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Echoes Staff

ROSE-HULMAN INSTITUTE OF TECHNOLOGY

Echoes

Summer 2008

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Sustainability on Campus

Rose-Hulman Becomes More Environmentally Conscious

Strategic Plan, *Rose-Hulman Looks to the future*

National Spotlight, *Rose-Hulman Continues to Receive Recognition*

Rachel Miller, *On-and Off-the-Field Success*

HEARD IN THE HALLS OF MOENCH

"What would Dr. King say about the state of America today? I believe that he would say that celebration is nice, but that the work is not finished. I believe he would say that holidays are grand, but that we should remember his message on the workdays as well. I believe that he would say that hate expressed by a few is disturbing, but that apathy by the masses is devastating."

— **Robert Wilkens**, 1986 chemical engineering graduate and featured speaker at this year's Martin Luther King celebration on campus.

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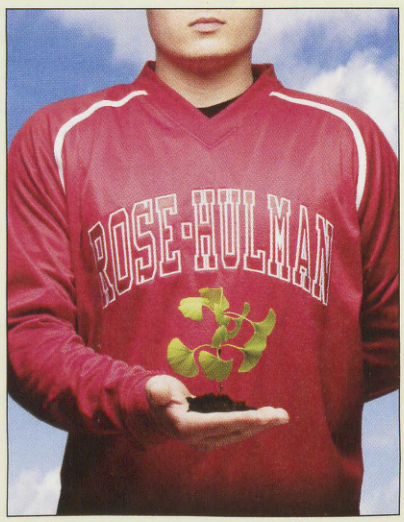

ON THE COVER

In this issue, *Echoes* begins a series of themed issues. The first is sustainability within the Rose-Hulman community. Many activities are taking place, and this issue looks at them at what some alumni are doing as well. Photo credit: Harold Lee Miller, Photographer

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ASCE CHAPTER TOPS NATION - AGAIN

Rose-Hulman's Cecil T. Lobo student chapter of the American Society of Civil Engineers is No. 1, again.

Outstanding community service, professional activities and campus service helped the chapter claim the Robert Ridgway Award as the nation's best chapter for the third time in the last four years—and fourth time overall.

ASCE cited Rose-Hulman's chapter for "excellence in the effective and meritorious conduct of its affairs... through the ability and professional diligence of the chapter officers, members and faculty advisors." The committee particularly noted the chapter's exemplary activities and public service.

Noteworthy service projects in 2007 included completing an upgrade project for a community recreation baseball field, helping host the Indiana Department of Transportation's 2007 Maintenance Conference, supporting a water filter project in Sudan, building two wheelchair ramps for community organizations, and organizing a charity golf tournament and campus fund-raising drive for a holiday food basket project.

Rose-Hulman's chapter includes 112 members. Chapter officers in 2007 were Matthew Trowbridge, president; Andrew Pinkstaff, vice president; Rachel Howser, secretary; and Sebastian Mendes, treasurer. The faculty advisor is Kevin Sutterer. Practitioner advisors are alumni Laura Hemming ('05) of American Structurepoint; Kevin Forbes ('85) of the Indianapolis Motor Speedway; and Jim McKinney, Roland Hutchins Distinguished Professor of Civil Engineering. ■

ENGINEERS WITHOUT BORDERS GROUP ON A MISSION TO HELP GHANA

Rose-Hulman's Engineers Without Borders student organization is continuing its efforts to provide the basic needs for survival — food, water and shelter — to residents of Obodan, a village in Ghana. However, the group is in dire need of financial sponsors to bring the projects to reality.

Two years ago, a group of 10 students brought a brooder house to the village. The chickens are now providing a source of income and produce for residents. The agricultural project has become a model for other villages in the African country.

This summer, a new contingent of students will be returning to Obodan to continue improving the quality of life in the village. The list of projects include drilling a well with hand tools; water reclamation of rainwater from the roof of the brooder house; completing construction of a community training center; and presenting laptop computers with science, math and English educational software programs that were donated by students, faculty and staff members through a campus collection drive. The students also hope to present a business plan to improve operations at the brooder house.

Participating in the project will be Jessica Lipscomb, chapter president; Albert Mui, vice president; Adam Kirchner, secretary; Ryan McGiffen, project coordinator; former officers Nathan Hazard, Dana Andre and Michael Krantz.

Rose-Hulman's Engineers Without Borders chapter was founded in 2004 and currently has over 20 members. The humanitarian organization comprises engineers from a wide variety of disciplines and interests.

"Our members are genuinely excited about putting their diverse skills into a place where needed," stated Lipscomb. ■

More information about Rose-Hulman's EWB chapter can be found at **www.rose-hulman.edu/ewb/ewb-rose-hulman_institute_of_technology_-_home.htm**. Donations to the organization can be made by contacting Dick Boyce in the Office of Institutional Advancement at (812) 877-8443 or Richard.Boyce@rose-hulman.edu.

ROSE-HULMAN CELEBRATES MARTIN LUTHER KING'S LIFE

Rose-Hulman dedicated a week of activities to the life of Martin Luther King, Jr., earlier this year.

The keynote speaker was alumnus Robert Wilkins, a Washington D.C.-based litigation attorney. He told a student audience that "We should celebrate... we should also be mindful of what work needs to be done to live up to Martin Luther King's legacy."

Leadership development consultant Taiwan Brown (left) receives a gift from Rose-Hulman Institute of Technology President Gerald Jakubowski following her talk to student leaders. The event was part of the college's Martin Luther King Jr. Celebration Week.

Other activities included a leadership presentation to student leaders by Taiwan Brown, former manager of Texas Instruments' student sourcing and selection team. She discussed the leadership skills corporations seek from prospective jobseekers and passed along career advice during a special program. Following the speech, Brown had dinner with leaders of the college's minority student organizations and other campus groups. Brown is currently a leadership development consultant in the WW Training & Organization Effectiveness Group.

Also on the agenda for the celebration were:

- An art and poetry contest in which Rose-Hulman students Mariah Walton and Jason Gibbs and local high school students Krysteena Cheek and Emily Rene Brown received first-place honors. All artwork and poems interpreted the contest's theme: "Different Voices, Many Faces, One Nation."
- Martin Luther King Jr. leadership awards presented to Rose-Hulman switchboard operator Mary Greer and students George Evans and Stephen Lewis.
- A presentation about servant leadership by Bryan Taylor, director of communications and marketing.
- A viewing of the "Eyes on the Prize" video about the civil rights movement in America during the 1950s and 1960s. ■

NATIONAL SPOTLIGHT CONTINUES TO SHINE ON ROSE-HULMAN

Rose-Hulman Institute of Technology continues to receive national recognition on several fronts.

- For the ninth consecutive year, Rose-Hulman was ranked as America's best college or university that offers the bachelor's or master's degree as its top degree in engineering, according to a national survey of deans and senior faculty conducted by ***U.S. News & World Report***. In addition, every Rose-Hulman engineering degree program that is included in the survey also retained its number one ranking. Those programs are chemical, civil, computer, electrical and mechanical engineering. The departments have been ranked as the best each of the eight years the departmental rankings have been conducted.

- Rose-Hulman Institute is listed among the "100 Best Colleges" in the October 2007 issue of ***CosmoGirl*** magazine. The list, created using baseline data provided by the Princeton Review, identifies America's top co-ed colleges and universities based on what experts recommended as the best all-around criteria for young women: small class sizes, great job-placement programs, leadership opportunities, prominent faculty and strong women's sports teams, according to ***CosmoGirl's*** editors.

- Rose-Hulman Institute of Technology's leadership role in adapting electronic E-portfolios to sharpen its educational mission, broaden students' skills, improve graduates' job-placement rates, and give the institution better ammunition for proving its worth to accreditors was highlighted in a spring issue of ***The Chronicle of Higher Education***, the nation's top publication for higher education information. In that article, senior reporter Paul Basken points out that Rose-Hulman is one of a small but growing number of institutions using an old idea – the long-term compilation of student classwork – in a new computerized format that lets the college directly score student performance campuswide on a list of specific skills.

- Rose-Hulman Institute of Technology's dedication to providing students individual attention and great classroom experiences has been highlighted in the March issue of ***Design News*** magazine regarding the crisis in engineering education. The national magazine highlights Rose-Hulman for being "a small, elite" college that offers a "successful alternative to the big university model." Editor John Dodge points out that Rose-Hulman is focused on "turning out a well-rounded individual instead of someone maxed out in math and science in their respective field or students victimized by more bad instructors than good." ■

RACHEL MILLER'S PASSIONS MAKE A DIFFERENCE IN BIOMEDICAL RESEARCH, ON SOCCER FIELD, SENIOR NAMED TO ALL-USA COLLEGE ACADEMIC TEAM

by Dale Long

If "tenacity" was a movie, Rose-Hulman Institute of Technology senior biomedical engineering major Rachel Miller wouldn't just be the title character, she would be the hero.

And, Miller recently earned an Oscar, being recognized among the nation's top 60 college students on the 2008 All-USA College Academic Team, published in *USA Today*. The Texas native was a third-team selection and continues a proud tradition of Rose-Hulman students receiving such national recognition.

"Rachel's a great story in perseverance," says soccer coach Brad Hauter.

Miller broke her foot in 2004, the summer before arriving for her freshman year at Rose-Hulman. She arrived on campus with a protective device around her injured foot, unable to train or play. Undaunted in her pursuit to be a member of the team, Miller attended every practice and took advantage of the time by doing push-ups and sit-ups on the sidelines.

"She worked harder than the players on the field," Hauter recalled.

Miller's hard work earned her the role as starting goalkeeper the next season. However, she was back on the sidelines at the end of her junior year after suffering a torn Anterior Cruciate Ligament (ACL) in her left knee causing her to miss half the season.

Miller came back to lead the Heartland Collegiate Athletic Conference in goals-against average (0.60) and victories (19), and helped the team achieve a school-record 12 shutouts, its first conference championship and qualification to the NCAA Division III tournament. She was a third team all-region selection from D3kicks.com and a third team academic all-district honoree from *ESPN: The Magazine* and the College Sports Information Directors of America.

Miller's injuries were part of her inspiration to pursue an interest in biomedical engineering and use her talents to conduct cutting-edge research to benefit society. She began conducting independent research on tissue-engineered ligament replacements, during the same year she tore her ACL, under the guidance of Applied Biology and Biomedical Engineering Professor Kay C Dee.

The ACL does not heal when injured and as many as 95,000 people undergo surgical ACL reconstruction each year in the United States. Currently, there are no good options for ACL reconstruction. The best option is to cut out a piece of the patient's patellar tendon and use it to replace the ACL. This requires additional surgery, pain and extended recovery time. Without a stable ACL, the knee is prone to collapse. In a best-case scenario this causes limited mobility, hip and back pain, and severe long-term problems. In the worst of cases, the patient can't walk.

During her research, Miller discovered a key dehydration step in the fabrication of collagen fibers, which strengthened the fibers by 500 to 10,000 times. Her discovery meant tissue-engineered collagen is now strong enough to replace real, human ligaments.

Miller's research hasn't gone unnoticed. She made a presentation before professional researchers, doctors and biomedical engineering professors at the prestigious 2007 Society for Biomaterials national meeting. Miller also had a summer internship in 2007 with the National Institutes of Health, which attracts the best and brightest students from throughout the world. She researched musculoskeletal abnormalities in people with Cerebral Palsy, hoping to improve mobility treatment for patients.

"Rachel's willingness to help and support the other students in the program was a clear sign of her respect for others and a true mark of her integrity of character," stated Frances Gavelli, principal investigator for the NEH's physical disabilities branch. "She is self-motivated, is eager to learn and quickly returns this knowledge back to her community."

This school year, Miller has been part of a team of senior biomedical engineering students that have designed a device that tests aspects of the interactions of athletic shoes with turf or grass playing fields.

"It's really frustrating not to be able to get around very easily," said Miller, who came to Rose-Hulman from Spring, Texas. "My own injuries put my research into perspective how much you can help people by giving them mobility."

Miller's passion for helping people extends beyond her research. Hauter said her altruism is understated.

"She downplays it," he said. "But it's part of who she is; it's part of her day."

Dee also noted this characteristic in Miller's classroom and laboratory endeavors.

"She's unflappable—calm in the face of challenge," the professor said.

Miller is currently awaiting admissions decisions from several physical therapy and movement science graduate programs.

Miller becomes the fifth Rose-Hulman student to be recognized on the All-USA College Academic Team. Eric Clifft (Mech. Eng., '07) was a second-team choice last year, Chad Zarse (AB, '05) was a second-team choice in 2005, Rachel Lukens (Elect. Eng., '03) was a second-team choice in 2003 and Dylan Schikel (Mech. Eng., '93) was an honorable mention selection in 1993. ■

ENGLISH PROFESSOR A DOUBLE WINNER ON JEOPARDY!

Richard House, right, on the Jeopardy set with Alex Trebek.

Richard House's knowledge of literature, show business, sports and other trivia made the Rose-Hulman English professor a two-night champion on the popular nationally syndicated "Jeopardy!" television game show this spring.

Knowing that the Emmy Award represented the "muse of art" and that Toronto hosted the first baseball World Series game played outside the U.S., House correctly answered the Final Jeopardy category – in the form of a question, of course – to defeat four challengers by a slim $5 margin over the course of two shows, broadcast on April 3-4. He lost on April 7 when he mistakenly thought that Diego Rivera had assassinated Pablo Picasso instead of Russian leader Leon Trotsky in the show's final question.

"It was a fun experience," stated House, who won more than $45,000 for his efforts. "When you're out there on that set and the theme music starts, it's a pretty intense experience."

The segments were taped in December in California -- three weeks before Richard's wife, Traci, gave birth to the couple's first child, Sophia. Her college trust fund will reap the game show treasures. "Jeopardy!" host Alex Trebek commended House for putting the show over the impending birth.

"You put 'Jeopardy!' ahead of your wife and baby... Good for you," teased Trebek.

On the April 3 show, House's knowledge of literature came in handy in the Literature Puzzles Me category, correctly figuring out puzzles about *Catcher in the Rye* and *Howard's End.* Then, on April 4, he scored $3,000 on a Double Jeopardy *Plays and Playwrights* question about Samuel Beckett's *Waiting for Godot* Play.

Other categories over the course of House's "Jeopardy!" appearances included 10 Letter Words, Questions From a 1927 Quiz Book, "I" Pod and Who Might Have Said It?

