

Spring 2006

Volume 2005-2006 - Issue 2 - Spring, 2006

Echoes Staff

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ROSE-HULMAN INSTITUTE OF TECHNOLOGY

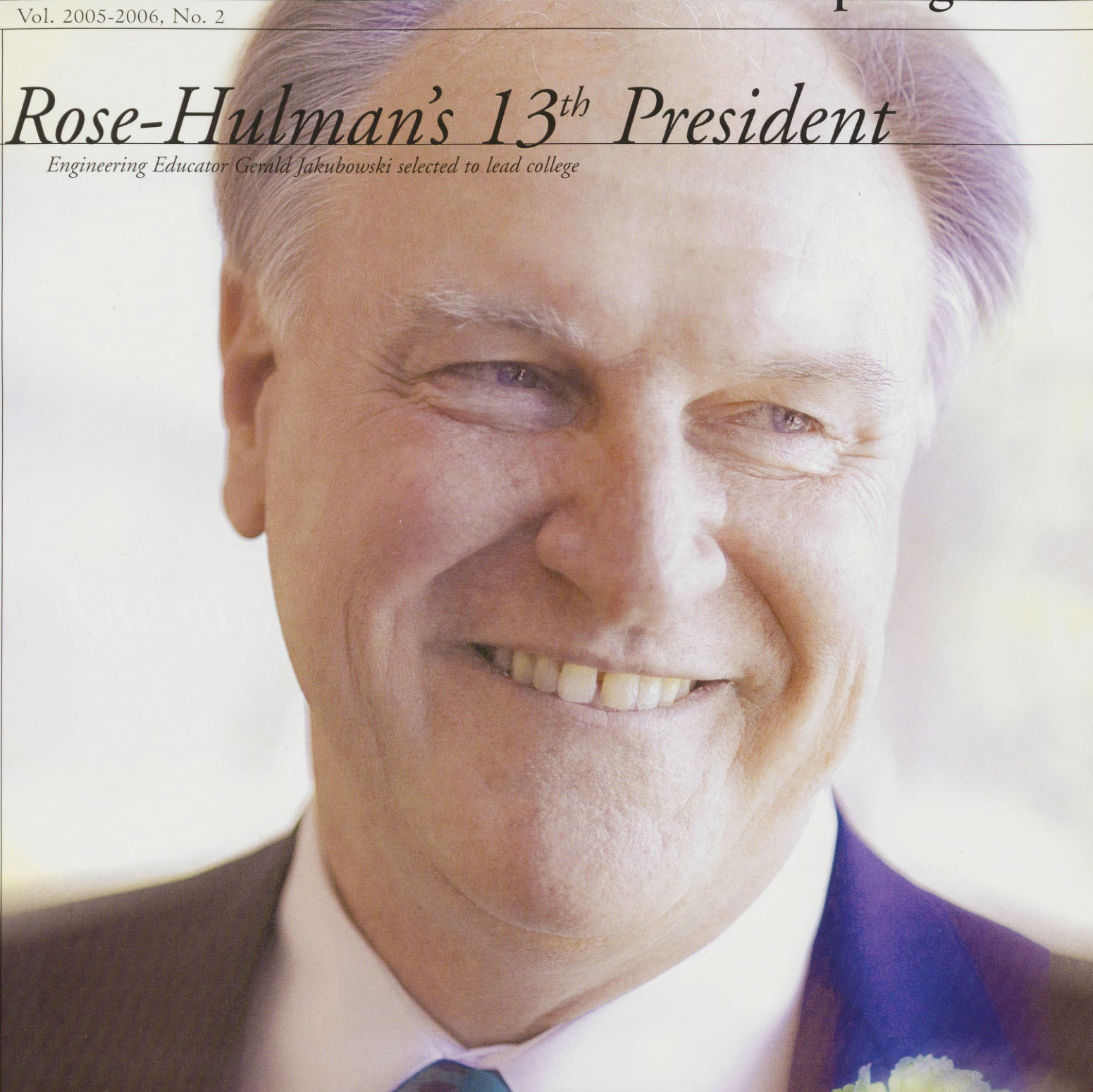
Echoes

Spring 2006

Vol. 2005-2006, No. 2

Rose-Hulman's 13th President

Engineering Educator Gerald Jakubowski selected to lead college



RENAISSANCE MAN

Tom Adams Finds Inspiration in Creating

WARSAW TRIANGLE

Alumni Play Role in Biomedical Engineering



heard in the halls of Moench

“ If we fail to create a trusted digital environment,
we will not only slow the growth of e-business,
but we'll slow the growth of all business. ”

— *John W. Thompson, chairman and CEO of Symantec, Corp., during his remarks
this spring at the 2006 Oscar C. Schmidt Memorial Lecture*

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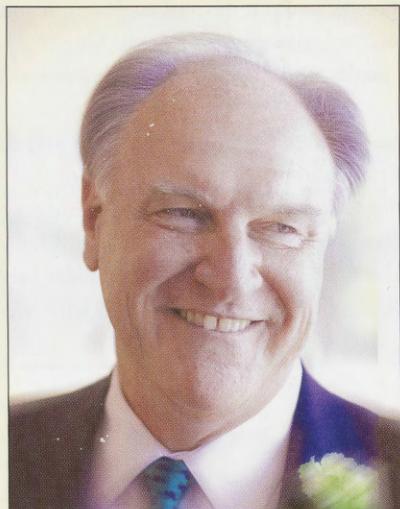
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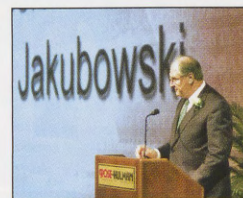
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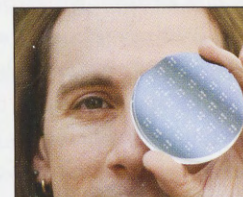
Photographer Chris Minnick captures a portrait of incoming President Gerald Jakubowski during a reception announcing his selection this spring.



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GERALD JAKUBOWSKI TO BECOME ROSE-HULMAN'S 13TH PRESIDENT

BY DAVID PIKER

"Gerald Jakubowski was selected to be the next president of Rose-Hulman Institute of Technology because of his outstanding academic accomplishments, his effectiveness as a senior administrator, and his commitment to undergraduate education. Those talents have earned him national recognition as a leader in engineering education." – Robert Bright, chairman of the Rose-Hulman Board of Trustees and chief executive officer

Describing his appointment as the next president of Rose-Hulman Institute of Technology as a "dream come true" and a "once in a lifetime opportunity," Gerald Jakubowski told several hundred of his new colleagues gathered in Hatfield Hall that he has been a keen observer of Rose-Hulman's growth and successes for nearly 30 years.

Jakubowski was introduced to the campus community as the 13th president of Rose-Hulman by Robert Bright, chairman of the Rose-Hulman Board of Trustees, during a special event in Hatfield Hall. Jakubowski, and his wife, Lynn, were also greeted by a large crowd of faculty, staff, students, alumni and community leaders during a reception that followed the official announcement.

Jakubowski, 56, will assume the presidency on July 1. He is currently vice president of Arizona State University, provost of the ASU Polytechnic campus and professor of engineering.

"As a result of his 30 years experience in private and public higher education, and leadership in national engineering education organizations, he is keenly aware of the issues and trends that will influence Rose-Hulman's current and future development," Bright stated.



Gerald Jakubowski addresses Rose-Hulman faculty, staff and students during a Hatfield Hall introduction.

As provost at the ASU Polytechnic campus, Jakubowski has been responsible for leading the transition of the former Arizona State University East campus in Mesa into a premier polytechnic institution. Among the 30 programs offered to the 5,000 students on the campus are bachelor's degrees in science and engineering along with master's degrees in computing studies and technology.

In his first year as provost, he created an aggressive five-year academic development plan to provide new programs and facilities. He also developed new opportunities for the Mesa community to become involved with the campus and the development of its plans.

Prior to his appointment at Arizona State, Jakubowski served 14 years as dean of the College of Science and Engineering and professor of mechanical engineering at Loyola Marymount University (LMU), a private institution in Los Angeles, Calif. During his tenure at LMU, the academic quality and diversity of incoming freshmen increased. He was involved in university-wide, major capital fundraising campaigns that raised \$19 million for a new science and engineering building, created funding for significant renovations to other facilities in the college and raised support to create endowed faculty chairs.

Before becoming dean at Loyola Marymount, Jakubowski was interim dean of engineering, associate dean of engineering and professor of engineering in the Herff College of Engineering at Memphis State University (now the University of Memphis). Prior to that position, he was assistant dean of engineering and associate professor of mechanical engineering at the University of Toledo. He also served as a faculty member at the University of South Alabama.

Jakubowski said Rose-Hulman's national reputation and the commitment of its campus community to the mission of the Institute were among the reasons he applied for the presidency.

"I've had Rose-Hulman on my radar screen for over 30 years," he stated. "I've always been impressed with the remarkable faculty and staff from Rose-Hulman that I've worked with over



Gerald Jakubowski fields a question during March 17 press conference.

the years, the quality of the students, and the Institute's national reputation for excellence in undergraduate education," Jakubowski said. "I am truly honored to become the president of such an exceptional institution."

Jakubowski said among his first activities as the Institute's new president will be to enter into a dialogue with the Rose-Hulman community regarding current and future plans for the Institute.

"It would be presumptuous for me to come here with a definitive plan before I've had the opportunity to enter a dialogue with you," he told the Hatfield Hall audience. "I need to get to know all of you," Jakubowski commented. "I need to listen to you and learn from you. You need to help Lynn and me learn the Rose-Hulman culture."

He praised his new colleagues for Rose-Hulman's current and past successes. He described Rose-Hulman's growth, achievements and reputation as being phenomenal. However, he noted that the Institute cannot rest on its laurels. "We need to move forward," Jakubowski said.

"Rose-Hulman has much to be proud of, and I'm impressed with the desire of everyone associated with the college to strive for even greater success," stated Jakubowski.



Lynn Jakubowski, wife of incoming president Gerald, visits with a student while holding a dozen roses she received from Robert Bright, chairman of the Board of Trustees and chief executive officer.

Jakubowski said moving forward with the Rose-Hulman 2015 planning project will be an activity that he looks forward to working on with input from the Rose-Hulman community. "Relative to this project, I would like to engage you in a dialogue in identifying Rose-Hulman's aspirational peers and to identify institutions that are aspiring to be like Rose-Hulman," he told his campus colleagues. "Who is aspiring to be like Rose-Hulman? What are they doing and what are we doing to prevent them from passing us?"

During the presidential announcement conducted on St. Patrick's Day, Bright and Jakubowski wore green carnations. Jakubowski's St. Patrick's Day attire included a tie with a green shamrock pattern.

"I think it's somewhat profound that this announcement is being made on St. Patrick's Day," Rose-Hulman's new president remarked. "As many of you probably know, St. Patrick is the patron saint of engineers."

He told the Hatfield Hall audience that becoming president of Rose-Hulman enables him and Lynn to return to their Midwest roots. Jakubowski is a native of Toledo, Ohio. He earned the Ph.D. in engineering science and the master's and bachelor's degrees in mechanical engineering from the University of Toledo. His wife's immediate family lives near Indianapolis.

Family members also include a son and daughter. Jerrold, 29, is an electrical engineer working in Philadelphia, whose wife Kristin is a kindergarten teacher. They have a daughter, Annabelle. Jamie, 26, is a high-school mathematics teacher in Huntington Beach, Calif. ■

GERALD S. JAKUBOWSKI — ADDITIONAL PROFESSIONAL PROFILE

His areas of engineering expertise include thermodynamics, fluid mechanics, heat transfer and energy. He is a registered professional engineer.

Jakubowski has been involved in engineering education developments on a national basis. He is chair-elect and vice chair of policy for the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. ABET is the recognized accrediting agency for college and university programs in applied science, computing, engineering and technology in the United States.

In 2001, he was national president of the American Society for Engineering Education after serving as vice president and a member of its Board of Directors. The organization consists of 12,000 members committed to developing policies and programs that



Gerald Jakubowski brings a distinguished career as an engineering educator to Rose-Hulman.

enhance opportunities for faculty. It also strives to increase student interest in pursuing a degree in engineering. He has served in many leadership positions in the American Society of Mechanical Engineers and the Society of Automotive Engineers.

Jakubowski has received numerous honors. He was elected as a Fellow in the Institute for the Advancement of Engineering, the American Society for Engineering Education, and the American Society of Mechanical Engineers in 1994, 1999 and 2001 respectively. He received the Excellence in Engineering Education Award from the Society of Automotive Engineers in 1998. He has served twice as a NASA Faculty Fellow, and received honors for his teaching from the Society for Automotive Engineers and the University of Toledo. ■

FACULTY RECOGNIZED FOR VARIOUS ACHIEVEMENTS

Rose-Hulman faculty members continue to be recognized by their peers for their academic, research and career achievements. Recent honors and professional development opportunities include:



Professors Ella Ingram, left, and Michael Robinson, right, take water measurements with student Josh Jacobs during a spring visit to a wetlands near the campus of Rose-Hulman.

• Assistant professors **Penney Miller**, chemistry, **Michael Robinson**, civil and environmental engineering, and **Ella Ingram**, applied biology and biomedical engineering, have been awarded a Faculty Success Grant from the Lilly Endowment's Initiative to Recruit and Retain Intellectual Capital for Indiana Higher Education Institutions. The trio is striving to establish an ecological systems laboratory to promote sustainable development in education and research on campus.

• **Charles Joenathan**, head of the Department of Physics & Optical Engineering, was elected a Fellow of the International Society for Optical Engineering (SPIE). The honor recognizes Joenathan's outstanding contributions in the field of optics. Fellow membership is restricted to no more than five percent of SPIE voting members.

• Civil Engineering Assistant Professor **James Hanson** received the American Concrete Institute's Young Member Award for Professional Achievement. The award

honors Hanson's contributions to the education of future engineers by innovative integration of experimental and classroom learning, and for significant contributions to concrete technology in the area of meas-

uring concrete fracture properties. Hanson also received the Daniel V. Terrell Award in the American Society of Civil Engineers' best paper competition.

• **Susan Smith**, assistant professor of English and director of the Learning Center, received Indianapolis television station WRTV's

Leadership Award for her outstanding community outreach efforts through Rose-Hulman's

Homework Hotline toll-free mathematics and science telephone tutoring service.

Established by Smith in 1991, the Homework Hotline provides middle and high school students with free math and science homework help. A total of 39,835 callers were helped by the Homework Hotline during the 2004-05 school year.

• **David Voltmer** has been named a fellow of the American Society of Engineering Education.

• Applied Biology and Biomedical Engineering Head **Lee Waite** authored the new book, *Biofluid Mechanics in Cardiovascular Systems* (McGraw-Hill), which is being used in Rose-Hulman's biomedical fluid mechanics course. Waite also serves as editor for the publisher's biomedical engineering series.

• **Anice Anderson**, associate professor of engineering management, organized educational sessions on the science and engineering challenges in homeland security and disaster response at a national meeting of the American Association for the Advancement of Science. Anderson spoke on "Opportunities for Innovation in Homeland Security and Natural Disaster Response."

• **Scott Clark**, professor of anthropology, and **Heinz Luegenbiehl**, professor of philosophy and technical studies, were commentators and panelists for papers from Korea, Hong Kong, Japan and the United States at an international symposium on "Developing a Global Code of Ethics" conducted in Japan.

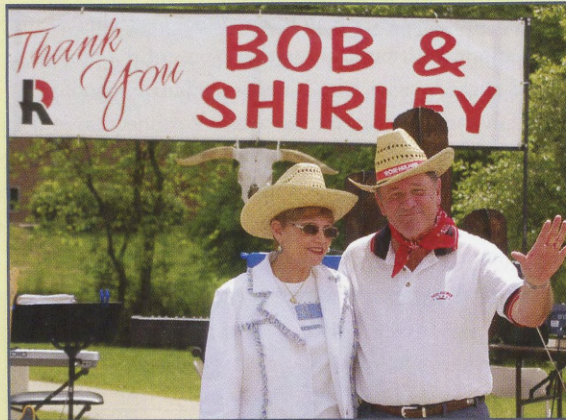
• **Bradley Burchett**, assistant professor of mechanical engineering, organized the Atmospheric Flight Mechanics Technical section for the American Institute of Aeronautics and Astronautics' Aerospace Sciences meeting, the largest annual meeting of aerospace engineers in North America.

