enthusiasm in the 1940's, 1950's and 1960's. The school traditionally celebrated one to two weeks of St. Patrick's activities, including the election of St. Pat and St. Patricia and a St. Pat's Court, all presented at the St. Pat's dance. This was followed by Engineer's Day at a designated football game, where the engineers were led in cheers and songs dedicated to the special relationship between the engineers and St. Patrick. For days before the game and St. Patrick's dance, rallies were held at the Blarney Stone, representing the fierce competition between the engineering departments to get their candidates elected as St. Pat.

The Blarney Stone also became the focal point of competition between the Engineering School and other colleges on campus. A continuing rivalry with the Commerce School ended up with the tar and feathering of the Blarney Stone and subsequent retribution on the Commerce School by the engineers. For thirty years, the Blarney Stone served as the center of engineering activities, until it was exiled to the geology department's rock garden in the late 1970's.

As part of the engineering centennial, a special committee, The Committee for the Recovery and Restoration of the Blarney Stone, has been formed to recover and restore the stone to its rightful location in the School of Engineering and by doing so communicate to the present generation of Tulane engineering students the sense of school spirit and enthusiasm experienced by previous generations.

Miss Gayle Schwarzenbach, St. Patricia, 1946-48.
Engineer's Day

One football game per season was set aside for the annual Engineer's Day celebration, sponsored by the Engineer's Technological Atelier. Several hours before heading to Sugar Bowl Stadium, the engineers engaged in "warming-up" activities. Dressed in engineer's caps, white shirts and green cravats, they gathered at the Blarney Stone to rehearse songs and cheers for the gala display to be given at half-time.

"When I came, students were publishing a magazine for the school called The Techni-Torque... There was an organization called the Engineers Technological Atelier... There were sports events with teams from each department and from the faculty. The 'Blarney Stone' became the focal point of school functions and was also an object of competition between the School of Business Administration and the Engineering School... The students were very opportunistic and were known to steal the L.S.U. mascot, 'Mike'... In another delicate moment, some students put an alligator in the hydraulic lab floor tanks, giving the faculty an opportunity to be heroes..."

Chester Peyronnin ME '47

"St. Pat", 1954, Don Bilinski stands in front of the Blarney Stone -- Stolen, tarred and feathered by the School of Commerce...

...and the Engineers' retribution!
The Society of Tulane Engineers

The Society of Tulane Engineers was founded in 1950 as the school's official alumni organization. The founders recognized the need for a concrete way that alumni could remain connected to the school and could continue to contribute to its growth. The society would be dedicated to keeping the alumni informed of the school's curriculum, policy changes, and developments in teaching and research. Each Tulane engineer is automatically, upon graduation, a member of the STE. Dues are voluntary and have remained nominal over the years.

The society, in association with the dean's office, publishes The Engineer — the main vehicle of communication from the school to its alumni. The organization hosts the annual Senior Awards Banquet, and in honor of the Centennial has established the STE Speakers Series.

Professional and honorary societies play an important role in the School of Engineering. In addition to the national engineering honorary fraternity, Tau Beta Pi, the school has an official chapter of each disciplinary honorary fraternity as well as a wide representation of professional societies.

Tau Beta Pi

Tau Beta Pi was founded at Lehigh University in 1885. Louisiana Beta was established at Tulane in 1936. The purpose of the honor organization is to distinguish those who have conferred honor upon the university by high scholarship and exemplary character as undergraduates in engineering or by attainments in engineering as alumni, and to foster a spirit of liberal culture in the engineering colleges of America.
Professional Societies
AICHE (American Institute of Chemical Engineers)
ACM (Association of Computing Machinery)
ASCE (American Society of Civil Engineers)
ASME (American Society of Mechanical Engineers)
ASHRAE (Mechanical - American Society of Heating, Refrigeration and Air Conditioning Engineers)
IEEE (Institute of Electrical and Electronic Engineers)
BMES (Biomedical Engineering Society)
NSBE (National Society of Black Engineers)
TES-LES (Student Chapter of the Louisiana Engineering Society)
SWE (Society of Women Engineers)

Honorary Societies
Alpha Eta Mu Beta (Biomedical)
Eta Kappa Nu (Electrical)
Pi Tau Sigma (Mechanical)
Upsilon Pi Epsilon (Computer Science)
Omega Chi Epsilon (Chemical)
Techs Society (Dean's Honor Scholars)
Civil and Environmental Engineering

"The Department of Civil and Environmental Engineering is dedicated to a philosophy of engineering education which leads the individual student toward a career of professional practice or a position in engineering management," says John Niklaus, chair of the department. It is a philosophy that has proven sound over the past one hundred years. Civil Engineering is one of the four original programs of the school, and since that time the accomplishments of Tulane civil engineers can be found not only in New Orleans and throughout the nation, but all over the world.

Civil engineering enjoys a rich tradition-filled history within the school. The department is housed in the Civil Engineering Building (Mechanical and Electrical Laboratories 1894), one of the four original buildings on campus. Graduates through the '70's fondly remember the summer survey camp, and classes in field survey and manual drafting. Today, transit, levels, and drafting tools are augmented with contemporary computer technology. In 1991, the department expanded to include the growing field of environmental engineering and was renamed the Department of Civil and Environmental Engineering to reflect that change.

