



90 YEARS OF ENGINEERING
AT JOHNS HOPKINS

Anniversary Album



FROM ENGINEERING'S NINE DECADES OF INNOVATION
—a quarter-century of them at the Whiting School—
we sample some of the defining moments,
dedicated individuals, and influential ideas
that shaped its history at Hopkins.



(Left) The Mechanical and Electrical Engineering Building, shown during construction in 1915, would be named Maryland Hall in 1931 in appreciation of the state's contribution to establishing Engineering at Hopkins. (Insert cover) The second Engineering building, this one for Civil Engineering (1920s photo), opened in 1916. It, too, gained a name in 1931: Latrobe Hall honors Benjamin Henry Latrobe Jr., the prominent Maryland civil engineer.



"Talks like a river that's burst from its dam," was one phrase *The Hullabaloo* in 1913 used in summing up Abel Wolman (along with this caricature). That year, he earned his pre-med degree; two years later, he became one of the first three Hopkins Engineering graduates. Abel Wolman '13 A&S, '15 during his life changed the global face of sanitary engineering with his research on bringing clean, potable water to millions. He joined the Hopkins faculty in 1920, and from 1937 to 1962 taught in the schools of Engineering and Public Health. After his retirement, he worked full-time to improve environmental well-being around the world. He died in 1989 at the age of 96.



Through his studies of watersheds and river processes, M. Gordon "Reds" Wolman '49 "helped structure international discussions on landscape evolution and sustainable development," noted the National Council for Science and the Environment in awarding him a Lifetime Achievement Award in 2004. A faculty member since 1958, "Reds" Wolman was honored for his "extraordinary devotion to Johns Hopkins" with the 2005 Milton S. Eisenhower Medal for Distinguished Service. The acclaimed hydrologist and son of Abel Wolman '13 A&S, '15 is chairman emeritus of the Whiting School's Department of Geography and Environmental Engineering and heads a division in the Bloomberg School of Public Health.



Flanking a sign being ignored by one pipe smoker, professors Carl Clapp Thomas and Alexander Graham Christie (mustache) gather with the Class of 1917 Mechanical Engineering students.



Willis C. Gore '48, '52 D. Eng. (left) confers in 1953 with Gerard Brown Gilbert '53, '63 D.Eng. Gore taught Electrical Engineering and Computer Science for 44 years.

During World War II, Hopkins Engineering laboratories aided the defense effort in such areas as microwave research. In this pre-war photo (circa 1940), Hopkins engineers work together at a generator.



William B. Kouwenhoven, who became dean of Engineering in 1938, in the 1920s began the research that would earn him acclaim as the "father of cardiopulmonary resuscitation" (CPR). His 1957 prototype of the Hopkins A-C Closed Chest Defibrillator sent a lifesaving shock through a patient's heart.



In 1995, these Engineering alumnae, who were among the first women undergraduates admitted to Johns Hopkins, came back to reminisce about their years as students and graduates.



Recognized as one of the "World's Top 100 Young Professionals" by MIT's Technology Review, Jennifer Elisseff (left) is principal investigator in the Biomaterials and Tissue Engineering Laboratory in Clark Hall. Anya Taboas '04 (right) as an undergraduate was part of her multidisciplinary research team.



With the 2004 opening of the third building on the Montgomery County Campus, classroom space doubled. This Hopkins campus is one of the sites for Engineering and Applied Science Programs for Professionals.

If the rich history of Engineering at The Johns Hopkins University could be boiled down to an algorithm, its people would be the primary factor in the equation. Alumni, faculty, and students have “contributed in a multitude of ways...to what makes it such a special place today,” noted Nicholas P. Jones, dean of the G.W.C. Whiting School of Engineering, at a celebratory dinner in June 2005. “Each group will also be a key partner in what it will become in our future.”

This year, as Hopkins Engineering commemorates the 90th anniversary of its founding and the 25th anniversary of the G.W.C. Whiting School of Engineering, we look back to our history and foundation of “Leadership Through Innovation.”