SIX LONG-TIME EMPLOYEES RETIRE FROM ROSE-HULMAN

During the past academic year, Rose-Hulman lost six dedicated employees to retirement. They had almost 150 years of service between them. **Those faculty and staff are:**

- **Anita Creasey**, bookstore manager, 27 years
- **Shirley Drake**, manager of gift accounting, 15 years
- **Richard Mott**, custodian/facilities operations, 23 years
- **Gloria Rogers**, vice president of institutional research, planning & assessment, 19 years
- **David Voltmer**, professor of electrical and computer engineering, 27 years
- **Gary Sherman**, professor mathematics, 35 years

ROSE-HULMAN COMMUNITY HONORS BOB AND SHIRLEY BRIGHT



The words of thanks were numerous in May as Rose-Hulman expressed its appreciation to Bob and Shirley Bright for their year of service to the college. Bob Bright has served as chief executive officer of the Institute for the past year in addition to his role as chairman of the Rose-Hulman Board of Trustees.

His wife, Shirley, has assumed the role of first lady of Rose-Hulman while attending numerous events with Bob from alumni meetings to student activities.

On July 1, Gerald Jakubowski will assume his duties as the thirteenth president of Rose-Hulman.

The largest event to thank the Brights for their year of service to the college was May 20 when an outdoor

luncheon with a Texas barbecue theme (the Brights will be returning to their home in Austin, Texas) was held near Cook Stadium.

During the event:

- The faculty announced a fund drive to collect donations to support the Bright Scholarship Fund at Rose-Hulman.
- A \$2,000 gift from the staff to the Make-A-Wish Foundation, which

is an organization the Brights serve as volunteer leaders, was presented.

- A 19-by-23 inch framed collage of photos of some of the activities during the academic year in which the Brights were participants was given to Bob and Shirley.
- Representatives announced that students donated funds to purchase a granite stone with an inscription thanking Bob and Shirley that will be added to the Reflection Plaza that surrounds the Flame of the Millennium sculpture.
- An album of additional photos and notes of thanks from all academic departments was presented by faculty representatives.

During the annual Rose-Hulman end of the academic year dinner, Trustee Vice Chairman Bill Fenoglio presented the Brights with a \$45,000 donation to increase the Robert and Shirley Bright Scholarship Fund. In addition, Fenoglio presented them a plaque thanking them for their dedication to the college.

At the trustees meeting the following day, trustee and alumnus Tom Dinkel presented Bob Bright with a racing helmet signed by each of the 33 drivers who started the 90th Indianapolis 500.

The Brights were also honored during the annual Rose-Hulman Athletic Honors and Awards Banquet. They received a quilt from the athletic department featuring logos from each of Rose-Hulman's intercollegiate athletic teams. Bob Bright was also named the recipient of the John Mutchner Award, presented to the man who has unselfishly given his time and support to the athletic department.

Shirley Bright was also honored by the Rose-Hulman Parent's Association on March 25 when she was presented with the Joy Hulbert Award which recognizes a woman who has had a positive influence on Rose-Hulman and played an important role in student's education.

SENIOR VICE PRESIDENT ELECTED TO ROSE-HULMAN BOARD OF TRUSTEES

Gregg Lowe, senior vice president of Analog business units at Texas Instruments (TI), has been elected to the Rose-Hulman Institute of Technology Board of Trustees.

Lowe manages an international business operation with employees in Europe, Asia and the Americas.

A 1984 electrical engineering graduate of Rose-Hulman, Lowe was promoted to his current position this spring. A native of Cleveland, Ohio, Lowe also graduated from the Stanford Executive Program at Stanford University.

Rose-Hulman honored Lowe in 2004 when he was presented with the college's Career Achievement Award.



Gregg Lowe

Lowe began his career at Texas Instruments in 1984 in the field sales organization in Detroit, Mich., where he was responsible for growing the company's business with automobile manufacturers.

He moved to Germany in 1989 and led the TI European Automotive Sales group managing employees in France, Germany, Italy, England and Spain.

In 1994, Lowe took over P&L for the microcontroller organization.

Four years later, he moved to Dallas as leader of the Application Specific Integrated Circuit (ASIC) organization. In that position, Lowe was responsible for a worldwide team with design centers and customers on each continent.

Lowe then moved to the High Performance Analog division to manage the High Speed Communication and Controls group. In November, 2001, he was promoted to his current executive position.

SOFTWARE INTERNSHIP VIDEO RESULTS IN DVD TITLED "AARDVARK'D: 12 WEEKS WITH GEEKS"

Call it "The Apprentice," software style.

That's what happened when Rose-Hulman Institute of Technology senior computer science student Michael Lehenbauer and recent alumnus Tyler Hicks-Wright (CS & Economics, 2005) were part of a unique internship to create a software product, from scratch, for Fog Creek Software in New York City.

With a measure of ambition that might impress Donald Trump himself, Fog Creek Founder/software guru Joel Spolsky decided to make an interesting documentary about the internship—covering all the angles from concept creation to testing and preparing marketing materials.

The end result has been two success stories: Fog Creek Copilot, a help-your-mom-fix-her-computer service, is a finalist for a Jolt Award, the most prestigious award for software development products; and more than 4,200 copies of the "Aardvark'd: 12 Weeks With Geeks" DVD (Boondoggle Films) have been ordered, and nearly an additional 1,000 people have watched the documentary on Google Video (<http://video.google.com/>).

Lehenbauer and Hicks-Wright were among 800 applicants who sought the four internships. Selection was based on a variety of criteria, according to Spolsky, including a telephone interview and a day of challenging, technical in-person interviews in Manhattan. The other two interns came from Yale University and Duke University.

"The fact that two of our interns came from the same school says a lot about both the quality of Rose-Hulman students and the quality of the education they receive," said Spolsky, author of the popular www.joelonsoftware.com Web site.

Fog Creek Copilot (<http://www.copilot.com/>) is a simple and inexpensive service that allows customers to help each other solve their computer problems by letting one person temporarily connect to and control the computer of another person via the Internet. Fog Creek Copilot is inexpensive, fast, easy, secure, and works with any firewall or router without having to install anything or configure any settings.

Lehenbauer was responsible for development of Fog Creek Copilot's Website, worked on an internal tool for technical support and made minor contributions to other pieces of the product. Meanwhile Hicks-Wright, who is now in graduate school at Stanford University, focused on the network connection of the program, adding encryption for security, and adding code for flexibility. He also helped with marketing and project management roles.

"Aardvark'd : 12 Weeks With Geeks" wasn't "Reality TV." It provides a glimpse into the world of software development.



Front: Yaron Guez, Yale University, and Michael Lehenbauer, Rose-Hulman. Back Benjamin Pollack, Duke University, and Tyler Hicks-Wright, Rose-Hulman.

"The interns did such a good job there were never any real failures, which makes for a boring story," admits Spolsky, who is amazed by the DVD's popularity. "I heard that MTV's 'The Real World' tries to find people with great looks and awful interpersonal skills, because that leads to drama and conflict, which is a lot more entertaining than watching four bright, smart kids doing everything right. Next time I do this, I think we'll have to hire one real lunatic just to make the plot more interesting."

More information about "12 Weeks With Geeks" is available at <http://www.projectaardvark.com/movie/>.

REPUTATION, FACULTY QUALITY KEY REASONS PROSPECTIVE STUDENTS CHOOSE ROSE-HULMAN

An annual survey of Rose-Hulman freshmen confirms that the Institute's academic reputation and the quality of its faculty are key reasons why prospective students chose Rose-Hulman.

According to the survey's results, the top three most important reasons the class of 2005 selected Rose-Hulman were the quality of our engineering and science degrees, the academic reputation of the college and the quality of Rose-Hulman faculty.

The survey was completed by 92 percent of the freshman class. It was created and compiled by the Rose-Hulman Office of Institutional Research, Planning and Assessment for the Office of Student Affairs. The survey also sought responses from freshmen about their career plans, what they expected to occur during their academic career, the highest academic degree they would attain, and the quality of their high-school education.

Eighty-nine percent of the freshmen listed the quality of engineering and science degree programs as very important to their decision to attend Rose-Hulman. Listed next as most important were academic reputation, quality of faculty, career services, academic facilities and personal attention.

AMONG OTHER RESULTS FROM THE SURVEY:

- 99 percent anticipated being satisfied with attending Rose-Hulman and expected to find a career/job in the field for which they were educated.
- 96 percent anticipated being actively involved in at least one extracurricular activity.
- 94 percent anticipated earning a grade point average of 3.0 or higher in their first quarter.
- 46 percent said they expected to earn a master's degree, while 25 percent answered that their goal was to attain a Ph.D.
- Only seven percent replied that they thought it was a very good chance that they would fail one or more classes during their educational careers.
- 79 percent responded that their high-school education was good or excellent.

Rose-Hulman conducts a survey of seniors during the spring quarter.

ROSE-HULMAN RECEIVES \$100,000 GRANT TO STUDY TABLET PC IMPACT

Rose-Hulman Institute of Technology has been awarded a \$100,000, two-year grant from Microsoft Research to study the impact of tablet personal computer technology on teaching and learning.

The funding will also enable Rose-Hulman faculty to increase the applications of wireless tablet PCs and interactive, educational software across the entire curriculum.

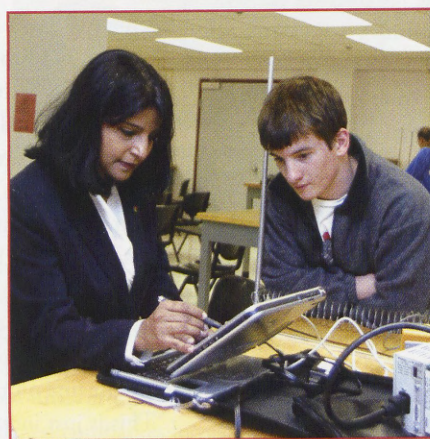
"The grant will expand the use of tablet computer technology and DyKnow software beyond our physics and humanities classes that have used the technologies thus far," said Julia Williams, principal investigator for the grant, who has used the technologies in technical communication classes she teaches as an associate professor of English.

"Our goal is to have faculty and students from most, if not all, 10 academic departments involved during the second year of the study," stated Williams, who is also executive director of the Office of Institutional Research, Planning and Assessment at Rose-Hulman.

Williams noted that through more than two years of experience with tablet PCs, faculty have learned that the technology can

encourage and enable students to better interact with other students and teachers, rather than receive information passively.

"DyKnow software allows faculty to transmit course content directly to a student's computer during classes," Williams said. "Using the tablet's pen, students can



Sudipa Kirtley, left, associate professor of physics and optical engineering, works on a tablet PC in a physics lab.

add personalized notes at any time, or a professor can transmit a student's work to the tablet PC of every student in class."

The grant will help faculty learn more about the impact of changes in student-

faculty interactions as a result of pen-based tablet PC use. Faculty will learn more about how tablet PC and DyKnow software meet their needs.

"We'll also learn more about the reaction of students to the technology and which changes in learning are the most beneficial," Williams added.

An online journal will be created that will feature case studies of the curriculum development projects, assessment methods and evaluation results.

"It's important to enable other educators to learn and benefit from our activities which will begin this summer," said Williams.

In addition to Williams, other Rose-Hulman faculty and staff involved in the project are Sudipa Kirtley, associate professor of physics and optical engineering; Meredith Zoetewey, assistant professor of technical communication; David Mutchler, professor of computer science and software engineering; and Zac Chambers, associate professor of mechanical engineering. Shannon Sexton, director of assessment, will manage the assessment and evaluation of the project.

BIOMEDICAL ENGINEERING STUDENTS HELP CHANGE LIVES

The lives of retarded citizens across southwestern Indiana have been changed forever through four innovative devices created by 2006 Rose-Hulman Institute of Technology biomedical engineering graduates.

For instance, Larry Bauer, an employee of the Knox County Association for Retarded Citizens (KCARC) with extreme hand tremors, can now use a tag stamper to affix a lot number on military clothing manufactured in Vincennes, Ind.

"This is super," Bauer exclaimed, with a broad smile, after showing a tag to a co-worker during a recent demonstration.

Aiding Bauer and other KCARC employees helped the tag stamping device earn the 2006 National Scholar Award for Workplace Innovation and Design from NISH, a national non-profit agency, for students Kara Jackson, Megan Lafferty and Megan Whitaker.

"Knowing that we were helping others made this project so worthwhile," Jackson said.

Currently, the task of stamping tags is completed by persons with full use of both hands and steady hand movement. The process consists of a standard ink pad and stamp that the person uses to stamp the lot number onto the tag for U.S. Navy dress slacks and extreme cold weather clothing. The person isolates the tag with one hand, presses the stamp on the ink pad and then places the stamp on the tag.

The new tag stamping device features a large box-shaped Plexiglas casing, with a tapered slot, one button, one aluminum lever and a self-inking stamp. The button is pressed by the employee to activate the stamping process, and the tag can be inserted into the slot. Correctly positioning the tag disrupts the light beams of two opto-interrupters, which activate a clamp to hold the tag in place. At this point, the employee's hand is freed to push down the large lever to stamp the tag. As the lever is pressed down and then released, this motion actuates a lever switch, which releases the clamp.

During testing, Bauer, who couldn't work in the tag area previously, used the device to process three tags within a two-minute period.

"The opportunities this device opens are tremendous. The device breaks down barriers," admits Bob Harbison, KCARC's director of manufacturing.

A shirt inverter, thread trimmer and assistive mobility device were other devices developed during in a pilot program that will allow students enrolled in Rose-Hulman's Department of Applied Biology and Biomedical Engineering to help many of KCARC's 200 employees. Thirteen students completed the projects this year, under the supervision of professors Renee Rogge and Glen Livesay.



Making A Difference: Larry Bauer (left) proudly shows off a tag that he had just stamped with a lot number by using a device developed by Rose-Hulman Institute of Technology biomedical engineering students (from left) Megan Whitaker, Megan Lafferty and Kara Jackson.

"Rose-Hulman students have the creativity and problem-solving skills to make a difference for our operations," said Mike Carney, KCARC's president.

Curtis Boga, a man unable to speak and whose movement is limited by cerebral palsy, was clearly happy as he sat in his wheelchair and used his right hand to push a lever on a shirt inverter that, in a matter of moments, turned a shirt right-side out for packaging.

Before the Shirt Master 3000, Boga would need an entire work day to turn up the cuffs of four shirts.

"We wanted to help Curtis from the first time we saw him," said Bryan Woodard, who joined Adam Haste in developing the device, which featured a series of gears and belts.

Krystal Altmann, Bernadette Brown-Clerk, Alexandra Jantzen and Laura Telezyn modified a walker for Jamie Tracy, a high school senior, to include an ergonomic seat. A motor allows the seat to be raised to a height which makes it easier for her to stand up or work. Other enhancements allow 180-degree range of movement, and there's a homemade hand bag and Jamie's glitter-embossed name on the back.

"This is just incredible," Tracy said.

ROSE-HULMAN VENTURES REACHES EDUCATIONAL MILESTONE

BY DEANNA REED

164,491. 1,155. 431. 85.

Those are significant numbers that illustrate how Rose-Hulman Ventures is achieving its goal to provide unique, educational opportunities to prepare students for career success.

Now in its sixth year of operation, Rose-Hulman Ventures celebrates the completion of 1,155 undergraduate internships for 431 students. Those students have gained over 164,491 hours of professional practice experience by providing engineering assistance to 60 companies. Currently, 85 students are working on projects at Rose-Hulman Ventures.

This internship process is based on a collaborative approach with Rose-Hulman Ventures' project managers leading multidisciplinary teams of students. These teams provide technical expertise to companies by completing the design, prototyping and testing of commercial products and services.