Students may now choose the new Environmental Engineering Specialty Option. Though the degree leads to a B.S. in civil engineering, it is specially designed to meet the growing demand for engineers to solve our nation's environmental problems.

The department's structural research has been recognized internationally, including the prestigious Martin P. Korn Award of the Prestressed Concrete Institute. The Geotechnical research and the environmental program have also received international attention and recognition. The geotechnical research on the behavior of reinforced embankments on soft soils was recognized with the

Sanjoy Battacharya (left), assistant professor of civil and environmental engineering, received the 1991 Harrison Prescott Eddy Medal award for his contributions to wastewater treatment solutions. In conjunction with the Tulane/Xavier Center for Bioenvironmental Research, Battacharya is the lead investigator on the Anaerobic-Aerobic Biotreatment of Hazardous Leachate funded by the Department of Defense. Battacharya's work focuses on the combination of biological and chemical processes to treat pollution, with the combination of the two methods producing optimum results. The goal is to form harmless end-products such as carbon dioxide and methane from complex hazardous organic compounds.

K. B. Woods Award of the Transportation Research Board. Environmental research is coordinated with two centers for environmental studies within the School, the Center for Bioenvironmental Research and the National Institute for Global Environmental Change. The research findings have been presented and published internationally, and one researcher was recently awarded the Harrison Prescott Eddy Medal.

"The civil engineering profession is dedicated to serving the basic needs of man and society. As civil engineers we are responsible for the structures in which we live and work, the transportation systems by which we travel, and the environment around us. In the Department of Civil and Environmental Engineering, we are continually working to adapt to successfully these constantly changing requirements of society," notes Niklaus.

Civil engineering students at work, c. 1920.
Civil and Environmental Engineering Research

The "Tulane beam" tested at the Construction Technology Laboratories, Inc. in Skokie, Illinois, can bear up to 28,000 pounds per square inch. (Current highway material bears only 5,000 psi.) The durable and relatively inexpensive concrete will be effective in rebuilding the nation's infrastructure and will revolutionize highway and bridge construction. Theoretical and experimental research involving the behavior of reinforced and prestressed concrete has been conducted at Tulane for over 30 years, and has been recognized internationally, including the prestigious Martin P. Korn Award of the Pre-stressed Concrete Institute.

Robert N. Bruce, Jr., the Catherine and Henry Boh Chair in Civil Engineering, is the principal investigator for the high-strength concrete research project. A collaborative effort between Bruce and colleagues at the University of Texas - Austin, and Construction Technology Laboratories, Inc., the $453,000 project is sponsored by the Louisiana Transportation Research Center and the Federal Highway Administration for the Louisiana Department of Transportation and Development. Bruce received the 1994 Department of Transportation Award and the 1992 McGraw-Hill Construction Industry Medal of Excellence for his published work on the high-performance concrete.

Reda M. Bakeer, associate professor of civil and environmental engineering, was recently awarded a $377,500 grant to investigate the U-Liner technology for pipe networks rehabilitation. The objective of the research is to investigate the long-term performance of the patented U-Liner system under low pressure conditions typically experienced in gravity wastewater pipelines. The "no-dig" U-Liner is threaded through existing pipe and fit through a patented heat/pressure procedure. The benefits of trenchless pipeline rehabilitation using the U-liner include those to municipalities such as lack of traffic congestion, time delays, and high direct cost problems encountered during the repair of aging pipeline networks. Existing concrete and steel pipe networks can be lined without costly excavation and removal in a way more beneficial to the environment.

The research is sponsored by Pipe Liners, Inc.
Computer Science

The Department of Computer Science is the youngest in the School of Engineering. It sprang from scattered theoretical and application interests in the departments of mathematics and computer science, and was formally established 1979. In the intervening years, it has amassed the largest graduate program in the school, with a consistent flow of Ph.D. graduates. Computer science receives regular funding from industry and employs a nationally and internationally recognized faculty.

The department offers undergraduate degrees in computer science and computer engineering, and master's and doctoral degrees in computer science. Over 25 full-time graduate students complete their studies at the rate of four or five per year. Graduates have been widely placed in both industry and academia and are involved in a variety of research and development projects ranging from expert telecommunications network managers to neural nets.

"We've gone from punch cards to the information super highway. The Computer Science Department, like the field itself is rapidly evolving – and the most exciting developments are yet to come," notes department chair and assistant dean, Johnette Hassell. The department was the first at Tulane to utilize Internet, and this year students are accessing the Worldwide Web, a global information library that disseminates unlimited information rapidly in an easy to use format.

The department's research efforts have been enhanced with the establishment of two related, but distinct, research centers which provide the platform for larger, multidisciplinary research activities. The Center for Intelligent and Knowledge-Based Systems (CIABS) and the Center for Automation and Autonomous Complex Systems (CA2CS) bring together researchers from other specialties in computer science, other academic disciplines and other universities to share their work and solve contemporary problems.

