

Spring 2002

Volume 2001-2002 - Issue 2 - Spring, 2002

Echoes Staff

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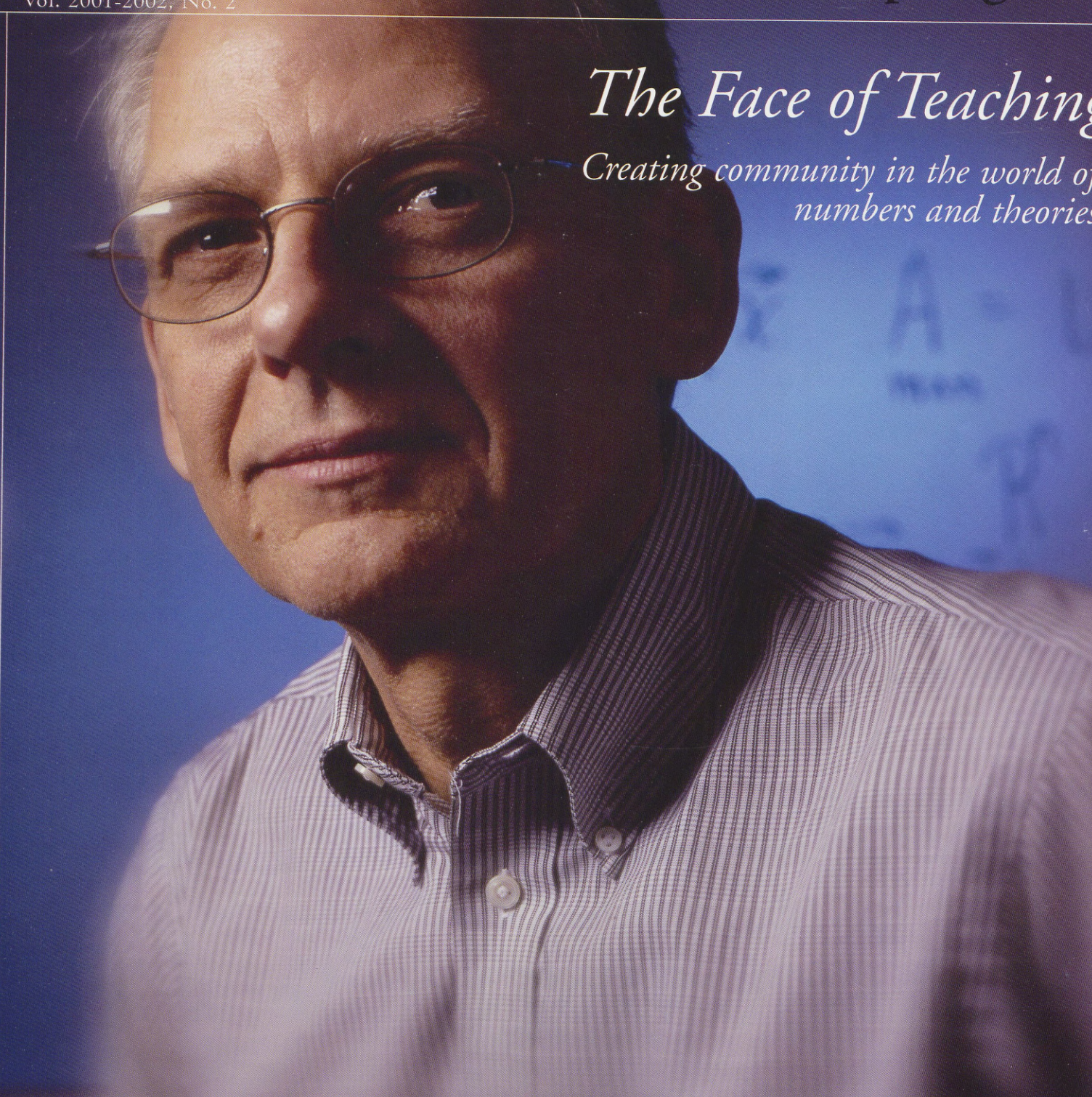
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ROSE-HULMAN INSTITUTE OF TECHNOLOGY

Echoes

Spring 2002

Vol. 2001-2002, No. 2

A close-up portrait of a middle-aged man with short, light-colored hair and glasses. He is wearing a light-colored, vertically striped button-down shirt. The background is a soft, out-of-focus blue with faint mathematical formulas like $E=mc^2$ and $A=U$ visible.

The Face of Teaching

*Creating community in the world of
numbers and theories*

REACHING OUT

\$6.3 Million in Grants Bolsters Service

ALUMNI FOCUS

Alfred Yee Helps Span an Eternity



heard in the halls of Moench

“ Today the average automobile has more
onboard computer apparatus than the (first) vehicle
that landed on the moon. ”

— *by Dennis Cuneo*

President, Toyota Motor Manufacturing, North America
(Delivered during his 2002 Oscar C. Schmidt Memorial Lecture in
the Moench Hall Auditorium)

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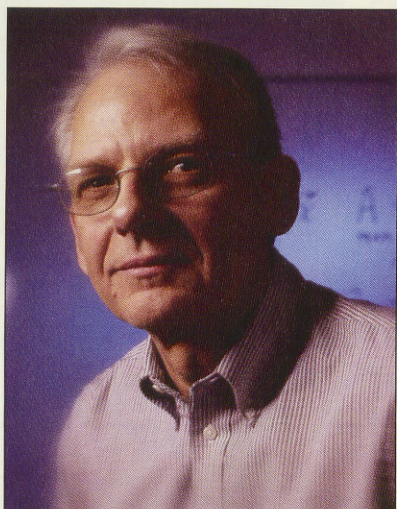
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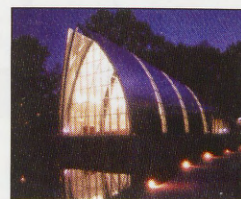
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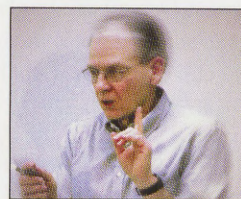


ON THE COVER

Roger Lautzenheiser graces this cover of *Echoes*. He was the 2001 Dean's Outstanding Teacher Award winner. An article on pages 12 – 13 provides a deeper look at Roger's views of the mechanics of teaching the importance of developing relationships with students. In featuring Lautzenheiser, *Echoes* salutes not only his achievement, but all of the Rose-Hulman faculty, who are dedicated to providing the best undergraduate engineering, science and mathematics education. Photographer Thom Kondas captured Lautzenheiser in portrait for us.



