For 100 years...

for the people and the land...
Dear Alumni and Friends,

Welcome to the second century of agricultural and biosystems engineering at Iowa State!

One of the best things about my job is heading a department that joins two disciplines for which this university is famous, agriculture and engineering. For that alone, I’ve got the best job at Iowa State, and a glance through these pages shows why.

Our faculty and students are respected nationwide, as our multiple ASAE and NAIT honors attest. U.S. News ranked our undergraduate program third in the nation for 2005. And a new home for ABE will soon be a reality: the university has begun a feasibility study and authorized private fundraising. (That’s the best news we’ve had in 25 years!)

We’ve added three new faculty members and plan to hire four more. With our merger with industrial education and technology, we’ve added even more dedicated scholars to our internationally respected faculty. And ABE alumni and Iowa business leaders Jerry Wille and Charles Sukup are the current president and next president-elect of ASAE—the first time two leaders have come from the same department within a span of three years.

Still, it’s humbling to occupy the chair from which J. B. Davidson built not just a department but a profession that changed the face of agriculture. And while he did it pretty much alone, I have the help of some of the world’s best faculty, staff, and students—and, thanks to Davidson’s vision, 100 years’ worth of great alumni.

Today, at the threshold of our second century, we’re poised to build on the foundation Davidson established—academically, professionally, and, as we seek to raise a new Davidson Hall, physically. On behalf of the entire ABE family, please accept our warmest thanks for your dedication, and join us as we celebrate our centennial.

Dr. Ramesh Kanwar
Chair

—J. B. Davidson, remarks to the first meeting of the American Society of Agricultural Engineers, Madison, Wisconsin, 1907

Labor, land, and the wealth of nations
For J. B. Davidson, “wealth” could not be reduced merely to money, but was inextricably tied to “the work of mankind,” which over the decades would become, in biblical terms, the “relief of man’s estate.”

And a difficult “estate” it was. Powered machinery was making inroads by the end of the nineteenth century, but, despite advances such as the 1831 McCormick reaper, farm work was still done largely by the labor of humans and animals toiling to plant and harvest crops. Among the most ancient of human endeavors, agriculture would be among the last to be mechanized on a large scale—behind warfare, printing, transportation, and manufacturing.

But for all their progress, these other “revolutions” would fully flower only with the migration of human capital into American cities made possible by agriculture. In 1870 over half of America’s workers were employed in agriculture; in 1890 it still took four farmers to feed ten people. By the end of the 20th century, one farmer could produce enough to feed 100 other Americans and nearly three dozen people abroad.

In short, the economic “seed corn” for what came to be the “American Century” was planted by America’s farmers. They, in turn, were powered by a revolution in agricultural engineering started at Iowa State by Jay Brownlee Davidson.
As you know, the Department of Agricultural and Biosystems Engineering will be celebrating its 100th anniversary in 2005, and it has been a remarkable century of achievement and service.

The department has been a leader in providing engineering solutions to agricultural problems in the United States and the world. And, over the past century, the department’s mission has moved from helping mechanize agriculture to a more global and systemic view of the entire food production system and the wise use of the great resources we enjoy with which to produce our food, fiber, and other products.

This century of achievement would not have been possible without outstanding faculty, hard-working students, great corporate partners, and friends of the program. This centennial celebration is for all of you and all that you have done over so many years to help keep the world’s first formal program in agricultural engineering as one of the very best and a true “Point of Pride” for Iowa State University.

It has been a remarkable century of achievements and progress, and I am even more excited about what will take place in this next century. You all have my very best wishes for continued success and service.

Gregory Geoffroy
President

While a separate Department of Agricultural Engineering was not established until 1905, agricultural engineering as a subject at Iowa State dates back to the establishment of the Iowa Agricultural College and Model Farm in 1858.

Then, as now, courses were administered jointly by the Department of Agriculture and the Department of Mechanic Arts. Besides math and physics, the curriculum included shop work, surveying, grain harvesting and storage, fences and farm buildings, and drainage.

And, as today, shifting needs drove change in the identity of the academic units. Up to 1890, “farm engineering” courses were taught in the College of Agriculture, then in the new School of Agriculture. From 1898 to 1902, they were taught under the Department of Practical Agriculture in the Division of Agriculture.