1994 was a special year for computer science. As the School of Engineering celebrated its centennial, computer science celebrated the tenth anniversary (1984-94) of the first full class to complete the program. "As we venture into our second decade, it is tempting to focus on the past – and an exciting challenging past it has been. However, the new decade, and the new century ahead promise even greater challenges. And we will successfully meet these as before – constantly evolving, adapting and growing," says Hassell.
Frank Silbermann, assistant professor of computer science, is developing a hybrid computer language - POWERFUL (Powerdomains for Functional and Logic Programming) - so that programmers can solve problems more efficiently. Silbermann's goal is to create a hybrid language that combines the features of both functional and logical programming, without losing the simplicity and cohesiveness that characterizes each individually. The research has received the highest rating among projects supported in 1990 by the Louisiana Educational Quality Support Fund and was the centerpiece of the Functional Logic Programming Symposium organized by the Institute of Information Sciences and Electronics at the Tsukuba, Japan in May, 1993.

Cris Koutsougeras, associate professor of computer science, created CA2CS (Center for Automation and Autonomous Complex Systems), to foster research on Artificial Intelligence (AI) and its applications. CA2CS is one of the two interdisciplinary research centers within the Department of Computer Science. The center's research focuses on models and applications of sophisticated systems that autonomously exhibit intelligent/cognitive properties, with neural net models, pattern recognition, associative recall, natural language processing, optimization methods, and robot vision/control. Many problems from these fields are approached from the neural nets perspective. Research on neural nets includes theoretical models, adaptive processes, and machine architectures for neural nets. In homogeneous adaptation, learnability, and the capability to generalize from sample information are key issues. Current applications include handwritten character recognition, scene analysis and comprehension, automatic control, robot vision, and robot navigation.

Fred Petry and Bill Buckles are creators of the Center for Intelligent and Knowledge-Based Systems (CIAKS). The center focuses on data management in Artificial Intelligence (AI) through research in database, expert systems, and other areas of artificial intelligence. CIAKS' goal is to further interdisciplinary approaches and applications. Current projects involve the fields of cognitive science, public health and medicine, oceanography and aerospace engineering in collaboration with industry and government. Through CIAKS' ongoing seminar series, researchers from throughout the region in areas as diverse as medical expert systems and Gulf Stream analysis are brought together to share their work.

(l-r) Fred Petry, Bill Buckles and Roy George.
“This war of 1942 is not only a war of men and guns. It is a war of sines and cosines, slide rules and engines, algebra and calculus. It is a war of industry. Industry in which the engineer is a vital necessity... The nation is crying for engineers to man our drawing sets and turn out machinery superior to that of the enemy... It is our duty to answer this plea by hard work and study... Let us meet the challenge together... Let us be as diligent in our performance as the men at Bataan and Corregidor... Then free men can live as God so willed it.” — Bob Grush (ME ’43) Editorial of the Techni-Torque November-December 1942.

“Never before has the engineering freshman been confronted with such grave responsibility — responsibility for the serious pursuit of his engineering education... We are at war. This, as you have already sensed, is completely and essentially an engineer’s war...” — Dean James M. Robert to the freshman class of 1942.

By 1943, the College of Engineering was completely immersed in the war effort. In 1938, Tulane housed one of eight Naval Officers Training Corps units in the country. By 1941, campus war programs had begun in earnest with the EDT (Engineering Defense Training), the ESMDT (Engineering, Science and Management Defense Training), and other programs.

When war was declared, the college went into an accelerated program with three full semesters a year. There were almost no holidays and exams took place in two days with three exams scheduled each day. The accelerated program forced a crowded class schedule requiring many classes and labs to be held at night. Instructors were often part-time and from local industry.

“The war years placed a strain on the school’s capacity, but it met the test,” notes Chester Peyronnin (ME ’43), professor of mechanical engineering for over 30 years, and now emeritus. “The faculty lost a few members, but some retirees came back and some deferred local engineers filled the gap...”

On July 1, 1943, the Naval ROTC was ordered to active duty as part of the Navy V-12 unit and the first of three 19-week terms of the emergency V-12 program began. The V-12 Program provided a continuous supply of officer candidates in the various special fields.
required by the U.S. Navy, Marine Corps, and Coast Guard. College level instruction was supplied to qualified students while the men were on active duty — in uniform, receiving pay, and under general military discipline. The university was assigned a quota of 1176 students and provided instruction, housing, mess facilities and medical service.

The significant advances in engineering and science made during and after WWII resulted in dramatic changes in engineering education. 1945-52 was the era of the returning GI and an extraordinary time, but post-war growth posed some stiff challenges for the school. With limited space available at Tulane, Dean Robert was in the impossible situation of having to say no to many perfectly qualified and demanding candidates. Professor Emeritus, John Martinez, remembers that “the students were older and more mature than their classmates coming from high school. They were hardworking, goal-oriented and realized the great opportunity the GI bill represented. I think they were the best students we ever had, taken as a group.”

Dean Robert was faced with the task of rebuilding the faculty. The war had taxed staff resources to the maximum capacity. Many professors delayed retirement until the crisis was over and the school depended on deferred engineers from local industry to fill the gap. Moreover, it was difficult for the school to compete with post-war industry claims on the faculty.