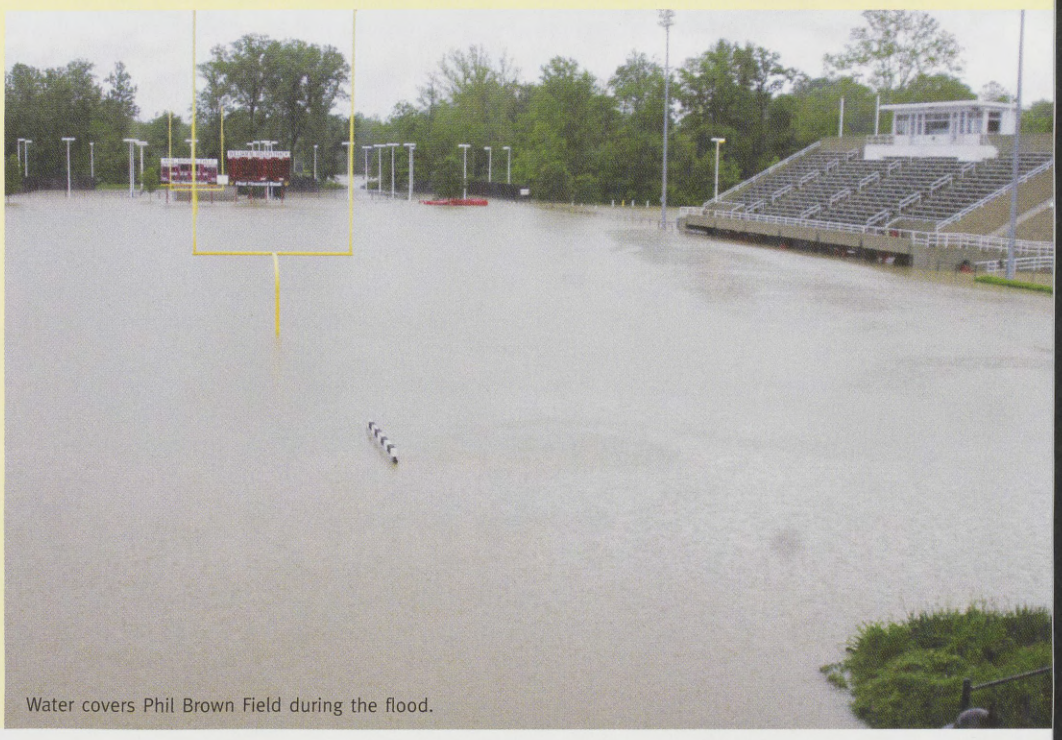
House teaches courses in technical communications and contemporary American fiction. ■

FLOODWATERS CAUSE MINIMAL DAMAGE ON CAMPUS

The heavy rains that inundated West Central Indiana during early June brought high water to Rose-Hulman athletic fields, but caused minimal damage.

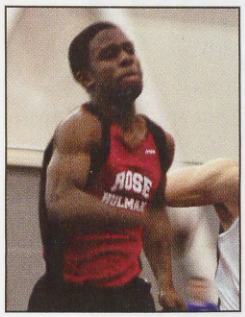
On Saturday (June 7) morning, water covered Rose-Hulman's fields used for football, soccer, intramurals, softball, baseball and track. Also, the college's tennis courts were underwater as well as the parking lot west of the Sports and Recreation Center.

There was no major damage because of the water, according to Wayne Spary, vice president for facilities operations. The water receded that afternoon, and cleanup was under way Monday morning to remove mud and dirt left behind by the high water. Spary also pointed out the dam on the large campus lake was never in jeopardy during the weekend. ■



Water covers Phil Brown Field during the flood.

THREE STUDENT-ATHLETES NAMED ESPN ACADEMIC ALL-AMERICANS


Thomas Reives


Ashley Montgomery


Michael Matsui

Rose-Hulman Institute of Technology placed three student-athletes on the *ESPN The Magazine* Academic All-America Team in results released by the College Sports Information Directors of America.

Thomas Reives captured first-team Academic All-American honors in track and field, with Ashley Montgomery claiming second-team recognition in softball and Michael Matsui earning third-team accolades in baseball.

Rose-Hulman has now tallied 75 CoSIDA Academic All-Americans in school history, including at least one honoree for the last 23 years. Reives became the second student-athlete in Engineer history to claim the award in two different sports in his career (football and track) and emerged as just the third three-time honoree at Rose-Hulman.

Reives was one of just 15 individuals named to the College Division Men's Track and Field/Cross Country First Team from over 600 NCAA Division II, III and NAIA institutions across the nation. He previously earned second team honors in football (2007) and track and field (2007) during his college career.

Montgomery became the first softball Academic All-American in school history, while Matsui claimed the 13th baseball award. ■

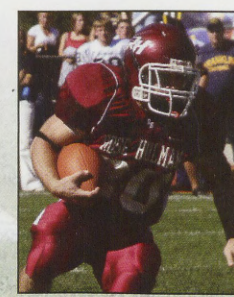
ROSE-HULMAN FOOTBALL TEAM SHUTS OUT ITALIAN ALL-STARS ON FOREIGN TRIP

Rose-Hulman Institute of Technology recorded a convincing shutout victory over the Lenaf All-Star Football Team in an exhibition game as part of the Fightin' Engineer trip to Italy in June.

The team spent nine days throughout Italy, touring Rome, Florence and Venice along with playing the game in Muggia. Highlights of the tour included the Colisseum, Pantheon and historical religious sites of Rome, the marble cathedral in the Piazza del Duomo in Florence, and the Piazza San Marco on the largest island in Venice.

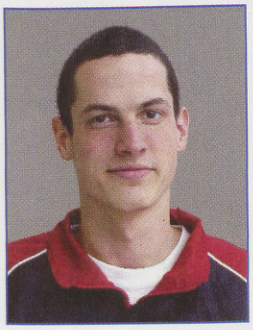
Within the game, the Engineers scored seven first half touchdowns in five different ways to secure the victory. Senior Tim Schrock earned game Most Valuable Player honors after scoring back-to-back touchdowns in the first half, including a 66-yard kickoff return for a score and a 35-yard sprint to the endzone. On the day, Schrock gained 69 yards on three carries and added the kickoff return score to pace the effort.

Sophomore Austin Davis added a pair of defensive touchdowns to spark a 54-point first-half effort. Davis returned a fumble 12 yards for a first quarter score and added a 65-yard interception return midway through the second frame. ■


Senior Tim Schrock was game's MVP.


The Rose-Hulman football team in Italy.

2003 GRADUATE MATT SMITH PROVISIONALLY QUALIFIES FOR OLYMPICS



Matt Smith

Rose-Hulman Institute of Technology graduate Matt Smith has provisionally qualified for the 2008 Olympic Games in the 100-meter breaststroke after reaching the Olympic qualification time last spring.

Smith, a 2003 mechanical engineering graduate, surpassed the Olympic qualifying mark of 1:03.72 with his performance of 1:03.29 in the 100-meter breaststroke at the 29th Annual European Swimming Championships.

Smith, who holds dual citizenship in the United States and Estonia, would represent the nation of Estonia at the 2008 Olympics if his qualification time remains the nation's best effort on July 15. His time currently ranks No. 1 by more than a second over countryman Martin Lilvamagi, who completed the course in a time of 1:04.86, and stands as No. 51 in the world this year.

Smith is also attempting to qualify in the 200-meter breaststroke at the European Swimming Championships. His career-best time of 2:19.05 is less than a second away from the Olympic qualification standard of 2:18.37. Smith is the only Estonia native entered in the 200-meter breaststroke.

Smith became Rose-Hulman's first swimming national champion in 2003, claiming NCAA Division III title honors in the 100-yard breaststroke.

The four-time All-American finished fifth in the 200-yard breaststroke in 2003, after claiming All-America honors in both events in 2002.

Smith also became the first Academic All-American in swimming program history in 2002.

He was also named the 2002 Southern Collegiate Athletic Conference Tri-Swimmer of the Year, won eight individual conference titles and established eight school records. The swimming competition in the 2008 Olympic Games will be held at the Beijing National Aquatics Centre in China from August 9-16. ■

ROSE-HULMAN CLAIMS HCAC COMMISSIONER'S CUP

Heartland COLLEGIATE ATHLETIC CONFERENCE

The Rose-Hulman Institute of Technology athletic department earned the 2007-08 Heartland Collegiate Athletic Conference Commissioner's Cup for its all-around athletic performance during the academic year.

The Commissioner's Cup is awarded to the institution accumulating the most standings points in the HCAC's 19 league championship events. Rose-Hulman won the award with 103 points, followed by Anderson (93.5) and Franklin (91.5).

In addition, Rose-Hulman tied with Franklin College in the HCAC Men's All-Sports Trophy standings. Both schools scored 53.5 points in the 10 men's sports.

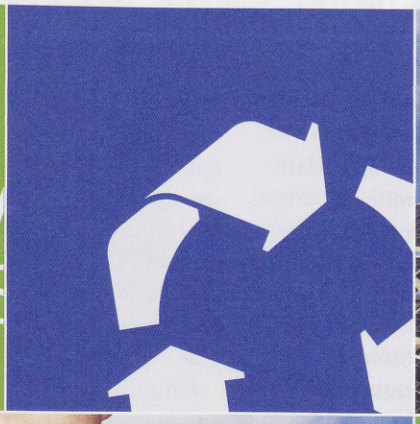
Manchester College claimed the Women's All-Sports Trophy by just 1.5 points over Rose-Hulman's effort. The Engineers tallied 49.5 points in nine women's sports.

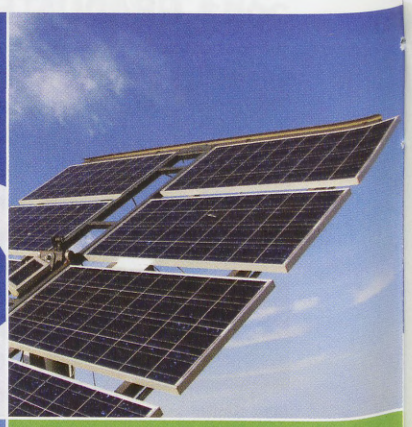
During the 2007-08 academic year, Rose-Hulman claimed team championships in women's soccer, softball, men's swimming and men's track and field. The Engineers placed second in women's golf, women's swimming and men's soccer, with third-place finishes recorded in men's and women's tennis, men's and women's cross country, football, wrestling and baseball.

"The Commissioner's Cup is a huge credit to our coaching staff, student-athletes and everyone connected with Rose-Hulman athletics. I can't say enough about the commitment and energy that our teams spent this year. This was a true team effort, with so many sports contributing to the award in a big way," said Rose-Hulman athletic director Jeff Jenkins.

This marks Rose-Hulman's first Commissioner's Cup and the first athletic department award honoring the efforts of the combined men's and women's teams. The Engineers previously won the Indiana Collegiate Athletic Conference Men's All-Sports Trophy in 1996. ■

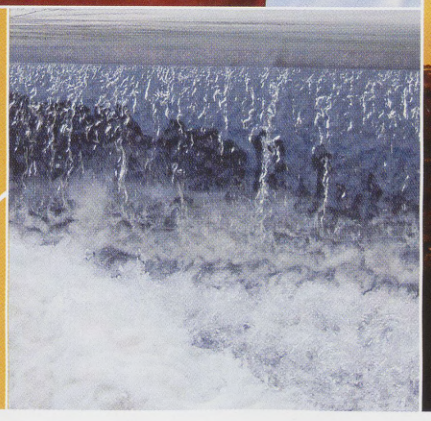
sustainability on campus





going green

green engineering



Rose-Hulman students are gaining the general knowledge necessary to form their own opinions about energy and the environment through new campus educational initiatives, design projects and research programs that strive to create engineers who are better environmental citizens.

A new elective course is teaching energy and the environment from an engineering perspective. Topics covered included fossil fuel-based technologies (coal, oil and natural gas), renewable or carbon-free energy sources (wind, solar, nuclear and hydrogen), carbon and energy balances, and climate modeling for the Earth. Nineteen students participated in the course, taught by Jessica Anderson, visiting professor of chemical engineering who has been active in green engineering. The class was composed of a mixture of juniors and seniors in several majors, including chemical engineering, civil engineering and engineering management.

"I feel that every engineering major should be exposed to 'environmental engineering,' if not just to realize the large impact that engineers have on the technology and health of the planet, and what can be done to 'green' the world," states Anderson.

Two-thirds of the course's students agreed that the course made them more interested in changing their energy consumption through conservation. All of the students agree that they would incorporate green thinking into their future project designs.

"Hopefully this impact (creating environmentally conscious engineers) will be realized in the future for Rose-Hulman engineers," Anderson stated. She believes that continuing to offer the course could make Rose-Hulman a more environmentally friendly institution.

Coming Up With Creative Ideas

Turbine and hydropower facilities, geothermal heat pump systems and cost-cutting lighting control systems were among several solutions developed by junior students in hopes of making the campus and Terre Haute community more sustainable. The ideas were part research for a final poster presentation and paper that culminated a winter technical communications course taught by English professors Jessica Livingston, Corey Taylor and Julia Williams.

Installing motion detectors and timing devices in classrooms were sustainable ideas advocated by one team. Another group proposed an integrated solar thermal heating and cooling system for campus academic buildings and residence halls.

For Terre Haute, one group proposed that switching school buses to biodiesel could improve fuel economy and emissions, while lowering daily operating costs. A team also proposed a hydropower facility for the community.

"There were a lot of original ideas developed by our students," Taylor said.

Student Advocates for Clean Water

Mark Ellis, a senior biomedical engineering major, joined college students from around the country in urging Congress to reinvest in America's aging water systems as part of World Water Day, an international day of action founded by the United Nations to address the lack of safe water around the world.

Later, Ellis spent two weeks in Haiti collecting soil samples for a study at Rose-Hulman that is examining what vegetation could thrive on the country's barren lands created by deforestation.

"Water is something that should be safe, clean and affordable for everyone," stated Ellis, whose extensive travel experiences (from Australia to Japan to Haiti) have provided firsthand knowledge of the global water crisis, and motivated him to seek local solutions.

Ellis is among the next generation of water activists committed to keeping tap water clean and safe for all Americans.

"We don't want water to be the oil of the 21st century," he stated.

Research Examines Bio-Fuel Possibilities

The possibility of developing bio-based fuels that could improve fuel economy and lubricity while also reducing damage to engine parts is part of an ongoing research project being conducted by chemistry, mechanical engineering and chemical engineering faculty and students.

Aspects of the project have included focusing on developing a bio-based oil to be mixed with gasoline for spark ignition two-cycle engines (23 cc Poulan WeedEater leaf blower); developing an ethanol-based fuel for spark ignition automobile engines (Chevrolet 305 CW V8) that would not contain any gasoline; examining ways to produce salt-free biodiesel fuels; and studying the surface interactions of bio-oils and engine materials.

The project is being led by Michael Mueller, head of the Department of Chemistry, and supervised by mechanical engineering professors Patrick Cunningham and Allen White. The results of the two-cycle oil study were presented at the Society of Automotive Engineers' 2008 Powertrains: Fuel and Lubricants Congress in June. ■

Joshua Knoefler has Passion for Sustainable Development

by Dale Long

Joshua Knoefler has seen the future of engineering, construction and land use—a landscape consisting of sustainable communities with renewable energy sources, high-tech cooling, cutting-edge water recycling systems and innovative forms of "green" living.

Now, he's looking for someone who shares his passion for eco-friendly development.