By 1905 a new building had been erected for the new Department of Farm Mechanics north of Agriculture Hall (now Catt Hall). Sixty by 100 feet at the base and four stories high, the facility was described as the “best building ever for farm mechanics.”

Horse-drawn corn picker, Excursion Day, 1904: on the threshold of the internal combustion engine, farm machines still required animal labor.
Jay Brownlee Davidson was born to a farming family in the small Nebraska town of Douglas on February 5, 1880, attended the local high school, then entered the University of Nebraska in Lincoln, where he earned his BS in mechanical engineering in 1904.

Davidson met his future wife, Jennie Baldridge, on a blind date at the university in 1902. Even after Jennie left the university to return home and care for her ailing mother, she and Davidson continued courting by mail. They were married in her parents' home in June 1906.

After serving as an instructor in farm mechanics at Nebraska, in 1905 Davidson assumed a similar position at Iowa State. In his history of the Davidson era, former ABE chair Dr. Howard Johnson notes that “Agricultural Engineering” was a major listed under the Department of Agronomy, and that Davidson was associate professor-in-charge of the program.

It was not until the 1910–11 catalogue that the department had its own listing. Still, so grounded in Davidson’s personality was the recognition of agricultural engineering as a profession in its own right that by consensus the department’s establishment at Iowa State dates not from any administrative technicality, but from Davidson’s arrival in Ames.
Impellicone wins AE50
AE50 Awards recognize products and systems that are vital in transferring technology to the marketplace for a wide spectrum of food and agriculture applications. One of this year’s winners was the Impellicone, a flow-dividing manifold for distributing anhydrous ammonia. ABE researchers on the project were (from left to right) Paul Boyd, Mark Hanna, Tom Colvin, Kyle Baumgartner, and Jim Baker, together with Mike White, extension crop specialist. CDS-John Blue of Huntsville, Alabama, collaborated on the development and retains the product license.

Students Succeed at ASAE Ottawa Meeting

The Gunlogson Student Design Competition’s Fountain Wars is a hands-on, real-time competition in which students design and model entries beforehand but actually build and test them under time constraints during competition. ABE’s team, which included Tim Shepherd, A. J. Benjamin, Brian Fager, Nick McGrew, John Richardson, Barrett Reed, Matt Anderson, and Josh Breuer, received the Best Application of Electronics award. Faculty advisor is Amy Kaleita.

Both ABE clubs competed against other students from across the country for the Agriculture Equipment Manufacturers trophy in their respective divisions. The ASAE Student Branch was judged third and the AST Club took second place. John Hagerty was named Outstanding AST Club Member and Brian Peters was named Outstanding ASAE Student Branch Member. Also, Tim Shepherd was elected vice-president for the National Preprofessionals Council, which represents undergraduate students.

Finally, Patrick Murphy took first place in the Preprofessional Poster Session Competition. Congratulations to all Iowa State ABE winners for another excellent showing!
In December 1907, the eighteen charter members of ASAE assembled in Madison, Wisconsin, and elected Davidson president of the society, the first of many from Iowa State: of nearly 100 leaders in ASAE history, fully one-fourth rose to the presidency from the platform erected at Iowa State by Davidson over his long direction of the department.

The organization might have seemed a pipedream to some. But visionaries are ahead of their time, and Davidson was no exception. It would not be long before reality caught up with vision, and by 1921, 151 BS degrees in ag engineering had been awarded, as well as two post-graduate degrees. These were based in part on the foundations laid by Davidson, who published seminal textbooks in the field, staking the discipline's claim to academic respectability. He also presented papers establishing academic benchmarks: from classification of library materials (1910) to instruction standards (1915) to promoting ag engineering education for disabled veterans (1918), Davidson set standards the rest of the nation would follow.

The centrality of Davidson and Iowa State to the profession was acknowledged on Davidson’s retirement and recognition as ASAE’s first emeritus member in 1946. “In its recent election of Dr. Jay Brownlee Davidson as an Honorary Member,” the society’s governing council remarked, “the American Society of Agricultural Engineers has posted a memorable landmark in its history. It emphasizes the achievement of emeritus status in the Society and the agricultural engineering field… by a man who more than all others was its originator, a guiding hand for decades, and always its modest, willing servant.”