Graduate study and research programs, and the professional growth of the faculty took root in the post-war era. Graduate course material quickly became part of the undergraduate curriculum, research and graduate education programs increased in quality and size, and vacant faculty positions were filled by engineers with Ph.D. degrees. It was an exciting time for curriculum innovation. The seeds of biomedical engineering were sprouting: mechanical and experimental engineering merged into a large department; and in 1950, architecture was split from engineering with Buford Pickers as its first dean.

In 1952, Dean Robert retired, ending an association of over 44 years with the school. In that same year, the College of Engineering changed its name to the School of Engineering; and Lee Harnie Johnson stepped in to lead the school to national prominence as a major research center.
Electrical Engineering

"Electrical engineering has experienced phenomenal growth over the past decade—a trend we expect to continue well into the future," says department chair, Andrew Martinez. Although it was one of the original programs offered by the College of Technology, electrical did not stand alone as a department until it separated from mechanical engineering in 1936. The first bachelor’s degree in electrical engineering was granted in 1938. Since that time, electrical engineering has continued to grow as a major research center.

The department has a staff of nine full-time professors, one adjunct professor, and is home to the Entergy Chair in Electric Power Engineering. In the past year, major research grants and contracts have been awarded to seven of the nine faculty members and the majority of graduate students are supported by research assistantships. As recently as ten years ago, only one research contract was held by a faculty member in the department. There were only two graduate students and no Ph.D. program. Today, there are 85 non-freshman undergraduates, and 50 graduate students enrolled, with 30% of the graduate students pursuing doctorates.

Current faculty projects include research on large-scale electric systems, decision and control, digital signal processing, image processing, computer graphics, neural networks, control systems, digital control, robotics and intelligent control, computer vision, computer-aided circuit design, digital and satellite communications to name a few. "The Department of Electrical Engineering continues to strive for a broad base of faculty expertise that adequately covers the entire field and reaches out to other fields through interdisciplinary projects," explains Martinez.

Today, the department is a leader in innovative research. Professor Parviz Rastgoufard, director of the Entergy funded Electric Power Research Laboratory, is noted for his work in the area of large-scale transmission systems and their reliability. Professors Martinez, Barad, Zimmerman and Koutsougeras are exploring the potential applications of neural networks in a multi-university project, with the assistance of a three-year grant of $584,654 from the National Science Foundation. Professor Enrique Barbieri's research in robotics and intelligent control, together with related research in mechanical engineering and computer science, has led to the establishment of a new interdepartmental program in robotics. And, for several years, professor S.T. Hsieh has conducted a growing program of technical assistance and scholarly exchanges with electric utility engineers from the People's Republic of China (PRC). With the involvement and support of Entergy Corporation and the U.S. Department of Energy, Tulane is building a program of engineering and management training for the PRC that will lead to new educational and economic opportunities for the nation.

Martinez notes, "Although research is important, the welfare of the undergraduate student has always been a tradition of the Electrical Engineering Department."

Rebecca Gott (EE '92), is doing research for her Ph.D degree in sonar signal processing which will expand the uses of sonar, enabling scientists to map remotely the composition of the sea floor.
Electrical Engineering Research

Parviz Rastgoufard, professor of electrical engineering, collaborates with other engineering faculty in partnership with local industry. Recent success in these research endeavors has led to the establishment of a center for collaborative research between the university, industry, and government within the School of Engineering. The school is also in the process of establishing the Center for Electrodynamics System Research. The center will provide a forum for research collaboration between faculty, students, and practicing engineers.

(l-r) David Silver, graduate student in electrical engineering, and Enrique Barbieri, associate professor of electrical engineering, with a PUMA 700 robot and controller donated by the Laitram Corporation. The addition of the PUMA 700, initiated by Silver, is extremely beneficial to the entire Robotics and Automation team of faculty and students from the electrical, mechanical, and computer science departments.

Laitram Corporation, in conjunction with the Robotics and Automation team, is currently seeking to develop a robotic tig welding system for welding sheet metal parts. The process will involve CAD programs CadKey and ProEngineer. CAD will generate weld descriptors which will then transfer weld attributes from the drawing to a path generator, which in turn, will program a system to load and present the metal part to the PUMA 700 robot.

The Tulane/China/U.S. Institute for Energy and the Environment has been largely organized by S.T. Hsieh of Electrical Engineering. The institute is a result of meetings in Beijing in 1993 between Tulane President Eamon Kelly, Louisiana Senator J. Bennett Johnston, and top level Chinese officials. China is the largest developing country in the world and the development of environmentally safe electric power systems is of global significance. The institute at Tulane is intended to stimulate international cooperation and to facilitate mutually beneficial trade, energy and environmental policies.

Lee Zimmerman, assistant professor of electrical engineering, was recently selected as a Lilly Foundation Fellow. The award will support his efforts to create a course for upper-level undergraduates in computational vision. Computational vision is a search for the fundamental laws which govern sight.
Mechanical Engineering

Mechanical engineering was one of the four original programs when the College of Technology was founded in 1894. A "mechanical course" was offered as early as 1893 and actually predates the School of Engineering.