"These experiences provide excellent educational opportunities for our students," said Bill Kline, who oversees Rose-Hulman Ventures as associate dean of professional experience and associate professor of engineering management. "Students apply their engineering skills to meet the demands of a customer. The projects improve their critical thinking abilities. They're better prepared for their first job."

An outstanding educational opportunity for students is the goal, and project engagement is the mantra.

"We offer several paths for companies to connect with students—project engagement with small to large companies through service agreements, limited in-kind investment in small technology companies, and projects with universities, technology parks and other entities," Kline explained.

While providing educational experiences for students, Rose-Hulman Ventures delivers valuable project results that add value to the client companies. These businesses receive innovative engineering solutions that help them enter new and expand current markets. By leveraging the technology and resources at Rose-Hulman Ventures to drive process improvements, companies have increased competitiveness and reduced costs.

InfraWare, a client company at Rose-Hulman Ventures, utilizes student interns for its product development. The company provides a hosted solution to automate medical transcription. Nick Mahurin, CEO, said, "The student interns engaged in our projects are strong performers who have developed tangible deliverables that our company needed to get to market with a robust, quality software suite."

As a result of extending Rose-Hulman's reach in the business community, student participation has increased to an average of 70 students per quarter during the school year and approximately 80 students are expected this summer.

Annual student assessment results show that working at Rose-Hulman Ventures meets the program's educational goals. Students overwhelmingly indicated that the professional experience they have received working at Rose-Hulman Ventures has enhanced their education by reinforcing coursework, performing in disciplines other than their major and becoming more attractive to recruiters.

Ashley Bernal, junior mechanical engineering major, reflects on her experiences Rose-Hulman Ventures: "Working here has given me an opportunity to broaden my skills. However, I believe that by doing electrical work I am a better mechanical engineer because I have gained an overall understanding of an entire system. I believe that any additional experience in the engineering field makes me more valuable to a recruiter."

Students have proven successful in developing the following types of innovative products and services with companies across the state for medical, industrial and information technology markets.

- Automated Laboratory Equipment
- Computer Vision Systems
- Construction Equipment
- Electromechanical Systems
- Intelligent Sensors
- Medical Devices
- Optical Systems
- Software Development
- Wireless RF Devices

Collaboration with project managers and clients allows students to discover opportunities to develop proven technical ideas and technologies into commercial products and services. Not only do these experiences at Rose-Hulman Ventures make

students attractive to recruiters, but the students transfer what they've learned to the classroom.

"The students who work at Rose-Hulman Ventures as sophomores and juniors tend to be the leaders on their senior design projects," observed Brian Dougherty, project manager at Rose-Hulman Ventures. "They learn here how to develop and execute a plan on any given design problem."

Vice President for Academic Affairs and Dean of Faculty Art Western said, "For our students to gain industry-based experience while they are still students is a key component of the value of a Rose-Hulman education. We're pleased that increased numbers of students are capitalizing on the unique opportunities and ideas generating from Rose-Hulman Ventures."

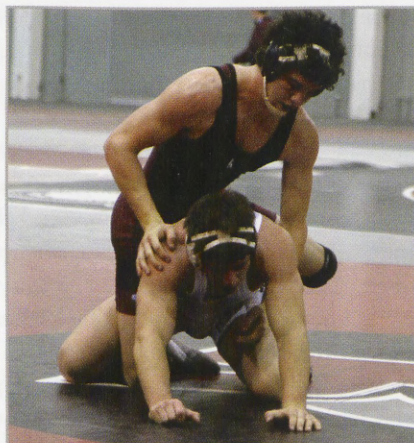


Cameron Klein, a junior chemical engineering major, checks lab data at Rose-Hulman Ventures.

SPORTS WRAPS

TYLER GOBLE SETS WRESTLING SINGLE-SEASON WIN RECORD

Rose-Hulman Institute of Technology freshman Tyler Goble established a new single-season school record for victories to lead five placements at the NCAA Division III Wrestling Regional.



Tyler Goble, top

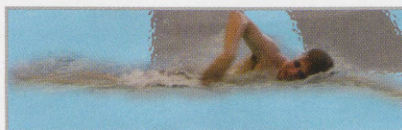
Goble finished 3-1 overall at 165 pounds to place third in the region and tally an overall record of 30-9 on the year. He surpassed the previous school record of 29 set by NCAA National Qualifier Matt Morin in 1992.

Freshman Ryan Schalk tied Morin's mark with 29 wins after a 2-2 performance that also netted third-place honors at 149 pounds.

SWIMMING TEAM RECORDS 10 ALL-CONFERENCE HONORS AT SCAC MEET

Rose-Hulman relied on three event victories, four school records and 10 all-conference performances to place fourth in the men's and seventh in the women's competition at the Southern Collegiate Athletic Conference Swimming and Diving Championships.

Sophomore Adam Effinger led the efforts with two event victories and two NCAA Division III National Championship provisional qualifications. Effinger won the 100-butterfly with a time of 51.34 seconds, includ-



Adam Effinger

ing 50.84 in the preliminary round, then added a school record time of 1:54.13 in the 200-butterfly to capture a second title.

Freshman Steven Vande Lune added three all-conference performances, including shattering a school record to win the 1,650-freestyle championship. Vande Lune trimmed nearly 30 seconds off the school record with a time of 16:56.28 in the 1,650. Earlier in the week, he placed second in the 200-freestyle (1:44.84) and second in the 500-freestyle (4:47.28) with another school record time.

JASON BEDNARKO NAMED ACADEMIC ALL-DISTRICT



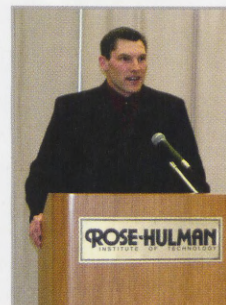
Jason Bednarko

grade point average in civil engineering, and averaged 7.5 points per game with 65 assists as a starter of all 26 games in the Engineer backcourt. He reached double figures in scoring seven times, highlighted by a career-high 14-point performance against Anderson.

STEVE ENGLEHART PROMOTED TO HEAD FOOTBALL COACH

Rose-Hulman has promoted Steve Englehart to head football coach for the upcoming 2006 season.

Englehart, entering his fifth season on the Fightin' Engineer coaching staff, has served as the team's offensive coordinator and recruiting coordinator since



Steve Englehart

2003. Rose-Hulman has compiled a 14-16 record during those three seasons.

The 28-year old Terre Haute native becomes the second youngest head coach in all divisions of NCAA football, as of Feb. 10. Brian Gavaletz of NCAA Division III Principia College (Ill.) is six months younger than Englehart.

"This is a great place to coach, because our kids are overachievers. Our players balance football, a rigorous curriculum, campus organizations, work study and sometimes even ROTC to be where they are today. Personally, after playing high school and college football in Terre Haute, I appreciate this wonderful opportunity to be the head coach at Rose-Hulman," said Englehart.

Englehart began his coaching career as the Rose-Hulman's quarterback coach in 2002, before earning a promotion to offensive coordinator during the following off-season. He earned three varsity letters as quarterback at Indiana State University, while earning a bachelor's degree in health education in 2000.

UNCOMMON PATHS CONVERGE ON THREE SEPARATE 1,000-POINT SEASONS

BY KEVIN LANKE

For just the third time in Rose-Hulman basketball history, three members of the basketball squads crossed the 1,000-point mark during the same season. Rebekah Forsyth, Anna Guy and Raymond "Munchie" Muskeyvalley came to Rose-Hulman through divergent paths, but have enjoyed success both on the court and in the classroom.

Forsyth followed in her sister's footsteps to make an impact at Rose-Hulman. Her sister Christina graduated from Rose-Hulman in 2002, and Rebekah initially wanted to head away from the Wabash Valley for college. Focus, study and the power of prayer eventually led Forsyth to follow her sister as a Fightin' Engineer.

The mechanical engineering major earned pre-season All-American honors and has been selected first-team all-Southern Collegiate Athletic Conference for the past three seasons. She currently ranks second in school history with 1,342 points, while holding league and school career rebounding records with 843 caroms.

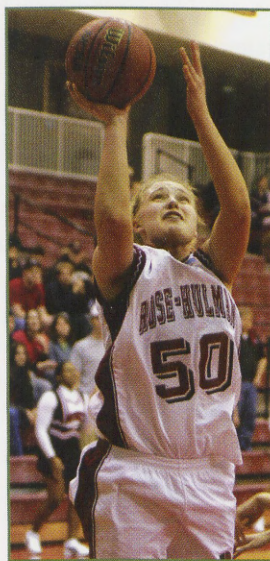
Forsyth's development and success in basketball has mirrored her life lessons off the court.

"As a player, I've become much stronger and tougher in the post. Off the court, my friends have taught me to keep going, to set lofty but achievable goals, and to always work as hard as possible to achieve them. The same things apply both in basketball and in the classroom," said Forsyth.

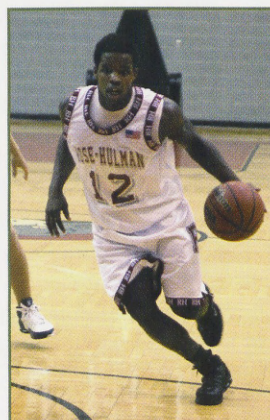
Guy ranks fourth in women's basketball school history with 1,030 points and stands fifth on the all-time list with 611 rebounds. Guy immediately became the team's primary scorer as a freshman. The team won just three games in 2003, but has since rebounded to win a school record 13 games for each of the past two seasons.

"I'm very proud that we've turned the program around. I knew that I would earn immediate playing time, but it was frustrating at first to play for a struggling team. Last year's winning season was important to show everyone the progress that we've made," said Guy.

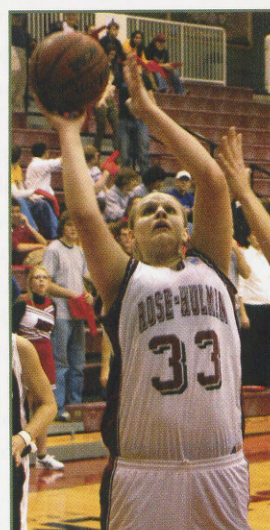
Off the court, the former Anna Hall married her high-school sweetheart Billy following her sophomore year. Billy graduated from Indiana State during the summer of 2004, before spending six months in Minnesota training for his new job with Federated Insurance. Guy noted that it was important to both husband and wife that the biomedical engineering major complete school and earn her bachelor's degree.



Rebekah Forsyth



"Munchie" Muskeyvalley



Anna Guy

"I've really enjoyed the people here. The basketball team and coaching staff feel like a family, and I will miss them greatly," she added.

In his college search, Muskeyvalley narrowed his choices to Rose-Hulman, the U.S. Military Academy and Washington University. He was initially contacted by the football coaching staff, but his interest in basketball was solidified with a career-high scoring performance on his high school's senior night during a visit from coach Jim Shaw.

The biomedical engineering major totaled 1,248 points (13th in school history) and 377 assists (third) in a four-year career that featured two first-team all-SCAC honors. Shaw told Muskeyvalley as a freshman that the ball would be in his hands during nearly every possession in his college career. The promise was kept, allowing Muskeyvalley to grow as a player and leader.

"I had to learn and lead as a freshman starting point guard, and that was a tough combination at times. I became a much better basketball player than I ever thought possible," said Muskeyvalley.

Although he originally enrolled as an applied biology major, Muskeyvalley came to Rose-Hulman due to a promise that he could graduate with a bachelor's degree in biomedical engineering in four years. The academic promise was also kept, and the senior has significant plans for the future.

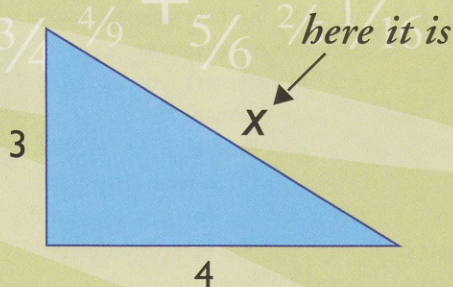
"I have three different options for future plans. I intend to enroll in medical school and work in either pediatrics or sports medicine. I'm also thinking about trying to play basketball overseas, and there may be some options in the coaching profession. It hasn't completely hit me that my college basketball career is over, but it was a great all-around experience," he added.

The trio joined the 1978 tandem of Roger Edelbrock, Mike Griggs and Dave Sutherland, along with 1981 graduates Jim Baske, Ron Dale and Doug Strange, as 1,000-point groupings in the same season. Forsyth, Guy and Muskeyvalley came to Rose-Hulman from uncommon paths, will embark on different futures, but are tied by the bond of excellence on the Hulbert Arena floor.

Bailey Challenge

By Professor Emeritus Herb Bailey

I Spy is a wonderful book to study with your children and grandchildren. Each page is a montage of many, many 'things' and the reader is to find three goats, for example. In grade school, Sally was one of the best at I Spy. Five years later, in her high school geometry quiz, she was asked to 'find x '. Her solution is shown in the figure.



Warm-up

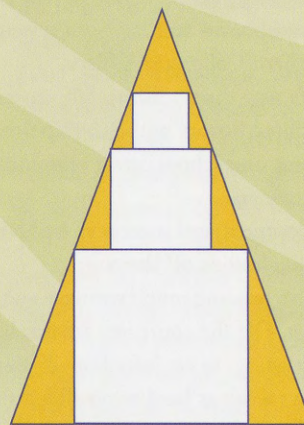
For her solution to the 10 point quiz, what is the proper partial credit?

Problem

You go to the well with a 9 pint can and a 4 pint can. How can you return with exactly 5 pints of water (of course it's a water well)? How can you return with exactly p pints, $p=0,1,\dots,13$? If this is too much for you, I will award full credit for solving the case $p = 7$.

Bonus

An infinite sequence of squares is inscribed in an isosceles triangle with base B and height H . The first three squares are shown in the figure. Find the sum of the perimeters and the sum of the areas of this infinite sequence of squares. The problem can be solved with or without the formula for the sum of a geometric series. (Extra credit for solving both ways)



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. **THANKS**

Solvers of the Fall problems are listed.

Alumni: J. Hurt, 1948; D. Camp, 1955; C. Cooper, 1956; J. Chinn, 1956; A. Sutton, 1956; H. Brown, 1957; D. Bailey, 1959; C. Sechrest, 1960; J. Tindall, 1961; J. Snyder, 1962; J. Born, 1970; S. Jordan, 1970; W. Pelz, 1971; R. Smith, 1973; D. Montgomery, 1974; P. Chilson, 1974; J. Koechling, 1980; S. Nolan, 1981; J. Breen, 1982; T. Schy, 1982; B. Wade, 1983; K. Walter, 1983; M. Saltsgaver, 1984; M. Walden, 1986; D. Johnson, 1987; M. Lancaster, 1987; M. Nigrovic, 1987; A. Cutaia, 1988; T. Doerr, 1988; C. Abdnour, 1989; A. Murray, 1989; G. Heimann, 1990; B. Burger, 1991; P. Kimmerle, 1991; D. Hector, 1992; C. Tracy, 1997; M. Pilcher, 1998; A. Primozych, 2000; B. Creel, 2000; D. Edwards, 2000; S. Layland, 2001; B. Richardson, 2002; L. VanSchoick, 2002; D. Harrington, 2002; S. Taylor, 2003; J. Keacher, 2004;

Friends: C. Garrett, J. Ley, J. Marks, J. Segal, L. Gaintner, M. Moloney, M. Rosene, T. Kelley, N. Flatter, M. Mills

The problem in the previous issue about the erased integer had a 'slight error'. The correct statement follows. A list of consecutive integers, starting with 1, is written on the blackboard. One of the numbers is then erased. If the average of the remaining numbers is $35\frac{6}{17}$, what number was erased? Sorry if you spent hours on an incorrect problem that had no solution. The deadline for solutions of this problem is hereby extended. Sally, in the bonus problem, started with $\$108\frac{1}{8}$. Some of the solvers noted that one eighth of a dollar is called a bit. This term derives from the practice of cutting a Spanish peso (piece-of-eight) into eight radial slices to make change. Each of these pieces was called a bit.