**In Memoriam**

**Harold White (MSAgE’38)** passed in February 2004 in Athens, Georgia. He was professor emeritus at the University of Georgia and retired in 1974. He was a 69-year member of ASAE and was Georgia Section Engineer of the Year in 1984.

**Charles Rice (MSAgE’40)** passed in January 2004 in Watkinsville, Georgia. He was assistant professor emeritus of the University of Georgia College of Agricultural and Environmental Sciences and retired in 1981. He served many years as an extension agent and was a 63-year member of ASAE.

**J. Merle Trummel (MSAgE’40)** passed in January 2004. He was a professor emeritus in the Department of Mechanical and Industrial Engineering at the University of Iowa.

**Bernard F. Vogelaar (BSAgE’40)** passed in May 2004 in Bloomington, Indiana. After serving in WWII, he worked for John Deere Harvester Works in East Moline, Illinois, where he was a design engineer until retiring in 1982. A Fellow of ASAE, he was instrumental in developing the hillside combine.

**Roger Yoerger (BSAgE’49)** passed in October 2003 in Urbana, Illinois, where he was a professor emeritus at the University of Illinois.

**Carroll E. Worlan (BSAgE’50)** of Des Moines passed in July 2004. Mr. Worlan was a registered representative of Gardner Financial Services and an investment advisor in central Iowa for over 30 years.

**J. Ronald Miner** of Corvallis, Oregon, passed in February 2004. Dr. Miner was on the Iowa State faculty from 1967 to 1972. While here, he designed and patented the slatted hog house floor now common on hog farms.

**Guymon, Gordon (BS’40)**

**Cleveland, Roger (BS’47, MS’48)**
1/23/1998 ........................................... Waddy, Kentucky

**Clague, Thomas (BS’49)**
10/11/2003 ........................................... Minneapolis, Minnesota

**Moody, John (BS’49)**
5/7/2004 .............................................. Ames, Iowa

**Colon, Frank (BS’51)**
3/25/2004 .......................................... St. Louis, Missouri

**Reith, Jerald (BS’82)**
10/25/2003 ........................................... Polk City, Iowa

**SAE: The creation of its “modest, willing servant”**

If there were any doubt about Davidson’s influence, it was erased when he became the creative force behind the American Society of Agricultural Engineers. Davidson first met with other “Founding Fathers” in Urbana, Illinois, to discuss establishing a society that would both promote agricultural engineering and confer status among other professional societies for its practitioners.
Iowa State University names new engineering dean

Mark J. Kushner of the University of Illinois has been named tenth dean of Iowa State’s College of Engineering, effective January 2005. He replaces James Melsa, who retired June 30, and will also hold the inaugural James L. and Katherine S. Melsa Professorship. Professor Charles Glatz of the Department of Chemical Engineering has served as interim dean.

“Dr. Kushner brings exceptional leadership skills and broad experience to our College of Engineering,” said Iowa State University President Gregory Geoffroy. “He is an internationally known researcher with an outstanding record whose focus is on academic excellence and student achievement. We’re delighted he is joining Iowa State.”

Dr. Kushner earned bachelor’s degrees in nuclear engineering and astronomy from UCLA in 1976. He earned his master’s and PhD in applied physics from Cal Tech in 1977 and 1979, respectively.

The College of Agriculture is proud to celebrate the centennial of agricultural and biosystems engineering at Iowa State. Throughout its history, ABE has been one of the nation’s best programs and continues to be a pioneer in applying engineering, agricultural sciences, and technology to biological systems. The efforts of ABE’s faculty and staff help us to better understand our natural resources and what needs to be done to maintain their quality. Their assistance to agricultural producers has a significant economic impact, as it helps them apply new methods and technology to improve their operations. The department continues to meet the needs of students in innovative ways. In 2004, the addition of the industrial technology program greatly strengthened our technology-intensive educational efforts.