Today, mechanical engineering belies its historical image of machine shops and manual training programs. It is a broad-based program and one of the most modern and innovative in the school. The department works closely with electrical engineering and computer science, and participates in interdisciplinary programs such as the Center for Intelligent Sensing and Control Automation (CISCA) and the Applied Mechanics Program. The department also houses the South Central Office of the National Institute for Global Environmental Change (NIGEC) which is funded by the Department of Energy.

The Department of Mechanical Engineering enjoys an excellent reputation derived from the national and international recognition of its faculty, and it attracts students from all over the world. "We provide our undergraduates and graduate students with a broad education, because a breadth of knowledge is essential to success in mechanical engineering. However, depth in a particular area of specialization is also essential, and the department is well-positioned to offer specializations in three growth areas: the fluid and thermal sciences, solid mechanics, and robotics and control systems," says department chair Mike Lynch.

The department has nine full-time faculty members, over 120 undergraduates, and 28 graduate students. Lynch notes, "Both teaching and research are equally important, and all the department faculty teach graduate and undergraduate courses including core courses. There is a real commitment to undergraduate education as well as to research and graduate pursuits." Undergraduate enrollment has increased 30% in three years in contrast to a regional tide of declining enrollments. During the same period, graduate enrollment has increased 40%, and externally supported research has tripled with a budget now exceeding $1,500,000.

Tulane's Mechanical Engineering department is well positioned for future growth. Phase 1 of the engineering complex renovations, the renovation of the mechanical engineering laboratories, was recently completed providing the department with state-of-the-art teaching and research facilities, including a new electronic classroom. "The field of mechanical engineering is important to our technology, our way of life, and our economic future," says Lynch.
Mechanical Engineering Research

The National Institute for Global Environmental Change (NIGEC) was created through congressional legislation in 1989, and is primarily sponsored by the U.S. Department of Energy. NIGEC is a national, interdisciplinary research program designed to increase understanding of global environmental issues related to climate change. The Department of Mechanical Engineering houses the South-Central Regional Center, one of five regional centers. The center, under the direction of mechanical engineering professor, Robert Watts acts as a funding source for related research, and provides a means to apply local research efforts to regional and global questions. NIGEC solicits research projects from Tulane and from universities and institutes in the geographic region.

Professor of Mechanical Engineering and Lilly Fellow, David J. Sailor is restructuring the way laboratory experimentation is taught in mechanical engineering. His goal is an industrial orientation and the inclusion of projects which promote student creativity and innovation.

The figure below illustrates preliminary results from a research project funded by NIGEC. Sailor and several graduate students are investigating the relationship between climate parameters and energy consumption. The map indicates seven climate regions for Louisiana. The results of a ten-year statistical study of climate and energy use data show strong summer-time correlation between climate and energy use. As a part of the study, Sailor uses a regional high-resolution model to investigate the potential impacts of global climate change on urban regions. The results of the research will affect public policy as the research reveals how potential climate changes impact the energy sector.
A Research Institution Emerges

"There were a number of faculty leaders and administrators who felt that serious consideration should be given to closing the School of Engineering. Thank goodness good common sense prevailed." — Samuel Hulbert, president of the Rose-Hulman Institute of Technology and former dean of the School of Engineering.

1960's & 1970's

The mid-sixties ushered in an era defined by turbulent change. There can be no doubt that the social dialog of the times changed forever the roles of student and professor, and the entire approach to education.

The School of Engineering was not exempt from the times, and the impact on engineering education would be the greatest in its history. However, despite this turbulent era, it was a time of unprecedented technological growth. During this period, the school would join other engineering leaders to establish itself as a major research institution.

Under Lee Johnson, the school was modernized and upgraded. Graduate and doctoral programs were implemented in all departments and innovations made in the curricula. The first Ph.D. was awarded by the school in 1963 in chemical engineering, and the other departments soon followed. The faculty changed from a professionally oriented faculty to one primarily interested in research, and emphasis was placed on soliciting support for research and publications. Ph.D.s among the faculty became the standard. Dean Johnson ensured that the school retained its commitment to teaching and that the undergraduate program would not be shortchanged as the focus shifted from teaching to research.
In 1974, Dean Hulbert welcomed a freshman class of 27 women, and Tulane engineering moved to the top of the list nationally in female enrollment among engineering schools. Today, Tulane continues as a national leader in female undergraduate enrollment with women comprising over 30% of the engineering student body.

During this time the engineering curricula was thoroughly transformed. A program was implemented that consisted of an engineering core, but with considerable latitude for individually tailored programs. The choices in the new engineering curriculum focused on three areas: a combination with business, with computer science, and with the biological sciences. The business combination provided a bachelor’s degree in engineering and a MBA in one five-year program. The focus on the biological sciences facilitated qualification for medical school and promoted interest in the growing field of biomedical engineering. The concentration in computer science attracted new students and led to that field becoming a department within the school. The school witnessed the advent of computer design and the incorporation of the computer in course work.