Knoefler (Civil Eng., '97) thought he had found his dream community in the Green Village concept that his company, Knoefler Enterprises, proposed for National City, Calif., an ideal location near San Diego with abundant wind and solar resources and land constraint issues. The first project of its kind in the country, the "village" would have included over 1,100 condominiums, 220,000 square feet of retail and commercial space, and parks in a four-block area. It would have also been a community with "green" energy, housing, common facilities, its own recycled water system that could produce reclaimed water for irrigation and renewable energy sources.

Originally, the Terre Haute, Ind., native was hailed as a visionary and one of the "50 People to Watch in 2007" by *San Diego Magazine.* However, after spending millions and more than two years planning, Knoefler withdrew his proposal in August 2007, losing a battle with a new mayor who did not support water recycling.

"I'm still searching for my little slice of nirvana, where people share my vision, are willing to make policy changes, have visionary political leadership and are willing to take risks," says Knoefler, a 34-year-old who is the son of real estate developers.

"I'm a true believer that you fail at 100 percent of things that you don't try," he asserts. "It takes a lot of belief and passion to change the process and sell the ideas about sustainability and 'green' development."

Knoefler first became interested in examining the environmental impact of community development while starting a recycling center for his high school. At Rose-Hulman, for a technical communications project, he examined the advantages of sustainability for subdivision development. He gained professional engineering experience during five years (1997-2002) managing projects in South America, Croatia and America with the Parsons Corporation. Then, Knoefler returned to Terre Haute for a year to assist with the engineering, marketing and project management for his family's real estate ventures. He still serves as project manager for the business, while also being president and chief executive officer for Knoefler Enterprises, a San Diego-based company that specializes in sustainable development.

"I found what I love," Knoefler states while talking about sustainability. "There's a holistic approach to planning the process of sustainable development that, I believe, is the future of all development... 'Green' building is a process, not a technology. It could be placed in any building across America."

Now, Knoefler is taking his Green Village concepts to other communities—anyone and anywhere that will give him an opportunity. There are three projects being considered in California, and derivatives of sustainability are being promoted in this year's presidential campaign. However, completion of the first development may still be a decade away.

"While 'green' may be a popular throw-away term in today's society, realistically, full-scale sustainable development could be as far as 50 years away. We have to start somewhere and why not now?" he asks. "It takes a lot of pain, tears and, most importantly, commitment. There has to be a belief that you're doing the right thing and you have to be passionate about it. What am I doing this for? I want to do something that led the way in changing people's thinking... I believe that regret is worse than failing, and I don't intend to fail." ■

"There's a holistic approach to planning the process of sustainable development that, I believe, is the future of all development... 'Green' building is a process, not a technology. It could be placed in any building across America."

"It (Green) takes a lot of pain, tears and, most importantly, commitment. There has to be a belief that you're doing the right thing and you have to be passionate about it."

ALUMNUS RICHARD HAUT MAKES AN ENVIRONMENTALLY FRIENDLY CAREER CHANGE

by Bryan Taylor

Haut holds a master's from the University of Tennessee and a Ph.D. from Old Dominion University.

As a 22-year manager for oil giant Exxon, Rich Haut helped leave some big footprints in the global environment. They were steps that were not as eco-friendly as Haut would have liked.

So after a gradual "awakening" to environmental concerns, Haut retired from the energy business in 2002 and went to work for Houston Advanced Research Center (HARC), a nonprofit center "dedicated to improving human and ecosystem well-being through the application of sustainability science and principles of sustainable development." The 1974 mechanical engineering alumnus holds the position of senior research scientist.

Haut still is involved in the energy industry, but now as an adviser helping companies reduce their ecological footprints. He also represents other organizations that support environmentally responsible practices in business and industry.

Moving from private industry to a nonprofit group meant a pay cut, but to Haut, it was a shift worth making. "My true passion all along has been about the environment and reducing the environmental footprint of the oil and gas industry. I basically got to a point in my life where I asked myself, 'What do you want to be remembered for?'"

As he pondered the career change, Haut reached back in time and took some earlier-provided career advice from his mother who told him: "Always leave the world better than you found it. Don't take any more than you need. Don't hurt anyone or anything."

An example of his current work can be found with the FMC company's offshore development engineering in Norway. He has been onsite, consulting with the company to help design equipment, systems and processes in an environmentally friendly way. "I'm challenging the engineering and design teams to consider components used, manufacturing processes, volume of material and chemicals."

Although he has moved to an environmental focus in his work, Haut can still do engineer-speak with the best of them. He moves into a technical focus when discussing the issue of expandable casings when drilling for oil or natural gas. That process leaves a smaller hole in the earth. He also encourages companies to consider the full life of the equipment they use and what impact it will have when no longer used and left at the bottom of the ocean.

His environmental reach extends beyond the oil patch. Recently he worked with the City of Houston to secure federal government funding to analyze how to incorporate solar energy into the City's energy infrastructure. Over the next two years Rich will lead the team to investigate this market transformation.

Haut has been invited to speak at various conferences, has authored numerous papers, has been awarded various patents and has several patents pending. He frequently speaks about sustainable development, the built environment and the offshore/energy industry. In addition, he has given testimony to the Department of Energy concerning the future of energy security in the U.S. He also serves on the U.S. Green Building Council - National Research Committee where he represents all nonprofits across the U.S., and on the board of the Research Partnership to Secure Energy for America (RPSEA), where he chairs the Environmental Advisory Group. He also was cited in a recent *Wall Street Journal* article about oil- and gas-industry executives moving into a more environmentally focused career path.

Prior to joining HARC, Haut spent 25 years in the energy industry where he led various projects, analyzed offerings for key technologies or niche capabilities and was responsible for developing synergistic, strategic relationships in the energy industry. He also was instrumental in establishing joint ventures and other joint industry programs, including the start-up of Enventure Global Technology where he was the Chief Operating Officer, over a two-year time period, during which the operation moved from conception to profitability. ■

"GREEN" ACTIVITIES FLOURISH ON CAMPUS

During the past year, the Rose-Hulman campus has made a major commitment to "going green" in all campus activities.

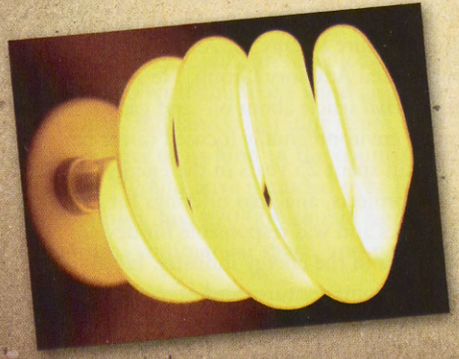
President Gerald Jakubowski committed the college to climate neutrality when he signed the American College & University President's Climate Commitment last year. A major part of the Rose-Hulman effort has been the establishment of a Sustainability Team that includes staff, faculty and student representation.

The group seeks to promote the responsible management of resources through the reduction of waste, shared learning and community involvement, according to Tuesday Strong, chair of the sustainability team. "We are working to unite efforts on campus to promote a culture of sustainability that reduces our environmental footprint while contributing to the development of our students as leaders and responsible citizens."

Some of the day-to-day policies put in effect include the following:

- Green cleaning throughout campus;
- Touchless soap and paper dispensers in all buildings;
- Nighttime temperature setbacks in large areas; and
- Replacing incandescent bulbs with energy-saving fluorescent lights.

Other activities under way include an on-campus recycling program, a campus-wide sustainability assessment along with testing occupancy sensors and waterless urinals.



Also, the campus has:

- Conducted two electronic-waste days on campus where old computers, printers, and monitors were collected and taken to an electronic recycling center;
- Committed to donating $2 to Trees, Inc., for every laptop computer purchase annually; with funds to go toward the purchase of trees to counteract the generation greenhouse gases;
- Became one of 90 colleges to pilot a sustainability rating system for higher education;
- Coordinated a campus Earth Day celebration;
- Collected more than six tons of recyclable material during the middle of the school year;
- Prepared a grant proposal to expand the campus recycling center; and
- Took an inventory of greenhouse gas emissions on campus.

For more information about Rose-Hulman's on-campus activities concerning sustainability, visit the team Web page at **www.rose-hulman.edu/sustainability**. Also, read the President's Climate Commitment at **http://www.presidentsclimatecommitment.org/**. ■

President Gerald Jakubowski handles the shovel during a community tree-planting.

Professor Bill Eccles, right, assists students with a tree-planting at Hatfield Hall.

Wes Bolsen is a team player at the Warrenville, Ill., based company.

"Let's make American farmers the Saudi oil kings of the next century."
– Wes Bolsen

WES BOLSEN HELPS BROKER 'NEXT GENERATION ETHANOL' DEAL

by Dale Long

The biggest news coming out of this year's North American International Auto Show wasn't the latest vehicle model being developed by automakers but the announcement of General Motors Corp.'s partnership with a relatively unknown cellulosic ethanol company that could enable the production of ethanol for less than $1 a gallon.

This groundbreaking development was brokered and massaged for nearly a year by Wes Bolsen (Elect. Eng., '00), part owner, chief marketing officer and vice president of business development for Coskata, Inc., an 18-month-old company based in Warrenville, Ill.

Coskata's unique three-step "next generation ethanol" process converts carbon-based materials into synthetic gas using well-established gasification technologies. After the chemical bonds are broken using gasification, patented microorganisms convert the resulting syngas into ethanol by consuming carbon monoxide and hydrogen in the gas stream. Once the gas-to-liquid conversion process has occurred, the resulting ethanol is recovered from the solution using "vapor permeation technology."

The Coskata process has the potential to yield more than 100 gallons of ethanol per dry ton of carbonaceous feedstock, reducing costs to less than $1 per gallon, according to Bolsen.

Also, Coskata claims that its process uses less than one gallon of water to make one gallon of ethanol compared to three gallons or more for other processes.

"Our process addresses many of the constraints lodged against current renewable energy options, including environmental, transportation and land-use concerns," Bolsen said. "Alternative fuels from a variety of new sources and raw materials are coming faster than a lot of people realize." Then, the fifth-generation central Illinois farm boy proudly stated, "Let's make American farmers the Saudi oil kings of the next century." General Motors executives like those messages, with Chairman and CEO Rick Wagoner stating at the auto show that "we are very excited about what this breakthrough will mean to the viability of biofuels and, more importantly, to our ability to reduce dependence on petroleum."

Wagoner's announcement showed that GM is ramping up its efforts to advance the production of cellulosic ethanol rather than corn-based ethanol. GM produces more than one million flexible-fuel vehicles per year and, in the United States, has more than 2.5 million FFVs on the road. The automaker is committed to making half its production flexible-fuel capable by 2012.

Continued on page 14

INSIDE THE "NEXT GENERATION ETHANOL" PROCESS

Specially patented microbes do their work inside Coskata's reactors, which look like long tubes filled with membranes. That membrane technology is already used in water purification, according to Coskata President and CEO Bill Roe. Inside the pipes are filaments as thick as electrical wire. Hydrogen gas and carbon monoxide move through the inside of the filaments. Anaerobic microbes feed on the gases and release ethanol into water. The ethanol is separated from water using membranes as well.

Creating the gases used by the microbes is done through gasification. One such example is the Westinghouse Plasma gasification system. The gasifier generates temperatures hotter than the sun's surface—5,500 degrees Celsius. But the work of the microbes does not require high heat or pressure.

The process uses less than one gallon of water to produce a gallon of ethanol, compared to three or four gallons of water needed for ethanol made by conventional distillation methods. Using enzymes to break down cellulose instead of gasification requires six to seven gallons of water for a gallon of ethanol.

Source: Coskata Inc.

Continued from page 13

Wes Bolsen on site.

David Cole, chairman of the Michigan-based Center for Automotive Research, praised GM's equity investment in Coskata.

"I think there's a potential for this statement here to be one of the most important of the last 50 years in terms of the auto industry," Cole said. "Just look at the value of displacing, say, a million barrels a day of petroleum with ethanol. I mean, it's huge."

And, everything started with a simple business development "cold call" in early 2007 from Bolsen to Mary Beth Stanek, director of GM's environment and energy and commercialization division.

"Wes was key to the development of the partnership between Coskata and General Motors," Stanek said. "General Motors and Coskata plan to develop sustainable transportation fuels globally and Wes will be integral to those efforts."

And, of course, Bolsen had big fans at Coskata. "I hired Wes with the expectation that he would help drive the business development function at Coskata and provide some entrepreneurial activity support as well," stated Coskata founder Todd Kimmel. "What I got was a highly motivated, resourceful, smart and thoughtful young executive that not only spearheaded the business development activities he was hired to focus on, but stepped up to the plate on marketing, recruiting, finance and many other items that were thrown his way."

On the web at **www.coskata.com** ■

CENTER SERVES AS ACADEMIC RESOURCE FOR SUSTAINABLE DEVELOPMENT

For the past five years, Rose-Hulman's Center for Sustainable Development has made itself a resource for faculty and the furtherance of sustainability within the college's curriculum.

The goal of the center is to provide a central clearinghouse for materials related to sustainable development, according to Co-Chair Michael Robinson, who also is an assistant professor of civil and environmental engineering. The other co-chair is Penney Miller, assistant professor of chemistry.

In addition to the faculty's growing interest in the topic, more students are seeking information about sustainable development in the engineering and science disciplines, Robinson said.

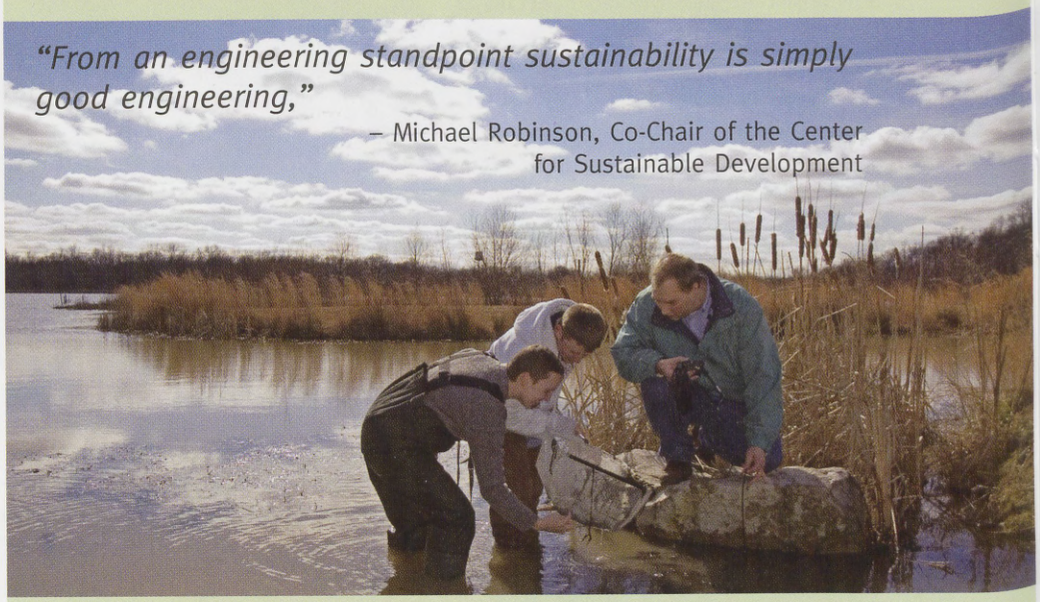
"From an engineering standpoint sustainability is simply good engineering," Robinson said. "It is protective of the environment. It is not 'pro' or 'anti' anything. When we look at design and processes, we need to minimize the impact on the environment and that's just good engineering. This is not an environmental movement.