A NATION GEARS UP FOR ENGINEERS

On February 22, 1876, Daniel Coit Gilman, the first president of Hopkins, suggested in his inaugural address that cities of “fifteen or twenty thousand people...should have the services of a competent scientific engineer.” It would be 10 years before the first inkling of engineering education would surface at Hopkins. In 1886, the physics department launched the two-year Proficiency in Applied Electricity program at the behest of local industry, particularly the Baltimore & Ohio Railroad. In its 13 years, this program certified 91 students, almost all of whom became practicing electrical engineers. One of those students was John Boswell Whitehead, who earned his proficiency certificate in 1893, his B.A. in physics in 1898, and his doctorate in 1902, all from Hopkins. Whitehead’s impact on engineering at his alma mater cannot be overestimated.



J. B. WHITEHEAD

“AN EXPERIMENT FROM THE BEGINNING”

As electricity began to grow from novelty to necessity in American life, Whitehead matured from child to adult. His fascination with electricity led to an appointment at Hopkins as instructor of Electrical Engineering in 1898, and then to professor in 1910, when he began working to establish a formalized engineering education program.

At that time, Maryland had no engineering school to support the state’s infrastructure with those “competent scientific engineers” that Gilman had proposed. Hopkins trustees and administrators, as well as concerned citizens, shared the vision of a program that would mean growth for the University and provide a critical and continuing source of brainpower for Maryland’s technological needs. Whitehead, a formidable force in this endeavor, was instrumental in the passage by the state legislature of what is known as the 1912 “Technical School Bill.” The bill made possible at Hopkins the establishment of a “Department of Applied Science and Advanced Technology”; 129 scholarships were to be awarded to attract “worthy men of this state” back to Maryland from their studies at technical schools in other states.



Some 27 of these worthy men began in the fall of 1912 and others followed a year later. J. Trueman Thompson ’17, one of the first four-year Engineering students, went on to become a professor of Civil Engineering at his alma mater. He wrote of his undergraduate years, “...there was no mistaking the fact that we were guinea pigs in an experiment in engineering education.... Whitehead wanted a new kind of engineering school....”



These early Engineering students studied at a new campus, Homewood, where Gilman Hall opened in 1915. That same year, at the dedication of the second new building, the Mechanical and Electrical Engineering Building (later renamed Maryland Hall to honor the state’s commitment to Engineering at Hopkins), Major General George Washington Goethals delivered the keynote address. The renowned civil engineer—who in 1914 had completed the arduous construction of the Panama Canal almost a year ahead of schedule—emphasized the importance of that 1912 Maryland legislation. Goethals declared, “Under the bill, the Johns Hopkins University is absolutely free to conduct engineering education as it deems best.”

Whitehead took Goethals at his word and proceeded to create an Engineering curriculum that was considered by some educators as far too radical. Departing from the model of the technological institutions of his era, Whitehead felt strongly that the first two years should concentrate on the underlying disciplines of science and mathematics, that study in the humanities should be emphasized, and that graduate study was of utmost importance.

Highlights from Engineering’s History at Hopkins

1876	1912	1913	1914	1915	1919	1921
<p>“...we must beware lest we are led away from our foundations; lest we make our schools technical instead of liberal; and impart a knowledge of methods rather than of principles. If we make this mistake, we may have an excellent polytechnicum but not a university.”</p> <p>—Hopkins President Daniel Coit Gilman (right), in his inaugural address</p>	<p>The Maryland legislature passes “The Technical School Bill,” which creates at Hopkins a department of “applied science and advanced technology.”</p> 	<p>“I knew we had to start the School on a high level or it would never amount to anything.”</p> <p>—John B. Whitehead (who earned Hopkins degrees in 1893, 1896, and 1902), first dean of Engineering, speaking about the need for a strong graduate program that would grow from the base of a strong undergraduate school</p>	<p>“Only a very small part of the actual knowledge content of a profession may be imparted to a university student. The main thing is to train the mind—to ‘put him in the way of study’—for study he must throughout his entire professional life if he is to keep abreast of his work.”</p> <p>—Charles J. Tilden, the first professor of Civil Engineering at Hopkins</p>	<p>“There are great advantages to be derived from the association of technical schools with universities, particularly where research and investigation, with the idea of enlarging the sum of human knowledge, are recognized as a part of the university’s work.”</p> <p>—Hopkins President Frank Johnson Goodnow in his inaugural address</p>	<p>The Department of Engineering becomes the School of Engineering.</p> 	<p>Conferral of the first Master of Engineering degree at Hopkins</p>



C. C. THOMAS

Those voicing opposition included two other faculty members in the fledgling Department of Engineering. Carl Clapp Thomas, the first professor of Mechanical Engineering, was particularly insistent upon introducing the study of mechanics in the second year. Charles J. Tilden, the first professor of Civil Engineering, shared Thomas' concerns. Eventually the trio arrived at a compromise and adopted a ladder approach, a closely prescribed curriculum that led to appropriate design courses.