STEPPING FORWARD IN ONE VOICE TOWARD ONE OBJECTIVE



By Robert Bright, Chairman of the Rose-Hulman Institute of Technology Board of Trustees and Chief Executive Officer

Rose-Hulman finds itself at the threshold of an exciting era under the leadership of its new president, Dr. Gerald Jakubowski. Although he will not take office until July 1, he already has started working on the transition to become Rose-Hulman's 13th president.

Change brings opportunity, and I believe Rose-Hulman will take advantage of the occasion to make a great place even better.

We're confident we have selected a president who will lead us to success in the longstanding tradition of Rose-Hulman Institute of Technology. Dr. Jakubowski brings a wealth of experience, energy and enthusiasm to his new position. (See details on pages 2-3.)

We could not be poised in a better position at this time to develop plans for the future of the college. However, I would caution the Rose-Hulman community to realize the new president cannot do it alone. Future success for Rose-Hulman does not lie with one man. It will be achieved by all of us working together in one voice and focused on one objective—providing the best education possible for our students. Each of us who has a stake in this great institution will need to do whatever is necessary to help the new president be successful, and that, in turn, will ensure Rose-Hulman's overall success.

As I write these thoughts, I have no fear the Rose-Hulman community can accomplish ambitious goals that will enhance the Institute's leadership in engineering, mathematics and science education. During my tenure as a board member I have been impressed with how accomplished the faculty and staff are in serving our students. Our people are talented and caring. Those characteristics pack an enormous punch that benefits our students. I have gained an even greater appreciation for the Rose-Hulman community during my day-to-day duties as the college's chief executive officer during the current academic year. The Rose-Hulman family-atmosphere makes the college a special place to receive an engineering, science and mathematics education.

Although Rose-Hulman's future will be built on a solid foundation that has only become stronger since it was laid in 1874, we cannot remain satisfied with the status quo. Doing it because "that's the way we've always done it" is not good enough if we want to meet tomorrow's challenges in higher education. Founding father and philosopher Benjamin Franklin once said "When you're finished changing, you're finished." Rose-Hulman has greater goals to achieve, and we must be willing to embrace change to keep the college moving forward.

We need to continue doing the things that differentiate us as a college, but we need to be relentless in defining new directions and emphases. Should we do more or should we do less better? No matter how we answer those questions, projects we undertake need to be tested against how they serve the students. If student interests are not at the heart of an activity, we should not do it.

One of the first steps we have taken toward our future is the "Rose-Hulman 2015" project. During the past year, all Rose-Hulman constituencies—students, faculty, staff, alumni, parents,

business/industry leaders and friends—have provided their thoughts as to where they think Rose-Hulman will be in the year 2015. Those taking part in the project have expressed a strong consensus that the following Institute characteristics are cherished and should not be changed:

- Focus on undergraduate education in engineering, mathematics and science.
- Deliver an exceptional education—on a small (2,000 students) residential campus.
- Distinguish the educational environment by individual attention to each student's development.

This is a tall order, but one that we have filled for 132 years and one we can continue to fill for the next century. Will it be easy? No. Will it be exciting? Hopefully. Will it be worthwhile? Without a doubt. The payoff will be found in the young men and women who graduate from Rose-Hulman to take their places in the society of tomorrow.

Faculty can do their parts by staying abreast of developments in their respective fields and creating ways to bring those ideas into the classrooms. Staff must continue their caring roles that support and enrich the educational experience. Alumni can help with student recruitment, keeping faculty abreast of developing career skills, hiring graduates and continuing to be important donors. Trustees and friends need to promote Rose-Hulman within their networks and they also need to continue their financial support.

Improving Rose-Hulman will not be the job of just one person. It will require all of us, working together, sharing ideas and stepping forth boldly in one voice with one vision. May our voice be strong and our vision clear.



INDISPENSABLE

Academic technicians make ideas reality with labs, equipment and stockrooms

BY DAVID PIKER

To the casual observer, this group of Rose-Hulman staff members could be thought of as unsung heroes. However, that would not be an accurate description because this group's contributions to Rose-Hulman don't go unnoticed or unappreciated. Their colleagues say Rose-Hulman couldn't provide the quality education it does without their talents.

This is a story about staff whose jobs range from the care and maintenance of precision equipment to highly specified materials preparation to helping students design projects, and installing and maintaining sophisticated technologies essential to teaching and learning.

Their job titles range from technician, to lab manager, chemical stockroom manager and instrument room manager.

"They're indispensable," states Art Western, vice president for academic affairs and dean of the faculty. "Every department head agrees that this group's contributions are increasingly important to Rose-Hulman."

"When faculty have innovative ideas for experiments or projects, it's this group that makes those ideas become a reality," he said. "Whether it's installing a MEMS (micro- electromechanical systems) lab clean room, designing new experiments for the mechanical engineering measurements lab, or equipping newly renovated electrical and computer

engineering labs, they're challenged more today than ever before. And, they respond to those challenges with expertise and dedication.

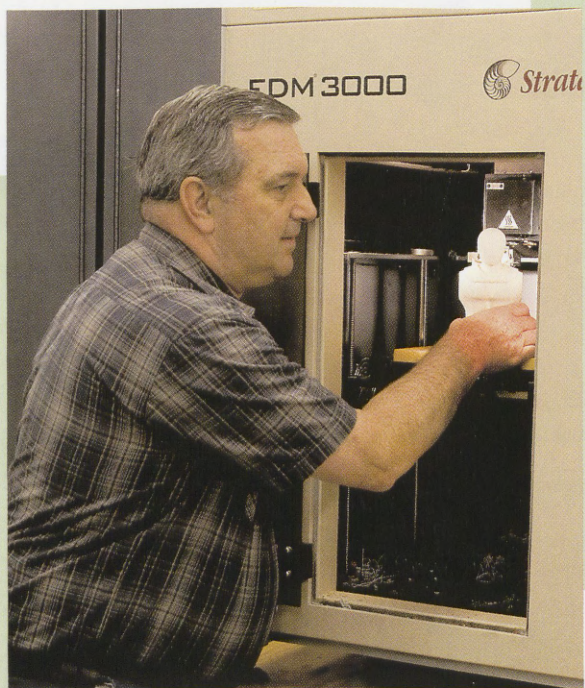
"As academic equipment has become more complex, technicians often complete special training to install, use and teach others about new equipment. Their professional development is essential to our educational progress."

Thirty years ago, Gary Burgess was hired as a mechanical technician for three academic departments. "There were only four technicians for the entire school at that time," says Burgess, who has the longest tenure in the group.

His job has changed dramatically since the days when, instead of laptops, the students carried slide rules. Burgess is now facilities manager for the multi-million dollar, John T. Myers Center for Technological Research with Industry. "The building houses computers that run at least 30 different programs," he said.

The 40,000-square-foot facility houses nearly 30 different projects sponsored by industry or Rose-Hulman academic departments. Equipment in Myers Hall ranges from a rapid prototyping machine to state-of-the-art lasers and optics.

The hectic academic schedule can make it difficult to have time for lab set up. "Our labs are in use all day," notes Fred Berry, professor



Gary Burgess works on a prototype machine in the Myers Center.

and department head for electrical and computer engineering. "There's an estimated 400 pieces of equipment used every day in our department. It's a challenge to keep everything operating."

"To insure those labs run smoothly we rely on the expertise of Mark Crosby (senior technologist), Gary Meyer (lab technician) and Ben Webster (instrument/parts room manager)," Berry states.

During spring quarter, Shannon Tieken, laboratory technician in the Department of Applied Biology and Biomedical Engineering, prepped nine different labs ranging from general biology to introduction to bioinstrumentation.

"I like the freedom created by the fact that everyday is something new," says Tieken, who creates lab kits rather than purchase them.

A lack of time is a challenge for Mike McLeish, systems administrator, who assists the departments of computer science and software engineering (CSSE), and mathematics, says Cary Laxer, CSSE department head. McLeish is responsible for hardware set up and software configuration for CSSE courses. Configuring software and installation for the Linux systems used in the mathematics department and enhancing the utilization of mathematics computational programs such as Maple, Matlab and SAS also occupies time in McLeish's schedule.

With nearly 550 majors, the Department of Mechanical Engineering utilizes three technicians who "play a key role and always go the extra mile for faculty and students," states David Purdy, department head.

The team includes Mike Fulk, Ray Bland and Ron Hofmann. "Their contributions are numerous, including the talents they bring to the design of projects and experiments," Purdy said.

Robert Houghtalen, head of the Department of Civil Engineering, says department technician Keith Royer, "is like a second instructor in the lab." According to Houghtalen, "Keith not only knows a lot about

the equipment, he's knowledgeable about tests and standards that have to be used."

At Rose-Hulman Ventures, electronics technician Jay Sotak supports student project teams and staff engineers on more than 30 projects simultaneously. Jay helps more than 80 students, and a dozen staff and faculty working at Rose-Hulman Ventures by making sure they have the necessary instruments, and by providing advice and assistance with prototype construction and testing.

Purdy and others cite the important role technicians have in maintaining safety.

"They insist that students use proper safety standards and equipment, especially in the machine shop," he said.

Chemistry department head Dan Jelski commends laboratory manager, Lou Johnson, and Cyndi Erwin, chemical stockroom manager, for their roles to insure the well being of students and faculty.

"A safe environment is critical," he stated. "They assist with the proper labeling and disposal of chemicals, and they make sure students are using the correct techniques handling materials."

In his dean's post, Western sees the overall impact the group has on academic success. "They're at the front lines of education interacting with our faculty and students."

The interaction with students was always mentioned when this academic support group was asked what aspects of their job they liked the most.

"I'm challenged by their (students') enthusiasm and curiosity," says Frank Cunning, who has served for 24 years as the technician in the Department of Chemical Engineering. "All of us agree, we're here to serve the students," explains Cunning, who spends most afternoons in labs with students.

In addition to prepping general chemistry labs for about 400 students, Erwin supervises 20 to 30 workstudy students. "The student interaction is what I enjoy most," she says.

Johnson echoes her thoughts, "Rose-Hulman students are the cream of the crop. They're respectful, intelligent and a pleasure to work with."

>> Continued on page 24



Shannon Tieken on the job in an applied biology lab.

Cultivating the **NEXT** Generation

*Students, Faculty Encourage
Future Engineers and Scientists*

by Dale Long



A Helping Hand: Bridget Mayer, standing, a junior, passes along some advice to two participants in an electrical engineering laboratory project during this year's Society of Women Engineers' Women Exploring Engineering program.

Like most high-school students showing an aptitude in mathematics and science, Kara Jackson was encouraged by teachers and family members toward a career in engineering and science, without really understanding or appreciating the career fields before becoming a student at Rose-Hulman Institute of Technology.

Hoping to inspire future engineers and scientists, Jackson joined 45 members of Rose-Hulman's Society of Women Engineers (SWE) in hosting a two-day Women Exploring Engineering program to provide female high-school seniors and juniors valuable insight on specific major fields of study involved in engineering and science.

This was one of several mentoring or tutoring programs conducted by Rose-Hulman students, faculty and alumni each year. The list includes the Operation Catapult and Explore Engineering programs; hosting Engineering & Science Day, Youth Science Day, MATH-COUNTS and Junior Engineering and Technical Society (JETS) activities; and conducting after-school tutoring programs through the toll-free Homework Hotline and at schools, libraries and churches.

"Programs like this help give high-school students more background on the many options available in engineering and science," states Jackson, a senior biomedical engineering major who joined classmate Alexandra Jantzen in organizing the Women Exploring Engineering program for the third straight year.

A total of 40 selected high-school female students from Indiana, Illinois, Ohio and Kentucky participated in edible engineering and egg drop contests, dissected appliances, built model bridges, and listened to lectures on biomedical and chemical engineering. A current Rose-Hulman female student served as a hostess for each student.



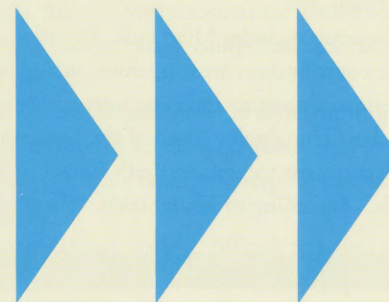
Gravity plays a role in this laboratory project during this year's Society of Women Engineers' Women Exploring Engineering program.

"It's a fun-filled experience and provides good contact with Rose-Hulman. Each hostess tries to keep in touch with their Explorer throughout the school year, providing advice about Rose-Hulman—from a student's perspective," said Jantzen, a senior biomedical engineering major.

The program hopes to increase the number of female students attending Rose-Hulman or other engineering colleges and universities. Currently, female students make up 18 percent of Rose-Hulman's student body, a percentage that matches the national average of females studying engineering at colleges.

"It's becoming more acceptable for females in engineering and science careers. We may never make up 50 percent of those professions but we're making great strides in these areas," Jantzen said. "(The Women Exploring Engineering program) shows these high school students that they aren't alone in liking science and engineering. They should join us in enjoying these career fields."

Jackson added, "If this program helps the students figure out what they want to do, then it's been a success... When you see the students at a SWE meeting next year (after participating in the Women Exploring Engineering program) and they tell you that the program made the difference in their college choice decision, it gives you a great feeling that what you're doing is making a difference."



OTHER ROSE-HULMAN PROGRAMS ORGANIZED TO ENCOURAGE YOUTHS TOWARD CAREERS IN ENGINEERING AND SCIENCE:

Operation Catapult: Before beginning their senior year, high-school students can explore their interests in engineering, science and computer science, while also finding out about college life, through this unique summer program. Sessions are planned in June and July each summer.

Now in its 40th year, Operation Catapult is not a summer camp, nor is it an "honors seminar." The program offers students a hands-on learning experience where they are challenged to solve problems in engineering and science. Past projects have had student teams developing fuel cells, human-powered machines, and robots; learning about embedded control systems, java computer programming, and rapid prototyping; and conducting wind tunnel tests.

Each project has a faculty mentor who is accustomed to teaching at the undergraduate level. Other Rose-Hulman faculty and staff members will be guest lecturers during the program to give students information about areas of scientific discovery.

Explore Engineering: Approximately 50 Wabash Valley middle school and high school students spent this school year exploring their interests in engineering and science through hands-on projects organized by Rose-Hulman students, student organizations and academic departments. Programs were conducted two evenings each month. The program is open to any student.

This year, Explorers conducted water tunnel tests; constructed miniature hot air balloons, mousetrap- and propeller-powered cars, and trebuchet catapult-like devices; and learned about chemistry, physics and electricity.

Organizations assisting with the programs included the Alpha Tau Omega fraternity, Chi Omega sorority, Circle K and Alpha Pi Omega service fraternities, American Institute of Chemical Engineers, American Society of Civil Engineers, Astronomy Club, Institute of Electrical and Electronic Engineers and Alpha Chi Sigma chemical honor society.

Engineering & Science Day: More than 140 Wabash Valley high-school students (freshmen, sophomores and juniors) from 10 schools got a first-hand look at engineering and science careers while taking plant trips to 12 Wabash Valley companies. Rose-Hulman students also provided a panel discussion on "What You Need to Know About College" and academic departments had career information booths.

Alumni who served as mentors for the trips were Dennis West (Chem. Eng., '84), Pfizer; Tony New (Elect. Eng., '91), Digital Audio Disc Corp.; Rob Virostko (Mech. Eng., '92) and Bill

Greene (Mech. Eng., '78), AET Films; James Baker (Elect. Eng., '71), Brian Dougherty (Elect. Eng., '93) and Will Mathies (Mech. Eng., '93), Rose-Hulman Ventures; Brian Meister (Mech. Eng., '90), Duke Energy; Eric Hartfiel (Chem. Eng., '99), Bemis Company; and Don Jones (Elect. Eng., '73), Numerical Concepts. Mike Raffay (Chem. Eng., '04) and Justin Royer (Chem. Eng., '04) of Parsons Engineering joined Chantel Booth (Chem. Eng., '99) of Eli Lilly & Company in providing engineering information sessions on campus.