As early as the mid-sixties, the School of Engineering was a pioneer in the recruitment of women and minorities. The school’s aggressive efforts to include women and minorities put Tulane in the unique position of having an engineering school with a minority enrollment exceeding the minority enrollment of liberal arts.

The growth of combined research between engineering and medicine flourished during the 1960s and 70’s. Samuel Hulbert, a biomechanical engineer, succeeded Lee Johnson as dean in 1973. Hulbert brought with him faculty that specialized in biomedical engineering. In 1978, current dean William Van Buskirk, became head of the newly formed biomedical department. The addition of the popular biomedical program and new faculty significantly increased enrollment in the school.

The short years of the Hulbert administration were dynamic and progressive, but not without controversy. The school saw a decided increase in enrollment, new programs and departments, and expanded research activity. The School of Engineering came under attack by elements within the university and an aggressive effort was launched to dismantle it. Hulbert’s efforts contributed greatly to the school’s salvation. The recent innovations indicated that engineering was a results-oriented school. As a result, engineering alumni formed the Tulane Engineering Foundation in 1973 to promote the interests of the school, and to provide an avenue of direct giving to the school. Today, the Foundation is the primary vehicle for the Centennial Campaign and Celebration.

Dean Johnson returned to teaching in 1972. Samuel Hulbert left Tulane in 1976 to become president of the Rose-Hulman Institute of Technology, joining the ranks of Richard Jesse and Brown Ayres — previous deans who went on to become presidents of universities. Both Johnson and Hulbert guided the school successfully to assure its position as a leading research institution.
A Year of Celebration

"Over the past 100 years, Tulane Engineers, as students and as graduates, have been noted for their school spirit and dedication to their school. When asked to serve as co-chairmen of a committee to celebrate the 100th anniversary of the school, John and I readily agreed knowing the cooperation we could expect — and even we were pleasantly surprised!

Each of the several varied events was well attended and well enjoyed. The cocktail party-dinner at the Yacht Club, planned optimistically for 150 people produced an over-capacity crowd of 192 with several on the waiting list. The crowd was representative of class years 1928-1996 (students) — all of whom seemed to enjoy the drinks, food, and especially the new and renewed friendships. Many were overheard saying "lets do it again, and soon!"

Herbert O'Donnell (CE '43)
Centennial Celebration Committee Co-Chairman

Celebrating a Century

On Saturday, October 1, 1994, friends, faculty, students, and alumni of the School of Engineering gathered to celebrate the school's Centennial.

The Centennial Celebration Committee, chaired by John Martinez (ME '43) and Herbert O'Donnell (CE '43), devoted the year to celebrating and creating awareness of the engineering school's history and record of achievement. Festivities culminated on the October anniversary date in a formal convocation.

Throughout the year, the committee sponsored events commemorating historical milestones in the school's history. Robert H. Boh (CE '51), outgoing Chairman of the Tulane Board of Administrators and Honorary Chairman of the Centennial Campaign Executive Committee, delivered the Boh Lecture on October 6, 1993. The lecture, followed by a reception, focused on the pre-1894 history of Tulane and engineering in particular, setting the stage for the coming year's blitz of activity.

Dean Van Buskirk welcomes speaker Mel Leavitt at the STE lecture preceding the Cornerstone Celebration.
Cornerstone Celebration & 100th Commencement

In January 1994, a lecture, by New Orleans historian Mel Leavitt, was followed by a large outdoor party commemorating the laying of the Gibson Hall cornerstone and the beginnings of the uptown campus. During the spring, TRW Corporation sponsored a centennial reception for engineering alumni in Washington D.C., and alumni in Baton Rouge hosted a centennial brunch. Reunion classes and families of graduates gathered in May to celebrate the 100th Commencement. An outdoor luncheon followed the commencement exercises on the Nydia patio named for engineering alumnus Albert Baldwin Wood's (ME '99) sailboat.

President Kelly, with Chairman of the Board of Administrators, Ambassador John G. Weinmann and Mrs. Weinmann at the Cornerstone Celebration.

Dean Van Buskirk cuts the cake at the Cornerstone Celebration.

The Occelli clan from Mexico City led by Sr. Armando Occelli (ChE '30) traveled the farthest to the 100th Commencement Celebration.

100th Commencement Luncheon organizer Al Hiller (ChE '53) and Joy Hiller with celebration committee member Art DeFaites (CE '58).
Engineering for the New Century Seminar and Banquet

The official centennial weekend began on Friday, September 30, with a seminar, "Engineering for the New Century." The seminar featured research presentations by each of the school’s departments. A well attended luncheon with the dean and faculty followed. That evening, Southern Yacht Club was the scene for a festive dinner attended by Tulanians of all ages. Waldemar Nelson and Co. generously sponsored the pre-dinner cocktail party.

Gayden Derickson, Edward H. Bultman and Walter Blessey look over the invitation.

Dinner organizer Don Lagarde (r) enjoys the band with convocation chairman Doug Douglas (l).

Golf Tournament

Tulane engineers “teed off” to the new century the week prior to the October 1 celebration with a centennial golf tournament, held at Eastover Country Club in New Orleans.