C. J. TILDEN

THE CLOUD OF WORLD WARS

Thompson and his classmates were only too aware of the war then raging in Europe. Well before Hopkins established the nation's first ROTC unit in 1916, Engineering students drilled in shirtsleeves on the lawns of Homewood.

In 1915, Hopkins President Frank Johnson Goodnow asked the Department of Engineering to develop a temporary series of technical courses to train young men in the event the United States entered the war. While not the first continuing education courses at the University, these Night Courses for Technical Workers, continually modified by faculty, would be offered even after World War I war ended. They would in fact set the stage for the long Hopkins tradition of excellence in part-time engineering education (now known as Engineering and Applied Science Programs for Professionals).

During the Great War, Whitehead, Tilden, and Thomas were all on leave in various war-connected capacities. To manage the Engineering programs at Homewood, they left their able assistants, among them William B. Kouwenhoven, who had joined the faculty in 1914 to teach Electrical Engineering, and Mechanical Engineering professor Alexander Graham Christie. Just after the war's end, in 1919, the Department of Engineering became a *bona fide* school, and the following year, Whitehead was appointed its first dean. Thompson, returning from a brief stint with the Army Corps of Engineers, joined the faculty to teach Civil Engineering and went on to chair that department from 1930 to 1956.



W. B. KOUWENHOVEN

During the 1920s and onwards, the School of Engineering proved to be more than just an academic division. As Thompson recalled, "For many years the professors had served as consulting engineers to the University, advising the trustees on building plans and designs." In



A. G. CHRISTIE

the 1930s, Hopkins President Joseph Ames tapped Thompson to oversee construction of a new campus road system. Thompson, who became nationally known for his highway transportation expertise, got the road job done using Civil Works Authority funding, the New Deal's relief labor, and dynamite to "shoot the crust loose" on the ice, as he described it.

As it continued to grow and prosper, the School of Engineering added departments, recruited new faculty, and increased enrollments. Kouwenhoven became its second dean in 1938. He spent a remarkable half-decade at Hopkins studying the effects of electricity on the body. He would guide his team in creating the first truly portable defibrillator in 1961, leading to the worldwide use of cardiac resuscitation (CPR) to save lives.

During World War II, Willis C. Gore '48, '52 D.Eng. was one of many students affected by the conflict. "At first students studying engineering were exempt from war service, yet we took 33 hours of classes per week in accelerated programs," Gore recalled. "Later they rescinded that exemption, and many of us had to stop our education until after the war was over." The professor emeritus, who lives in Sparks, Maryland, taught Electrical Engineering and Computer Science at Hopkins for 44 years. Gore's research led to new classes of codes and methods of decoding.

As it had during World War I, the School in the 1940s devoted resources to training war industry personnel. By June 1945, it had organized at least 300 short courses for more than 13,000 men and women. On the homefront, millions of women were going to work in factories and shipyards.

After World War II, the School of Engineering slowly returned to a pre-war footing. In 1948 the school launched *The Vector*, considered to be its official publication until its last issue in 1969. *The Vector* sported an eclectic mix of articles by professors, observations by students, jokes, news briefs, job listings, and advertising.

NEW PLAN LAUNCHED

World War II, which had an unforeseen effect on the march of technology, electrified the pace of change. The war proved conclusively that the "handbook" method of solving engineering problems was inadequate. Engineering schools—including the one at Hopkins—were unprepared both for the surge of G.I.s returning to college and the nation's engineering challenges.

In 1949, Hopkins President Detlev Bronk asked Kouwenhoven and his colleagues to prepare a blueprint for the future and to envision the

1922

Conferral of the first Doctor of Engineering degree at Hopkins

1933

Gathering in Latrobe Hall, 125 Engineering alumni return for their first general alumni reunion, held June 3 in celebration of their School's 20th anniversary.

