Former ME chair endows Professorship

A 500,000 endowed Professorship dedicated to the thermal sciences is being made possible through the generosity of Arthur and Penny Bergles.

Bergles is the former chair of ISU’s ME department. He recently retired from the faculty at Rensselaer Polytechnic Institute in Troy, New York, where he was engineering dean from 1989 until 1992.

“The Bergles Professorship will recognize a person of leadership and excellence, both at Iowa State and nationally, in teaching and research in thermal systems,” said ME Chair Warren DeVries.

To many in the ME profession, the name Arthur Bergles is synonymous with the field of heat transfer. He is considered to be the world’s foremost authority in the enhancement or augmentation of convective heat transfer. His eminent contributions have earned him the highest honors of his profession, including election to the National Academy of Engineering.

After earning his doctorate at M.I.T., Bergles joined M.I.T.'s faculty in 1963 as Ford Assistant Professor of ME. In 1970, he went to the Georgia Institute of Technology as ME professor.

In 1972, Bergles came to Iowa State as chairman of the ME department, a position he held until 1983. Bergles was named Anson Marston Distinguished Professor in 1981. Throughout this period, he was director of the department’s Heat Transfer Lab, which he established. Bergles was instrumental in advancing the funding and construction of Black Engineering Building. “Getting the building constructed was easy, but assigning faculty offices afterwards was the hard part. I stepped down as chair before that had to happen!” Bergles said.

In 1986, Bergles was named Clark and Crossan Professor of Engineering and director of the Heat Transfer Lab and later was dean of engineering at Rensselaer Polytechnic Institute.

An active leader in several professional societies, he was president of the ASME in 1990-91, and received ASME’s highest distinction of Honorary Membership in 1996. Bergles is a Fellow of ASME, ASHRAE, and two other professional societies, all of whom have recognized his accomplishments with numerous awards and honors.

The Bergles Professor, who will be selected through a national search, will provide leadership and mentoring in developing faculty, curricula, and programs in the

In the best interest of students

This semester, students aren’t the only ones in ME having mid-term tests. For the first time, faculty are being evaluated by their students during the term, not only at semester’s end.

It’s all part of the department’s emphasis on facilitating communication between students and faculty. With that goal in mind, the Mechanical Engineering Student Advisory Board (MESAB) was formed last spring and became active this fall.

“MESAB was created to get more feedback from students earlier, so we can make improvements,” said ME Chair Warren DeVries. “We have industrial advisory boards and we hear from faculty regularly; but traditionally we solicit feedback from students only when they graduate. That’s too late to have any impact on their college experience.”

According to bylaws developed last year by several dedicated students, MESAB members consist of four representatives from the SAE, ASME, ASHRAE, and Pi Tau Sigma student chapters; two graduate students; four at-large members; and two chair appointees.

As its first task, the board chose to prepare and distribute a questionnaire allowing students to provide mid-semester feedback on instruction, said ME senior Dale Drent, chair of MESAB. “We’re looking at whether or not they need to do more visualizations in class, get homework back sooner, or make tests more reflective of the information covered.”

The board meets once each semester with ME faculty and also with the ME industrial advisory council. In the future, the board will look at software/computer facilities, scholarships, and an alumni survey.

“I really do think MESAB will make a difference,” Drent said. “It’s definitely a step in the right direction and I think it will have an impact.”
ME students get good advice

ME's new undergraduate advising center, up and running since July 1997, helped more than 150 new students before the fall semester even started.

In 1996 each engineering department began advising all of its own students, starting with freshmen. ME, with nearly 800 undergraduates, created an advising center and used the extra year to organize and staff a first-rate, student-oriented center.

ME Professor Arvid Eide, responsible for organizing the center, named Gloria Stams, PhD/MEE'96, coordinator. Angelo Cordoro, who received his bachelor's degree in industrial and manufacturing systems engineering in 1994, was hired as an advisor; and Martha Clifford, from ME's main office, is the secretary.

"I wanted high-quality advising available and they will be able to provide that," Eide said. "Incoming freshmen have different needs than upper-classmen and they need a lot of special attention. I intend to use many concepts from Total Quality Management, keeping in mind that the student is our customer."