Cris Koutsougeras, associate professor of computer science, points out the latest in computer technology to engineering alums at the Friday seminar.

“Teeing off to the New Century” (l-r) Tournament organizer Bill Fleming, Lloyd Held, Herb O’Donnell and professor emeritus Walter Blessey.
(l-r) Jim and Dorothy Janssen, and William and Doris Aicklen “toast to the school’s 100th.”

(l-r) Committee Chairmen Herbert O’Donnell with Elisebeth, Jim Gundlach with Susan, and John Martinez at the Southern Yacht Club centennial eve.

(l-r) Oliver Delery, Brian Barcelo, Shep Perrin III and Cathy and Ron Anderson at the pre-dinner cocktail party.

Students were well represented at the Friday night dinner.

Engineering alumni enjoy lunch with the dean and faculty following the seminar.
Convocation

The formal celebration scheduled for Saturday, October 1, was planned as an outdoor convocation and lawn party to be held on the site of the original College of Technology. The weather failed to cooperate, and several hundred committed friends braved torrential rains to convene in the Chemistry Amphitheater for the anniversary program. The faculty, in the formal regalia of ancient tradition, processed into the auditorium led by the Navy Color Guard and Drum and Bugle Corps.

The program featured a keynote speech by the 1994 Distinguished Alumnus, Harold Rosen, and included addresses by Dean Van Buskirk, President Kelly, and Campaign Chairman, James O. Gundlach. Committee Chairman and alumnus, John Martinez served as master of ceremonies. On behalf of the Board of Administrators, President Kelly presented a congratulatory proclamation to the school, and Dean Emeritus Lee Johnson and Professor Victor Law presented special service recognition awards to longtime employees Beth Hoffmann and Albert Lemley. Dean Van Buskirk announced the selection of the inaugural class of the Engineering Hall of Fame, and Oliver Delery led a spirited performance by the Blarney Stone Committee. The lawn party was held afterward, indoors in the lobby of the Boggs Center.

The Centennial Celebration has spawned a growing awareness of the School of Engineering. To accommodate the new and increased interest, centennial activities will continue through the 1995-96 year, and Dean Van Buskirk will take the centennial on the road to several major cities. Dean Van Buskirk says his efforts are “a way to repeat and surpass the past century’s success and give the next century of Tulane Engineers a Centennial worthy of celebration.”
"Acting as co-chairman of the Centennial Celebration with my old friend and classmate, Herbert O'Donnell, has been a rewarding experience. The spirit of enthusiasm has been amazing — many of the older alumni have mixed so well with the recent graduates. Things have been done which remind us of what an engineering school is all about: the Hall of Fame, chaired by Al Weizel, reminds us of some of the greats; the Patent Archives headed by Phil Bohne, should become a school treasure; and the convocation chaired by Doug Douglas, brought together the young and old to hear internationally famous Harold Rosen... And the parade of old names—loyal alumni and former deans, retired and current faculty... Bob Bruce and Oliver Delery infusing current students with the St. Patrick's spirit. I had a great time. We can't wait another hundred years."

John Martinez (ME '43)
Centennial Celebration Committee Co-Chairman
"In the course of the last 100 years, the school has advanced from being a local institution to a national and even international school of engineering. I believe the vision of the founders of the school has been realized and even surpassed. The graduates of this school helped build the New South and they are now helping to build a better world." - Dean William C. Van Buskirk, Centennial Commencement Address, May 1994.

1980's & 1990's

Over the past century, the Tulane School of Engineering has grown from an institution serving local needs, to one meeting more regional concerns, to its present level of national and even international prominence. In its first century, the school focused on providing a solid engineering education to both undergraduate and graduate students. While this commitment to education has remained constant, the school has become more research oriented—a necessity to retain the best students and faculty members.

The school emerged as a major research center during the 1970's and since that time has emerged as a fully modern institution. In 1978, the School of Engineering added the Department of Biomedical Engineering, and in 1983 the Department of Computer Science. In 1991, the 100 year-old Department of Civil Engineering became the Department of Civil and Environmental Engineering.

Hugh A. Thompson, dean from 1976 to 1991, led the school through its transition to a research intensive School of Engineering. A dedicated teacher, he authored the current teaching evaluation system and spearheaded the effort for the newest engineering building, the Lindy Claiborne Boggs Center.
Today, the school stands poised for success at the threshold of the future. "We attract some of the best students in the country and at Tulane," notes Dean Van Buskirk. The average SAT score for engineering students is around 1250. "In the past four years, our undergraduate enrollment has increased by 30%, graduate enrollment by 40% and our research dollar on an annual basis has doubled."

Efforts begun in the 1960's to recruit women and minorities into the program have created a more diverse student body. Thirty percent of today's engineering students are women and over 9% African American. The school ranks first in the nation in retaining minority students — testimony to its ongoing commitment to education, and is among the top 10 in its enrollment of women. In promoting a diverse student body, students "are provided not only with a strong technological base, but also with an understanding of the world in which they live and work", says Van Buskirk.