1943

Admission of the first woman candidate for the Bachelor of Engineering degree

1946

"As the School of Engineering draws near to the close of its first thirty-five years, it is apparent that in its establishment the State of Maryland achieved an extremely good bargain."

—John C. French, *A History of the University Founded by Johns Hopkins*

1953

"The revised program in engineering was an experiment in 1951. Today we can say that it has been completely successful. More and more engineering schools have come to see the problems in the same light and have made modifications in their curricula very similar to those made at Johns Hopkins."

—Hopkins President Milton S. Eisenhower

1961

"...to insure that Hopkins will continue to produce engineers who are truly educated and creative individuals, not merely cogs in an increasingly complex industrial machine."

—Hopkins President Milton E. Eisenhower, when the School of Engineering changed its name to the School of Engineering Science

1963

"In the university, technology could be the cement between science and humanism."

—Abel Wolman '13 A&S, '15, speaking at the 50th anniversary celebration of Engineering at Hopkins.



For the 500 Student Army Training Corps cadets who came to Hopkins during World War I, Engineering's labs, classrooms, and attics became their barracks. About a month after this October 1918 photo, the war ended.



best possible Hopkins engineering school. The subsequent proposal, approved unanimously by the faculty, argued for extending engineering training beyond the baccalaureate degree and recommended that the School become solely a graduate program, admitting students with baccalaureate degrees in mathematics and the sciences. However, Bronk vetoed that approach and instead encouraged the School to apply its graduate school ideas in the undergraduate curriculum.

The resulting “New Plan” was actually more in line with Whitehead’s original vision for engineering education. Its curriculum replaced the ladder approach with a framework of required subjects and areas: more coursework in the humanities and social sciences, the physical sciences and mathematics. When Kouwenhoven retired in 1953 to return to his research on closed chest defibrillation, Robert H. “Rob” Roy ’28, chair of Industrial Engineering, was appointed the third dean.



R. H. Roy

THE MERGER AND ITS AFTERMATH

The new curriculum, the awarding of bachelor’s degrees in Engineering Science, various department mergers, and the School’s subsequent name change to the School of Engineering Science (1961) all were manifestations of a move away from “practical” engineering instruction and toward the fundamentals of the field. To meet the curricular demands, departments recruited some faculty members who did not have traditional engineering backgrounds, among them a physicist and an oceanographer.

In 1966, the Engineering program merged with the Faculty of Philosophy. That 13-year period between the merger and the re-establishment of Engineering as a separate school in 1979 has always been a hiccup in history. While a few similar mergers happened at the Ivies and other universities, it can be difficult to understand why a thriving engineering school would choose to merge its identity with that of another academic division.

Roy’s formal proposal to join the two entities was buttressed by a similar proposal from Wilson Schaffer, dean of the Faculty of Philosophy. Gore, one of two Engineering faculty members who voted against the merger, offers special insight into this time. “The dean [Roy] tended to defer to the departments. Faculty who were not trained as engineers could not connect with their counterparts in the Faculty of Philosophy. There was a hierarchy within the University faculty; one academic council did not realize the other existed.”

Roy did not seem concerned that engineering pedagogy was moving into the realm of science when he asked, “Is there a danger the emphasis on science will create engineers unable to cope with the problems of synthesis and design? I think not. The old problems are still with us, but the solutions will have to be new.”

After the first faculty vote, Gore called for a re-vote, and the result was unanimous in favor of merging. In July 1966, the two divisions united to form the School of Arts and Sciences.

Gore recalled that “the Engineering alumni were absolutely upset.” Chemical Engineering vanished; some professors left for other institutions. Even though the Engineering offerings continued mostly unabated, a sense of community was missing. As John C. Schmidt noted in his book, *Johns Hopkins: Portrait of a University*, “Gradually, it became clear that Hopkins had made a mistake.”

The Engineering school had been the University’s point of contact with many corporations and organizations. The voices supporting its re-establishment, never stilled, began to grow in number. George E. Owen, then dean of Arts and Sciences (and a nuclear physicist with a mechanical engineering degree), stated “Engineers, like doctors, live in the present. We live in a technological age, and the University must be involved with the present.”