A short transitional period will occur before the advising center handles all undergraduate students, said ME Professor William Bathie, who has advised engineering students for about 39 years. "I definitely think the center is a good idea. These days, faculty wear many hats, which can get very difficult at times. Having three full-time employees readily available to advise students will be quite a benefit. And it will free up faculty to do what they were hired to do — teach and research."

The advising center staff has prepared the ME Advising Handbook. It's available on the department's homepage at <http://www.eng.iastate.edu/me>.

Helping students succeed

Scholarships help deserving students pursue their education and career goals. Last spring, two representatives from Hoechst Celanese Corporation were on campus to present the Hoechst Celanese Excellence scholarship award to ME senior Brian Marovets for academic and leadership excellence.

Pictured from left are ME Assistant Professor Radha Sarma; Marovets; Annette Buckley-Correa, product coordinator, Hoechst Celanese Chemical Group; and Debra Ann Ryan, research associate, Hoechst Celanese Chemical Group. Various scholarships are awarded to more than 40 ME undergraduate students each year.

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thermal sciences within the department, and through interdisciplinary opportunities. The professor also will promote interaction with practicing engineers to assure leadership in the relevance of ISU's thermal science programs.

"I hope the endowment will attract or help retain an outstanding senior faculty member in the thermal sciences," Bergles said. "I think the opportunities to do that are better at Iowa State than at other places, because of the long-term commitment the ME department has to that area of study."

For Bergles the gift is a family affair. "We are a small family with a strong attachment to Ames, so it is a remembrance," he said.

Bergles met his wife Penny while he was a grad student and she was a student at Boston University. Penny, a mathematician, worked at the M.I.T. Instrumentation Lab on the instrumentation for the first manned mission to the moon. She later worked for the Iowa Department of Transportation. The Bergles, who live in Centerville, Massachusetts, have two sons, Dwight, who is a neuroscientist in Oregon, and Eric, a market analyst in California.

"Iowa State was fortunate to have Art spend a significant part of his career leading the ME department," DeVries said. "And it's obvious that Art and Penny feel that this was an important part of their careers, too. The Bergles Professorship will magnify the impact of their time at ISU even more."

In his retirement, Bergles continues to keep busy. He still conducts research and counsels three Ph.D. students at Rensselaer. During 1998, he will serve as Guest Professor at the Danish Technical University, and attend conferences in Turkey, South Africa, and Korea.
Department Dynamics

A technology developed by Professor Robert Brown recently won a prestigious R&D 100 Award. The editors of R&D Magazine designated Brown's coal combustion monitor to be among the 100 most significant inventions of 1997. The monitor could help curtail pollution from coal-fired power plants.

Past winners of the 35-year-old R&D 100 Awards program include the flashcube, the digital wristwatch, antilock brakes, and the automated teller machine.

Brown, who has appointments in ME and in chemical engineering and is director of the Center for Coal and the Environment, developed the monitor with former graduate assistant David Waller, MSME/95. The monitor uses a low-power laser to heat carbon in an ash sample. The heated carbon produces a minute sound wave in the air space above the sample that is detected with a sensitive microphone. In essence, the photoacoustic device listens for carbon in coal ash. The technology has been licensed to Ametek Inc., Pittsburgh.

High carbon levels in ash indicate poor plant efficiency, resulting in additional use of fuel and higher emissions of pollutants.

Visit us on the Web!
http://www.eng.iastate.edu/me

First woman hired, now first tenured

ME Associate Professor Judy Vance not only took the road less traveled to become a mechanical engineer; she also took the bumpy, winding, and sometimes unmarked roads. "Most of the women faculty I meet have strange stories about how they got where they are today," said Vance, the first female faculty member hired in the department and now the first tenured.

Her story begins in Fort Dodge, Iowa, where she graduated first in her class. "I excelled in math and science," said Vance. "But no one, not the school counselor, nobody, mentioned that I should study to be an engineer. And it didn't occur to me at all."

She came to Iowa State to major in math, then later in bacteriology. She did not like where her career path was headed. "Vance eventually dropped out of college. "Then a few years later, my sister, who is married to an engineer, said I should study to be an engineer," she said. "So I did!"

Vance received her bachelor's, master's, and doctoral degrees, all in ME, from Iowa State. She worked at John Deere Des Moines Works from 1979 to 1994.