Where all this occurs is a major focus in preparing the school for the future. Renovations to the engineering complex are at the top of the dean's list of needs for the Centennial Campaign. The Civil Engineering Building recently celebrated its 100th birthday, and Stanley Thomas Hall its 89th. They stand in stark contrast to the state-of-the-art Linley Claiborne Boggs Center for Energy and Biotechnology, erected in 1988.

The $1.2 million Boggs complex provides students with 27 newly equipped laboratories. Among these is a $1 million Coordinated Instrumentation Facility available to researchers in Tulane's engineering and science divisions. "This is a world-class educational facility," says Van Buskirk, noting that the departments housed in Boggs — biomedical, chemical and mechanical engineering — are having better success in attracting faculty and students than those in the dated facilities.

The departments located in the older part of the complex — civil, electrical and computer science — face more challenges. The facilities are historic and venerable but haven't seen a major renovation since the 1950's. The priority of the Centennial Campaign is to bring all facilities and departments up to par by raising the funds needed for the renovation.

The School of Engineering continues to solidify the reputation for teaching excellence it has amassed over the past 100 years and is ready to meet the global engineering challenges of the 21st century.
Dear fellow alumni:

My Tulane degree has contributed immeasurably to my success; my years at Tulane prepared me well, socially and professionally, and mark some of the best that I remember. I want to do everything possible to ensure that the School of Engineering continues to provide an outstanding education, and gives to new generations of engineers the rewarding college experience that I enjoyed. This is the essence of the Centennial Campaign: to give so that new generations can share what we have experienced. Alumni support is the key to the campaign's success; your gift is essential to our success — and it will make a difference.

I am convinced that with a successful campaign now, at this important juncture in our history, Tulane's School of Engineering will rise to a new level of prominence among the country's top institutions. With our collective efforts, we can ensure that our great school will enjoy another one hundred years of training some of the world's finest engineers.

Join me in supporting the Engineering Centennial Campaign. Give something back to the school that was so important to you during your formative years. Your pledge will help lay the foundation for another one hundred years of excellence.

James O. Gundlach (ME '58)
Chairman, Centennial Campaign Committee

In this remarkable 20th century of progress, Tulane engineers have established distinctive footprints, both great and small. The centennial celebration offers a once-in-a-lifetime opportunity to acknowledge this extraordinary progress, and to share publicly the pride of Tulane engineers and the success of the School of Engineering in continuing to train the builders and shapers of the next century.

1. The engineering complex c. 1912.
2. The fourth floor is added to Stanley Thomas Hall in 1929.
3. Stanley Thomas Hall in 1950 — and as it appears today.
In the field of engineering, the 21st century has already begun. The face of engineering education is changing, and to remain competitive with the leading American engineering schools, Tulane must stay a step ahead of the rapidly changing world that it has helped to transform.

The price tag for new century success is steep. To finance the goals and aspirations for new generations of Tulane engineers, the School of Engineering has undertaken a $13.6 million Centennial Campaign. The Tulane Engineering Centennial Campaign is Engineering's part of the University-wide campaign Tulane for the New Century, which launched its public phase on October 1, 1994.

Graduates, friends and corporations have already committed $9.5 million toward the $13.6 million goal. These contributions are supporting educational and research programs, endowed, student financial aid, the Engineering Annual Fund, and building renovations, which are the school's top priority. The renovations of the engineering complex will significantly support all of the above goals and the major goals for all of the engineering departments—the enhancement of student recruitment and an increase in faculty research ability. The renovations will cost $6.1 million. Nearly $2 million has been raised toward this goal, and the project's first phase, renovation of Mechanical Engineering Laboratories, has been completed.

**Engineering Complex Renovations**

The Civil Engineering Building, Stanley Thomas Hall, and other facilities were last renovated over thirty years ago. They are outmoded, crowded, and have utility systems that are inadequate for fields in which lasers, computer networks, and electronic sensors dominate. The renovations will preserve the original, historic structures while making more efficient use of the interior spaces. Electronic classrooms, new graduate offices and research laboratories, modern project design and assembly rooms, and test facilities are the necessities of a modern engineering program.

**Academic Programs**

Great teachers have always been at the center of a Tulane engineering education. They are leaders in research who would be welcomed in industry, but have chosen to dedicate themselves to teaching. Funds dedicated for academic programs are necessary to sustain an outstanding faculty and to provide advanced equipment, promote excellence in research, and bring to campus successful practicing engineers as faculty.

**Endowed Chairs and Professorships**

Endowed funds enable faculty chairholders to break new ground in their fields, ultimately leading to a better educational experience for the student.

**Student Financial Aid**

The need for scholarships is greater today than ever before. By meeting our goals, the most promising students will have the opportunity of a Tulane engineering education. The gift of a scholarship best symbolizes one of the great Tulane traditions: alumni passing on the gift of a Tulane engineering education to the next generation.

**Engineering Annual Fund**

The Engineering Annual Fund is indispensably important to the efficient and effective operation of the school. These funds support the essential operating needs of the school.

**TOTAL CENTENNIAL CAMPAIGN GOAL**

$13.6 MILLION

For more information about the Centennial Campaign and how you can support the Tulane School of Engineering, call or write:

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Tulane University
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