Academic Competitions: Rose-Hulman once again hosted MATHCOUNTS and JETS TEAMS contests for more than 275 area high- and middle-school students. Also, 400 students from Indiana, Illinois and Iowa participated in the annual Rose-Hulman High School Mathematics Competition.



Budding Engineers: Members of Rose-Hulman's Explore Engineering program examine water tunnel tests, organized by mechanical engineering professor James Mayhew.

MATHCOUNTS is a national math enrichment, coaching and competition program that promotes middle school mathematics achievement through grassroots involvement. Rose-Hulman's competition is organized by Mathematics Professor Elton Graves and involves alumnus Denis Radecki (Math, '72).

JETS TEAMS is a real-life engineering challenge where groups of high school students synthesize key concepts in math, science, and physics and apply them to solve real-world engineering problems. This year's problems included designing a new ice cream plant, examining alternative energy sources and assisting NASA in construction of a new space power testing facility.

Tutoring Programs: The telephones once again rang in record volumes this school year for Rose-Hulman's Homework Hotline toll-free telephone tutoring service. More than 40,000 calls were answered by tutors, helping youths understand the complexities of algebra, geometry and balancing chemical equations, while also improving problem-solving skills.

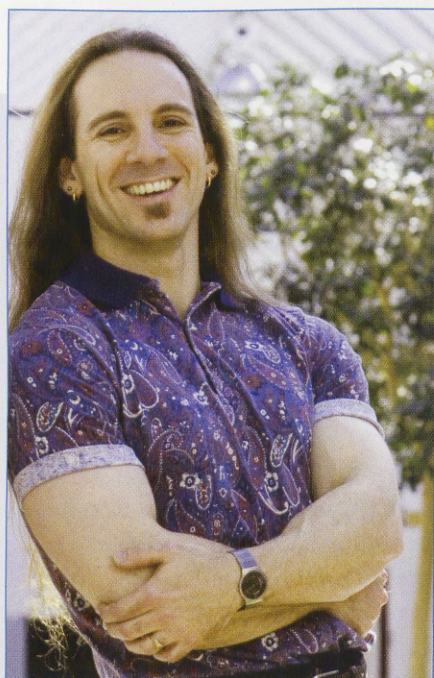
The Homework Hotline was started in 1990 by Learning Center Director Susan Smith to help students in the nearby Vigo County School Corporation. The service has expanded its outreach efforts to every Indiana county through financial support from the Lilly Endowment, Inc., 3-M Corporation and Rose-Hulman.

Also, members of the National Society of Black Engineers helped tutor middle school and high school students through a program at Terre Haute's Bethlehem Temple Church. Sessions were conducted each Thursday evening.

renaissance



Tom Adams Finds Inspiration in Act of Creating
BY DALE LONG



Most of Thomas Adams' days as a graduate student at Georgia Institute of Technology started with an early-morning exercise workout at an Atlanta area fitness center. During one particular session, Adams found himself working out alongside a fitness colleague who was deeply troubled by the turn of events in his life.

"Tom," the man stated, "I need some inspiration."

Adams abruptly stopped his workout to provide a caring voice in the man's time of need.

Today, in much the same manner, Adams has returned to his alma mater as a mechanical engineering professor at Rose-Hulman Institute of Technology to inspire future engineers. However, you will have to look closely to see who's having more fun: The professor or his students.

Sprinkle in part showman, a wonder about all things mechanical, a morsel of artistic talent, and a good portion of witty charm, and you've got a recipe that has made Adams one of Rose-Hulman's most

popular professors, receiving the 2005 Dean's Outstanding Teacher Award.

"I want to serve as the spark, the inspiration, in the creative process for my students," Adams stated during a recent interview in his office. "Engineers are a lot more emotional and driven by our psychology than we realize. When you see the students being inspired, it's a natural high that's on top of this world. It doesn't happen very often, but when it does, there's an immediate response that I'm making a difference."

Adams' creativity was in full display this winter when he served as host/creator for a "Jeopardy" game show that helped students review for the final exam in his Conservation & Accounting Principles course. Contest categories covered such areas as Mass, Angular Momentum and Substance Models. (The \$400 answer in the Linear Momentum category was: Represents rate of momentum transport at a non-flow boundary. The correct question, of course: What is a force?)

"Anything that you can do to make things interesting, the students are going to enjoy," says Adams, who has also designed a special "Who Wants to be a Mechanical Enginaire?" game, complete with theme music and a lucrative prize (passing the final exam) for correctly answering the \$1 million question?

"If your students are convinced you're human then you've gone that extra mile in letting them know that you're interested in them," the professor states. "You can't inspire someone if you don't know them."

At 36 years old and with locks of long

hair falling across his shoulders, it's not surprising to find that Adams has been mistaken for a college student. After all, he once walked in their shoes, taking many of the same classes—from the same professors—while earning a mechanical engineering degree (with honors) from Rose-Hulman in 1990. He earned master's and doctorate degrees in mechanical engineering from Georgia Tech, and learned an appreciation for teaching, before returning to his alma mater in 1999 to join the faculty.

"I got inspiration from Rose-Hulman, even though, like most students and alumni, I may not have appreciated it at the time," says the youngest son of two nomadic microbiologists who lived in Mexico City, South Dakota, South Carolina and Georgia. "When I left I was inspired to keep learning. Coming back to Rose-Hulman—my college—has been a pleasant surprise. Many students and alumni complain about the long hours, the hectic pace and the ornery professors. However, after a while you learn that those elements are what make Rose-Hulman such a great place. Now, I'm a part of that fantastic educational environment."

"I returned because I understood and appreciated Rose-Hulman's mission: Putting students first. Everyone agrees with that mission. That's why we're here—for the students," Adams said. "At first, it was a bit odd (to return). As a student, I thought Don Richards (professor) and Bob Steinhauser (former department chair) knew everything. They were my idols. It was 'Dr. Richards' and 'Dr. Steinhauser' for my first few weeks as a

faculty member. Then, I stepped back and thought 'No, you're 'Don' and 'Bob'—we're colleagues now.'"

Adams is a Renaissance man of sorts, a person who excels in multiple fields, particularly in both arts and sciences. He has played acoustic guitar in Rose-Hulman's Engineers In Concert, studies Yoga and origami, has written a play, is a member of MENSA (international society for people with high IQs), and enjoys bodybuilding and eating sushi with his wife Diedre, an award-winning area middle school science teacher. (The couple married during Adams' senior year at Rose-Hulman.)

"I am inspired most by the act of creating, of bringing something into existence that has heretofore never existed," he says. "I don't think it matters what it is as long as it is a creative endeavor. The things that I tend to spend time on, without any sense of drudgery whatsoever, are those which can be construed as creative in one way or another."

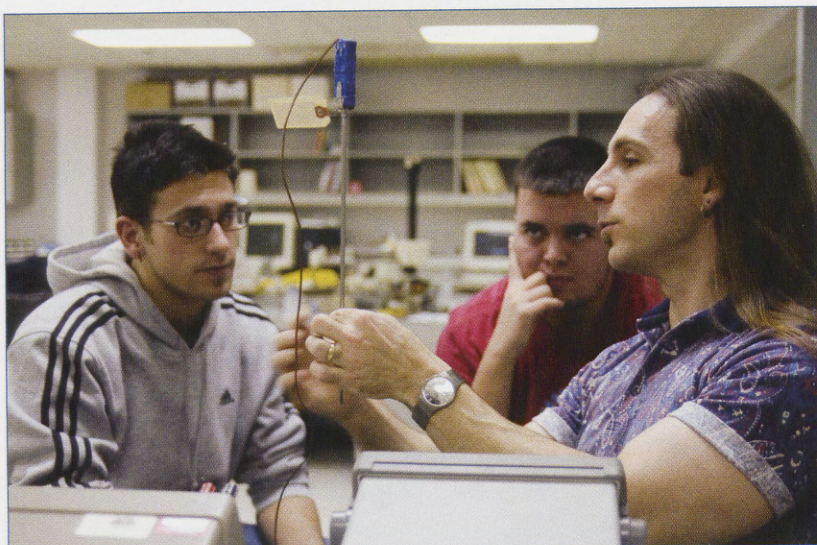
In recent years, Adams' academic interests have focused on Micro-Electro-Mechanical Systems (MEMS), an area which has enormous impact in applications ranging from biology to chemistry to optoelectronics, with great promise for the future. He collaborated with seven faculty members from five different Rose-Hulman academic departments to develop two courses in MEMS that are open to all science and engineering major of junior standing.

In the first course, Introduction to MEMS, students learn about the properties of materials and the basics of micro-fabrication techniques through lecture and laboratory work in a clean room. The focus in this course is on fabrication, laboratory technique, and applications. The second course, Advanced MEMS, includes material on device modeling, use of computer tools for layout and simulation, microfluidics, and testing. The centerpiece of the second course is on a term-length design project in which small groups of students design, build and test a prototype of a specific MEMS device. These courses are team-taught by 4-6 multidisciplinary faculty.

Adams' role is teaching elements of mechanics of materials, heat transfer and microfluidics. He also has a patent pending on a shape memory alloy MEMS heat engine, has conducted research on creating a thin film titanium nickel shape memory MEMS heat engine, and will spend the 2006-07 academic year serving as lead author on "Introduction to MEMS: Fabrication and Applications," one of the first textbooks for teaching an undergraduate-level MEMS course.

"We're providing a great service to engineering education," he stated about Rose-Hulman's MEMS endeavors. "MEMS has been a great opportunity for me professionally, allowing me to interact with students and faculty from other academic fields. I've been learning along with the students. We need to know what it is like to go down a blind alley, learning new and interesting stuff."

And, being inspired along the way.



Adams, right, during a lab session this spring.



Alumni Provide Support to *Challenge X Team*

It didn't take long for Rose-Hulman Institute of Technology alumnus Arthur McGrew to show his pride in the college's participation in the Challenge X: Crossover to Sustainable Mobility engineering competition.

"This is an incredible opportunity for Rose-Hulman and its students," says McGrew (Mech. Eng., '81), engineering design manager for General Motors Corporation's new EP40/50 bus program and GM's corporate contact for Rose-Hulman's Challenge X team.

Rose-Hulman is one of 17 U.S. and Canadian colleges and universities participating in the Challenge X competition, sponsored by GM and

the U.S. Department of Energy. More than 50 undergraduate students have spent the past 18 months transforming a gasoline-powered 2005 Chevrolet Equinox sport utility vehicle into a hybrid vehicle that strives to minimize energy consumption, emissions and greenhouse gas production. Teams will demonstrate their vehicles this summer to make sure they're meeting project goals.

"Rose-Hulman's team is on the cutting edge in several areas involving hybrid vehicle development. I have no doubt that Rose-Hulman will have a top-notch team at the end of the project," said McGrew, who has a quarterly on-site review with team members.



Clint Hammes, a junior mechanical engineer who is co-leader of the fabrication group for Rose-Hulman Institute of Technology's Challenge X team, points out some of the finer points of the unique hybrid vehicle development project to alumnus Arthur McGrew (left), engineering design manager for General Motors' new EP40/50 bus program and GM's corporate contact for Rose-Hulman's team.

McGrew isn't the only alumnus providing valuable assistance to the Challenge X team. Others who have made contributions include:

Craig Winn (Mech. Eng., '73), president and CEO of Applied Technologies Inc., has provided technical support on designing the vehicle's state-of-the-art transmission.

Rick Stanley (Mech. Eng., '78), president of Remy International, has encouraged the company to provide technical and financial support.

Michael Ruth (Mech. Eng., '88) made it possible for the team to utilize Cummins' FleetGuard emissions controls technology.

Michael Schwenk (Elect. Eng., '73) helped the team obtain financial and in-kind technical support from Jasper Engines & Transmissions.

Jeffrey Moore (Mech. Eng., '83) arranged for team members to have technical conferences with engineers from Toyota Motor Manufacturing's hybrid vehicle division.

Keith Cavallini (Mech. Eng., '96) of Cav Engineering provided diesel engines and technical support.

Darrin Davidson (Mech. Eng., '86), a regional manager for Sears, made it possible for the team to obtain Craftsman tool.

PEASE HEADS SHELL TRADING

BY DAVID PIKER



Pease on STUSCO's Houston trading floor

Bob Pease knows very well the challenges of trying to meet the world's daily needs for oil. He faces those challenges as an international business leader involved in a high stakes profession he describes as very complex.

In his job as president of Shell Trading (US) Company (STUSCO) and vice president of operations for Shell Trading globally, Pease focuses on how STUSCO conducts its business from meeting customer requirements to making sure that employees adhere to strict laws and policies while adding value to the bottom line. As vice president for trading operations, Pease sets international objectives in an organization where employees manage the worldwide movement of oil and natural gas for Shell.

Even before graduating from Rose-Hulman in 1980 with a chemical engineering degree, Pease recalls that he began to enjoy learning about the business side of engineering. That interest led him to earn a minor in economics that was to be the springboard to a highly successful career.

It was just over a year after graduation that Pease had the opportunity to move from process engineering to a position where he could experience how economics drives business decisions. He was interested in models, but not the type that most engineers first consider.

"I was initially involved in economic modeling for our refinery, and later on in investment modeling and analysis of production, supply and trading," he recalled. "I worked with traders who had to make informed, but quick decisions. Often, those decisions dealt with which crudes to purchase and when to buy a ship load of crude that could have a value of more than \$100 million," Pease said.

He says the complexity of the energy business results, in part, from the challenges to produce, trade, and ship the product in a commodity-based, worldwide market.

"It's an extremely competitive business where you must solve inefficiencies in the marketplace to maximize value from commercial deals," stated Pease, who is located in Houston, Texas. "Supply and trading activities are a critical component of an efficient market. The service we provide directly benefits consumers by supplying markets with the most cost-efficient sources of products." He oversees more than 300 operations employees in about a dozen offices around the world, as well as approximately 450 employees of STUSCO, who are mainly located in Houston.

Pease places a high value on ethical business practices, and spends considerable time ensuring that the company maintains the highest standards of compliance with all applicable laws and regulations.

"We're a highly regulated industry. I focus much of my attention on how we do our work, how we conduct business," said the Terre Haute native, whose family still lives about a mile from the Rose-Hulman campus.

When asked about the challenge of his worldwide responsibilities, Pease said Rose-Hulman taught him several vital skills. "At Rose, you're taught to be good at handling multiple tasks simultaneously. You have to be able to gather critical information quickly, analyze it in a complex environment, and take action. And, my technical education has been invaluable in understanding a broad range of issues and providing advice to employees ranging from traders to refinery management, to global executives."

Pease said today's Rose-Hulman graduate has to be prepared to compete in a global workplace. "The good news is that competition between companies for top talent is fierce. The challenge is that graduates must be ready to deliver value in a global market that is evolving rapidly," he advised.

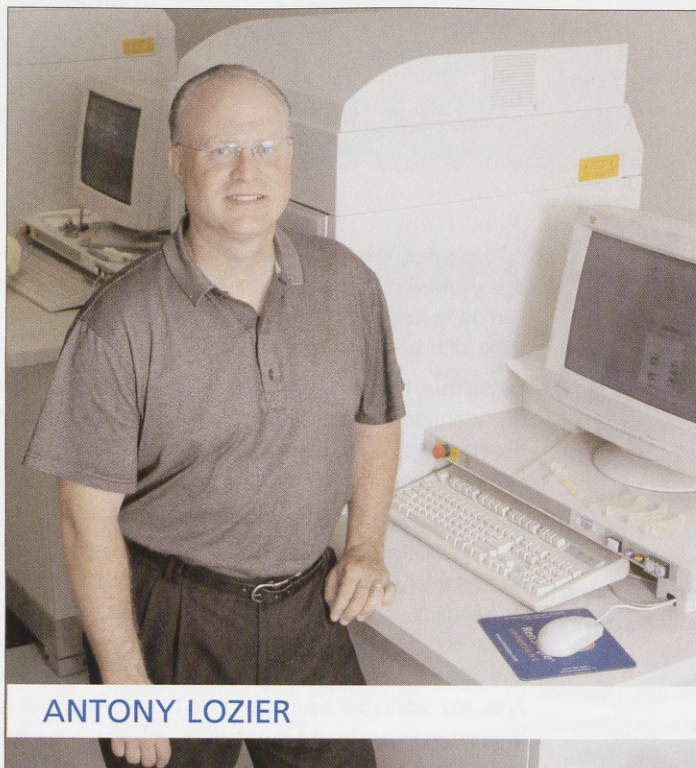
According to Pease, lifelong learning is a core component of a successful career. "Training and development of employees must be continuous and vital," he stated. "In our operations, we are consistently developing new programs to retain staff and improve skills, and to create opportunities to identify and attract the best talent possible."