Vance has received the American Society for Engineering Education Dow Outstanding Young Faculty Award in 1998; an Iowa Center for Emerging Manufacturing Technology Faculty Fellow in 1992; the U. S. Department of Agriculture Women's Week Award in 1994; a National Science Foundation Career Award in 1996; and the ME Professor of the Year in 1997.

"I think it's neat to stand up in front of a class of students and talk about piston, gears, and shafts," said Vance. "I think it's important for the females in the class to realize that it's OK for women to be knowledgeable on these topics; but also it's important for the male students to relate to a female in this role."

She said that receiving tenure in the ME department was important. "And with our recent hiring of two more female faculty members, hopefully, I won't be the only tenured female for very long."

Shapiro honored

Howard Shapiro, ME professor and assistant engineering dean, was one of three ISU faculty honored recently with the ISU Foundation Award for Outstanding Achievement in Teaching. Widely respected as a teacher, Shapiro has received the ISU Excellence in Teaching Award (1991) and a Regents' Award for Faculty Excellence (1992). He also helped establish a grassroots program to enhance teaching that has evolved into Project LEA/RN. ME students have selected Shapiro many times as Teacher of the Year and Graduate Teacher of the Year. Shapiro joined ISU's ME faculty in 1975 after earning his Ph.D. from Ohio State University. He was named assistant engineering dean for undergraduate programs in January.

Former students Jon Buelow, BSME '95, and Shawn Noble, MSME '95, (left) and current students Mike Brand, AgEn, and John Fleming, ME 4, (right) with ME's Howard Shapiro. Buelow and Noble represented ISU at the Engineering Career Fair in September.

Your support makes a difference

Generous gifts from ISU ME alumni, industry, and others enable our department to continue our tradition of academic excellence. Our ongoing success is linked closely to your contributions which are used for the following.

- Scholarships and fellowships
- Start-up funds to attract top-notch new faculty
- Seed money for development of new projects
- Laboratory equipment

The Black-Hilstrom Mechanical Engineering Development Fund grew out of a fund started more than 30 years ago by Hollis "Pete" Hilstrom, ME '34. In 1980, Henry Black, department head from 1946 to 1972, joined with Hilstrom to invite other alumni to contribute to the fund. Since then, the endowment has grown to more than $2 million with gifts from more than 475 alumni.

You can participate in the Black-Hilstrom Fund using the form included here. Or call us at (515) 294-1423 to learn about other ways you can support ISU ME.

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The ISU Foundation, Alumni Suite, Memorial Union, 2229 Lincoln Way, Ames, Iowa 50010-7164.

We appreciate your support!
Team AARDVARK competed in the FIRST Robot Competition last April at Disney World's Epcot Center and came away with a pretty good showing.

Don Flugrad, ME associate professor and Tau Beta Pi advisor, took on the challenge of forming the three-way partnership that teamed up five John Deere Des Moines Works engineers, 11 ISU engineering students (plus faculty and staff), and 10 Ames High students to design and build a robot.

"To appreciate their accomplishments, you really must know about the rules and schedule of the competition," said ME Chair Warren DeVries. "On January 11, they received specifications for the competition along with the electronic and mechanical components. By February 28, they had designed, built, and tested the robot, and shipped it to Epcot Center. Amazing!"

This is the first team from Iowa to enter the For Inspiration and Recognition of Science and Technology (FIRST) Robot Competition. They won one seeding round, placed second twice, and placed third once. The team then won the first round by beating the NASA Johnson/Clear Creek High School and the Graco Inc. and Lake Howell High School teams. They placed second in the next round and third in the final round of the day.

John Minor, MSME'94, engineering applications specialist in the ME department, joined Flugrad on the team. "The high school students were the brainstorming and idea people. The college students and the Deere people were strictly technical support. If they came up with something that we knew would be impossible, we'd kind of steer them in a different direction to save time," Minor said.

Dan Renze, a John Deere test engineer and a 1993 ISU alum, said, "I thought the FIRST competition was exciting, enjoyable, nerve-racking, and most importantly, true-to-life. The budget constraints, time limitations, design criteria, teamwork, and dedication were all representative of the industrial work place. I'm sure the interaction between the students and engineers throughout the project will be beneficial to everyone in the future."

AARDVARK stands for Ames Association of Research and Development of Vehicular Advanced Robotic Kinematics. For more information, visit the AARDVARK web page at <www.iastate.edu/~tlp/live/index2.html>.