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PAGE 26 – Mike Lanke
PAGE 27 – Mike Lanke
BACK COVER – Mike Lanke

Great Days

A LETTER FROM THE PRESIDENT

STRIVING TO DEVELOP GOOD CITIZENS

On a recent December Saturday morning, more than 300 Rose-Hulman students made the holidays a little more special for 413 area children. That was when representatives from 15 campus organizations volunteered their time to assemble bicycles for the Bikes for Tykes program that serves needy children.

You know something exceptional is happening when you can get that many college students up on a Saturday morning. With wrenches turning and assembly instructions in their laps, our students were making a difference. They didn't have to be there, but they were giving back to their community.

What happened that morning with Bikes for Tykes is just one example of how Rose-Hulman strives to develop good citizens who are willing to assist their communities in a variety of ways.

There is no doubt Rose-Hulman provides a great technical education, but we would be remiss if we did not encourage our students to realize the importance of service to others. No matter how good our students are technically (and they are very good), it would not mean much without them being good citizens. Just because a student works hard at learning fluid mechanics, mass transfer or differential equations doesn't mean he or she can't work just as hard at learning how to help others.

Serving as good citizens helps our students appreciate the talents they're blessed with and it emphasizes the responsibility they have to use their talents for the common good. Hopefully this caring attitude will reflect in their careers as they apply their Rose-Hulman educations to solving the problems of tomorrow. If they can relate to the needs of people, they will be better problem-solvers, and their work will be more than mere technical solutions. Our students have shown they are more than up to the task:

- Rose-Hulman continually leads the way in donations to the area blood center. Our students rank highest per capita in donations throughout the state, and they lead the donations in the Wabash Valley.
- Last December, our Greek system organized a rock concert to benefit the World Trade Center Miracle Fund's Family Relief Fund.
- Eight electrical and computer engineering students have developed a system for the Washington State Department of Social and Health Services that strives to improve communications for persons with hearing and visual handicaps.

- Mechanical engineering students designed a device to help a two-year-old with muscle problems move his arms.
- A service fraternity built a playground area for a local park.
- Our student chapter of the American Society of Civil Engineers has collected almost \$15,000 over the past 13 years for the Terre Haute Tribune-Star Christmas Basket Fund.
- Several students have participated in construction of a Habitat for Humanity House.

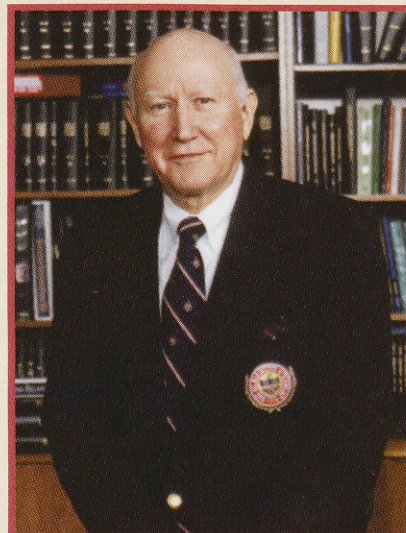
I could fill several pages of this magazine with more examples of student service that has benefited organizations such as the Red Cross, the American Cancer Society, Hospice of the Wabash Valley, March of Dimes, etc. Space will not allow me to go on at such length, but I hope you get my point.

Why have we been successful in this area? It starts with the type of student we recruit. For the most part, they are good citizens when they arrive on campus, but we have supported and encouraged their desire to serve.

Faculty and staff provide that spark of service. They serve as excellent role models of how to give back to their communities. Wherever you look in our community, you see Rose-Hulman faculty and staff involved and serving in leadership roles. Our students see this and they learn through such observation.

I'm happy to say that once our students leave the confines of 5500 Wabash Avenue, they continue being good citizens. Our alumni are involved in their communities throughout the country and the world. They serve as PTA members, civic club officers, United Way members, service volunteers and youth sports coaches. They make a difference.

That is what Rose-Hulman is all about – making a difference in the lives of young people who go on to make a difference in the world. Molding good citizens is part of that process. ■

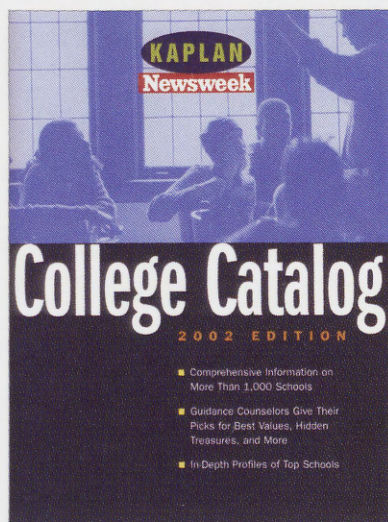


By Samuel Hulbert, President of
Rose-Hulman Institute of Technology

"Just because a student works hard at learning fluid mechanics, mass transfer or differential equations doesn't mean he or she can't work just as hard at learning how to help others."

CAMPUS News Notes

ACADEMIC AND FACULTY QUALITY CITED BY HIGH-SCHOOL COUNSELORS



National awareness about the personalized attention students receive at Rose-Hulman is growing as illustrated in a recent national survey of high-school guidance counselors.

Counselors listed Rose-Hulman as one of the nation's five best colleges or universities where students receive a high level of individual attention from faculty.

The survey was conducted for the 2002 Kaplan/Newsweek College Catalog. Cited with Rose-Hulman were Stanford University, Pomona and Claremont McKenna colleges in California and Trinity University in Texas.

Rose-Hulman was also among 53 institutions on the counselor's list of schools that are academically challenging. The list included CalTech, MIT and Northwestern University. The top five selected as the counselor's favorites were Harvard, Stanford, Yale, Duke and Princeton universities.

The catalog did not rank schools individually.

The survey utilized a random sample obtained by Dun and Bradstreet of counselors at American public, private and Catholic high schools.

POLL SHOWS FRESHMEN PLEASED WITH ROSE-HULMAN

The vast majority of Rose-Hulman freshmen are satisfied with their college choice, according to the results of the annual Freshman Poll conducted by the Office of Student Affairs. Eighty-nine percent indicated they were extremely pleased or pleased to be attending Rose-Hulman. The survey is conducted at the end of the fall academic quarter.

Among the areas and programs receiving all-time high rankings from the freshmen were: classroom facilities, laboratories, Logan Library, campus parking, the bookstore and the graphics communication courses. Residence hall life and counseling services provided by the resident assistants and sophomore advisers also drew praise from new students.

The poll results show that 87 percent of the freshmen used the Internet to find information about colleges and universities.

OAKLEY OBSERVATORY RANKS IN TOP 20 FOR ASTEROID OBSERVATIONS

Rose-Hulman's Oakley Observatory has moved up to rank 20th out of 273 observatories worldwide in the number of asteroid observations submitted to the Minor Planet Center at the Harvard-Smithsonian Center for Astrophysics last year.