Pease noted that Shell is committed to creating the next generation of cleaner, alternative energy sources. "Shell is among the top three consumers of ethanol for transportation fuels in the U.S. The company also is creating new applications to utilize liquefied natural gas and to convert gas from around the world, and solid fuels that are abundant in North America into liquid fuels, he said.

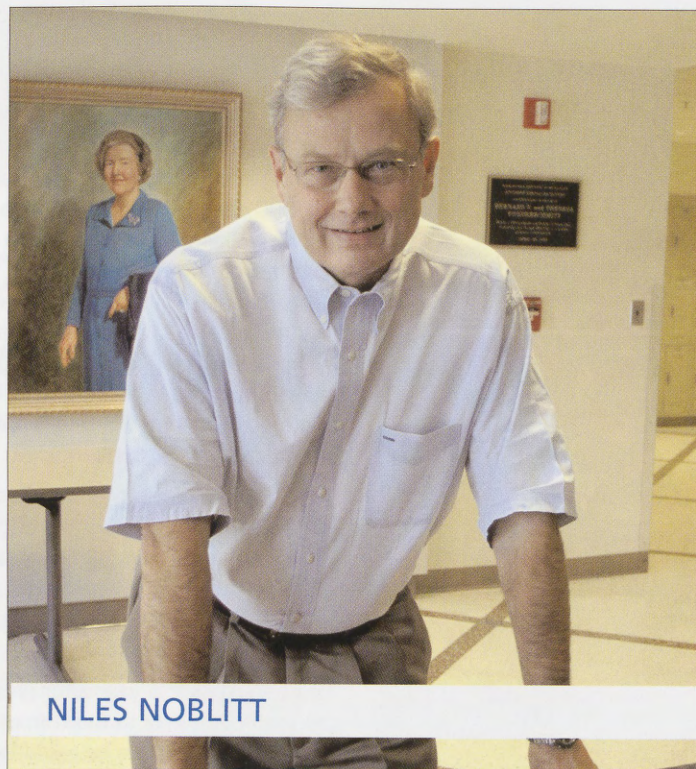
Pease still values his Vigo County roots, and connection to Rose-Hulman. He recently attended his first meeting as a new member of the Rose-Hulman Alumni Association Advisory Board.

"When my career life is over, my wife and I intend to come back to Vigo County," said Pease, whose wife Terri attended Saint Mary-of-the-Woods College. "My family tells me a piece of the homestead is still available to me."

Makes one wonder if Bob Pease might just try to grow some renewable fuels on that property.



ANTONY LOZIER



NILES NOBLITT

13,000
PEOPLE IN THE
WARSAW
COMMUNITY

28
ROSE-HULMAN
ALUMNI
CONTRIBUTING
TO ORTHOPEDIC
GROWTH

174
EXPECTED PERCENT
INCREASE IN HIP
REPLACEMENTS

THE WARSAW CONNECTION

By Deanna Reed

Alumni play role in orthopedics development

About halfway between South Bend and Fort Wayne, lies Warsaw, Indiana, known as the orthopedics capital of the world. In this small community of about 13,000 people, twenty-eight Rose-Hulman alumni contribute to major developments in the fast-growing orthopedics industry by creating procedures and products to restore mobility and alleviate pain.

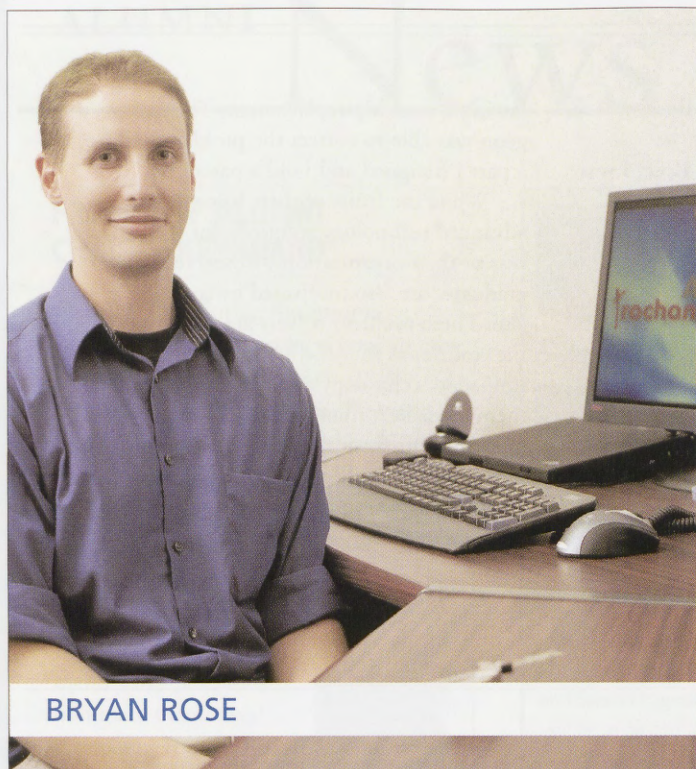
Warsaw is home to international orthopedic industry leaders Zimmer, DePuy and Biomet. At each company, the work of Rose-Hulman graduates has been instrumental in the companies' success.

Zimmer, founded in 1927, specializes in designing, developing, manufacturing and marketing reconstructive and spinal implants, trauma and related orthopedics surgical products. It reported \$3.3 billion worldwide sales in 2005.

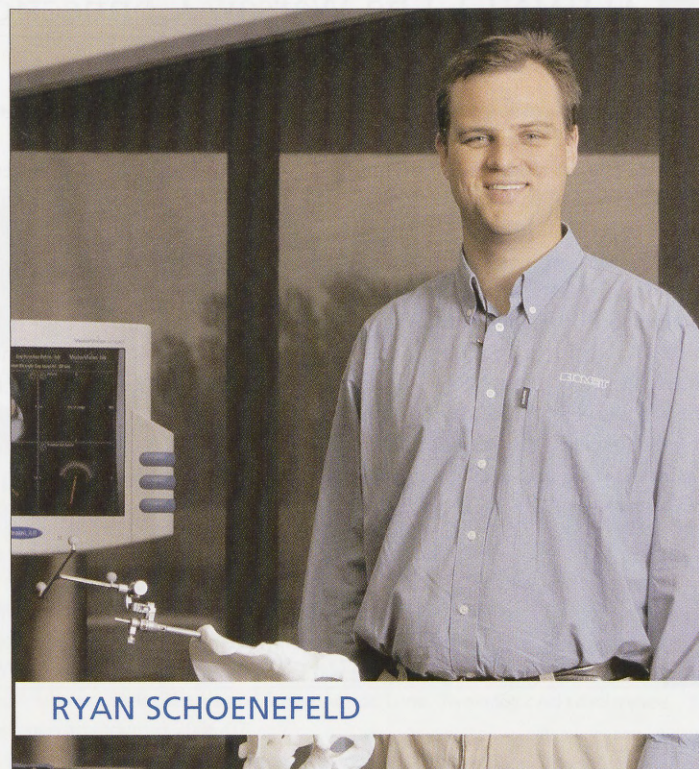
DePuy Orthopedics, a Johnson & Johnson Company, which designs, manufactures and distributes orthopedics devices and supplies including hip, knee, extremity, trauma, orthobiologics, and operating room products, is third in worldwide sales. Biomet, a medical device designer and manufacturer, focuses on replacements for hips, knees, shoulders, elbows, and orthopedic support devices. It reported \$2 billion in sales in 2005 ranking the company fourth in worldwide sales.

All of this revolutionary technology began in 1895 when salesman Revra DePuy developed the idea to use metal splints instead of wood for setting fractures. After much success, DePuy hired sales manager Justin Zimmer, who later spun off Zimmer, Inc.

In 1977, Biomet, Inc. was created by four



BRYAN ROSE



RYAN SCHOENEFELD

entrepreneurs, Dane Miller, Jerry Ferguson, Ray Harroff and former Zimmer employee and Rose-Hulman alumnus and trustee Niles Noblitt ('73). According to Noblitt, chairman of Biomet, a deep commitment to provide patients with the highest quality products in the marketplace, was the force that spurred the formation of the company.

Biomet has been rewarded for maintaining its objectives. Today, Biomet employs more than 6,000 employees worldwide in over 50 countries.

The heartland may appear an unlikely place for the world's center for orthopedics manufacturing. Yet to these multi-billion dollar global companies, people make the difference. "Warsaw is a great location because it is home to the many highly specialized support services that are required for this industry. The people are knowledgeable with great work ethics. At the risk of sounding a bit cliché, the people are the real heart of our business," added Noblitt.

Over the years, the enthusiasm for technological innovation has not changed for Noblitt, "It is a business where there is always something new and that's fun. It's a great combination - advancing technology and introducing new products in a business where you have the opportunity to help people."

The demand for total joint replacement is expected to increase dramatically during the next 25 years, according to Exponent, a scien-

tific consulting firm. The study predicts that hip replacements alone will increase 174 percent. With this increased demand, technical innovation will be critical and Rose-Hulman alumni will be at the forefront.

As a product development engineer at DePuy, Bryan Rose ('03) "designs custom surgical instruments for orthopedics surgeons who implant DePuy's joint replacement products. I take projects from start to finish... find

Rose-Hulman Factor

"I developed a lot of my leadership qualities and a confidence in my ability to think for myself and to think on my feet."

Antony Lozier

out the surgeons' problems and translate those into design inputs, develop ideas for solving the problems, create prototypes, and then make sure the surgeon knows how to use them before they operate."

The majority of projects involve creating instruments for new minimally invasive surgical techniques. Rose enjoys the variety of proj-

ects and typically works on 20-30 different cases each month.

Antony Lozier ('84), staff engineer for emerging technologies at Zimmer, is responsible for everything from conceptualization to design, testing and commercialization. He manages minimally invasive approaches within all segments of Zimmer's business.

"My role includes developing not only the technology itself, but also the surgical techniques and strategies that turn the technology into a clinically usable, safe and effective product for the future of Zimmer and orthopedics," said Lozier who began his career at Zimmer immediately after graduation.

Lozier and his team look for new techniques and strategies that could greatly reduce significant morbidity and mortality statistics within the elderly population.

"The strategies involve facilitating very minimally invasive approaches that eliminate muscle dissection and speed rehabilitation and recovery from surgery," he noted. "We've been able to look at the techniques and implants required by the biomechanics of orthopedic surgery in totally new ways."

Lozier attributes his enthusiasm for innovation and his ability to identify opportunities to his experiences at Rose-Hulman.

"I think that Rose was very good fit for my basic characteristics. I developed a lot of my leadership qualities and a confidence in my ability to think for myself and to think on my feet."

As product development engineer at Biomet, Ryan Schoenefeld ('97) is responsible for the development of digital technology in the operating room. All of the projects that Schoenefeld has been involved with in his nine-year career have gone to market with great success for Biomet. Schoenefeld helps develop software and instruments used for computer-assisted surgery. He works with surgeons on product design, prototyping and testing. Schoenefeld also works closely with manufacturing and quality engineers in the making of the parts. His love for biomed-

ical engineering originated at Rose-Hulman.

"When I was a student at Rose, I was in an orthopedic class taught by Dr. Hulbert (former Rose-Hulman president)," said Schoenefeld. "His passion for the industry was very contagious. I still get excited today about providing people with the ability to become whole again. They may enter the operating room with a broken leg or worn out hip but they will leave much better because of the products that I have designed. A perfect example is my mother who had some complications fol-

lowing a total hip replacement. The surgeon was able to correct the problem with a part I designed and hold a patent on."

While the fruits of their labor deliver advanced technology solutions for the success of their organizations, Rose-Hulman graduates are also motivated by something else. These problem-solvers are driven by the realization that the next wave of cutting-edge technology continues to enable them to make a tremendous impact on the quality of life for millions of patients... a service to the world that starts in north central Indiana.

INDISPENSABLE (Continued from page 15)

Chemical engineering junior Shannon Jaquess of Newburg, Ind., who has worked for the past three years as a workstudy student in the chemistry department, says Erwin and Johnson's contributions help students get more done in their labs.

"Cyndi helps by preparing solutions and gathering necessary equipment for the labs. Since professors don't have to set up their labs, they have the freedom to assist students in other ways, Jaquess says. "Lou assists students with laboratory instrument problems that come up."

This group's work isn't confined to the department they're assigned. Because it's common for faculty and students to work on experiments or projects that involve several academic departments, the efforts of the technicians and lab managers are also interdepartmental.

"We're a great team because we're all willing to help each other," states Burgess. "We talk daily among ourselves about what projects are under way."

Charles Joenathan, professor department head for physics and optical engineering, noted the immense value of the technicians in the department, and is in favor of them working on interdisciplinary projects because it benefits students and faculty.

"Roger Sladek and Albert McGarvey have helped students from several academic departments and have been a source of contact on numerous projects," Joenathan said.

"If one of our projects or experiments requires use of equipment in Myers Hall or in another department, there's a great deal of cooperation to get the work done," Joenathan states.

"Roger and Albert share ideas with other technicians which greatly improves the overall quality of work at Rose-Hulman. This interaction is very important," he stresses.

This teamwork recently resulted in a student group receiving national acclaim for a design project.

Five technicians provided assistance to three seniors whose project recently earned the 2006 National Scholar Award for Workplace Innovation and Design from NISH, a national non-profit agency whose mission is to create employment opportunities for people with severe disabilities.

Senior Megan Lafferty said it was obvious the needs of the students were a top priority to the technicians.

"Roger Sladek helped us every day for several months," she recalls. "Mike Fulk helped with materials and design options, while Gary Burgess, Ben Webster and Albert McGarvey helped with the circuit board."

The project created a tag stamping device that aids persons with disabilities to affix a lot number on military clothing manufactured at the Knox County Association for Retarded Citizens in Vincennes, Ind. The device allows persons to perform a job that they would not normally be able to complete.

"We couldn't have created this device without help from the technicians," she says.

That's a comment often heard on campus.

FROM THE ALUMNI CHAIR'S KEYBOARD

Every year during the Awards Breakfast at Homecoming several alumni receive "Honor Alumni" or "Distinguished Young Alumni" awards recognizing their professional accomplishments, service to their community, loyalty to Rose-Hulman and success in their careers. We know we have many deserving alumni but we need your help identifying them. They just won't nominate themselves! Please take time to nominate deserving alumni.



<http://www.rose-hulman.edu/alumni/affairs/awards/honor alumni.htm>

<http://www.rose-hulman.edu/alumni/affairs/awards/young alumni.htm>

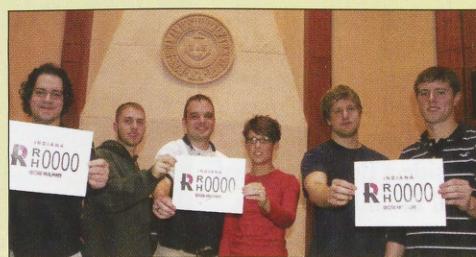
Recently, some new activities have been initiated that bring alumni and students together. In the last issue, I highlighted the R.O.S.I.E. (Reaching Out to Students in Engineering) coordinated by the Student Alumni Association. Alumni host a casual dinner for 6-8 current students. To date, there have been five dinners and six more are scheduled. Students and hosts alike have reported that the experience was enjoyable and beneficial.