EMERGING SCHOOL FORGES LINKS

In 1975, Hopkins President Steven Muller appointed eight engineers and scientists to a blue-ribbon committee on engineering. Led by Lawrence R. Hafstad ’33 PhD, a retired General Motors Corporation executive and a Hopkins trustee emeritus, the committee considered phasing out engineering altogether. In the end, its members unanimously agreed that Hopkins had the tradition behind it to create an academic “center of excellence”—a new engineering school. Next, the Hopkins trustees established an ad hoc committee to address funding issues and organization. Its chair, Willard Hackerman ’38, along with Herschel L. Seder ’39 A&S, F. Pierce Linaweaver ’55, ’65 PhD, and other members, felt an obligation to the community to create an engineering school that would be “the other major link between universities and the industries of our society.”

A gift from the estate of G.W.C. Whiting, co-founder of The Whiting-Turner Contracting Company, made the new school a reality in 1979. The G.W.C. Whiting School of Engineering, named in his memory, became the University’s first named division.

In fall 1979, another electrical engineer took the helm of Engineering, this time as the founding dean of the Whiting School.

1977

“When the interest toward engineering and the training of engineers is diminished, the university loses one of its major links to the present.”

—from the report of the Hackerman Committee, chaired by Willard Hackerman ’38. In September 1977, it recommends that the Hopkins trustees re-establish a school of engineering.

1979

The G.W.C. Whiting School of Engineering opens its doors in September. It has 50 faculty members, 330 undergraduates who had been students in the Division of Arts and Sciences, 115 freshmen (23 of whom are women), and 130 graduate students.

1981

The Whiting School’s National Advisory Council is launched, and its first chair is Edward G. Uhl, chair and CEO of Fairchild Industries (Uhl is a Hopkins trustee emeritus).

“The Bent” is back: Hopkins re-establishes the Maryland Alpha chapter of Tau Beta Pi, the national engineering honor society.

1982

A campus chapter of the Society of Women Engineers is established. Twelve years earlier, Hopkins had admitted women as undergraduates.



1983

The nation’s largest part-time engineering graduate program, built up over two decades at Hopkins’ Applied Physics Laboratory in Howard County, becomes part of the Whiting School.

In 1985 the Hopkins campuses were linked via a hierarchical computer network, an initiative guided by the Engineering dean.

1984

“We’re traversing a world in which nothing any longer stands by itself. Nothing I touch can now do without the advances in materials. Nothing I touch can stand without oceanography, or hydrodynamics, or electronics. My message is this simple: Watch. Look at prospect, as well as retrospect. I hope the School will always find linkages, because that’s where you find advance.”

—Abel Wolman ’13 A&S, ’15, speaking at the Whiting School’s fifth anniversary gala dinner



The young dean, V. David VandeLinde, once quipped that he started with an office, a filing cabinet, and a secretary, and he had his work cut out for him. "A lot of people in industry had forgotten about us," he observed for Schmidt's book. "We had to sell our commitment to having a first-rate engineering school."

"In establishing the Whiting School," noted Mary Ruth Yoe in her *Engineering at the University* history, "Hopkins planners hoped to build a school with a local, national, and international reputation for excellence in engineering education and research. To that end, they felt that there must be departments in each of the traditional engineering disciplines: chemical, civil, electrical, and mechanical engineering. At the same time, the School would capitalize on existing strengths within the University, including four departments whose established educational and research missions were closely allied to the traditional engineering disciplines: biomedical engineering, geography and environmental engineering, materials science and engineering, and mathematical sciences."

As the Whiting School celebrated its 10th anniversary in 1989, it had accomplished a great deal in a decade, most recently a new facility that could be entered via the Engineering quad (Wyman Quadrangle). Opening its doors in 1988 behind Schaffer Hall, this addition, still known as the New Engineering Building, was the first Engineering building constructed since the Radiation Laboratory (Barton Hall) in 1961.

VandeLinde and his colleagues strengthened the research and continuing education relationships between Engineering and Hopkins' Applied Physics Laboratory. He initiated an annual convocation to bring the Whiting School community together and honor outstanding students, faculty, and staff. Research links with medicine grew as well: The Biomedical Engineering undergraduate program rocketed to the top spot in the nation, a position it has never relinquished.