The Colleges of Agriculture and Engineering look forward with anticipation to the department’s second century. We fully expect that ABE will remain a national leader and a source of excellence our alumni and friends can point to with pride.

As I assume my position as dean of the College of Engineering, I am especially pleased to be associated with Iowa State University’s record of innovation in agriculture. The Department of Agricultural and Biosystems Engineering has clearly anchored this record of accomplishment. As they have since establishment of the nation’s first formal program in agricultural engineering in 1905, ABE scholars today—students as well as faculty—continue a tradition of outstanding leadership in research and education, and service to the profession.

The accomplishments of ABE are critical to the well being, security, and health of the nation. We have few obligations to future generations that are more fundamental than the development and implementation of sustainable models of agriculture that protect our environment while feeding the world’s growing population. I have the utmost confidence that, in its second century, ABE will continue and improve upon its record of excellence in developing the science and technology necessary to meet and best this challenge. Please join me in congratulating the department for 100 years of excellence—and in supporting its mission over the next century.
Assistant Professor Lie Tang joined the advanced machinery engineering focus area on October 1 from the Department of Agrotechnology and Food Sciences, Wageningen University, The Netherlands. Along with research on guidance systems design using sensor fusion techniques and real-time sensing and control systems, Dr. Tang will teach in power and machinery, as well as developing curricula for studying robotics in agriculture. He received his BS in electrical engineering in industrial automation in 1989 from Jiangsu University of Science and Technology in China, his ME in agricultural mechanization from Zhejiang University in 1994, and a PhD in agricultural engineering from the University of Illinois in 2002.

NEW FACES

ABE welcomes three new faculty hires

ABE is proud to announce three new faculty members for the 2004–2005 academic year.

Associate Professor Robert Burns joins us in the environmental stewardship engineering area. His appointment will be split between extension and research. Dr. Burns’ research focuses on the development of animal manure management systems that are environmentally sustainable, economically feasible, and socially acceptable. His extension programming focuses on managing animal manure for economic, environmental, and social sustainability. Dr. Burns received his BS in agricultural engineering in 1990, his MS in environmental engineering in 1992, and a PhD in civil engineering in 1995, all from the University of Tennessee, where he compiled an impressive record of achievement and recognition before coming to Iowa State.

Formerly at Texas A&M, Assistant Professor Jacek Koziel joined the animal and plant systems engineering focus group in August. Dr. Koziel’s teaching covers air quality engineering, animal production systems, and livestock odor and air emissions measurement and control technologies. His research program investigates emissions from livestock operations, odors from confined animal feeding operations, and the effects of air quality on worker and animal health. Dr. Koziel received a BS and MS in mechanical engineering in 1989 from the Warsaw University of Technology in Poland, an MS in environmental quality engineering in 1993 from the University of Alaska, and a PhD in civil engineering from the University of Texas at Austin in 1998.

Assistant Professor Lie Tang joined the advanced machinery engineering focus area on October 1 from the Department of Agrotechnology and Food Sciences, Wageningen University, The Netherlands. Along with research on guidance systems design using sensor fusion techniques and real-time sensing and control systems, Dr. Tang will teach in power and machinery, as well as developing curricula for studying robotics in agriculture. He received his BS in electrical engineering in industrial automation in 1989 from Jiangsu University of Science and Technology in China, his ME in agricultural mechanization from Zhejiang University in 1994, and a PhD in agricultural engineering from the University of Illinois in 2002.
Through war and depression, toward “respectability”

Under Davidson, Iowa State became the standard against which other departments compared themselves. But with its status as an autonomous academic unit came the perennial challenge of classroom, lab, and shop space. The department and its five faculty members were first assigned in 1911 to Agricultural Engineering Hall—indeed, the two lower floors of the present Catt Hall—with an annex just north of the building.

Back then, Howard Johnson notes, “a Bachelor of Agricultural Engineering was given to students who had completed a four-year course in civil, mechanical, or electrical engineering, followed by one-year’s work in agricultural engineering.” The curriculum still treated it as an afterthought to other programs in the “mechanic arts,” but the next several decades would see the gradual evolution of ag engineering toward an identity of its own.