Another type of activity that will bring alumni and incoming freshmen students together is being planned now for the summer. Summer welcome picnics for incoming freshmen will allow students and parents time to meet one another and learn about Rose-Hulman from an alum. The goal of this program is to make a freshman's arrival on campus less intimidating. Contact the alumni affairs office if you are interested in this program.

Keep visiting the website to see what's happening at Rose-Hulman.

Denis Radecki '72

Alumni Association President



Eight students are the first to reap the benefits of Rose-Hulman's license plate program, receiving \$6,000 scholarships. The first License Plate Scholars include (from left) Steven Maynard, Jake Waggle, Derek Trobaugh, Megan Whitaker, Ryan Schipper and Zach Gilmore. Missing from photo are James Hammer and Steven Vande Lune.

STUDENTS BENEFIT FROM LICENSE PLATE PROGRAM

The fact that more than 1,250 vehicles are traveling on roadways with specialty Rose-Hulman license plates is helping eight Indiana-based students afford to attend the college.

The first License Plate Scholars were announced this winter by Brian Dyer, director of alumni affairs, and Jim Goecker, dean of admissions and financial aid.

Receiving \$6,000 scholarships for the rest of this school year or 2006-07 were seniors Derek Trobaugh and Megan Whitaker; juniors Ryan Schipper and Jake Waggle; sophomores James Hammer and Steven Maynard; and freshmen Zack Gilmore and Steven Vande Lune. Two additional scholarships will be awarded for freshmen attending in 2006-07.

License Plate Scholars must be students from Indiana; should have demonstrated financial need; consideration is given to families with more than one student enrolled at Rose-Hulman; consideration is given to families that have had more than one student graduate from Rose-Hulman; and students who are legacies will be considered, if all other criteria above cannot be met.

The scholarship fund receives \$25 from each license plate sold. This \$25 fee is tax deductible. Contact the Office of Alumni Affairs to purchase a specialty license plate.

Alumni office receives award for success of first-ever senior soiree

A new event created by the Rose-Hulman Office of Alumni Affairs to salute graduating seniors has received an award from an international organization of professionals who advance educational institutions.

The Senior Soiree, a reception for seniors and their parents conducted the evening before commencement, was attended by nearly 800 guests in May of 2005. The Soiree took place under a large tent near the Flame of the Millennium sculpture on the front campus lawn.

The event was honored during the Pride of CASE 5 competition sponsored by District Five of the Council for the Advancement and Support of Education.

District Five includes colleges and universities in Minnesota, Wisconsin, Illinois, Indiana, Michigan, and Ohio.

The special event received a bronze award in the Excellence in Special Events Category for an individual event. The award was announced at the District Five annual conference in Chicago which was attended by 1,100 professionals who work in the areas of alumni affairs, development, and public relations.





Letter-perfect

Carl R. Wischmeyer, class of 1937, models his Rose Poly sweater during a party at the retirement community where he lives in Houston, Texas. He notes he enjoys "armchair aerobics" and playing the electronic organ. He is a former member of the Rose-Hulman Board of Managers and a past president of the Rose-Hulman Alumni Association.

1952

Clyde F. Willian (Ch.E.) recently began a two-year term as chairman of the Board of Trustees for Hadley School for the Blind.

1962

Stephen D. Ban (M.E.) has been elected a director of AmeriGas Propane Inc. He is the director of the technology transfer division of the Argonne National Laboratory.

1965

William "Bill" Dudley (E.E.) was called into action with his New Jersey Disaster

Medical Assistance Team to provide medical treatment to victims of hurricane Katrina in Mississippi. The team treated more than 3,000 patients in tents set up outside a flood-damaged hospital in Gulfport, Miss. Bill is deputy commander of the team, which deploys with a 35-person roster that includes doctors, nurses, paramedics, EMTs and pharmacists.

1966

Edward J. Nowacki (E.E.) has retired as a vice president of programs for Northrop Grumman Space Technology. He was responsible for space programs employing 5,000 people with annual revenues of \$1.6 billion.

1969

James A. Coles (E.E.) has been selected by his peers as one of the "Best Lawyers in America 2006-2007." More than 16,000 lawyers throughout the United States were asked to rate the clinical abilities of other lawyers in their areas of specialization. Coles is a partner in the Indianapolis-based law firm of Bose McKinney & Evans LLP where he is co-chair of the firm's Intellectual Property Group.

David Sinclair (Ch.E.) has retired after 30 years with BP Amoco in Naperville, Ill., where he was involved in new business development.

1970

Charles Boesenbergs (M.E.)

has joined the board of directors of Onyx Software Corp. He is chairman and CEO of NetIQ, a leading provider of integrated systems and security management solutions.

1973

William R. Heinrich (M.E.) has been appointed president and CEO of Ausco Products in Benton Harbor, Mich. The company designs the industry's widest variety of service and parking brakes for the construction, agricultural, mining, turf care and ATV/utility markets.

Mark L. Hoecker (M.E.)

recently has been named business manager at one of Duke Energy's larger coal-fired electric generation plants in Belmont, N.C. He is responsible for financial planning, business analysis and strategy coordination.

Bob "Dr. Bob" Kaufmann

(BIO) has retired from practicing medicine and now

runs an upland game hunting club in central Illinois. The club has been featured on two national television shows and in two national magazines.

1974

Richard Haut (M.E.) has been named as a founding member of the research committee of the U.S. Green Building Council, the nation's foremost coalition of leaders from across the building industry promoting environmentally responsible, profitable and healthy places to live and work. He is director of the Sustainable Technologies Group at the Houston Advanced Research Center.

1976

David Dahl (C.E.) was named ACEC Indiana's Consulting Engineer of the Year for 2005. He also recently was named CEO of Midwestern Engineers in Logansport, Ind.

'HOT' TIMES BACK ON CAMPUS

Civil engineering alumni (from left) Mark Fligor ('96), Daniel Conley ('05) and Tim Conarroe ('91) examine asphalt cylinders that were created during the Hot Mix Asphalt Quality Assurance/Quality Control Certified Technician Program, conducted at Rose-Hulman in January.

Fligor is district testing engineer for the Indiana Department of Transportation's Vincennes district. Conley is a superintendent for Wabash Valley Asphalt in Terre Haute. Conarroe is district testing engineer for INDOT's Greenfield district.



KEEPING IN TOUCH WITH OUR ALUMNI IN THE MILITARY

The Office of Alumni Affairs wants to keep in touch with Rose-Hulman serving in the military. To help us with that endeavor, a new web site has been developed to allow alumni serving in the military to keep us up-to-date with their latest postings.

Please visit <http://www.rose-hulman.edu/militaryalumni>

SENIORS LEARN THERE IS LIFE AFTER ROSE-HULMAN

Rose-Hulman seniors have been learning there is life beyond the halls of Dear Old Rose through a program sponsored by the Office of Alumni Affairs. "Countdown to Commencement," is a seven-session program that helps seniors prepare for their jobs and life after graduation.

Topics covered include:

- "What I wish I would Have Known When I Graduated" presented by a panel of young alumni;
- "Understanding and Evaluating Your Offer" dealing with employment offers;
- "Wine Tasting 101";
- "Planning for Your Financial Future";
- "Basics of Buying a Car";
- "A Place to Call Home – Buying Versus Renting"; and
- "You've Almost Made It! – Etiquette Dinner."

Young alumni returning to campus to present the first session were: Bill McKenna '02, patent attorney for Woodard, Emhardt, Moriarty, McNett and Henry; Eric Haenlein '00, project engineer, M.D. Wessler and Associates; Andy Engle '01, senior software engineer, Columbia House; and Maegan Peabody '99 analytical chemist for Eli Lilly.



More than 100 seniors listen as young alumni provide advice about life after Rose-Hulman. The event was sponsored by the Office of Alumni Affairs.

1980

Don Jones (E.E.) has completed his service to the Public Utility Commission of Texas and he has joined the law firm of Andrews Kurth. He remains in Austin, Texas.

1981

Michael Call (Math.) and his wife, Chettina, had a baby girl, Abigail Jeanne, born last November.

1983

Terry Schuster (C.E.) was appointed to director of sales, Americas, for HyRadix. Based in Des Plaines, Ill., HyRadix dedicates itself to the development and global commercialization of hydrogen generation technology for vehicle refueling and industrial applications.

1984

Ed Roback (Math/Econ) recently was appointed as the associate chief information officer for cyber security of the U.S. Department of the Treasury. He is a career member of the Federal Senior Executive Service, and resides in Washington, D.C. Previously he was the chief of the computer security division of the National Institute of Standards and Technology in Maryland.

Charles Snyder (E.E.) and his wife, Stasia, announce the addition to their family of Natalia Marie Snyder, who joins older brother Benjamin. Natalia was born

in 2004. Charles recently obtained his certified Information Systems Auditor (CISA) status from the Information Security Audit and Control Association.

1985

Gerald W. Roberts recently has accepted an associate attorney position with the intellectual property law firm of Maginot, Moore & Beck LLP in Indianapolis.

1986

Mark Carter (E.E.) has taken the position as CEO of Blu Portico, a high-speed internet service provider for resort markets.

Steve Maier (M.E.) and his wife, Diane became parents on Jan. 1 when Rhys James Maier was born.

1988

John Puckett (Ch.E.) is the head tennis pro at Middletown Sports Complex in Middletown, Ohio. He became a USPTA certified tennis professional last year.

1989

John Leonard (Ch.E.) and his family have returned from living in the Netherlands to Augusta, Ga., where John has been promoted to vice president and business manager for DSM Resins U.S., Inc.

Nelson Nissley (C.E.) graduated from Chaplains Officer Basic Course in December 2005 as a first lieutenant. He currently is a

reservist assigned to the 821st Transportation Battalion in Topeka, Kan. On the civilian side of life, he is a volunteer pastor at Tower View Baptist Church Kansas City, Mo.

1990

Tim Cindric (M.E.) has been promoted to assume overall management responsibility for a new entity called Penske Performance, Inc. He oversees all of Roger Penske's racing operations in NASCAR, the Indy Racing League and the American Le Mans Series.

Rodney S. Retzner (M.E.) has been named a partner in the law firm of Krieg De Vault LLP. He is a member of the firm's estate planning administration, real estate and environmental, business, and tax practice groups.



Jess Lucas Award Winner

Floyd Yager (middle) is congratulated by Pete Gustafson, vice president for student affairs and dean of students, and Gwynne Lucas for receiving the 2006 Jess Lucas Alumni Leadership Award. The honor is presented to a former member of Rose-Hulman Institute of Technology's residence hall staff for having a distinguished post-graduate career.

1991

Jerrold Carter (C.S.) has formed a partnership creating Depth Technology Inc. and he is president of the venture, which serves the technology needs of small business in the Indianapolis area.

Christopher J. Miller (E.E.) has been promoted to global maintenance and investment leader for the LNP division of GE Plastics.

1992

Eric Trueblood (Ch.E.), a veteran of the Afghanistan and Iraq wars who also helped with Hurricane Katrina relief as pulmonary and critical care physician on critical care air transport team with the U.S. Air Force, will be separating from the USAF in May to start a private medical practice in Bloomington, Ind.

1993

Patrick McCrudden (E.E.) and his wife, Shirley, report the birth of twins last year when David and Ella were born. On the job front, Patrick was promoted to vice president at Bank of America. He continues his work in customer relationship management services as the owner of several profitability applications.

1994

Todd Holthaus (E.E. and M.S.E.E., '99) has taken a new job with National Instruments. He will be the company's field sales engineer for Northern Indiana.

Michael E. Wever (C.P.E.) has joined Barnes & Thornburg LLP as counsel of the firm's Fort Wayne office. He is a member of the firm's intellectual property department.

1996

Levi Barclay (Ch.E.) has accepted a two-year position in the Peace Corps serving in Honduras as a water/sanitation extension officer.

Jonathan Borgers (C.E.) and his wife, Holly had their second child last year when Carter Scott was born. He joins older sibling Nathaniel Jonathan.

Christopher (Koehler) (Ch.E.) married Alexandra Torres last year. Chris is a project manager for Prairie Island Nuclear Generating Plant in Red Wing, Minn.

Keith C. Martin (Ch.E.)

and his wife, Jennifer, welcomed the birth of second child Ian Craig, who joined sister Addi last fall. On the job front, Keith has taken a position with Biotage Inc. as a product manager, and he has relocated to Charlottesville, Va.

Christopher Neukam

(Ch.E.) updates Echoes that since we last heard from him, he married Christina Otto in 2003. They live in Durham, N.C., where Christopher works as a chemical site manager for Houghton Fluidcare's Eaton-Roxboro, N.C., site.

Joshua Tinch (Ch.E.) and his wife, Janna, announce the birth of their son, Joshua Clayton, born last year.

1997

Vincent Valenzuela (M.E.) has accepted a position as a process optimization project manager with the Willis Group in New York City.

1998

Paul Drury (E.E.) has moved from Massachusetts to Fort Wayne, Ind., where he works as a senior RF engineer for Raytheon.

Jason Gabet (M.E.) began a new job as product engineer with Fort Wayne Foundry last fall.

Stefan Kaczmarek (C.P.E.) had his first child, a son named Gabriel, born last year. Also, last year, he sold a company he founded

HONORING ALUMNI ACHIEVEMENT

The alumni office seeks nominees for its 2006 Distinguished Young Alumni and Honor Alumni awards.

Distinguished Young Alumni Award

The award recognizes Rose-Hulman graduates from the last ten years with notable endeavors in the areas of career achievement, continued education, community service and/or commitment to their alma mater.

Honor Alumni Award

Recipients of the Honor Alumni Award are selected based on their (a) loyal, unselfish and meritorious service in furthering the interests of Rose-Hulman, (b) contributing to the national interest of our country, (c) professional achievement.

To make a nomination, visit Web site

<http://www.rose-hulman.edu/alumni/affairs/awards/> or contact Director of Alumni Affairs Brian Dyer at 812-877-8359 or via e-mail at brian.dyer@rose-hulman.edu.

along with three other people. He and his family live in Arizona.

Barry Portman (M.E.) and his wife, Cindy, announce the birth of son, Lance Bradley who was born last year. He joins brother Cole and sisters Morgan and Stephanie. On the job front, Barry accepted a promotion as drilling manager for Kinder Morgan Co2 Co., and he has relocated to Houston, Texas.

Michael Riley (E.E.) and his wife, Kimberly Riley, had their first son, Ethan Michael, born last year.

1999

Mark Bessler and his wife, Kim, announce the birth of daughter Mackenna Rae, born last December.

Kurt Fledderman (E.E.) and his wife, Christina,

announce the birth of two daughters Brooke Marie and Brenna Christine, born this February.

2000

Katie Brown (E.E.) and **Nino Davi (C.S.)** announce the birth of their daughter, Megan Juliette, born last June.

Chris Inman (M.E., M.S.B.E. 2003) received the 2005 Junior Civilian Engineer of the Year award from the U.S. Air Force's Aeronautical System Center for his actions while deployed in support of Operations Iraqi Freedom and Enduring Freedom, and for his contributions to the successful design and projection of the Global Hawk Unmanned Air Vehicle. He also has been selected to stand up a new set of Intelligence, Reconnaissance,

and Surveillance assets for the Department of Defense's U.S. Central Command at a forward operating location in Southwest Asia to support Operation Iraqi Freedom and Operation Enduring Freedom. This is Chris' second deployment to the war-front.

Airen Springer (M.E.) and her husband Jasen had a second daughter, Hillary Belle, born last June. She joins big sister Madeline.

Bill Young (C.S.) is co-founder of Veterisoft, Inc., an early state technology company, which was selected as one of the top 30 innovations in Indiana for the Indiana Venture Club's Venture Idol contact.

2001

Adam Borgman (Ch.E.) graduated from the Indiana University School of Law last year. He has been admit-

ted to the Indiana Bar and works as a patent attorney for the Indianapolis law firm of Woodard, Emhardt, Moriarty, McNett & Henry LLP.