Rose-Hulman students discovered 30 asteroids last year, a substantial increase from the three found in the previous year. The observatory ranked 37th out of 285 sites last year.

Most of the asteroids are 100 to 200 million miles away from Earth. Eighteen of the observations were made during a two-day period in August by Chris Wolfe, an electrical engineering graduate student.

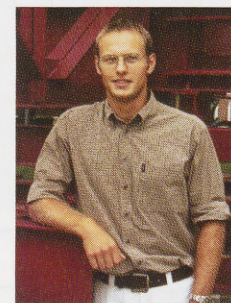
A \$500,000 gift from the Oakley

Foundation of Terre Haute made it possible to construct the new facility, which replaced an observatory that was 40 years old.

Physics and Applied Optics Professor Richard Dittion is director of the observatory and advises Rose-Hulman's Astronomical Society.

"Students can track asteroid movements for a longer period of time which provides more accurate data," Dittion said about the advantages of the new observatory.

ROSE-HULMAN STUDENT NAMED AS ONE OF NATION'S TOP 10 CIVIL ENGINEERING STUDENTS



Robert Guratzsch

Senior Robert Guratzsch has a Rose-Hulman alumnus to partially thank for his inclusion among the nation's top civil engineering students in *CE News* magazine's Star

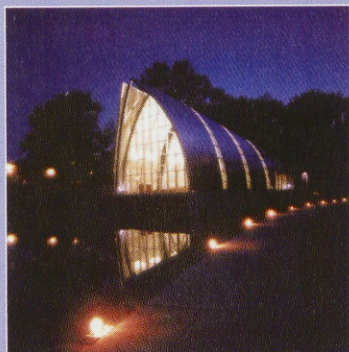
Students program. Guratzsch was among 10 students singled out for special recognition in the December issue of the engineering publication, which has a subscription base of 50,000 civil engineers who work for over 27,000 different firms.

This marked the first time a Rose-Hulman student has been included in *CE News'* program, an omission that was highlighted by a proud unnamed alumnus in a letter to the publication's editor.

Other colleges having students on this year's Star Student list included Princeton, Massachusetts Institute of Technology, Georgia Institute of Technology, Northwestern, Stanford and Texas A&M.

Guratzsch's 3.93 grade point (out of 4.0) ranks No. 1 among Rose-Hulman's 36 senior civil engineering students.

WHITE CHAPEL DRAWS PRAISE DURING FALL DEDICATION



White Chapel at night.

The chapel's design and inspirational purpose drew praise from everyone attending the dedication event.

The 5,000-square-foot, wedge-shaped building features stainless steel exterior panels. Among the chapel's stunning features is its east end made entirely of glass that creates a stunning view across the campus lake. The chapel was designed by VOA Associates of Chicago.

White Chapel serves as a non-denominational facility to meet the inspirational and spiritual needs of the campus community. The chapel was made possible by a \$1.5 million lead gift from the late John White and his wife, Elizabeth, of Terre

Haute. John was a 1947 Rose-Hulman mechanical engineering graduate. In 1997, Rose-Hulman presented him with an honorary doctor of engineering degree. He was founder and president of Hydro-Power Inc. in Terre Haute. He died Nov. 23 in Terre Haute. His son Steve is a 1973 Rose-Hulman graduate. The White's granddaughter, Anne Trueblood, is a Rose-Hulman junior.

The dedication included expressions of gratitude to the White family from Rose-Hulman President Samuel Hulbert, Board of Trustees Vice Chairman Don Scott and Student



Elizabeth and John White on dedication day.

Government Association President Casey Behringer. Others thanked for their support to make the White Chapel a reality were alumni Fred Goetsch, Jr. ('57), Alfred Schmidt ('49), and George Kyle ('48) along with Marian White Woosley, Vic Vickery of VOA Associates, and the Bruce Walsh ('26) Trust.

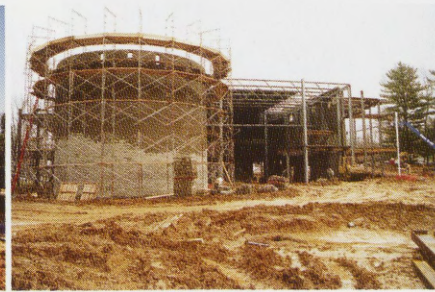
The dedication featured the Rose-Hulman Chorus performing, "Let There be Peace on Earth," "Amazing Grace," and "America the Beautiful." Mechanical engineering professor Andy Mech was a featured soloist. Delivering inspirational readings were Rose-Hulman students Ryan Brown and Teresa Neal along with mechanical engineering professor Patricia Brackin.

Several weddings involving Rose-Hulman alumni have occurred in the chapel since its opening Aug. 25. The building has already been honored for innovation and excellence by the Associated General Contractors of Indiana. ■



Windowed east end provides stunning view across the large lake on campus.

HATFIELD HALL TAKING SHAPE



From a hole in front of the campus to a steel structure, Hatfield Hall is taking shape. It will house a theater, alumni center and offices for the development and external affairs staff. For a daily update on construction visit the Hatfield Hall webcam at: <http://www.rose-hulman.edu/hatfieldcam/>

ROSE-HULMAN ASSISTS IN DESIGN OF HIGH-TECH MILITARY SYSTEM

Defense Budget Includes \$2 Million For Project Support

American Navy personnel will be safer and able to identify enemy targets faster as the result of a project involving Rose-Hulman Institute of Technology faculty and students, and technical staff at the Naval Surface Warfare Center at Crane, Ind.

The joint project is creating a prototype that would use cutting-edge optical technologies to process information at the speed of light via a fiber-optic network so military personnel can perform high-resolution target identification.

In January, Indiana Eighth District Congressman John Hostettler announced that the new Department of Defense budget will include \$2 million to continue support of the project.

"Crane and Rose-Hulman are a powerful team given their expertise and their commitment to make our U.S. Navy the best equipped, best trained, and best led into the 21st century and beyond," said Hostettler, who received a mechanical engineering degree from Rose-Hulman in 1983, and an honorary degree in 1999. "I'm confident this project will reap handsome dividends for both sailors and freedom-loving Americans on the home front."

Telecom technologies are being used to develop a wideband optically multiplexed beamforming architecture (WOMBAt) according to Azad Siahmakoun, professor of physics and applied optics, and project coordinator at Rose-Hulman.

"This matured fiber-optic telecom technology will be scalable to a large system that will reduce size and weight of present Navy radars. Furthermore, WOMBAt is capable of simultaneously processing several forms of information (such as radar, communication, surveillance, missile tracking, etc.) and thus reducing the number of antenna and apertures on a Navy ship," Siahmakoun explained.