Engineering alumni and friends were definitely partners in the Whiting School, serving on the new National Advisory Council and offering financial support for scholarships, professorships, lecture series, general expenses, and other needs. VandeLinde recently recalled "the many alumni and friends whose support both lifted our spirits and supported our needs." He added, "one gets an appreciation of the inspiration behind the School."

POISED FOR TECHNOLOGICAL LEADERSHIP

When VandeLinde in 1991 left to become vice-chancellor of the University of Bath in England (he now holds that same post at the University of Warwick), Hopkins chose Don P. Giddens as the second dean of the Whiting School. Giddens, a biomedical engineering pioneer, had been a faculty member for 25 years at Georgia Tech's College of Engineering.



After a year of observation at Hopkins, Giddens crafted an ambitious vision statement: "Designing for Technological Leadership." Its preamble stated in part: "Never before has society looked so expectantly to science and technology to provide answers to questions that relate not only to the quality, but to the very existence of life. And never before has there been such a challenge or such an opportunity for engineering to serve humanity."

On a practical level, that preamble translated into a need for more Engineering faculty, an emphasis on interdivisional research projects, and a greater engagement of undergraduate and graduate students in research.

In his five years as dean, Giddens helped Engineering achieve all the goals set in the vision statement—and then some. The School began and completed much-needed renovations to several buildings. It initiated a lecture series to recognize newly tenured faculty (later named to honor Giddens). It embarked on

Anniversary Math 101



When it comes to Engineering's 90/25 anniversary at The Johns Hopkins University 2004-05, to what do those years refer? The "25" part is easy: That's when the G.W.C. Whiting School of Engineering came into being in 1979.

The "90" dates to 1915, the year Hopkins awarded its first three Engineering degrees, and the year it began to offer Night Courses for Technical Workers.

Previous generations have celebrated Engineering's founding based on other special years. In the 1930s, the School used 1912 as its founding date to commemorate the Maryland state legislature's passage of the "Technical School Bill."

In 1963, Engineering celebrated its 50th anniversary based on 1913, the year of the first Engineering undergraduate class.

When the Whiting School was approaching its 10th anniversary in 1989, then-Dean David VandeLinde selected 1914, the year Maryland Hall was ready for occupancy, to come up with a 75/10 anniversary.

1986

A campus chapter of the National Society of Black Engineers is established.

1992

The Society of Engineering Alumni (SEA) is formed at Hopkins, and welcomes Engineering graduates from all decades.



Ever since its early days, the Society of Engineering Alumni has been connecting graduates, including at this 2004 picnic.

1995

Michael Bloomberg '64 designates \$15 million for Engineering as part of his \$55-million "initial commitment" to the Johns Hopkins Initiative. An Electrical Engineering major as a Hopkins student, Bloomberg is a former chair of the Hopkins trustees and has made Hopkins a major beneficiary of his philanthropy. In 2001 he was elected mayor of New York City.

1999

"Biomedical engineering has a long a proud history at Johns Hopkins. Application of engineering to the solution of biomedical problems was under way in 1940, and we have been educating graduate students since the early 1960s."

—Murray B. Sachs, Massey Professor and director of the Whitaker Biomedical Engineering Institute

2005

"Our future graduates will continue to have not only the depth of technical education in the fundamental principles of science and engineering, but also will have even more opportunities to learn through embracing formal and informal exposure to opportunities in the humanities and social sciences, entrepreneurship, music, and the many other offerings that Hopkins provides."

—Dean Nicholas P. Jones

a \$50 million fundraising effort to increase the endowment and provide funding for several key areas. The Whiting School's encouragement of interdisciplinary collaborations launched new centers, several funded by grants, others cemented by formalized agreements between cross-divisional faculty. The new minor introduced in 1996, Entrepreneurship & Management, quickly became popular.

APPROACHING THE MILLENNIUM

Giddens in 1997 announced his intent to return to Georgia Tech, where he is now dean of Engineering. That same year William R. Brody was installed as the 13th president of Hopkins and was also appointed to the faculty of Electrical and Computer Engineering.