Kevin (M.E.) and **Marsha Culbreth (M.E.)** had a son, Caleb, born last September.

Jen Dilling, (M.E.) and **Christoph Franck (M.S.B.E.)** report the birth of son Pascal Josef, born last October in Boeblingen, Germany.

D.C. Smalley (E.E.) and his wife, **Crystal (Landreth, 2005 Ch.E.)**, were married last fall in the White Chapel on campus.

Don (M.E.) and **Mandy (Wampler, 2002 C.E.)** **Stewart** announce the birth of daughter Melanie Kay. She joins brother Evan.



The Chapel as Art

A model of Rose-Hulman's White Chapel recently was featured in a special architectural exhibit gallery in the Art Institute of Chicago. The exhibit was titled Sacred Spaces. White Chapel was designed by the Chicago based firm of VOA Associates. Pictured at the art institute are Clyde Willian, left, a member of the Rose-Hulman Board of Trustees, and Vic Vickrey, principal, VOA Architects.

2002

Adam (M.E.) and Jennifer (Klingenberg, M.E.)

Keown report the birth of son Micah last year. The family lives in League City, Texas.

Fiona Haulter (C.E.) and Matthew King (M.E.) exchanged wedding vows last August.

Jennifer Meyer McCue (Ch.E.) graduated from the University of Virginia Law School last year, passed the Virginia Bar Exam and now practices as a patent attorney at Dickstein Shapio in Washington, D.C.

Lindsey VanSchoiack (Ch.E.) received a master of science degree in biomedical engineering from the University of California Irvine in the fall of 2004. Last fall, she received a \$10,000 fellowship for the 2005-2006 school year. She currently is working on her Ph.D. in biomedical engineering at UC Irvine.

Melinda Fetcko (Ch.E.) married William Peiserich last October. She works as a polymer research engineer at Zimmer, and the couple resides in Fort Wayne, Ind.

2003

Jeff Kleinlein (E.E.) and Lily Marmouze were married last fall.

2004

Claire Amundson (Ch.E.) married Michael Joseph

Wells last November in Madisonville, Ky.

Jim Walter (C.E.) has taken a new job as a transducer engineer for Harman International. He has relocated to the Hollywood, Calif., area. He will be starting an MBA program this fall as well as studying Mandarin.

2005

Evan D. Ballinger (M.E.), an ensign in the U.S. Navy, recently received his commission as a naval officer after completing Officer Candidate School.

David Honan (C.E.) is moving to Bellevue, Wash., to take a position as rail project engineer with HDR, Inc.

Come Get Your Kicks At



ROSE-HULMAN
INSTITUTE OF TECHNOLOGY

OCTOBER 6-7

HOMECOMING 2006 REUNION DINNER CHAIRS

1956	50th	Dale Roeschlein
1961	45th	Bill Carter
1966	40th	Dick Foltz
1971	35th	Jim Baker
1976	30th	Doug Disher
1981	25th	Sam Reed
1986	20th	Bill Lindstaedt
1991	15th	Tony New
1996	10th	Ashvin Lad

Remember to book motel reservations for Homecoming now.
<http://www.rose-hulman.edu/homecoming>



Marking a Century

Wendell Watkins models a Rose-Hulman sweater he received from the college in celebration of his 100th birthday. He received his mechanical engineering degree from the college in 1928. He resides in Gainesville, Fla. He is one of Rose-Hulman's oldest living alumni.

OBITUARIES

1936

Louis Duenweg (E.E.) died last December. He had been a resident of Grosse Pointe Park, Mich.

1941

Ivan C. Frakes Jr. died Dec. 16. He was part owner and later president of Frakes Electric Co. in Indianapolis.

1942

Jack K. Kennedy (M.E.) died last August, according to a report received in the alumni office.

1943

W. David Helmick Jr. (Ch.E.) died Dec. 6 at the age of 83. He was a quality assurance manager for Aluminum Company of America at its Plum Powder Plant in the New Kensington, Pa., area.

1947

Lloyd W. Ellson (M.E.) died Jan. 9 at Zionsville, Indiana. He was a retiree of Inland Container. Survivors include a son, Steve and two stepsons David and Douglas Carden.

John E. Lichtenwalter (E.E.) died Jan. 27. He was resident of Fort Collins, Colo., where he was retired from Cheyenne Light Fuel and Power. Survivors in include his wife, Genevieve, son Dave and daughter Lisa Gordon.

Allen P. Smith (C.E.) died Dec. 5 at the age of 83. Survivors include his wife Emma Jean, sons Tim, Jonathon, Christopher

Jeffrey and Matthew, and daughter Martha. He was retired from the Illinois Department of Transportation.

Carl R. Wodicka (E.E.) died Oct. 14. He was retired from Indiana Bell where he work 34 years as an electrical engineer. Survivors include his wife, Barbara, and daughter Ann Gardner.

1948

Albert W. Buescher died Feb. 3. He was retired and formerly was employed by Cummins in Columbus, Ind., and later by IBM in Houston, Texas. He is survived by his wife, Ramona.

Charles V. Eshelman (C.E.) died Oct. 20. He was retired from the Indianapolis Power and Light Co. where he served as senior vice president of operations. Survivors include his wife, Rayburn, and son, Brad.

John R. Hawkins (M.E.) died Nov. 28. He was owner/operator of Star Cleaners and Area Janitor Supply, both in Terre Haute. Survivors include his wife, Eleanor, daughters, Melony Baker, Pamela Peplow, Robin Bauer and Tracey Ann Hawkins, and son Mark.

Norman J. Pera (M.E.) died Jan. 1. A retiree of Inland Steel, he is survived by his wife, Patricia. Other survivors include sons David, John, Timothy, Mark and Thomas.

1949

Arnold M. Hannum (C.E.) died last November at the age of 78. He was retired as Wyoming State Inspector of Mines. Survivors include his wife, Wanda, a son, Lee, and a daughter, Sue Alexander.

1952

Robert E. Heckelsberg (C.E.) died last July. He was a retired engineer from Ceco Building Systems. Survivors include his wife, Wilma, a son, Duane, and two daughters, Jean Chernosky and Linda Reyle.

1953

Robert M. Liggett (E.E.) died Dec. 12. He was retired from Motorola in Scottsdale, Ariz. Survivors include his wife, Peggy.

1958

Kenneth L. Denney (C.E.) died Sept. 26. He was a retired aerospace engineer with McDonnell-Douglas. Survivors include his wife, Joe Sue, and children Kim, Mark and Brett.

George E. Eck (M.E.) died Nov. 8. He was a retired sales engineer for the automotive industry. Survivors include his wife, Sharon, daughters Mary Byrne, Lucia McCarthy, Robin Wisniewski, Kristin Budnar, and son Joel Koenig.

1972

Larry A. Snyder (M.E.) died Sept. 29. He was a retired regional sales manager for Westinghouse.

1973

Mark A. Lagomarcino (E.E.) died last year. A resident of Plainfield, Ill., he was employed by Electro Motive.

Robert B. Morland (Chem.) died last October. Survivors include his wife, Diana, and children Joshua, Daniel and Gregory. He was retired from British Petroleum in Naperville, Ill.

Looking Back

A BEACON OF EFFICIENCY

by John Robson, Librarian and Archivist

ADVENTUROUS ALUMNUS GEORGE R. PUTNAM SERVED 25 YEARS AS COMMISSIONER OF LIGHTHOUSES

Rose-Hulman alumni are known for their solid careers as engineers and scientists, usually moving into management in a few short years, and often creating their own companies and consulting firms. A number of graduates, however, take their educations and superior problem-solving skills into rather different fields to make their mark—law, medicine, entrepreneurship, clergy, teaching, and writing. And one became America's foremost map and coastal chart maker and manager of 55,000 miles of navigational support as the first Commissioner of the U.S. Bureau of Lighthouses. George Rockwell Putnam of the class of 1890 took his mechanical engineering degree and spent 20 years circling the globe mapping uncharted coasts and determining national boundaries for his country. From 1910 to 1935 he led and modernized the U.S. Bureau of Lighthouses.

Born in Davenport, Iowa, shortly after the end of the Civil War in May 1865, Putnam entered Rose Poly's sophomore class at the advanced age of 22 in 1887, two months after the untimely death of his father. George Putnam, who was to graduate first in his class and win the Heminway Gold Medal, had spent the years immediately following high school by working on a railroad survey, principally as a stake driver. He worked for the railroad for two years and studied law. But the pull of engineering was stronger than the law.

As Putnam wrote in his autobiography, *Sentinel of the Coasts: the Log of a Lighthouse Engineer* (W.W. Norton, c1937): "...I saved enough, with what I could borrow, to take an engineering course at the Rose Polytechnic Institute in Indiana. Although this was a hard way to get through college, I feel that the self-confidence I acquired, and the greater maturity I could put into my work at college, were worth the cost of the hardships; though I scarcely realized this at the time. The severe training and mental discipline I received in this engineering course, rather than the factual knowledge obtained, were invaluable to me in the years to follow."

He also made an important connection and favorable impression at Rose that was to serve him well and lead to his rather dif-

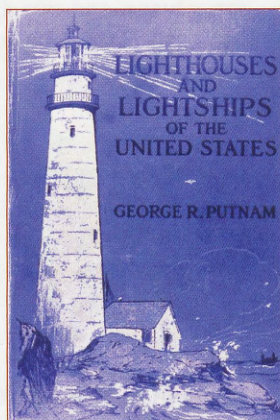
ferent career path. Dr. T.C. Mendenhall, Rose's second president, had left the school in 1889 to accept President Benjamin Harrison's appointment to head the U.S. Coast and Geodetic Survey (CGS), perhaps the top public science/engineering position of that era. On Putnam's graduation, Mendenhall asked him to come to Washington on temporary assignment to assist in the work of the CGS, at the salary of \$25 per month with board—paltry compared to that of his classmates. But the chance to work for the CGS was too good to pass up.

For the next 20 years, Putnam roamed much of North America using his Rose education. Between 1890 and 1896 he

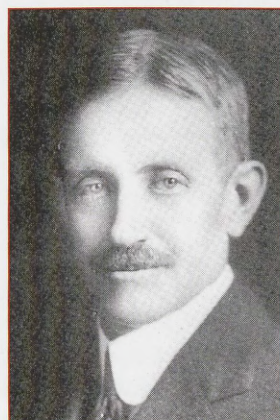
was a part of a team from the CGS that formally established the boundary between Alaska and Canada. He also surveyed parts of the Mexican border long in contentious dispute. Impressing many with his skills and work habits, he was selected as one of four from the CGS to accompany famed explorer Robert Peary to Greenland to secure the Ahnighito meteorite, which at 34 tons is the world's largest. He conducted a series of gravity and magnetic measurements while in the Arctic, resulting in

data that confirmed the isostatic condition of the earth's crust. From 1898–1899 he was tasked with surveying the Pribilof Islands (in the midst of the Bering Sea) and the Yukon River Delta, a key matter in the midst of the Klondike/Alaska Gold Rush. In the aftermath of the Spanish American War, the United States took possession of the Philippine Islands, a largely uncharted territory of hundreds of islands. From 1900 to 1906 he organized and directed the coast surveys. Here he came to adopt his philosophy often shared that "old charts are worse than none." And he proved himself as an able manager of a complex operation with charge of data critical to the nation, to commerce, and the safety of those at sea. He also made another critical connection—William Howard Taft, governor of the Philippines and future president of the United States.

In 1910, the Taft presidential administration proposed new legislation creating the U.S. Bureau of Lighthouses to replace the Lighthouse Board that was in charge of the country's 55,000



Putnam's book



George R. Putnam

continued on next page

Looking Back cont...

miles of navigation aids. From the smallest Alaskan island to the largest of the Great Lakes, the Lighthouse Board was responsible for all safe navigation, and it was muddling up the job. Taft sought a professional man with the background and strength of character to lead a staff of several thousand, many of whom worked in near isolation for months at a time, a man who could resist the blandishments of cronyism and politics. He found that man in Rose Poly's George Putnam.

For the next 25 years, Putnam spent every waking moment making the Bureau a model of efficiency. He made sure that each man (and there were a few women lightkeepers) was thoroughly trained and dedicated to the mission of making navigation as safe as possible. He constantly added to the library of charts, and he made sure that corrections and elaborations were incorporated in a timely fashion. He knew lives depended on his staff doing their jobs with dedication and that all charts must be as accurate and as accessible as possible. He led the adoption of all possible technology.

Armed with data and metrics, Putnam became a strong and effective lobbyist for Lighthouse Services. Devices that could be detected before they could be physically seen were a critical technology for him. Radio fog signals could save lives. Ships with radio technology could determine their location while many miles out at sea. Lighted buoys were another key technology. He was

always willing to experiment, and the risks associated with the compressed gas employed in lighted buoys made that essential. The lives of his workers were dear to him. He successfully argued after WWI for tenders specifically designed to handle compressed gas buoys and minimize employee risk. As Francis Holland concluded in his history *America's Lighthouses* (c1972): "During Putnam's 25 years as commissioner... the number of aids to navigation of all classes more than doubled...[primarily] an increased adoption of automatic aids to navigation and to technological advance, such as the use of electricity in lighthouses, that reduced the needed attention to them."

His was a life well lived. His honorary doctorate from his alma mater in 1933 was well deserved. He retired two years later in 1935. He had married in 1913, rather late in life by some reckoning; perhaps only then did he fully accept that his life was to be a senior Washington bureau chief. He died in Washington in July 1953 at 88, leaving a wife and two daughters and was buried at his summer home in Dorset, Vermont.

The U.S. Coast Guard, to which the Bureau was transferred from the Dept. of Commerce on the eve of WWII, named its highest honor to which the civilian employees of the Coast Guard can aspire the George R. Putnam Inspirational Leadership Award—a fitting tribute. ■

ALUMNI EVENTS

Contact Brian Dyer for more information on all the events listed below.
Phone: 800-248-7448
Email: brian.dyer@rose-hulman.edu
Web: www.rose-hulman.edu/alumni-affairs

July 4, 2006

Fourth of July Celebration
Indianapolis Indians Game
Indianapolis, IN

July 13, 2006

Summer Scholarship Golf Scramble
Prairie View Golf Course
Carmel, IN

August 19, 2006

G.O.L.D. Event
Chicago, IL

August 19, 2006

Young Alumni Council Meeting
Chicago, IL

August 19, 2006

Golf Outing
Detroit, MI

October 6-7

Homecoming
Terre Haute, IN

Kaleena Dale Appointed Assistant Director of Alumni Affairs at Rose-Hulman

Kaleena Dale has been named assistant director of alumni affairs at Rose-Hulman. She will assume her new duties on July 1.

Dale will coordinate programs for the Rose-Hulman Young Alumni Council, Graduates of the Last Decade, and serve as advisor to the Student Alumni Association. She will also assist with the overall development of programs, services and special events for the college's 12,000 alumni nationwide.

Dale, a native of Vincennes, Ind., graduated summa cum laude this spring from Indiana State University, earning a bachelor of science degree in speech communications and public relations. She received the Outstanding Public Relations Graduate Award from the Department of Communications.

At ISU, she served as the public relations director for the College Mentors for Kids program and public relations chair for the Non-Profit Assistance Center. Dale was the event coordinator and public relations intern for the Department of Communications, a copy editor for the Indiana Statesman student newspaper, a reporter for the university's IQ Magazine. She also served as an ambassador for the university last year after being crowned Miss ISU.

Carey Treager Huber, who has served as associate director of alumni affairs, who will join the Rose-Hulman student affairs staff as director of student activities.





PARTING SHOT

Sign of the times....New signs went up this spring at the front entrance to Rose-Hulman. Thirteen members of the Class of 2006 posed for a photo prior to this spring's commencement.

They are: Front row, from left: Stefani Vande Lune, Zulima Guilarte, Abigail Knox and Kara Jackson. Back row, from left: Michael Reeves, Raymond Muskeyvalley, Derek Trobaugh, Amber Brannan, Brodie Smith, Katrina Gingerich, Andrew Cudney, Roger Wiltfong and Ming Cheung.

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