"If our students want to be good engineers, companies are going to be looking for these things in their portfolios."

Looking ahead, the center could see an expansion of areas such as sustainable transportation and renewable energy. For more information, visit the center's Web page at **http://www.rose-hulman.edu/~robinson/csd/.** ■

"From an engineering standpoint sustainability is simply good engineering,"

– Michael Robinson, Co-Chair of the Center for Sustainable Development



The center provides a place for faculty to learn about academic research and grant opportunities related to sustainable development curricula. It lets them learn ways to incorporate sustainability into their curricula, Robinson explained.

Sustainability is applicable across all disciplines, and the center makes those avenues known, Robinson said. For example, in a materials design class, a homework problem could be developed to deal with recycled materials.

While the center is endorsed by the college administration, it is driven by faculty. One of the key gains from the center has been coordination among faculty in the sustainable area. "It surprised me that as small as we are, there are many things going on and we didn't know about it," Robinson said.

CLASS OF 2008 ENCOURAGED TO MAKE A DIFFERENCE

Members of Rose-Hulman Institute of Technology's 2008 graduating class were encouraged to utilize their unique problem-solving skills and entrepreneurial spirits to make a difference in their careers and communities during the college's 130th commencement on Saturday, May 24.

Joining Rose-Hulman's list of nearly 12,000 worldwide alumni were 412 from the Class of 2008. President Gerald Jakubowski presented degrees to 376 bachelor of science graduates and 36 master's degrees candidates. Another 28 students participated in commencement, but won't receive their diplomas until completing graduation requirements this summer or next fall.

The college's commitment to helping others and showcasing scholarly excellence was commended by commencement speaker, U.S. Rep. Brad Ellsworth. "America needs your minds. We need your talents and your training, your compassion and your creativity. We need you to take what you have learned here, roll up your sleeves, and make a commitment to leave this world a better place than when you found it," stated Ellsworth, who is in his first term of serving Indiana's Eighth District after 24 years in law enforcement. "I hope you choose to take up the challenges America faces and make them your own." Ellsworth received an honorary of doctor of humane letters.

Jakubowski noted that "Rose-Hulman has prepared you to enter the workforce or attend graduate school; to become productive employees; and to be contributing members of society... Let me assure you that you are ready and prepared to venture forward. It's time for you to go out and enrich the world."

Five graduates received the Heminway Medal for earning the highest grade point average during their four years at Rose-Hulman. Achieving perfect 4.0 GPAs were Samantha Dick of Fort Wayne, who earned degrees in biomedical engineering and mechanical engineering, with a minor in Japanese; Peter Outcalt of Cincinnati, Ohio, who earned degrees in computer science, software engineering and mathematics; Robert Lemke Oliver of Madison, Wis., a mathematics graduate; Amanda Grantz of Rapid City, S.D., a chemical engineering graduate; and Aaron Meles of Otsego, Mich., a mechanical engineering graduate.

Brad Ellsworth, center, receives his honorary degree from President Gerald Jakubowski as chairman Robert Bright prepares to bestow the hood.

Dick also received the John Tuller Royse Award, which recognizes outstanding leadership, academic achievement and participation in extracurricular activities. She performed undergraduate research at Worcester Polytechnic Institute and with the Joint Replacement Surgeons of Indiana Research Foundation; has been an officer in numerous organizations, including the Delta Delta Delta sorority, the Rose-Hulman Chorus and the Biomedical Engineering Society; was a tutor in the learning center and served various social causes. She will be an intern at Stryker Medical in Kalamazoo, Mich., for the summer before returning to Rose-Hulman for master's degree studies.

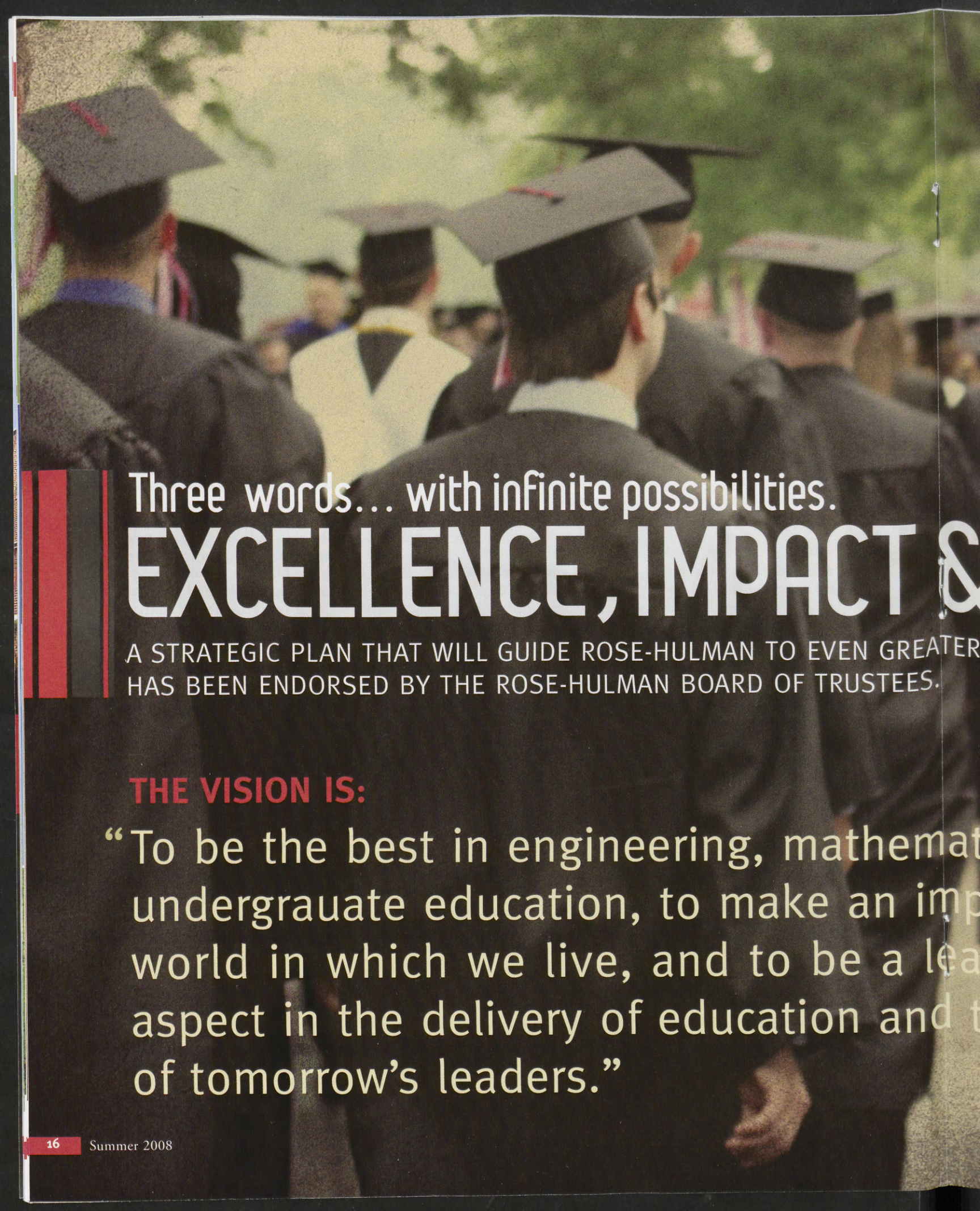
Emily Albert of Decatur, Ill., received the Herman Moench Distinguished Senior Commendation, voted by faculty and staff members. The award honors a student of exemplary character who has been influential in making Rose-Hulman a better place. Albert was president of the Student Government Association, vice president of the Blue Key Honor Society, secretary for the Student Alumni Association, publicity co-chair for the 2006 Career Fair and a member of the Chi Omega sorority. She also was a tutor in the Percopo residence hall learning center, served as a counselor for the Fast Track Calculus program, and helped organize the first College Relay for Life in Terre Haute for the American Cancer Society. Albert earned degrees in chemical engineering and biochemistry/molecular biology.

Darin Voorhies of Bloomington, Ind., received the Outstanding Master's Thesis Award for his biomedical engineering thesis on "A Technique for Tracking Fluorescent Microspheres for the Determination of Retinal Arteriolar Blood Flow in Rats." Jameel Ahmed, associate professor of applied biology and biomedical engineering, was Voorhies' faculty advisor.

Bill Weiner, associate professor of applied biology and biomedical engineering, received the Dean's Outstanding Teacher Award from Arthur Western, vice president of academic affairs and dean of faculty.

Julia Williams, professor of English and executive director of the Office of Institutional Research, Planning and Assessment, received the Board of Trustees Outstanding Scholar Award honor from Robert Bright, chair of Rose-Hulman's Board of Trustees.

Bunny Nash, manager of Hatfield Hall and director of student performing arts, received the President's Outstanding Service Award from Jakubowski. ■



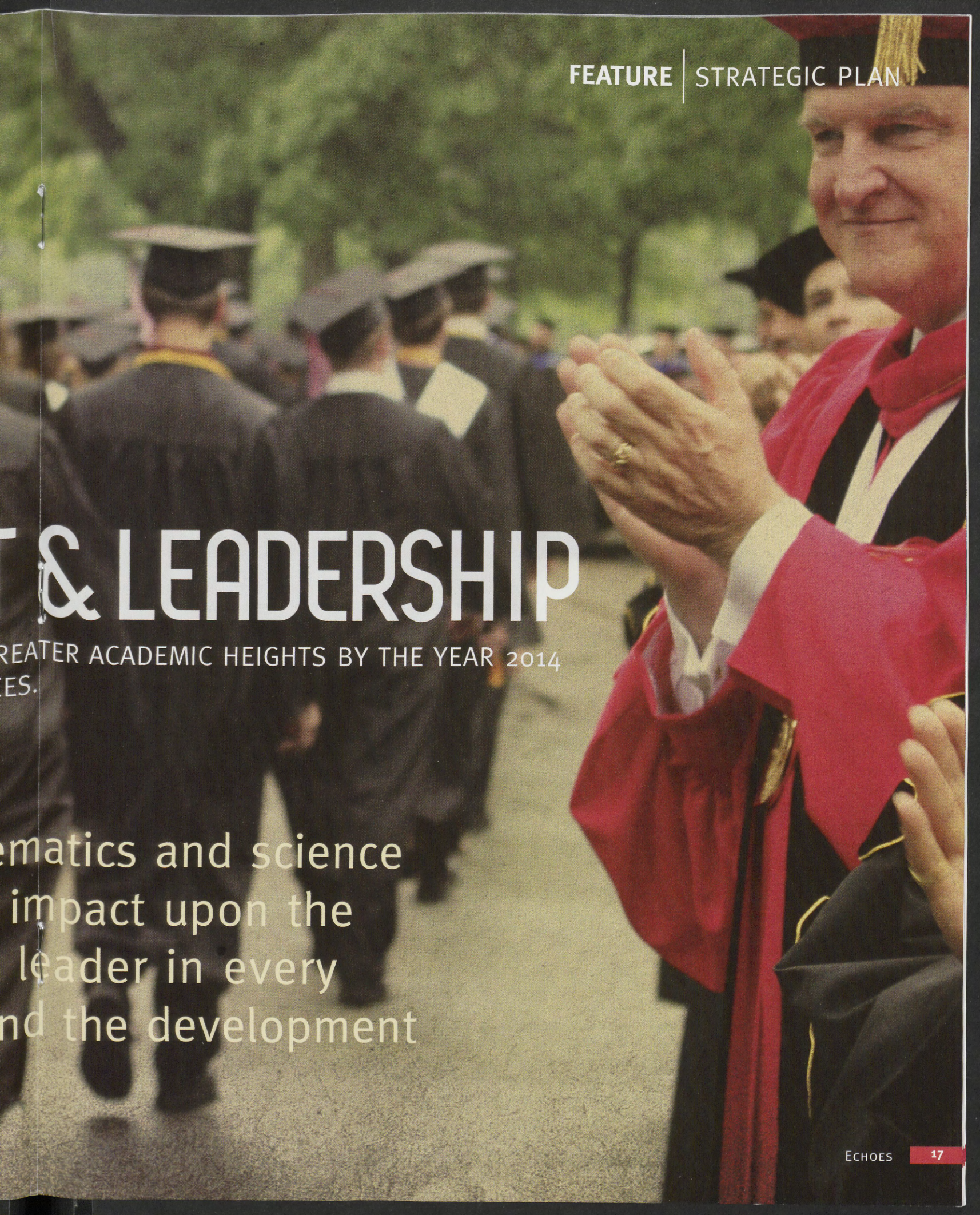
Three words... with infinite possibilities.

EXCELLENCE, IMPACT &

A STRATEGIC PLAN THAT WILL GUIDE ROSE-HULMAN TO EVEN GREATER
HAS BEEN ENDORSED BY THE ROSE-HULMAN BOARD OF TRUSTEES.

THE VISION IS:

"To be the best in engineering, mathemat
undergrauate education, to make an imp
world in which we live, and to be a lea
aspect in the delivery of education and t
of tomorrow's leaders."



T & LEADERSHIP

REATER ACADEMIC HEIGHTS BY THE YEAR 2014
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Excellence: Rose-Hulman will be the best, offering the highest-quality undergraduate education possible. This will require recruiting the brightest faculty, staff and students while providing forward-thinking academic programs.

Impact: Excellence in the absence of relevance means nothing. Therefore, Rose-Hulman will make an impact in the lives of its students and in the world in general. Our graduates will, in turn, make an impact on their professions, on society and on the world in which they live.