"Research partnerships between Crane and universities such as Rose-Hulman on critical components and technologies such as wideband optically multiplexed arrays are important to meeting our war-fighting requirements," stated Duane Embree, executive director of the Naval Surface Warfare Center at Crane.

"They combine Crane's deep product and application expertise and expert academics to speed delivery of advanced technology to our nation's war fighters," he added.

The project, which began in 1999 with a \$4 million appropriation from the Department of Defense, has enabled Rose-Hulman faculty and students to conduct research using some



From left: Professor Azad Siahmakoun, Congressman John Hostettler and Rose-Hulman President Samuel Hulbert

of the newest optical engineering equipment available, stated Rose-Hulman President Samuel Hulbert.

"New information about optical technology is being discovered during this project that will lead to improved defense systems to protect American military personnel," he said. "We're grateful to Congressman Hostettler and officials at the Naval Surface Warfare Center for creating the opportunity for our faculty and students to do research that is truly on the cutting edge," Hulbert said.

Phase one of the three-phase project, the construction of a Receive Beamformer prototype system, has been completed, he said. "This year, we will build a Transmit Beamformer while the newest federal funding will move the program to a multi-function Receive/Transmit Beamformer prototype," Siahmakoun stated.

The project has created research opportunities for undergraduate and graduate students that are not common especially at the undergraduate level, he explained.

"The federal funding has enabled us to equip the lab with the latest fiber-optic and RF-Photonics instrumentation available on only a few other college campuses," he said.

"Over the last 18 months, 25 undergraduates and 16 graduate students from six academic departments have been involved with the project. Faculty expertise comes from three different academic areas," Siahmakoun stated.

Also advising the project are officials from the Naval Research Laboratory and the Office of Naval Research. ■

ARTHUR WESTERN NAMED VICE PRESIDENT FOR ACADEMIC AFFAIRS

Arthur B. Western has been named vice president for academic affairs and dean of the faculty at Rose-Hulman, a position he held on an interim basis since last June.

Western has served Rose-Hulman in various capacities since his arrival on campus in 1986. He started here as an associate professor of physics and applied optics. He was promoted to professor in 1988, a position he still holds, and to head of the Department of Physics and Applied Optics in 1992. He was promoted in 1999 to the post of associate dean of the faculty overseeing graduate studies and research. Last June, he was appointed dean on an interim basis to fill the position vacated upon the resignation of Barry Benedict.

Areas of specialization for Western include solid state physics, microprocessor interfacing, applied optics and expository writing. Research specialty areas include optical holographic interferometry and non-destructive testing. Western was recognized as the Rose-Hulman Board of Trustees Outstanding Scholar in 1995.

In addition to his administrative, teaching and research experience, Western brings a strong industrial background to the vice president's chair. He has consulted with companies such as Weyerhaeuser Co., Dow Chemical, Mountain States Energy and PASCO Scientific.

Prior to coming to Rose-Hulman, Western was on the faculty and head of the Department of Physics and Geophysical Engineering at Montana College of Mineral Science and Technology. He holds a doctorate and a master's in physics from Montana State University and a bachelor's in physics from Rollins College.

"Art Western is a wonderful role model for his colleagues," said President Samuel F. Hulbert. "He is a wonderful lecturer, teacher and scholar. We conducted a national search and interviewed four very distinguished educators for the post. The consensus of the campus constituency was that Art Western was the ideal person to assume the post."

"His background as department head, associate dean and interim dean has shown him to be an excellent administrator."

The appointment was made by the Rose-Hulman Board of Trustees at its winter meeting last February.

Echoes will run a more in-depth look at the new vice president in a future issue. ■



Arthur Western

NEW FACULTY

Several new faculty joined Rose-Hulman Institute of Technology this year. As a brief introduction, *Echoes* provides a list of those faculty, their titles, and the colleges where they received their terminal degree. Unless otherwise specified, the faculty member holds a Ph.D. from the college listed.

Bradley T. Burchett, assistant professor of mechanical engineering, Oregon State University;

Michael Cain, associate professor of applied biology and biomedical engineering, Cornell University;

Kevin P. Christ, assistant professor of economics, Saint Louis University;

Diane L. Evans, assistant professor of mathematics, Ohio State University;

Bruce A. Ferguson, associate professor of electrical and computer engineering, Purdue University;

John Gardner, assistant professor of Spanish, University of Kansas;

Marc Herniter, associate professor of electrical and computer engineering, University of Michigan;

Lance Hickey, visiting assistant professor of humanities and social sciences, Columbia University;

Joshua B. Holden, assistant professor of mathematics, Brown University;

Richard A. House, assistant professor of English, University of California;

Scott Kirkpatrick, visiting assistant professor of physics and applied optics, master of science, University of Nebraska at Lincoln;

William Kline, associate professor of engineering management, University of Illinois at Urbana-Champaign;

Thomas Langley, assistant professor of mathematics, University of California at San Diego;

Clark T. Merkel, assistant professor of mechanical engineering, North Dakota State University;

David C. Miller, assistant professor of chemical engineering, Ohio State University;

Sharon G. Sauer, assistant professor of chemical engineering, Rice University;

Sean Seymore, assistant professor of chemistry, University of Notre Dame;

Mario Simoni, assistant professor of electrical and computer engineering, Georgia Institute of Technology;

Quibo "Richard" Ye, visiting assistant professor of electrical and computer engineering, University of Manitoba. ■

ROSE-HULMAN Ventures

By Dee Reed

VENTURES PROVIDES STUDENTS WITH EDUCATIONAL, CAREER BENEFITS

Successes emanating from Rose-Hulman Ventures the past two years have meant more than the development of new products, services and equipment. Those achievements have also been about the educational and career benefits for Rose-Hulman students who work at Rose-Hulman Ventures (RHV). Undergraduate and graduate students contribute significantly to the technology and business development activities for Rose-Hulman Ventures' clients. As part of its mission, Rose-Hulman Ventures provides unique, valuable educational experiences for students.

Rachel Lukens, a Rose-Hulman electrical engineering major, said her Rose-Hulman Ventures experience has made a difference in her education. "Working at Rose-Hulman Ventures has changed my perspective on going to school. I am applying what I've learned in class to a product that will be in the marketplace and potentially be used by hundreds of people," said Lukens, a junior from Terre Haute, Ind. Lukens worked on the development of a surgical device that is a fully automated, minimally invasive, tissue removal system. The device, developed by Suros Surgical Systems, Inc., of Franklin, Ind., currently is used in the diagnosis and treatment of breast disease.

More than 100 students from Rose-Hulman, in addition to students from Indiana University, Indiana State University, DePauw University, and Saint Mary-of-the-Woods College echo her opinion. They agree that working with a client throughout a project's development, from concept to implementation, provides valuable lessons.