As late as the 1913–14 academic year, agricultural engineering was offered simply “in cooperation with the College of Engineering.” Only one year later, though, it was determined that the department would be administered formally and equally by “Dr. Curtiss for the College of Agriculture and Dr. Marston for the College of Engineering”; at Iowa State, agricultural engineering’s dual nature was set for the duration. Within this structure, the program—and thus the profession—would become more than just the sum of its agricultural and engineering parts.

Movement toward that goal was slow. In 1915–16, 143 semester hours were required for the BS, with specializations in farm power and machinery, structures, and irrigation and drainage. In 1921 the program got its own building, the new Agricultural Engineering Laboratory—eventually to be renamed Davidson Hall in honor of the department’s founder. By 1925–26, the program had grown to four professors and four instructors. A thesis was required for the BS, and the department had awarded 16 graduate degrees—then, as now, the hallmark of academic respectability.

Although the depression of the 1930s offered challenges, the department still made notable strides. Along with its sister departments at Nebraska and Kansas State, Iowa State was accredited in 1937 by the Engineers Council for Professional Development, the precursor of ABET. Also, two doctorates were awarded, the first to Eugene George McKibben, a joint major with soils in 1936.

“Respectability” was gaining momentum.

Joseph Chen’s teaching includes CNC programming techniques, CNC automated control, CAM, Lean manufacturing system design, on-line quality control techniques, Kaizen, facility planning, Taguchi parameter/tolerance design, quality functional development, and design for manufacturability. He is researching adaptive control systems for vertical machine centers and turning centers to detect defects during machining and recommend corrective actions. He is also developing on-line defect prevention systems to detect “flash” (i.e., excess material attached to components along seams or mold parting lines) caused by mixed materials or mold-closing gap problems. These systems will be enlarged to detect other injection molding characteristics.

Steve Freeman coordinates the occupational safety option within the industrial technology curriculum and the Technology Learning Community (TLC). His teaching responsibilities also lie in the occupational safety arena. His interests are in the dissemination of safety information and related computer applications. He is involved in safety research directed toward improving the safety and welfare of rural populations and workers by understanding the factors that impact them in order to develop appropriate intervention strategies. Dr. Freeman has had a courtesy appointment with ABE since 1998 and has collaborated on many projects with Chuck Schwab, ABE’s extension safety specialist.

Shana Smith’s teaching and research focuses on product design, design education, advanced life-cycle design tools, and human-computer interaction for design. She currently leads an NSF-sponsored study for integrating virtual reality into design classes that includes outreach to high schools and community colleges. She is also developing next-generation CAD/CAM tools and methods for automated or enhanced product design, including a fully automated, artificial intelligence-based product assembly/disassembly planner designers can use to consider manufacturing issues in the early design stages of a product. Her research complements ABE’s advanced machinery engineering focus area.

For more news from the department, visit the ABE Web site at www.abe.iastate.edu.
ABE alumni are the finest products of all the work we do in the department. So it’s a special time each year when we can renew old acquaintances and catch up on professional accomplishments and family milestones with our friends. Alumni Days for the College of Engineering were held May 20–21 this year, with an ABE coffee in Davidson the morning of the 21st. More than a few old-timers attended—and a fair number of graduates showed up too!

**LEFT TO RIGHT:** Howard Johnson ’49, Michael Maroko ’54, Harold Powers ’54, Robert Johnson ’49, Loren Elliott ’49, Floyd Herum ’53 and ’54, John Dresser ’54

For 100 years, the Department of Agricultural and Biosystems Engineering (ABE) at Iowa State University has excelled at solving problems of the food and agriculture system in the U.S. and abroad. Their many years of experience and steadfast dedication to solving complex agricultural issues ranging from improving agricultural machine design to developing better production systems to innovative biosystems engineering makes our farms more environmentally sound and safer to operate. The knowledge and expertise of the many skilled professionals at ABE makes Iowa State a true leader and recognized resource for agricultural engineering solutions for people across the nation and the world. As an alumnus of Iowa State University, I am proud of ABE’s many years of accomplishment and wish them success in their next 100 years of innovation and accomplishment.