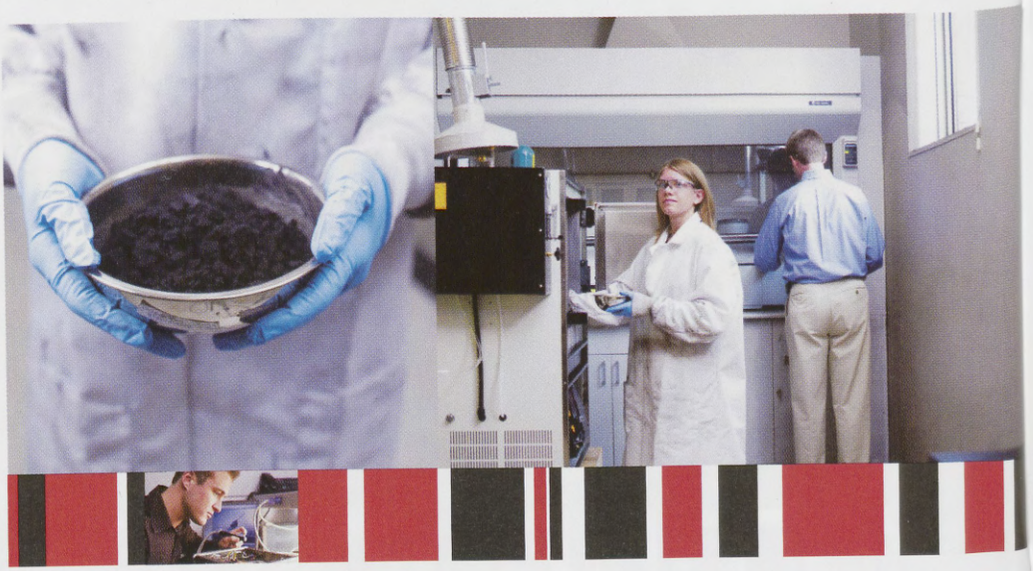
Leadership: Rose-Hulman will lead and be the role model in engineering, science and mathematics education. Not only must we be ready for the next change in education, but we will define what that change will be. Our faculty and staff will lead in their professions, and they will provide growth opportunities to students who will be the intellectual, technical, business and civic leaders of tomorrow.

Work on the plan evolved during the last three and a half years with input from students, faculty, staff, alumni, corporate partners, educators and other long-time friends of the Institute.

The Rose-Hulman of 2014 will reflect and embody the following characteristics that will distinguish Rose-Hulman from its competitors and advance its leadership position:

- A more diversified student body learning and drawing from each other's differences and similarities and therefore, resulting in a more diversified alumni body;
- With a focus on greater access and affordability the college will provide resources for student financial aid, resulting in future graduates with less indebtedness;
- An increased competitive edge in recruiting and retaining the very best faculty and staff;
- Academic programs featuring multi- and interdisciplinary courses and projects; and
- A bolder and more extensively recognized national position of excellence in engineering and science education.

The Strategic Plan - Excellence, Impact and Leadership is a vision formed against a backdrop of a rapidly changing world where the need for engineers, scientists and mathematicians has never been greater. It is a vision that sees Rose-Hulman facing increasing competition from other institutions for the best and brightest students, for faculty and staff who are dedicated to teaching and for limited philanthropic dollars. It is a vision that remembers, cherishes and builds on our strong heritage. It is a vision that will put Rose-Hulman at the forefront of providing the engineers, scientists and mathematicians needed to make our world a better place.



Excellence, Impact and Leadership will be approached on three fronts: academic initiatives, facilities and infrastructure, and access and affordability. These approaches also represent early discussions of the next comprehensive campaign for the institute.

ACADEMIC INITIATIVES

As the Rose-Hulman community examined its academic priorities for the coming decade, attention focused, as it has in past decades, on issues that impact society: the quality of life for individuals and nations. Our faculty and students explore the collective knowledge resulting from centuries of discovery and invention. Their studies run the gamut from the smallest particles to the edge of the visible universe, from the exquisite abstractions of pure mathematics to the down-to-earth practical details of buildings that are safe and machines that run reliably. Yet behind these explorations remains the fundamental quest for knowledge, not for its own sake, but for the betterment of humankind.

Academic initiatives for the next decade fall into six key strategic thrust areas:

- Energy and Environment
- Health and Safety
- Transportation
- Materials
- Information, Computation and Communications
- Biomedical Engineering.

INTERDISCIPLINARY APPROACH

An undergirding foundation for the college's academic future will be an interdisciplinary approach to curricular development. Rose-Hulman will honor the traditional disciplines such as chemical, civil, electrical and mechanical engineering. But we must move to a more multidisciplinary, interdisciplinary and transdisciplinary approach within the curriculum.

Problems such as energy, the environment, sustainability, and health care will require engineers from various disciplines. They will not be solvable within individual silos of engineering. Our courses must

SIX KEY ACADEMIC INITIATIVES

1. **ENERGY AND ENVIRONMENT**
Rose-Hulman must adopt an instructional collaborative, multidisciplinary program for energy studies focusing on energy education and research. The college also must include study of nuclear power and alternative fuels, all accompanied by a focus on sustainability.

2. **HEALTH AND SAFETY**
Rose-Hulman will grow its current activities into research and engineering for the betterment of human health and quality-of-life issues.

3. **TRANSPORTATION**
Rose-Hulman will build on its already strong advanced transportation systems initiative and model-based design. With ever-increasing emphasis on sustainability, petroleum independence and emissions reductions, the future transportation sector will continue to need the highest caliber engineers.

4. **MATERIALS**
One of the most urgent technical needs of U.S. industry is found in the area of advanced materials. Rose-Hulman will form an instructional Collaboration for Materials Science and Engineering to meet this pressing need.

5. **INFORMATION, COMPUTATION AND COMMUNICATION**
As the information explosion spreads throughout the world, Rose-Hulman will stay on the front end of computation and communications across all disciplines. The college will expand its offerings in computational biology, high-speed communications and digital-based entertainment.

6. **BIOMEDICAL ENGINEERING**
Biological sciences will be the leading edge in the next century. Rose-Hulman will build on its already strong biological foundation.

embrace a transdisciplinary approach while elevating the integration of sciences and mathematics with engineering.

EXPANDED CURRICULUM

To take a truly strategic approach to academics, Rose-Hulman is considering additional programs to make our graduates more competitive in the marketplace. Students need to be exposed to business skills, management techniques and entrepreneurship. The strategic plan calls for expanding our graduate engineering management program into an engineering management, entrepreneurship and business program and making it available to undergraduate students as well.

Rose-Hulman also must continue to evolve its bioinitiative started 10 years ago. The bio sciences will be to engineering and science this century what physics was to those fields during the last century.

GLOBALIZATION

As we look ahead to curricular changes and the development of interdisciplinary programs, we also must address the need to further incorporate globalization into curriculum and campus conversations. Already, engineers located across the world participate in design teams that allow work to continue 24 hours a day. Chances are very high that a Rose-Hulman graduate will have to work with companies and engineers outside the United States at some time during his or her career. We must prepare graduates for this reality by exposing them to other customs, cultures and languages. Our goal is to make sure that 100 percent of our students have some sort of an international experience before they graduate. The statement that "the world is flat" has moved from cliché to reality. Our students must be ready to perform as leaders in that world.

DIVERSITY

Tied to globalization is the need for improving diversity in our campus community. For a number of reasons, including our geography and the history of engineering enrollments, Rose-Hulman is mostly white, male and Midwestern. Our students are educated in an environment that does not completely reflect the society in which they will utilize their Rose-Hulman education. Diversity is not tied solely to the color of a person's skin. It includes gender, geography, ethnicity and socio-economic background.

It all boils down to providing a more qualified graduate and better preparing our students for the realities of a real-world workforce.

Our faculty members are hired to teach and they must be experts in their fields, must be willing and able to transfer that information to our students, and must be accessible to students. What our faculty members do goes to the very heart and soul of the Rose-Hulman mission, and our students expect it. Bringing bright, motivated, curious students together with a challenging, intellectual and caring faculty yields results that make the Rose-Hulman educational community a cut above the others. Not only can we not afford to lose that dynamic, we must build on it.

The same goes for our staff who support the academic mission and who teach as well through their daily interactions with students. Our staff mentor and encourage students and play a pivotal role in the overall education.

HIRING AND RETAINING THE BEST FACULTY AND STAFF

Key to enhanced academics will be professional development for faculty and staff. We must continue to recruit and hire the best, and we must be sure all faculty and staff are tooled to meet the ever-changing nature of engineering, science and mathematics education.

Rose-Hulman must provide the resources for faculty professional development. Our faculty must stay at the cutting edge of rapidly changing technologies and continue to remain professionally engaged and intellectually challenged.

FACILITIES AND INFRASTRUCTURE

To make our academic goals reality will also require up-to-date facilities and infrastructure. A campus master plan is being developed to identify priorities and their costs. This plan assumes a competitive world where high school students make comparisons among the various universities they are considering. Our facilities must be highly functional and rise above those of competing colleges and universities. Prioritizing and funding new academic buildings, residence halls and technical infrastructure must be a part of our future as we move to 2014.

CLASSROOMS AND LABS

Rose-Hulman must provide adequate space to carry out an interdisciplinary approach to education. With the expansion of the project-based education, more useful space will be required in all academic areas. This will require new construction and renovation of existing facilities.

We absolutely owe it to our students to deal with this space issue. We cannot continue to meet the demands of growing space and technical needs with stop-gap renovations. Tied to space growth is the need to provide the lab equipment and communications infrastructure that will keep us at the cutting edge of undergraduate engineering, science and mathematics education.

Central to any collegiate educational center is the library. The strategic plan calls for taking advantage of changing technologies by constructing a 21st Century Knowledge Center and Library. It would be a modern computerized information hub with Internet access to books and journals and a sophisticated communications center with studios and laboratories that can be used for international design projects and distance education.

BEYOND THE CLASSROOM

An enhanced student experience requires a strong residence life component. Active, involved students are successful students, and much of that success can be attributed to living on campus. Our residence halls are learning/living centers where students can take an active role in all aspects of campus.

Our campus must provide suite/apartment style of living that students seek when attending college today. This is more conducive to enhancing the community experience for our students.

Co-curricular areas also must be addressed. They include food serving

areas, meeting rooms, and activity areas. With more than 60 student organizations on campus accompanied by various special academic projects, co-curricular space must be made available to allow students to have a complete living experience. This is another area where students make comparisons among universities.

Academics develop the mind of our future engineers, scientists and mathematicians, but the co-curricular element develops the whole person who will need to be able to lead, communicate and work with others to solve the problems of tomorrow.

ACCESS AND AFFORDABILITY

The third emphasis of the strategic plan focuses on access and affordability. Access is making sure all students who meet our admission standards and want to come to Rose-Hulman can do so. Affordability is making sure that we keep the cost of net tuition down – that we make it as affordable as possible for students to be able to attend Rose-Hulman. Obviously, one way for achieving access and affordability is by providing more scholarships and by increasing financial aid. Rose-Hulman also must create additional revenue streams.

Some of the best minds in the country want to come to Rose-Hulman. Yet we are becoming more of a school of those who can afford to attend, versus those who want to attend. Our competition has poured resources into this area. This competition includes not just other private schools, but also public schools with lower tuition which have also become much more aggressive in offering substantial scholarships.

The answer to this dilemma is quite simple: more dollars. We need to raise additional funds to be used specifically for scholarship and financial aid. One of our priorities must be increasing our endowment to allow for more financial aid.

The vision is in place and the college will continue to fine-tune the specifics and build on this foundation. As with all plans, the Rose-Hulman strategic plan is a living document.

There are other ways of finding additional dollars for scholarships and financial aid. One of those is through creating additional revenue streams. This could be generated through a series of new outreach efforts such as continuing education, Rose-Hulman Ventures, off-campus courses, distance education, corporate development and partnerships, distance education, professional seminars and an alumni college for alumni.

New technologies will allow Rose-Hulman to provide its education to broader audiences, while maintaining its core delivery on campus.

IT WILL BE A WORTHY CHALLENGE

Rose-Hulman is challenged to continue getting better because our vision and the competitive collegiate environment compel us to do so. We face increasing competition from other institutions for the best and brightest students, for faculty and staff who are dedicated to teaching and for limited philanthropic dollars. High school students are applying to more universities today than ever before; they are much more sophisticated when comparing institutions and they are being much more selective in their choices. We need to continually improve our academic offerings, facilities, and financial aid packages to keep us competitive.

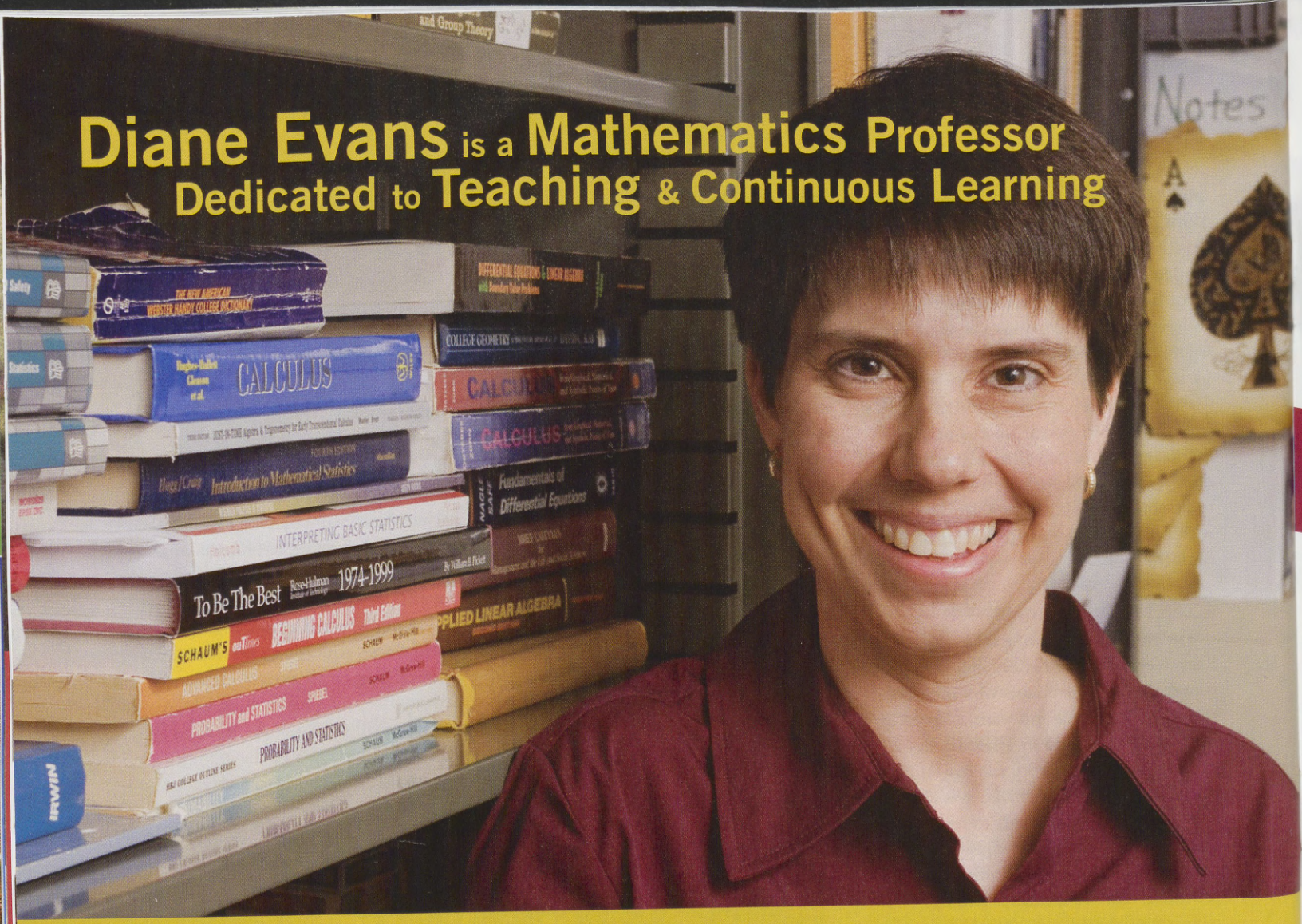
WE WILL NOT DISCARD OUR PAST

Our vision seeks to move us forward proactively and decisively now. It remembers, cherishes and builds on our strong heritage and maintains the positive characteristics that set Rose-Hulman apart from other institutions. We will not grow our enrollment; we will continue to focus on undergraduate engineering, science and mathematics education and will not start doctoral programs; we will continue to dedicate ourselves to teaching while promoting intellectual inquiry in areas appropriate to the mission of the institution and the academic disciplines; we will continue to provide a "hands-on, project-based" approach to learning; and we will maintain a sense of community among faculty, staff and students in a caring, nurturing environment.