"Classroom exposure is not always enough," said Jim Eifert, president of Rose-Hulman Ventures. "The list of required competencies for new engineering graduates is extensive and must include demonstration of the ability to function on multidisciplinary teams, an understanding of professional and ethical responsibility, and understanding of the impact of engineering solutions in a broad social context. Team project work with an exter-

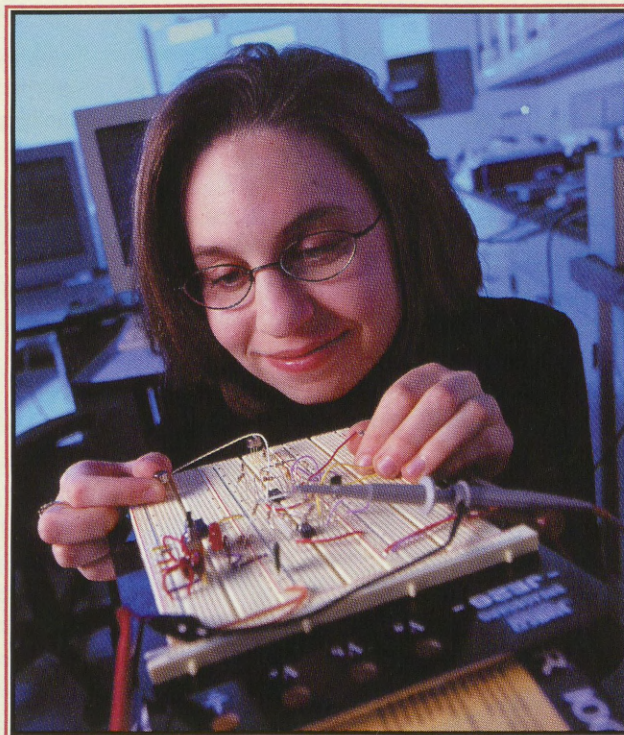
while working on new products. This experience helped to prepare me for a position in product development at Cook," Schaeffer explained. "At Rose-Hulman Ventures, I was given the freedom to develop my ideas based on objectives established by the client and RHV engineers. The interaction helped to acclimate me to the working relationships that one would expect when developing a product at a company."

Schaeffer discovered in his interviewing process with various companies that most employers look for students who are involved in activities and/or jobs outside of their regular school schedule. "Working in an environment that Rose-Hulman Ventures offers indicates to an employer that students are better prepared to be productive early in their first job," he said.

Rose-Hulman Ventures is helping Indiana alleviate "the brain drain," that has occurred for years because the majority of Indiana's new engineering graduates leave the state to begin their careers.

"These graduates are not leaving Indiana because they don't like Indiana," explained Eifert. "They are leaving in pursuit of economic and professional opportunities they perceive to be

elsewhere. Our students are beginning to realize that they can have those same opportunities in Indiana and will be financially able to have a better lifestyle here with regard to housing, schools, etcetera. Rose-Hulman Ventures provides the focal point that Indiana needs to develop, attract, and retain high-growth, high-tech businesses that will provide career opportunities for its citizens and keep students in Indiana after graduation." ■



Student Rachel Lukens enjoys application of education to real-world problems.

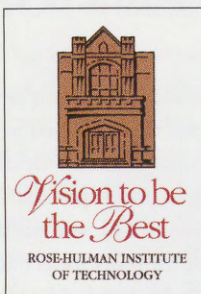
nal client is one of the very best ways to teach and learn many of these concepts and achieve the necessary competencies."

Rose-Hulman alumnus Darin Schaeffer said his work at RHV was vital to his successful search for his first full-time job. Schaeffer, a 2001 mechanical engineering graduate, is a product development engineer in Bloomington, Ind., for Cook Inc., a leader in developing health care devices.

"I was exposed to new technologies

VISION TO BE THE BEST CAMPAIGN CLOSING IN ON GOAL

Even though the success of the *Vision to be the Best* campaign has created unprecedented improvements at Rose-Hulman, there remains a need for increased financial support if the institute is to fully benefit from the momentum created by the successes of the past few years.



Those challenges include updating laboratory equipment to take advantage of rapidly changing technologies. The college's ability to recruit the nation's brightest high-school seniors is made more difficult by competing colleges and universities who offer deserving students more financial aid than Rose-Hulman can provide. The success of the fund-raising campaign has helped to address those challenges, but the need for resources to offer an outstanding undergraduate engineering and science education is increasing.

The \$200 million *Vision to be the Best* campaign goal will be surpassed. As of Feb. 1, cash, deferred gifts and pledges have increased to \$194 million, reported Mark Richter, vice president for development and external affairs.

"Originally, the campaign had a goal of \$100 million. When the goal was reached at the five-year midpoint of the campaign, the Board of Trustees saw an opportunity to continue the journey toward being the best and increased the goal to its current level," he explained. "The campaign will remain open and active until 2004 and I have every reason to believe that the generous alumni and friends of Rose-Hulman will push the final total beyond the goal."

President Samuel Hulbert noted that even though the campaign goal is in sight, there are strategic needs that remain underfunded. "We haven't reached our goals for financial aid, new laboratory equipment, endowment growth and endowed professorships to retain and recruit the very best teachers."

"Continuous improvements to our educational environment are linked to our success at raising additional funds," Hulbert emphasized. "We're ending the seventh year of the campaign. The dreams and innovative ideas of our faculty and students are more ambitious than in 1995 when the campaign was launched. We are challenged to provide them with the financial resources so those dreams can become reality."

Support to the campaign has enabled faculty and students to utilize new project-oriented laboratories in the Myers Center for Technological Research with Industry, and the Olin Advanced Learning Center provides faculty with new classroom technologies. Students receive more career-related experience working for clients at Rose-Hulman Ventures. A new residence hall, Sports and Recreation Center, White Chapel, Oakley Observatory, renovated Hulman Union and soon-to-be completed Hatfield Hall have enhanced the campus. ■

ALUMNI FUND UPDATE

A total of 3,089 alumni (32 percent) have shown their Rose-Hulman spirit by supporting the Annual Fund so far this year.

While total dollars are important, the participation rate is equally significant. According to U.S. News & World Report, the percent of alumni giving serves as an indicator of how satisfied students are with the college. Attaining the goal of 50 percent alumni participation would place Rose among the tops in the nation. The rate for the 2000-01 fiscal year was 44 percent.

June 30 is the deadline for making gifts to the Annual Fund. For more information, please contact Karen O'Rourke, director of annual giving, at 1-800-248-7448, ext. 8159. Or you can make a gift online at www.rose-hulman.edu/give. ■

MAKING A DIFFERENCE IN CLASS FASHION

Rose-Hulman alumni are banding together through the Alumni Class Scholar Program to help students realize their educational dreams.