*Senator Tom Harkin*

The Department of Agricultural and Biosystems Engineering has a long and storied history at Iowa State. ABE graduates and faculty have led the way and set a high standard. The impact the department has made during the past 100 years is a remarkable success story in shaping American agriculture as we see it today. It has evolved just as American agriculture has moved from tractors and animals to advanced biological systems and technology. As an Iowa farmer myself, it’s heartening to see solutions for the future of agriculture being developed right here in our home state. I’m confident the next 100 years will give us just as much pride in your accomplishments as the first 100 years.

*Chuck Grassley*

Operation of a pest and weed sprayer mounted on a tractor is explained to a class of agricultural engineers, 1949.
But even with a “new” building, some still felt the need to reassure the nation’s flagship agricultural engineering program of its legitimacy. “I wish to emphasize that Agricultural Engineering is a real profession and I am glad I have had something to do with its recognition as such by our National Engineering Societies,” said Emeritus Dean Anson Marston in a Christmas message to the department in 1942.

By the war’s beginning, the programs at Iowa State, Nebraska, and Kansas State were still the only three agricultural engineering programs of 552 accredited engineering curricula nationally. And a 1944 survey revealed that only eight ag engineers in the nation held the PhD—clearly, much work remained.

ASAE targets young professionals
ASAE has established a Young Professionals Committee (YPC), a community of agricultural engineers charged with getting younger members more involved in the organization. Two ABE alumni add their expertise to this cause.

“For we shall be remembering those millions far from home
For whom, instead of hearth-fires, there will be the blaze of shells;
Instead of caroling will sound the battle’s stern command,
The thundering of bombs instead of chiming Yuletide bells.

“So we shall kindle Christmas fires for you who are away,
And as we sing the hymns you love, each heart will breathe a prayer
That soon, (O, soon!), ‘Good will toward men’ of every race and creed
Shall bring the Christmas ‘Peace on earth,’ for all time, everywhere.”

—Excerpt, “Christmas, 1942,” Jennie Baldridge Davidson

I-Tech undergraduates shine at NAIT annual meeting
The ABE student chapter of the National Association of Industrial Technology swept the competition at the society’s annual meeting in Louisville, Kentucky. ABE competed in the Student IT/IQ bowl, which included questions about manufacturing, construction, safety, energy, communications, management, and two random categories. Top performers were Kyle Scott (1st place), Aaron Pierson (2nd place), and John Brincks (semi-finalist).

Competing in the “vision-enhanced” category of the Robot Manipulator Contest, ISU NAIT students placed first in timed runs and were the only team in the category not disqualified for technical problems. Judged on construction, run times, and an informative poster, ISU’s CyTraxx was the grand prizewinner, apart from the best-run times.

For more information about the competition, visit the Web site at www.nait.org. You can learn more about the Iowa State student chapter at www.stuorg.iastate.edu/nait/.

ASAE targets young professionals
ASAE has established a Young Professionals Committee (YPC), a community of agricultural engineers charged with getting younger members more involved in the organization. Two ABE alumni add their expertise to this cause.

“AAS gives us the chance to be a part of an organization that understands and promotes our interest in agricultural engineering through professional networking and leadership opportunities,” says Jason Madsen (BSAgE’02), an account manager with GKN Walterscheid, Inc. “The YPC enables me to interact with peers who share some of the same challenges making the college-to-work transition.”

Also, Russell Persyn (PhDAgE’03), assistant professor and extension specialist in biological and agricultural engineering at Texas A&M, received an ASAE Presidential Citation for leading the development of this group.
A. C. Pandya  
(MSAgE’49) retired in 1981 after a career of academic service in India. He stays active guiding research projects for graduate degree candidates at the ASPEE Research Institute, Mumbai, where he has advised over 65 MS and PhD students.

Maurice Clark  
(BSAgE’52) is a retired test engineer for John Deere Des Moines Works.

William Davidson  
(BSAgE’52) and wife Alda celebrated their 50th wedding anniversary in 2002. They were married the day after Bill graduated. Bill retired in 1989 after a career with General Electric and Black & Decker. He was also vice president of engineering for Singer’s motor products division.

Norman Friedrich  
(BSAgE’82) is a civil engineer with the Natural Resources Conservation Service in West Union, Iowa.