SO WHAT'S NEXT?

The vision is in place and the college will continue to fine-tune the specifics and build on this foundation. As with all plans, the Rose-Hulman strategic plan is a living document. The next step will be the formulation of a final timeline and plan under the direction of the Board of Trustees, campus leaders, and others. ■

Diane Evans is a Mathematics Professor Dedicated to Teaching & Continuous Learning



Meet the 2007 Outstanding Teacher at Rose-Hulman

by Dale Long

With a cozy couch, playing cards and dice, soft drink bottles and scattered papers everywhere, Diane Evans' faculty office amid Rose-Hulman Institute of Technology's Crapo Hall resembles a residence hall or fraternity house room on a campus full of budding engineers, scientists and mathematicians.

That's exactly the welcoming atmosphere that the award-winning mathematics professor wants to convey to whoever enters the always open door.

Evans, a relative newcomer to the faculty (since 2001), has already become legendary for answering students' e-mail questions at midnight, writing extra solutions to homework, constantly fine-tuning her classroom lectures or researching algorithms for computing the distributions of sums of discrete random variables—and making this understandable to a novice in her field.

It's no wonder that Evans received the Dean's 2007 Outstanding Teacher Award, continuing a legacy of excellent classroom instruction in the Department of Mathematics.

"I promised that if I could become a teacher, I would do whatever I could to help my students succeed," the soft-spoken Evans stated during a campus interview. "I want the students to know that I'm dedicated to their education and that we're both putting effort into the learning experience."

Evans modeled her teaching style from respected professors, including Rose-Hulman colleagues Roger Lautzenheiser, Elton Graves and Ralph Grimaldi. Those mentors were prepared, innovative, engaging, motivating, patient and challenging. She stresses applying mathematical concepts to real-life situations, and has spent hundreds of hours developing lectures and tests that not only teach concepts, but are fun, interesting, and generate student feedback and interaction.

An example of Evans' teaching technique can be found in a recent calculus exam, where she asked students to use differential equations and Newton's Law of Cooling to determine who poisoned a calculus teacher who had been at home preparing a final exam when visited by students from her class.

"Diane cares about her students through her almost obsessive pursuit of perfection . . . If idle hands are the Devil's workplace then demons need not look for employment with Diane," states mathe-

matics colleague Michael DeVasher in admiration. He has joined Evans in teaching an Introductory Statistics course, a core subject area required of nearly all students. "She possesses the rare combination of intelligence and worldliness that makes her capable of understanding many advanced topics without losing her ability to communicate her knowledge at the most basic of levels," he says.

"I may have thought that I knew math, but I had no idea how math principles were related to the manufacturing process. This is an example of how I have molded my teaching to better fit into Rose-Hulman and what we're trying to do: educate quality engineers and scientists for real-world experiences," she continues. "I have worked harder here than I did to get any of my academic degrees.

"I want the students to know that I'm dedicated to their education and that we're both putting effort into the learning experience."
– Diane Evans

Evans received the 2006 Institute for Operations Research and the Management Sciences Computing Society's Prize for research excellence in the interface between operations research and computer science. The prize honored a collection of papers written over the span of a decade about probability software.

In recent years, Evans has added teaching a Quality Methods course to her teaching portfolio, applying elements of statistics and probability to help engineering students examine—and hopefully improve—manufacturing processes. One course period might consist of a lecture; another could involve students working in teams on problems; and another will consist of students providing examples of material or information that reinforces course topics. And, Evans occasionally organizes plant trips so that students can witness production practices.

Next year, Evans will spend an educational sabbatical examining quality control issues at Diversified Systems Inc. in Indianapolis. This will allow her to bring more perspective to the classroom.

"This will be my first 'real job' and will provide me with first-hand experience in how mathematics is important in the engineering world," Evans says. "I know that I will come back (to Rose-Hulman) with an incredible experience, having a better feel for the nuts and bolts of engineering applications."

The first few years I probably slept as much as the students, maybe two or three hours a night, as I prepared for my classes. Now, I have a better appreciation of what our students are wanting from me, and I've learned to talk in the engineer's language."

Interestingly, there was a time when Evans' drive for perfection almost drove her away from Rose-Hulman. Last winter, after reading a critical student evaluation, she consulted with Lautzenheiser about why her teaching methods weren't connecting with every student in a classroom.

"I didn't know if I was good enough to teach at a college with such high standards and quality students as Rose-Hulman," she acknowledged.

Lautzenheiser, a fellow Dean's Outstanding Teacher Award winner, assured his young colleague that she was making a difference in her students' academic careers. She just didn't know it.

"Diane has that instinctive ability of making everyone around her feel comfortable," states Lautzenheiser, pointing out that Evans displayed her musical talents in a duet with Mechanical Engineering Professor Thomas Adams in the college's annual Engineers In Concert. "She creates a classroom atmosphere for the entire class where students feel comfortable asking and answering questions or working in groups."

Mathematics student Robert Lemke-Oliver adds that Evans "encourages student participation and makes sure that nobody is left behind. Her class was probably one of the most comfortable I've been in."

Stephen Lewis (Applied Biology, '07), who took Evans' Quality Methods course this spring as an engineering management graduate student, remarked: "Dr. Evans comes to class every day genuinely excited about the material she is teaching."

Evans' biggest disappointment may have been a prospectus for a Math For Dummies-type book, written with Lautzenheiser, that examined aspects of teaching differential equations. The publisher wanted more pizzazz from the subject.

"You can only do so much with differential equations," says Evans, chuckling at the memory. "We're teachers, not stand-up comedians."

Now, she's striving to write a textbook about linear algebra that will help students understand a complex topic, adding "We think we can be funnier with linear algebra." ■

Bailey Challenge

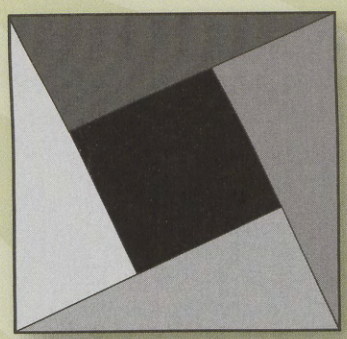
By Professor Emeritus Herb Bailey

Please excuse any mistakes in my tally of the spring solvers. I blame all errors on my aging brain and the large number of solvers. The solver numbers for the three recent issues were 47, 110, and 204. I hope to repair my brain, add staff or find very hard problems.

The Pythagorean Theorem ($a^2 + b^2 = c^2$) was known to the Babylonians about 1500 B.C. and first proved about 500 B.C. by Pythagoras. President Garfield had his proof published in 1876 in the Journal of Education. Problem 1 is your chance to prove it.

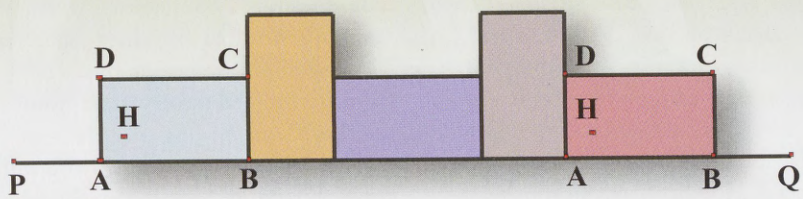
Problem 1

Use the figure(right) as shown to prove the Pythagorean Theorem. My wife tells me that this figure is the 'windmill' quilt block.



Problem 2

Let ABCD be a rectangular card with AB = DC = 5 inches and AD = BC = 3 inches. Let H be the point on the card that is one inch from each of the sides AB and AD. The card is vertical with AB initially resting on a table top PQ. The card "rolls" along the table with the first rotation clockwise around vertex B until C contacts the table. The second rotation is then around the new location of C, etc. After the fourth and last rotation the card has returned to its original orientation. Find the total path length traveled by H during these four rotations. Also find the area below this path and above the tabletop. No matter if you have forgotten integration techniques, you don't need them.



Send your solutions to Herb.Bailey@rose-hulman.edu or to Herb Bailey, Math. Dept., Rose-Hulman, 5500 Wabash Ave., Terre Haute IN 47803.

Please include your class year if you are an alum.

Solvers of the previous problems are listed on page 28.

Solution for previous issue

$$\begin{array}{r} 29786 \\ 850 \\ 850 \\ \hline 31486 \end{array}$$

A solution of the addition problem **forty + ten + ten = sixty** is shown. I was pleased and surprised that so many of you had the time and patience to show that this solution is unique.

Dustin Sapp

ENTREPRENEURIAL CAREER BEGINS AS A JOKE

by Liesl Goecker

It all started out as a joke.

During his last quarter at Rose-Hulman Institute of Technology, Dustin Sapp ('01) was in an independent study group under Engineering Management professor Tom Mason, creating a business plan for handheld computer technology.

"I kidded him (Sapp) about the second week of the quarter, saying, 'If you want an A, you have to get funding,'" Mason remembered. "So about the eighth week of the quarter, they said, 'OK.'"

Mason put the group in touch with venture capitalist Bob Compton, who had funded past projects originating from Rose-Hulman.

Compton remembers distinctly his first impression of Sapp.

"What really stood out were his very strong interpersonal skills," Compton said. "Dustin's never met a stranger. He's able to meet someone and instantly develop a connection with him. That's a unique aspect in anybody, but particularly in someone who's so smart and technologically savvy."

Sapp, a senior trying to finish his computer engineering degree at the time, remembers it a bit differently.

"He (Compton) grilled us with good questions, and gave us a good dose of reality," he said.

But when the meeting, held in an airport travel lounge, ended, Compton decided to fund the project, and NoInk Communications Ltd., which would provide Web, tablet and handheld applications to the medical device industry, was born.

Sapp remembers that time in his life well.

"It was definitely difficult," he said. "I was trying to handle a full course load as well as work 60 hours a week on a new venture."

It was an experience that would serve him well. Sapp worked as NoInk's director of professional services for the next three years, moving with the company from Rose-Hulman Ventures, in Terre Haute Ind., to Indianapolis, Ind. In 2004, Sapp became the company's director of product management when NoInk was acquired by Everypath, a global mobile/wireless software company, but left soon after.

"I stayed for about nine months, to transfer customers, get products in synch," Sapp said. "[But] I didn't feel like I was having the same impact, didn't enjoy the politics. I liked a lot of people there; I liked some of the things they were doing. But it just wasn't the same."

So when he quit his position at NoInk in 2005, Sapp took a familiar, and to him the most natural, next step: He started another company.

He approached Compton again.

"What Dustin understood was that voice-over IP made the economics of sending voice messages much more attractive than before," Compton said. "He could conceive of a system that would allow customers to do everything themselves."

"As we brainstormed about it, I was confident he could build a solution," Compton continued. "His brains, talent and ability, and my money."

In 2005, Sapp and Compton founded Vontoo LLC, which creates and manages permission-based, on-demand voice-messaging systems. The Indianapolis-based company quickly garnered a diverse array of clients, from churches and banks to celebrity fan clubs.

John Cooper, a Customer Services representative for Echo Music, has used Vontoo to help musicians such as Keith Urban and Rascal Flatts communicate with their fans.

Vontoo's services "lived up to and exceed all expectations," Cooper said, when he worked with the company for the first time in October 2006 to send a voice message from country music artist Dierks Bentley to fans on the day of Bentley's album release.

"We got so much feedback from people saving the voicemail, saying how excited they were about hearing his voice," Cooper said. He added that for three weeks, the hotline from which the call originated rang nonstop as fans called back, hoping to speak with the musician.

Cooper said since that time, Echo Music's relationship with Vontoo has only expanded.

"They (Vontoo) are constantly bringing up new ideas and willing to accommodate in any way possible," Cooper said. "And they're great listeners. Dustin, in particular, has been very hands on. He really cares deeply and passionately about what he's doing."

Sapp recognizes this passion, too, and said it's been his greatest asset in starting NoInk and Vontoo.

"The decision to work in an entrepreneurial environment is not a job decision, or work decision. It's a lifestyle decision," said the 29-year-old president and chief technology officer. "You have to be passionate about what you're doing. It's not a job. Frankly, it's not even a career. It's a lifestyle. You end up living and breathing what you're doing."

Being an entrepreneur at a young age taught Sapp a lot about the importance of priorities, and his are clear: God, family, work, and in that order.

"Those values are real, and he adheres to them," Compton said. "But he puts in as many hours as any CEO or president I've worked with."

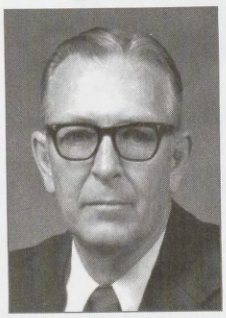
Compton said Sapp typically works a full day, then goes home to eat dinner with his wife, Shelley, and his three children - Evan, 4, Nate, 2, and Elizabeth, 4 months - and play with the kids. Later at night, Sapp gets online and works from home, Compton said.

Sapp is also very involved at the Northside Baptist Church in Indianapolis, and credits his faith with much of his achievement.

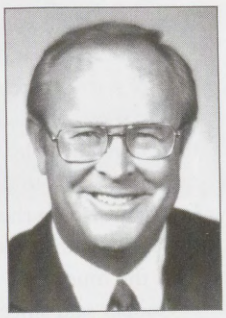
"Without that part of our lives, frankly I don't think these companies would have a lot of the success that they do," he said.

Continued on page 26

NEW SCHOLARSHIP FUNDS HONOR LEGENDARY COACHES JIM CARR AND JOHN MUTCHNER



Jim Carr



John Mutchner

Two scholarship funds, with the goal of raising $100,000 each, have been established to honor former basketball coaches Jim Carr and John Mutchner. Both scholarships were announced at the 100th season of basketball celebration in February.

The Jim Carr Memorial Scholarship was introduced by board member, alumnus, and former player Hal Brown. Carr, who died in December, coached baseball, basketball, cross country and intramurals from 1947 to 1974. He had a 114-151 record in 16 years as basketball coach and a 32-86 record in 16 seasons as baseball coach. He also coached Rose-Hulman's first cross country All-American Dennis Dierckman.

Carr was cited a patient man who was a good coach in a tough environment.