Ilene Busch-Vishniac, then Temple Professor of Mechanical Engineering at the University of Texas at Austin, became the third dean of the Whiting School in 1998. "What we clearly needed," she recalled, "was an infusion of resources to help give the remarkable creativity here freer rein. This meant raising the funds needed to renovate spaces and to build new, to support graduate student fellowships and undergraduate scholarships, and to upgrade our infrastructure." Closer collaboration across traditional boundaries was also one of her themes.



I. BUSCH-VISHNIAC

During her deanship, the number of undergraduate Engineering students significantly increased, an initiative that Giddens had set in motion. In 2001, the School dedicated Clark Hall, home to Biomedical Engineering teaching and research on the Homewood campus. Generous commitments from the Whitaker Foundation and Hopkins trustee A. James Clark supported that initiative. The Department of Geography and Environmental Engineering added an undergraduate major in 2002. When Busch-Vishniac stepped down as dean (she is a professor of Mechanical Engineering), the School's search for the fourth dean of the Whiting School brought Nick Jones back to campus in August 2004.



Adjacent to the Wyman Quadrangle (the Engineering quad, pictured here in springtime), a new quad is under construction: the Alonzo G. and Virginia G. Decker Quadrangle.



N. P. JONES

Jones, the former Civil Engineering chair at Hopkins, had joined the faculty as assistant professor in 1986. From 2002-2004, he chaired the University of Illinois at Urbana-Champaign's large and distinguished Department of Civil and Environmental Engineering. In 1995 at Hopkins, when he had chaired the C21 Strategic Study Group, he had noted, "It is our view that a big part of the educational process is providing students with the context for their educations. It's a way to synthesize what they're learning in the classroom." As the 1988 Maryland Young Engineer of the Year, as adviser, and through his own expertise in structural dynamics and wind engineering, Jones synthesized for his students those worlds of research, teaching, and professional preparation.

FULL CIRCLE, AND FULL TILT

President Gilman in his inaugural address in 1876 had cited 12 characteristics of a university education. His Point 7 stated that "The best teachers are usually those who are...willing to make original researches in the library and the laboratory." His Point 8 affirmed that "The best investigators are usually those who have also the responsibilities of instruction, gaining thus the incitement of colleagues, the encouragement of pupils, the observation of the public."

In those respects, Gilman predicted some aspects of what engineering at Hopkins would be like in 2005. No doubt he would be pleased to see that the integration of research into engineering education is seamless; that collaboration between professors, departments, and divisions is a given; and that all undergraduates have opportunities to conduct research.

At the June 2005 celebratory dinner of Engineering's 90/25 anniversary, Dean Jones provided a glimpse of the future, a future being supported through the Whiting School's \$150 million campaign. The dean said, "Collaboration—arguably our core strength—will continue to be a catalyst.... We will continue to champion the creation of new institutes, partner in innovative recruiting, and provide incentives and inducements to innovate in ways that we cannot currently imagine. The most concrete and immediate step in this direction is our decision to build a new Computational Sciences and Engineering Building on the Homewood campus."

Engineering's nine-decade span of ingenuity, eminence, and interaction well positions the Whiting School for what Jones refers to as a mobilization "as never before" of the "intellectual and technical resources from around the world in both education and research." As the New Zealand-born dean encourages his colleagues to think internationally to address engineering's global challenges, he says he is convinced that "We have to be more than 'ready.' We have to embrace this 'new world order.'"

Material for this insert has been drawn from interviews and many other sources, including:

- *A History of the University Founded by Johns Hopkins*, by John C. French (The Johns Hopkins Press, 1946)
- *Johns Hopkins: Portrait of a University*, by John C. Schmidt (Johns Hopkins University, 1986)
- *Johns Hopkins: Centennial Portrait of a University*, by Robert P. Sharkey (Johns Hopkins University, 1975)
- *Engineering at the University*, by Mary Ruth Yoe (published by the Whiting School on its 10th anniversary)
- *Johns Hopkins Magazine*, March-April 1964 (articles for Engineering's 50th anniversary)
- Past issues of the *Johns Hopkins Engineer*.

Historic photographs courtesy of the Ferdinand Hamburger, Jr. Archives of The Johns Hopkins University. Special thanks to archivist, James Stimpert of the Ferdinand Hamburger, Jr. Archives for research and photograph reproduction assistance. Contemporary photography: Will Kirk and Jay VanRensselaer of Homewood Photographic Services.