Carol Lehtola  
(MSAgE’88, PhDAgE’92) of Gainesville received the University of Florida College of Agriculture and Life Sciences Undergraduate Teacher of the Year Award for 2002 and a Teaching Certificate of Merit from the National Association of College Teachers in Agriculture.
After the war: Growth, crisis, and recovery

In 1946, J. B. Davidson retired after a 41-year career. It is the mark of a person’s leadership, though, that what he has spent a lifetime building will not only survive him, but thrive on the foundation he laid.

Davidson was succeeded by Hobart Beresford, who welcomed returning service members back to Ames. The GI Bill and a booming farm economy driven by exports—which were driven by productivity gains from vastly increased mechanization after the war—dramatically increased enrollments. To serve these numbers, the faculty increased to 18 instructors and 16 professors, five with the PhD.

By the end of the ’50s, the department listed four 500-level courses in power and machinery, structures, rural electrification, and soil and water. This nascent graduate curriculum would herald the single major for the PhD in ag engineering. The co-major, required up to 1962, was “instrumental in establishing the quality PhD program in the department,” according to Howard Johnson. But, he adds, the former co-major professors in engineering mechanics, civil engineering, mechanical engineering, and soil physics were all “especially supportive” of the new single-major PhD.

Beresford retired in 1962 to be replaced by Dr. Clarence Bockhop, who by the mid-’60s increased the faculty to 21 members at the rank of professor. Yet the biggest change under Bockhop was the introduction in the 1970s of the agricultural mechanization curriculum (later renamed agricultural systems technology). With this splitting of the curriculum came even more growth, and by the early eighties the department boasted 33 faculty members at professorial rank.

Despite this growth and innovation, the farm crisis of the 1980s was a crisis for agricultural engineering as well. The export boom of the 1970s had gone bust, and the restructuring of the nation’s rural economy only aggravated the crisis. Decreasing state appropriations, together with falling enrollments in an economic sector fast losing its luster, threatened the department’s viability. The crisis also had a ripple effect on industries employing agricultural engineers, including manufacturers of farm machinery, seed, and fertilizer. Finally, while still accredited, the program was criticized in reviews for non-competitive salaries and poor facilities.

Paul Klimesh (BSAST’94), a veteran of the CyRide transportation system in Ames, has won the Iowa Public Transit Rodeo championship five years running. Klimesh both drives and serves as an instructor.

Scott Walthart (BSAST’95) and wife Patricia had their third child, a baby boy, Mason, in October 2003.

Ravi Godbole (PhDAGE’97) has joined AGCO Global Purchasing in India as a purchasing project manager. He also has worked as a product engineer for Mahindra Tractors in India and Titan Wheels in Quincy, Illinois. More recently, he was lead engineer for CAT in DeKalb, Illinois.

Justin Chepete (MSAgE’99, PhD’02) has won his first major grant of about $80,000. He will set up a research facility for a poultry-cooling project, in which he will conduct a variety of animal-environment-interaction research projects. In honor of his major professor, Hongwei Xin, he is naming it the LEAP Lab.

Jasmine Zingler Bootman (BSAgE’00) is a staff engineer for Montgomery Watson Harza, a consulting engineering company in Des Moines involved in infrastructure development around the globe.

Kevin Stamm (MSAgE’01) is employed by the water resources branch of the U.S. Army Corps of Engineers in Omaha, Nebraska.
The Department of Agricultural Engineering was founded originally to mechanize agriculture. But while mechanization is still a large part of its mission, the future demands that this be balanced with an equivalent focus on the human aspects of agriculture. The department therefore has evolved to embrace a global view of the entire food production system that includes the stewardship of natural resources in the production, processing, storage, handling, and use of food, fiber, livestock, and other biological products.

Current research efforts include agricultural water quality and management, animal production systems that are economically and environmentally sound, grain handling and food processing, agricultural machine design and automated controls, precision farming systems, agricultural safety, seed conditioning and processing, and soil tillage and management systems. And research is being directed increasingly toward biosystems engineering through the use of biosensors, image analysis, biological systems modeling, and the design and control of biological systems and processes.