Mutchner served 25 years at Rose-Hulman as athletics director and coach of the baseball, basketball, golf and tennis teams. His career total of 341 baseball victories ranks first on Rose-Hulman's win list. He took several teams to the NCAA Division III tournament, and he was responsible for several unique traditions at Shook Fieldhouse, including the pre-game cannon, sire and "Give 'Em Hell Rose" banner.

The John Mutchner Appreciation Scholarship was announced by alumnus and former player Tom Curry.

Donations for either the Jim Carr Memorial Scholarship or the John Mutchner Appreciation Scholarship will be accepted online at **https://banner.rose-hulman.edu:4440/ajax/onlinegiveform.htm** and designating either scholarship in the comment box. Donations may also be made by contacting Erica Altuve in the Office of Institutional Advancement at (812) 877-8159 or altuve@rose-hulman.edu. ■

Entrepreneurial Success

Continued from page 25

The success is evident. Sapp and Vontoo have been featured in *Indianapolis Business Magazine, Indianapolis Business Journal's* "Forty under 40" and American Venture Magazine.com "Top Forty Under 40".

These accolades, Sapp said, are due to Vontoo's unique business perspective.

"We focus on the customer. That's really why people come to us," he said. "When your focuses are there, as opposed to the selfish end-game, you'll find that suddenly you have a better product."

Listening to clients' needs and creating a solution is Sapp's specialty, Compton said.

"He's got a real empathy for other people," he added.

It's true Sapp's empathy, work ethic and passion have made him a successful entrepreneur by any standard. But for him, it isn't about the next idea, or the next company, it's about making his mark wherever he finds himself.

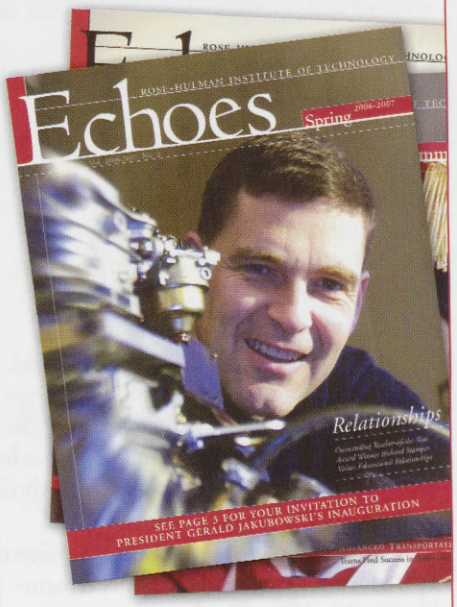
"A lot of people ask me, 'What are your plans after Vontoo?' And I answer, 'What plans after Vontoo?'" Sapp said. "Once you get a taste of having this kind of impact, in this kind of organization, you never want to go back to anything else." ■

UP AND COMING IN *ECHOES*

Future issues of *Echoes* will focus on the following themes:

- The future of engineering and Rose-Hulman's role in it
- Young Guns: Alumni under the age of 30 who are up and coming in their professions and communities
- Diversity and its importance in education and the workplace

If you know of an alumnus under the age of 30 who might make for an interesting article, please forward your idea to Bryan Taylor via e-mail at bryan.taylor@rose-hulman.edu or give him a call at 812-877-8258.



WE WANT TO SEE YOUR FACES

We want to enhance our photos of alumni in the publication. So when you send a class note, be sure to include a photo.

We cannot guarantee its use, but we'll give it our best shot. Send class notes and photos to Bryan Taylor via e-mail at bryan.taylor@rose-hulman.edu.

BE PART OF SOMETHING SPECIAL

Every time I visit the Rose campus, I always leave inspired and excited about the things I see happening, and I feel a sense of pride at being associated with this institution. Rose is filled with people who are innovators, forward-thinkers, and visionaries. Throughout its history, the school has always stood for excellence in undergraduate education for engineering, mathematics, and science. That same spirit is alive and well today on campus!

Rose has also been a place of innovation in the classroom. It has served as the incubator for thousands of brilliant technical minds destined to serve society in a multitude of ways. Over the past nine years, Rose has also been the standard by which all other technical undergraduate programs have been measured as we have retained the U.S. News #1 ranking among our peers.

The Rose-Hulman legacy we all share as alumni wasn't built by resting on our past accomplishments. We are the products of people of vision – from Chauncey Rose to Samuel Hulbert and all the great educators, benefactors, administrators, faculty, students and alumni in between. They took the phrase "To Be the Best" to heart and turned it into a reality with their passion, talents and treasures. As alumni, we have all benefited from their commitments and sacrifices.

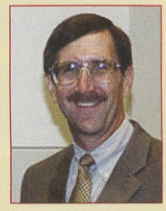
Now, it is time to help Rose-Hulman take the next bold steps to continue to be a leader in college education. I hope you will catch the excitement surrounding the new initiatives taking place and seize the opportunity to play a part. As an Alumni Association, our support and involvement is critical to the success of the upcoming campaign.

As you read about the future plans for Rose, take note of one constant theme: the focus on the needs of future Rose students. Our desire to be the best is hollow unless it provides for them. The great challenge of our time will be to match our existing ability to create a vibrant, relevant, and cutting-edge learning environment with the ability to bring the very best students to this campus.

It doesn't matter if the role you can play is great or small. You may be able to help as a financial supporter; a member of one of our current Association committees; a grassroots recruiter of top new students; someone who can generate business support; or just an old fashioned banner-wavin'-license-plate-displayin'-Rose-sweatshirt-wearin'-unabashed-give-'em-hell-Rose-alumnus! This is a chance for each of us to be a part of something very special in the history of a very special institution. ■

Sincerely,

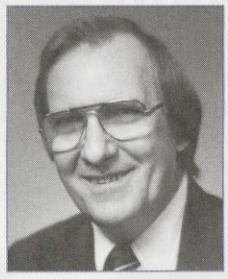
Kenny McCleary
Alumni Association
President
Class of 1983



ENDOWMENT HONORS MEMORY OF PROFESSOR AL SCHMIDT

Professor Al Schmidt was a fixture at Rose Poly and Rose-Hulman for over 46 years. He retired in the spring of 1995 after a 46-year career as a Rose-Hulman faculty member - the third longest tenure of a faculty member in Rose history. In many ways, Al was more than a typical professor, touching the lives of many Rose students over his long tenure. His dedication to Rose students was legendary including housing many students in his home over the years. Professor Schmidt also was the co-designer for the mathematics degree curriculum in 1959, co-founder and instructor for the pre-freshman Summer Institute, co-founder and the first director of Operation Catapult (1967-1983), and faculty adviser to the Lambda Chi Alpha fraternity for 21 years.

An accomplished musician, Professor Schmidt accompanied the Rose Glee Club and served as its adviser for 25 years, and he played the organ at all commencements from 1959 until his retirement. The carillon in front of Hadley Hall was created in his honor and Al was also a generous donor to Rose providing the organs and pianos in Hatfield Hall and White Chapel.



Professor Al Schmidt

By almost any measure, Al Schmidt was a cornerstone of our institution. To honor his memory and contributions, Alumni Jerry Badger, Math 1962, and Bill Schindel, BS Math 1969, MS Math 1972, have created the Professor Al Schmidt Endowment Fund to provide ongoing funding to support academic scholarships; Operation Catapult scholarships; and to support piano, organ, and student-based activities as part of our Performing Arts Series.

The fund is doing well and has already surpassed the $100,000 mark, but Jerry and Bill envisioned the fund passing the $200,000 level where it can have a significant and lasting impact on each of the three missions. If Professor Schmidt was a special person to you or had a significant impact on your time at Rose, now is your chance to recognize his place in history of Rose Poly and future of Rose-Hulman. You can participate simply by sending a check or other gift to the Development Office at Rose and by mentioning on your check or gift that it is to go to the Professor Al Schmidt fund. If you have questions or want to know more, please contact fellow alumni Jerry Badger or Bill Schindel or Bill Foraker in the Development Office at 812-877-8219, or through e-mail at bill.foraker@rose-hulman.edu ■

Thank you for recognizing the past and securing the future of Dear Old Rose.

1962
Brent Robertson (C.E.) was elected to the Board of Directors of Noble of Indiana, a nonprofit organization serving 2,300 adult and children consumers with mental retardation.

1968
Rolf P. Hill (M.E.) has retired from the federal government after 11 years with EPA and 18 years with DEA. He was chief of the DEA Hazardous Waste Disposal Unit where he was responsible for managing the Clandestine Drug Laboratory Cleanup Program. He has started his own consulting firm, Hazardous Waste Disposal IDEAS, LLC. He provides technical expertise to hazardous waste companies, academia and special interest groups.

1977
John Fitch (E.E./Phy.) has transitioned his decision management consulting business to provide online services: Decision Driven Life and Decision Driven Strategy at ww.decisiondriven.com.

1979
Roger Hatcher (E.E.) recently tested for and earned a third-degree black belt and instructor certification in the martial art of Tae Kwon Do. He also assists in teaching basic self-denense classes in the Cedar Rapids, Iowa, area. He is a principal systems engineer at Rockwell Collins Government Systems in Cedar Rapids.

1981
Bob Brandel (E.E.) reports that since we last heard from him, a sixth child, Sarahgrace Nicole, was born into the Brandel family. After successfully completing numerous tasks as the presidential communications upgrade project engineers for the WHCA he has left General Dynamics and taken a new position as associate with Booz Allen Hamilton in Herndon, Va.

1982
Michael J. Svenstrup (M.E.) received Eli Lilly & Company's Engineering Excellence Award in 2006. The award is presented to an engineer at Lilly who has demonstrated a long-term, high level of technical performance and innovation providing significant impact on the engineering profession and the success of the company.

1985
Bob Patti (E.E.) has received the chairman's award from JEDEC Solid State Technology Association, formerly known as Joint Electron Device Engineering Council (JEDEC), which is the semiconductor engineering standardization body of the Electronic Industries Alliance (EIA), a trade association that represents all areas of the electronics industry. It was in recognition of his contributions to the DDR3 task group leading to the creation of the DDR3 SDRAM device specification. In translation, Bob said "Basically, we're the folks who figure out how standard electronic devices, like memories, function." He works at Tezzaron Semiconductor Corp in Naperville, Ill.

KEEPING THE LEGACY ALIVE

More than 400 young men and women entered the world with their **Rose-Hulman** degrees this spring. It would not have been possible without the financial support of those who have gone before. Make your gift today by going to the **Rose-Hulman** giving Web site at **http://www.rose-hulman.edu/give** or call Erica Altuve at 812-877-8159.

Benjamin T. Vorhees (C.E.), a lieutenant colonel in the U.S. Air Force, took command of the 315th Airlift Wing's Operation Support Squadron, Charleston Air Force Base, S.C., earlier this year. He is a command pilot with more than 8,500 hours flying military aircraft. Most recently he was assistant director of operations supporting Operations Enduring and Iraqi Freedom.

1986

Larry McIntyre (E.E.) has taken a staff systems engineer position with Beckman Coulter in Indianapolis.

1987

Tim A. Nale (M.E.) married Stacy Nelson last year. Also last year, he accepted the position of director of information technology for Boar's Head at the company's corporate headquarters in Sarasota, Fla.

1989

Bill Jurasz (C.S.) married Amy Pennartz this May. Bill currently works for Advanced Micro Devices.

1990

Barry Schneider (M.E.) has moved to Brownsburg, Ind., where he is vice president and general manager of the Steel Dynamics, Engineered Bar Products Division.

1992

Erik Drake (E.E.) updates *Echoes* that children Deegan Thomas and Kenna Lee were born last year. He recently was promoted to lieutenant colonel in the U.S. Air Force. Recently he was at Randolph Air Force Base in San Antonio where he was the lead F-16 flight examiner for Air Education and Training Command.

1993

Chris Crosby (C.E.) recently accepted a position as chief engineer with Prospect Steel Co., in Little Rock, Ark.

Mitchell Deckard (M.E.) and his wife, Jill, welcomed twin daughters, Sydney and Saige, last year. Also, Mitch received his MBA from the Krannert School of Management at Purdue University. He was one of two students named as a Krannert Scholar.

1996

Doug Ihrig (M.E.) and his wife, Sarah, welcomed their second daughter, Roma, last fall. Doug has moved within the PCC Airfoils Company to Cleveland, Ohio, to continue his role as product engineer.

1998

Benjamin Byers (Ch.E.) and his wife, Dolores, announce the birth of their first child, Aidan Lukas, who was born last June.

Josh Horstman (C.S.) has accepted a new position with First Phase Consulting, Inc., providing statistical programming services to pharmaceutical clients.

1999

Meagan Peabody (C.M.) and **C.W. Arnett (Ch.E.)** were married last fall.

2000

Toby Eiler (E.E.) and his wife, Lissie, welcomed a baby girl, Natalie, born last year.

Joe Marietta (M.E.) has left Stryker Instruments and accepted a position as a senior engineer at MedicineLodge, Inc., in Logan, Utah.

2001

Robert Buxton (M.E.) graduated from Harvard Business School last year with an MBA and went to work with The Boston Consulting Group in Los Angeles.

Michael Cox (E.E.) and his wife, Kate, had twins, Aidan and Allison, last year. Michael changed jobs last year, going to work for Watchfire Signs, in Danville, Ill.

LaTisha Egenolf (Ch.E.) is now a financial consultant for AG Edwards & Sons.

Jason Kahlhamer (Ch.E.) and his wife, Jessika, had another daughter, Alessandra, born last fall.

Paul (E.E.) and **Elizabeth (E.E.) Kappler**, welcomed daughter Anna Elizabeth, born last fall. She joins big brother, Ian.

Amy (Rainbolt) Williams (Chem.) and her husband, Kerry, and son, Tyler, welcomed a new baby girl, Kelsey Nicole, last fall.

2002

Michael (E.E.) and **Jamie (M.E.) Baker** announced the arrival of daughter, Hannah Renee, born in February. She joins older sisters Eliana and Kayla.

Erica Buxton (Snyder) (Ch.E.) graduated from Harvard Business School last year with an MBA and went to work with The Boston Consulting Group in Los Angeles.

Steve Corbin (E.E.) and his wife, Stacey, had a baby, Ian Andrew, born last year.

Travis Eisenhouer (M.E.) received his master's and Ph.D. from the University of Notre Dame last year.

Christopher M. King (C.E.) has joined Runnebohm Construction Co. as its executive vice president. He also has been elected vice president of the Blue River Community Foundation for Shelby County in Indiana.

Peter K. Myers (C.E.) and his wife, Cynthia, had their first child, Jaycob Myers, born last fall. Peter also changed jobs and careers last year, becoming assistant pastor at Sandia Church of the Nazarene in Albuquerque, N.M.

Justin (Ch.E.) and **Colleen (Ch.E.) Self** announced the birth of their first child, Aubrey Kay, born last year.