The Alumni Class Scholar Program was established in 2000 by the Rose-Hulman Alumni Advisory Board in an effort to address the growing need for more student financial aid. The goal of the program is for each class to establish an endowed scholarship of \$50,000 or greater over the next five years.

"Putting resources in place for financial aid is at the top of our list," explained Mark Richter, vice president for development and external affairs. "It goes to the heart of our mission. We want to make sure that every student who dreams of attending Rose-Hulman and meets our requirements for admission can access the financial resources necessary to make this happen."

Over the next three years, scholarships will continue to roll out as classes celebrate their reunion years. The goal is to have the

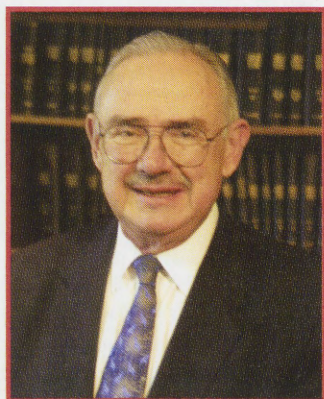
scholarships fully funded within five years of inception. Ten new scholarship funds were created this fall as several classes began contributing to their own class scholarship. In all, 25 classes are involved in making the cost of a college education less of a hardship for many students.

Funding a scholarship can be easy if alumni actively support this effort. For example, if 250 alumni from a class each contributed \$40 a year over five years, the entire scholarship would be funded, said Karen O'Rourke, director of annual giving.

The Alumni Class Scholar Program is a chance for alumni to make a real difference in the lives of future engineers, mathematicians and scientists, as well as an opportunity for classmates to work together to leave a lasting impression on generations to come."

Individual class funds will begin making awards once the funds reach the \$50,000 endowment level. Classes making awards will be recognized for their achievements. ■

HELP SPREAD THE WORD



By Clyde Willian, Chairman of the
Rose-Hulman Institute of Technology
Board of Trustees

For many years the frequent response to advising someone that I graduated from Rose-Hulman or Rose Poly reflected a complete lack of recognition. I have characterized the typical response as "Rose Who?", "Rose What?" or "Rose Where?". I found this most disturbing. Like most of you, I am very proud of having graduated from Rose Poly and having been a part of Rose-Hulman as an alumnus and, more recently, as a trustee.

Shortly after becoming a trustee in 1989, I raised the matter of public image and public recognition of Rose-Hulman. At about the same time, President Hulbert challenged the Board of Trustees, the faculty and the administrative staff to embark on a new mission. He called that mission "Vision to be the Best." My concern at the time was even if we achieve our mission, does it really mean anything in terms of success of the school if the relevant public is unaware of that achievement. As a philosopher once said: "If the tree falls in the woods but no one hears or sees it, has anything happened?"

It was agreed that the budget and resources for marketing had to be and would be increased. As a result, the staff responsible for marketing has been increased. We have been able to use out-

side consultants on a focused basis. The school's publications have increased. Spreading the word regarding the achievements flowing from our "Vision to be the Best" has paid off handsomely. But I believe we can do even more.

Rose-Hulman has been named the Number One private engineering school in its category for three years in a row in the U.S. News & World report college rankings survey. The freshman class has been oversubscribed even though the school competes with subsidized state schools and the pool of potential applicants has decreased. The academic profile of our freshman classes continues to improve. The retention and graduation rates have continuously increased. Job placement and

at least in part the direct result of the potential benefactor's awareness of Rose-Hulman achievements. Good deeds and effective marketing have had a tremendous synergistic effect.

As alumni and friends of the college, each of us is an ambassador of good will for Rose-Hulman. Your achievements in business and in your personal life redound to the benefit of Rose-Hulman. Your loyalty is reflected in the percentage of alumni making annual contributions. But, I think we can carry marketing a step further, all for free. Over the years when the opportunity presents itself, I have not hesitated to mention Rose-Hulman Institute of Technology, coupled with reference to the Number One standing or one of the many

"As alumni and friends of the college, each of us is an ambassador of good will for Rose-Hulman."

starting salaries are at the highest levels. High school counselors have named Rose-Hulman as one of their favorite colleges. The capital fund drive was oversubscribed in half the allotted time. The current capital fund drive is substantially ahead of schedule. The new buildings such as the new residence hall, Myers Center for Technological Research with Industry, Hatfield Hall, White Chapel, the Sports and Recreation Center and the Olin buildings are the result of the "Vision" and increased public awareness. The same goes for the association with the Indianapolis Colts, which presents its own opportunity for marketing of the institute and its achievements. Rose-Hulman Ventures was created because of the Lilly Endowment's awareness of our achievements. Just over two years old, Ventures is well on its way to being a resounding success.

My point is that these achievements are

other achievements. Any blank look reflecting a "Rose who?" state of mind does not go unchallenged. Over the years, Rose-Hulman and what it stands for have become known to my family, friends, partners, business associates and clients. They know I am proud to have attended the college and proud to be a part of it. Please join President Hulbert and the administration in spreading the word. Our collective efforts can add a new dimension to the marketing of the institute. If all 10,000 of us help spread the word, who knows, Rose-Hulman soon could become a national household name. ■

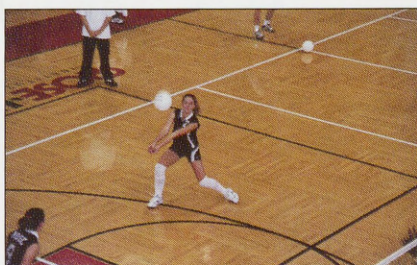
A new national newsletter is being developed to help spread the word. See page 28 for details on how you can help.

ROSE-HULMAN FALL SPORTS WRAPS

DAVIS NAMED SCAC VOLLEYBALL COACH OF THE YEAR IN RECORD SEASON

The Rose-Hulman volleyball team set single-season school records with 11 conference wins and 17 overall victories, earning head coach Brenda Davis recognition as the SCAC Coach of the Year. The team finished 17-19 overall and 11-7 in the conference.

Davis led the team to a fourth-place finish in the league standings, the best placement in program history. Senior Jennifer Krause, who graduated with 18 school records, smashed 419 kills to lead the team's offense, while freshman setter Lindsey Kerbel joined Krause on the all-SCAC team after setting a single-season school record with 983 assists. Junior Jamie Tepool paced the defense with 345 digs.



Jamie Tepool sets for the volleyball squad.

CROSS COUNTRY TEAMS PLACE 7TH IN SCAC CHAMPIONSHIP

The Rose-Hulman men's and women's cross country teams each placed seventh in the Southern Collegiate Athletic Conference championship this fall.