But what was true in 1905 is true today: to achieve these goals, ABE must continue to attract leaders the caliber of J. B. Davidson, men and women whose vision extends well into the next 100 years—and beyond.

Today's ABE scholars are serving as leaders in state, national, and international organizations. Whether through their work with the World Bank, the European Union, or institutes and research centers in the Far East; in leadership positions in the EPA, USDA, the National Institute for Farm Safety or the Army Corps of Engineers; or through service to Iowa at the DNR or the Iowa Groundwater Association, ABE faculty and students are making critical contributions to the welfare of future generations.

For Iowa, the nation, and the world…

The department would emerge from the economic devastation of the 1980s. Salaries were raised to better compete for top faculty, and the department became leaner. But perhaps the biggest factor in the department's reinvention of itself was the adoption in the early 1990s of the biosystems approach to agricultural engineering.
For the next 100 years...

The leadership of ABE's friends and alumni can make a critical contribution to the future of ABE. From scholarships to labs to endowed professorships and, ultimately, to a new home for ABE (see next page), your support will continue a tradition of excellence, innovation, and leadership begun a century ago.

We have space here to present only the broadest outlines of a proud past and invite those who would like a more detailed history of agricultural and biosystems engineering to consider the forthcoming history of the department written by former chair Howard Johnson and other contributors. But remember: your contributions will help write the history of ABE’s next 100 years.

For the next 100 years, the leadership of ABE’s friends and alumni can make a critical contribution to the future of ABE. From scholarships to labs to endowed professorships and, ultimately, to a new home for ABE (see next page), your support will continue a tradition of excellence, innovation, and leadership begun a century ago.

We have space here to present only the broadest outlines of a proud past and invite those who would like a more detailed history of agricultural and biosystems engineering to consider the forthcoming history of the department written by former chair Howard Johnson and other contributors. But remember: your contributions will help write the history of ABE’s next 100 years.

If there be any truer measure of a man than by what he does, it must be by what he gives. — Robert South
Governor Tom Vilsack

The partnership between the people of Iowa and Iowa State University is rooted in shared goals. For our citizens, the growth of a strong agricultural value chain has been supported for over 100 years by multiple partners in the university system. The Department of Agricultural and Biosystems Engineering has been and continues to be a significant partner, driving innovation that supports wealth creation in the value chain.

This past year, we funded research to determine where Iowa's strengths lie in developing our biosciences industry. In a quantitative analysis of our universities, ABE was noted as a core area of “strength and expertise” from which to grow new innovations in agriculture. ABE’s past work has helped to create a vital biosciences cluster, agricultural machinery and equipment manufacturing. Employing over 10,000 Iowans with average annual earnings over $51,000, this sector is ripe for continuing innovation in the integrated biosecurity and bioeconomy areas, two of six platforms noted as most likely to succeed in Iowa.

In congratulating ABE for its years of service to Iowa, we anticipate that these new challenges will be met by the continued reliance of the Iowa Department of Economic Development and all of Iowa on ABE's “strength and expertise.”

A HOME FOR THE NEXT 100 YEARS

After nearly sixty years, a new home for the Department of Agricultural and Biosystems Engineering took a big step forward this fall when the Board of Regents, State of Iowa, approved private fundraising for the project. The university has established a Davidson Hall planning committee to conduct a preliminary assessment of the department's anticipated future space needs. Architects have not yet been selected for the project.

The estimated cost to replace Davidson Hall is $21 million, half of which is expected to be raised privately. Private donors have already given approximately $1.4 million toward this goal, and development officers from the Colleges of Agriculture and Engineering will soon approach other potential lead donors for commitments. A broader appeal to ABE’s alumni, faculty, students, and friends will likely begin this year as part of our 100th anniversary celebration.

To learn more about how you can support the construction of a new building for ABE, please contact Richard Bundy in the College of Agriculture development office (515 294-9088 or rbundy@iastate.edu) or Keith Fortmann in the College of Engineering development office (515 294-4280 or kfortman@iastate.edu). Questions about the building planning committee can be directed to Dr. Ramesh Kanwar, ABE department chair, at 515 294-1434 or rskanwar@iastate.edu.