BAILEY CHALLENGE Solvers of the last issue problems are:

Continued from page 24

ALUMNI: W. Barrick, 1941; J. Hurt, 1948; H. Born, 1949; P. Gottfried, 1949; W. Rinker, 1951; D. Todd, 1952; C. Hirschfield, 1954; D. Camp, 1955; A. Sutton, 1956; C. Cooper, 1956; G. Rose, 1957; B. Waggener, 1957; H. Brown, 1957; J. Owends, 1958; D. Bailey , 1959; C. Sechrest, 1960; J. Tindall, 1961; R. Ireland, 1961; C. McCoy, 1962; J. Snyder, 1962; D. Moore, 1964; C. Boswell, 1967; D. Brooks, 1968; R. Lowe, 1969; J. Hightower, 1970; J. Born, 1970; J. Hightower , 1970; S. Jordan, 1970; D. Jordan, 1971; S. Ahlf, 1971; W. Pelz, 1971; K. O'Sullivan, 1972; F. Simpson, 1973; R. Smith, 1973; J. Phillips, 1974; S. Davidsen, 1975; C. Dreher, 1975; G. Dawson, 1975; J. Turner, 1975; J. Schroeder, 1976; B. Hunt, 1976; D. Schultz , 1976; G. Tucker, 1976; M. Dominik, 1976; D. Zona, 1977; T. Enneking, 1977; D. Allen, 1977; J. Matthews, 1977; D. Badger, 1978; G. Eck, 1978; K.&T. Davenport, 1980; J. Koechling, 1980; M. Tallman, 1980; K. Bowen, 1982; J. Voll, 1982; J. Whitaker, 1982; D. Elmer, 1983; S. Hall, 1983; B. Wade, 1983; C. Crow, 1983; J. Marum, 1983; K. Shafer, 1983; R. Belknap, 1983; S. Dillinger, 1983; S. Hall, 1983; B. Ross, 1984; J. Messerschmidt, 1984; J. Nicholson, 1984; M. Deuitch , 1984; M.Talley, 1985; C. Wilcox, 1985; J. Clark, 1985; K. Lighty, 1985; B. Hensley, 1986; D. Price, 1986; J. Vierow, 1986; K. Foss, 1986; K. Pietrzak, 1986; L. Cramer, 1986; S. Gunn, 1986; J. Traylor, 1987; B. Mueller, 1987; A. Wilt, 1987; D. Johnson, 1987; M. Lancaster, 1987; M. Nigrovic, 1987; R. Meckauskas, 1988; S. Sarma, 1988; A. Murray, 1989; C. Abdnour, 1989; D. Kneip, 1989; D. Murray, 1989; R. Parks, 1989; S. Bowling, 1989; B. Starr, 1990; G. Strylewicz, 1990; S. Weigand, 1990; S. Barndt , 1990; B. Burger, 1991; P. Kimmerle, 1991; D. Hector, 1992; B. Swanson, 1992; D. Crouch, 1992; B. Mounts, 1993; J. Livermore, 1993; J. Livermore, 1993; F. Thomas, 1994; T. Walker , 1994; B. Benedict, 1995; C. Weko, 1995; P. Goodwin, 1995; P. Stolz, 1995; S. Cao , 1995; B. June, 1996; E. Snider , 1996; K. Ammerman, 1996; R. Mohr, 1996; M. Ley,1997; C. Tracy, 1997; A. .Zehnder, 1998; R. Loftus, 1998; D. Lutz, 1998; J. Nall, 1998; M. Pilcher, 1998; D. Nall, 1999; J. Boozer, 1999; J. Mathison, 1999; B. Creel, 2000; B. Monacelli, 2000; J. Smithback, 2000; C. Hayden, 2001; K. Casey, 2001; M. Walter, 2001; N. Gaebler, 2001; R. Richardson, 2002; B. Elliott, 2002; D. Metzler, 2002; K. Spontak, 2002; T. Smith, 2002; A. Burke, 2003; S. Taylor, 2003; T. Kibbey, 2003; B. Ross, 2004; C. Krepps, 2004; S. McEwen, 2004; A. Pennington , 2006; E. Reyes , 2006; I. Brown, 2006; J. Przybylinski, 2006; K. McCarthy, 2006; R. Gulden, 2006; P. Lonjers , 2007; P. Meyer, 2007; T. Homan, 2007; A. Schmitz, 2010; J. Ausserer, 2010; B. Napier, 2011; E. Crockett, 2011; J. Budka, 2011; J. McCulfor, 2011; M. Rooney, 2011; R. Manigault, 2011; J. Brennan, 2012

FRIENDS: B. Huff, B. Pipp, B. Wittig, C. Busenburg , C. Haala, D. Templeton, H. Craft, J. Durlacher, J. Kappler, J. Lewis, J. Ley, J. Madsen, J. Marks, J. Schmidtlein, J. Segal, Josh, K. Messerschmidt, K. Nelson,L. Gaintner, L. Mader, M. Carr, M. Kennedy, N. Elmer, N. Walker, P. Stallman, R. Laxar, B. Schoemacher, R. Schoemacher, R. Switzer, R. Templeton, G. Steiner, S. Gossert, S. Mancroni, S. Thompson, T. Kelley, W. Sozansky, T. Fleschner, A. Cutaia, J. Luebke, B. Burchett, G. Lingen, N. Moore, D. Weber, and N. Flatter.

2003

Jason Bowe (M.E.) and his wife, Sarah, welcomed their first daughter, Evelyn Grace, in 2006.

Heidi Brackmann (Ch.E.) married James Davidson last year.

Anna Burgner (Ch.E.) graduated last year with highest distinction from Indiana University School of Medicine. She has accepted an internal medicine residency position at Vanderbilt University.

Brian Miller (M.E.) and his wife, Dorcas, report the birth of second son, Seth Jacob. He joins big brother Nolan.

Adam Tieman (E.E.) married Elizabeth Wakeland last year.

Matthew Zuber (M.E.) married **Amanda Martin (E.E., '04)** last fall in Terre Haute. They reside in Cincinnati, Ohio.

2004

Karen M. Bonnema (M.E.) married Derrick Schimming last year in White Chapel.

Rebecca (Franki) Breiding (E.E.) and her husband welcome first child, Zachary, born last fall. The family lives in Albuquerque, N.M., where she works for the Air Force Research Labs.

2005

Cameron Bagley (Ch.E.) and **Jessica Frank (Ch.E.)** were married last year at White Chapel.

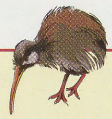
Odessa Goedert (C.E.) has taken a position as a technical recruiter with WesTech Technical Staffing, a division of NuWest Group in the greater Seattle metro area.

Jesica Petretti (Ch.E.) married **Adam Beccue (M.E., '06)** last year. ■

Send Class Notes to Bryan Talyor at bryan.taylor@rose-hulman.edu or call him at 812-877-8258.

ROSE-HULMAN UPCOMING EVENTS

DATE	LOCATION	EVENT
July 27	Fort Wayne, Indiana	Freshman Welcome Picnic/Ft. Wayne Wizards Baseball Game
August 1-2	Nashville, Indiana	Alumni Board Meeting
August 3	Louisville, Kentucky	Freshman Welcome Picnic
October 3-4	Rose-Hulman Campus	Homecoming
October 30	Italy	Alumni and Friends Trip
March 13-27, 09	Australia/New Zealand	Alumni and Friends Trip
May 30, 09	Rose-Hulman Campus	Commencement



1941

Paul E. France (Ch.E.) died last December, according to word received in the alumni office. He was a retired manager of field service tech for Dampney Co.

1947

John E. Loomis (C.E.) died last March in Honolulu. He was a retired vice president for Amfac Sugar Co.

1948

John A. Bartholeme, died Jan. 30 at the age of 82 in Indianapolis. He worked his entire career for Westinghouse Electric Corp. before retiring in 1984.

1949

William M. Booth (M.E.) died this past spring, according to word received in the alumni office.

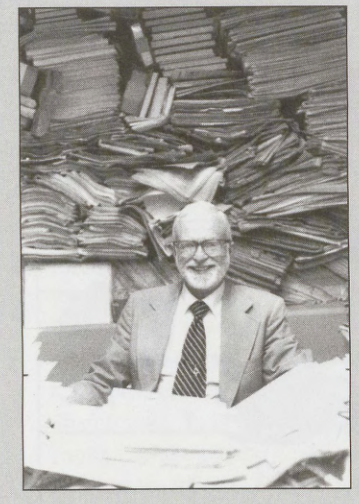
C. Nelson Havill (E.E.) died on March 14. Before retiring in 1985, he served Potter and Brumfield & AMF International for 30 years as vice president of marketing and vice president of international strategic planning. Highly active in the life of his alma mater, he received the Honor Alumnus Award in 1999. Survivors include his wife, Helen, and three children Karen Bingham, Debra Havill and Thomas.

1954

Owen Meharg (Ch.E.) died April 9. He was retired from Eli Lilly and Co., where he worked for more than 33 years. He also was the director of administration in the First UniGov cabinet in Indianapolis under the leadership of then-mayor Richard G. Lugar. Survivors include his wife Myra Jo, son Michael and daughters Ellen S. Albrecht and Mary Kay Krambeer. He was an active member of the alumni association having served as its president in 2003. He also served as alumni representative to the Board of Trustees from 1982-86, and he was named a recipient of the Honor Alumnus Award in 1977.

1975

Steven R. McCracken (M.E.) died Feb. 7 after a battle with cancer. A resident of Toledo, Ohio, he was chairman of the board for Owens-Illinois, a company he joined in 2004. He spend most of his career with DuPont in Wilmington, Del., where he developed and led several of the company's most profitable businesses. Survivors include his wife, Judy, and four children, Morgan, Kelsey, Conner and Molly. ■



DR. HENRY J. "HANK" WINTON

Dr. Henry J. "Hank" Winton, a retired professor of electrical and computer engineering, died June 21, in Terre Haute.

He is survived by his three sons and their wives and children; Michael and his wife Gretel and their children, Griffin and Saffron; Christopher and his wife Sharon and their children, Alexander, Annaliese and Aron; and Peter and his wife Kara and their children Adam Henry and Amber.

A 34-year faculty member of Rose-Hulman, Dr. Winton was responsible for development of laboratories for control systems, digital electronics and digital signal processing, and for many years was faculty advisor to the student branch of the Institute of Electrical and Electronics Engineers. He also served as professor-in-charge of the Electrical Engineering Department for three years in the 1970s.

In addition to his dedication to students and electrical engineering education, Hank was noted for having one of the more colorful offices on campus because of his piling..er… filing technique. ■

ACCIDENTS CLAIM LIVES OF STUDENTS

Two separate automobile accidents claimed the lives of two Rose-Hulman students this spring.

On April 5, an automobile accident claimed the life of Nicholas B. Lee, a junior biomedical engineering major from Bryan, Texas. Another student, Adam C. Effinger, a senior computer engineering major from Plainfield, Ind., was injured critically in the same accident. He was lifelined to Methodist Hospital in Indianapolis. Updates on his condition can be obtained at Caring Bridge Link: **http://www.caringbridge.org/visit/adameffinger**

The single-vehicle accident occurred on Woodsmall Road in southern Vigo County. Both students were members of the Rose-Hulman men's swimming team.

The second death occurred a few days later on April 8 when November graduate Brandon Couch, a mechanical engineering graduate, was killed in a traffic accident about 6:20 a.m. on Indiana 63 near Interstate 74. He was on his way to work in Attica, Indiana.

Couch died when the pickup truck he was driving was involved in an accident with a semitrailer driven by Joseph A. Hopkins, 45, of Nicholasville, Ky. Hopkins was not injured, according to police reports.

Couch was a three-year varsity letter winner for the football team prior to completing his eligibility last season. He was the first three-time winner of the "Spirit of Chauncey Rose Award" for mental attitude and leadership that is voted on each year by the football team. He graduated in November of 2007.

"I am deeply grateful to the many members of the Rose-Hulman family who have already stepped in to provide the support and friendship we all need to feel and to show in moments like this," said Rose-Hulman President Gerald Jakubowski at the time of the accidents. ■

Hall of Fame Adds Six

Front (l to r): Greg Rosinski, Dr. Samuel Hulbert, Paul Wagner; Back: Gerald Jakubowski (current president), Todd Harris, Eric Tryon and Jose Penaloza

The Rose-Hulman Institute of Technology athletic department added six members into its Athletic Hall of Fame at induction ceremonies last fall. Below is a capsule look at the inductees in Rose-Hulman's 2007 Hall of Fame Class:

TODD HARRIS (Football, 1996) - Todd led the Engineers to a 13-7 record and generated 4,384 all-purpose yards in his career as Fightin' Engineer quarterback. Harris passed for 2,685 yards in his career and ranks sixth all-time with 20 touchdown tosses. He rushed for 819 yards and 10 touchdowns as a senior, and the civil engineering major's highlights included first-team all-conference and team Most Valuable Player honors.

DR. SAMUEL HULBERT (President, 1978-2004) - During his 28 years as Rose-Hulman President, Dr. Hulbert helped the Engineer athletic department rewrite its record book. Hulbert's efforts helped the department grow to its current 22 NCAA Division III teams and secured support to construct the Sports and Recreation Center. A total of 32 All-American athletes and 59 Academic All-American awards were achieved by the Engineer athletic department, and the basketball gymnasium is named in his honor.

JOSE PENALOZA (Tennis, 1996) - Jose holds nearly every Rose-Hulman men's tennis record with a career mark of 61-14. The civil engineering graduate earned three all-conference honors and finished with a 25-4 mark at No. 1 singles in 1995. He was named team Most Valuable Player and earned Intercollegiate Tennis Association Academic All-America Team honors in 1996.

GREG ROSINSKI (Football, 1996) - Greg claimed a pair of All-American honors as a starting offensive lineman for Engineer teams of the mid-1990s. The chemical engineering major helped Rose-Hulman rush for a school record 3,109 yards in 1994 and 2,897 in 1995. His efforts allowed the Engineers to surpass 400 rushing yards in a game three times in 1995, and he started all 20 games for two teams that share the college school record with 33 rushing touchdowns.

ERIC TRYON (Baseball, 1997) - Eric rewrote the Rose-Hulman baseball record book with 331 career strikeouts and 29 pitching victories. His efforts helped lead the Engineers to the 1996 NCAA Division III Tournament after winning the Indiana Collegiate Athletic Conference title. The mechanical engineering major earned the first All-American honor in school history and was a four-time all-region selection. As a batter, Eric hit .325 with 23 doubles and seven career home runs.

PAUL WAGNER (Basketball, 1982) - Paul tallied 900 points and 749 rebounds for Rose-Hulman basketball teams that qualified for the NCAA Tournament during his junior and senior seasons. Wagner averaged 13.6 points and 9.7 rebounds as a senior, after recording double-double season averages as a sophomore and a junior. The mechanical engineering major ranks second on Rose-Hulman's career list with 113 blocks. ■

R Hall of Fame

PARTING SHOT

The Fun of Science!

One of the highlights of the past Performing Arts Series was **"Beakman Live!"**, a wacky presentation about scientific principles. As part of an outreach, Rose-Hulman students set up demonstrations for school-age children who attended one of the Beakman shows (*inset*).

ROSE-HULMAN INSTITUTE OF TECHNOLOGY
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