Junior Richard Hale led the men to a seventh-place finish with a time of 28:38 in the league meet, with freshman Matt Robertson just behind in 29:29.

Freshman Larissa Oaks paced the women's effort with a time of 21:15, while sophomore Beth Emborsky finished in a time of 21:17.

FOOTBALL TEAM REWRITES OFFENSIVE RECORD BOOK



Recordsetting quarterback Jared Tharpe carries for gain.

The Rose-Hulman football team set single-game and single-season passing records and placed five players on the all-Southern Collegiate Athletic Conference team in its first season using the pro-spread offense.

Junior quarterback Jared Tharpe completed 188 of 369 passes for 2,223 yards and 13 touchdowns, while senior Jake Yoder made 61 receptions for 724 yards to lead the offense. The Engineers' team set single-season school records with 215 completions and 2,621 yards passing. Tharpe established single-game records with 42 completions, 71 attempts and 453 yards passing in a loss to Rhodes.

Senior Dan Schwartz earned unanimous first-team all-SCAC recognition, first-team academic all-district recognition and honorable mention All-American honors after starting all 10 games at left tackle. Other all-conference performers included Tharpe, Yoder, senior Jim Munafo and freshman Jake Vieck.

The season highlight occurred on Oct. 27, when the Engineers earned victory in their first-ever overtime game, a 28-27 decision over Case Western Reserve. The team finished the season with a 2-8 record.

WOMEN'S SOCCER SETS SINGLE-SEASON WIN RECORD

The Rose-Hulman women's soccer team earned a school-record eight victories to highlight a successful campaign under first-year head coach Brad Hauter. The squad's final 2001 record was 8-10.

Sophomore Jessica Farmer blasted a school record 15 goals to lead the offense, with freshman Amy Sibilia adding four goals and four assists. The goalkeeping duo of Amanda Brindley and Amy Stutler allowed just 1.48 goals per game in helping lead the team to three conference wins.

Farmer earned first-team academic all-district recognition and second-team all-conference honors, while junior defender Anna Burgner was named third-team all-SCAC.



John Fell, right, caps standout career.

FELL LEADS MEN'S SOCCER

The Rose-Hulman men's soccer team won four of its last nine matches to cap off the season and senior John Fell capped a standout career in memorable style to highlight the fall season.

Fell scored three goals against Illinois Wesleyan on Senior Day for his second career hat trick to lead the Engineers to victory. He ranks third on the school's career goals list with 26 and tallied six to lead the 2001 team.

Freshman Tom Drochner earned third-team all-SCAC honors after starting all 18 games in the midfield, tallying one goal and four assists.

The team's final record was 4-14.

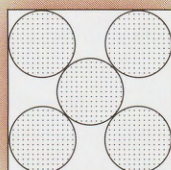
Bailey Challenge

By Professor Emeritus Herb Bailey

Your assignment is to calculate the ratio of sphere volume to box volume for identical spheres tightly packed in boxes. Three possible configurations are shown. For each problem one sphere is in the center of the box. In problems 1 and 2, there is a single layer of spheres and the four outer spheres are each tangent to the center sphere and also tangent to the top, bottom, and two sides of the box. In problem 3, each of the eight outer spheres are tangent to the center sphere and also tangent to three of the faces of a cubical box.

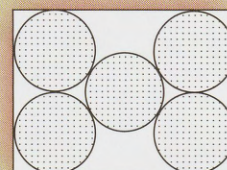
Problem 1.

Square base. Top View.



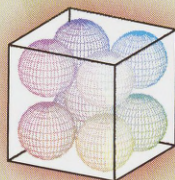
Problem 2.

Rectangular base. Top View



Problem 3.

Cubical box. Perspective View.



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

Solvers of the summer problems are listed below:

Alumni: W. Barrick, 1941; D. Heath, 1943; J. Hurt, 1948; C. Cook, 1949; A. Junker, 1950; W. Rinker, 1951; J. Lambermont, 1951; C. Hirschfield, 1954; J. Moser, 1956; A. Sutton, 1956; C. Cooper, 1956; J. Chinn, 1956; H. Brown Jr., 1957; W. Waggener, 1957; P. Cella, 1958; J. Edds, 1958; J. Tindall, 1961; R. Archer, 1961; J. Snyder, 1962; S. James, 1965; J. Hightower, 1970; J. Born, 1970; D. Pelz, 1971; A. Mahler, 1971; D. Dvorak, 1972; J. Zumar, 1973; J. Osburn, 1974; M. Bailey, 1976; D. Knoy, 1976; M. Avery, 1976; J. Schroeder, 1976; J. Lasswell, 1977; D. Allen, 1977; T. Sictberg, 1978; T. Pruitt, 1978; D. Hoffman, 1978; S. Warner, 1978; M. Seffrin, 1979; R. Burger, 1979; M. Clouser, 1979; J. Slupesky, 1979; K. Thompson, 1980; J. Koechling, 1980; S. Bagwell, 1980; P. Fahlsing, 1981; J. Moore, 1982; M. Walden, 1986; B. Seidel, 1987; E. Rahe, 1987; B. Keegel, 1987; M. Lancaster, 1987; C. Abdnour, 1989; G. Heimann, 1990; D. Devore, 1991; B. Burger, 1991; S. Cox, 1991; T. Anderson, 1992; G. Hall, 1992; R. Byrum, 1992; K. Koziol, 1992; N. Wiley, 1994; S. Ciscò, 1994; D. Janko, 1994; E. Rector, 1995; B. Town, 1995; T. Adams, 1996; W. He, 1997; D. Beene, 1997; A. Hotron, 1997; J. Horstman, 1998; D. Martin, 1998; S. Ames, 1999; W. Tierney, 2000; C. Mahler, 2000; F. Xia, 2000; C. Agnello, 2000; J. Siefert, 2000; R. Mills, 2001; D. Harrington, 2002; A. Wunderlich, 2004; and N. Snyder, 2006.

Friends: C. Dugas, K. Duffy, P. Stallman, G. Elmr, A. Carroll, J. Ley, G. Tikijian, D. Voltmer, J. Kappler, J. Slowski, and M. Rosene.

I am setting these problems during the holiday season and packages are everywhere. Johannes Kepler (1571-1630) was a German astronomer and mathematician. He is best known for his discovery of the three basic laws governing planetary motion. A lesser known Kepler result involves optimal packing of identical spheres. He claimed that the maximal value of the packing density R is $\frac{\pi\sqrt{2}}{6} \approx 0.740$, where $R = \frac{\text{volume of spheres}}{\text{total volume}}$. This has only recently been proved to be true with a proof of 250 pages, for more than you will ever want to know about this problem see <http://www.astro.virginia.edu/~eww6n/math/SpherePacking.html>.

In these days, trained packaging engineers care little about the volume of the package, their goal is to make them unopenable by toddlers and seniors.

You did well on the problem for the previous issue. There were 88 solutions. Most of you remembered a bit of calculus. Some were proud to solve problem 2 without calculus. One high school student sent the correct answer without reasons, and when I complained, he correctly pointed out that the minimum was at the vertex of the parabola. Problem 2 has application in economics and EE. The midpoint on a linear falling demand curve gives optimal sales dollars, and the midpoint of a linear falling voltage-current curve gives maximum power. The last remarks are meant only for those who insist on applications of their intellectual efforts.

THE FACE OF TEACHING

Creating community in the world of numbers and theories

By Dale Long

Roger Lautzenheiser had never heard of calculus before being asked to help a classmate with a homework assignment during his freshman year at Indiana University.

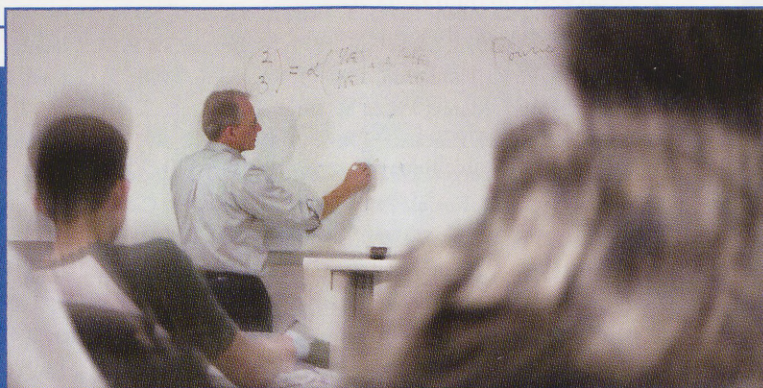
Intrigued, the pre-medicine major spent the next summer taking his first course in the mathematics subject. He was quickly attracted to the relationships between numbers and theories to solve problems.

That adoration still resounds nearly 40 years later with Lautzenheiser being a popular mathematics professor at Rose-Hulman Institute of Technology. A member of the college's faculty since 1975, Lautzenheiser earned the Dean's Outstanding Teacher Award in 2001 and has been named the Outstanding Faculty Member by Rose-Hulman students in an annual poll conducted by The Rose Thorn student newspaper.

"In class, it was clear that he really loved the subject he was teaching and loved teaching it," concedes former student Ozgur Ozkaya, a 1996 electrical engineering graduate. "It was impossible not to get caught up in the excitement."

This winter, during a differential equations class, Lautzenheiser took several minutes out of his class to make sure each of his students understood the mathematical concepts needed to solve a problem.

"Sometimes, it's hard to show the 'why' in a problem. You need to step back and take five or 10 minutes out of a classroom session to make sure the students understand the concepts that solve a problem," he states, revealing that his daily classroom notes can consist of four handwritten statements on an index card. "Each student has spent \$80 on a textbook that explains things in a much



"You have to develop a relationship with students. You need to know when you're getting the message across. They have to feel comfortable with you."

— Roger Lautzenheiser

more organized way. They're in my classroom to understand how those mathematical concepts are applicable in problems they're going to encounter as future engineers, scientists or mathematicians."

It's that ability that makes Lautzenheiser a good professor, according to John Williams, a 1977 mathematics alumnus who now is a mathematics professor at the University of Hartford.

"Roger has the uncanny ability of understanding where the student is having trouble and then illuminating the path to understanding the concept with the perfect example," Williams says. "Mathematics can be understood as just a logical connection of theorems and ideas, but it can also come about naturally. I remember, in the point-set topology course that Roger taught, he was able to get us to see what theorems should be right and how the proofs should proceed. It is easy to teach theorem/proof, but it is harder to convey paradigms and structure."

In his own words, Lautzenheiser states "The mechanics of teaching aren't difficult or challenging. To be good you have to develop a relationship with students. You need to know when you're getting the message across. They have to feel comfortable with you."

And, many times, those relationships extend outside the classrooms in Crapo Hall. Roger and his wife, Gretchen, have welcomed many Rose-Hulman students into their home to celebrate Christmas, Thanksgiving or Easter.

"This ties into Dr. Lautzenheiser's teaching style: He cre-

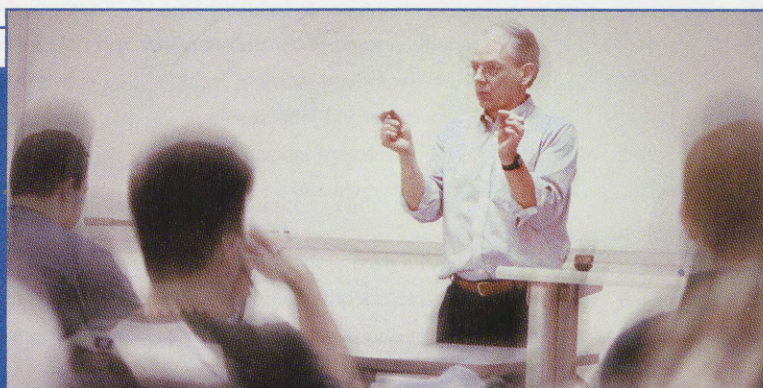
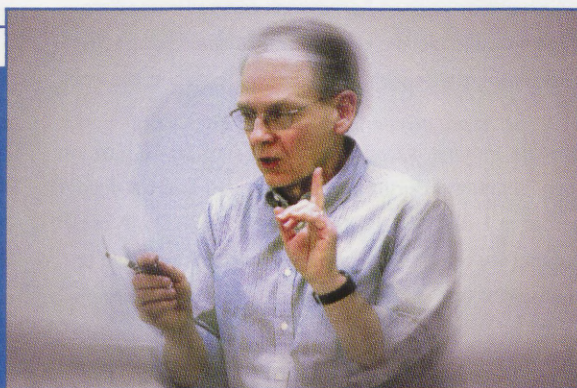
ates a feeling of camaraderie and community between his students. This is what makes Rose-Hulman such a special place," said Ozkaya, now an engineer with Texas Instruments (San Jose, Calif.) "I have not met another professor with more office hours than Dr. Lautzenheiser. He made students welcome, and took as long as was needed for them to understand the concepts. He did all of this with a smile on his face because he really cared for you."

Lautzenheiser specializes in the area of numerical linear algebra, a course he will teach this spring. He also instructs classes regularly in calculus, statistics and differential equations, and edits a new online journal (www.rose-hulman.edu/mathjournal) that draws attention to research papers and other educational projects by the nation's top undergraduate mathematics students. In two years, the journal has published reviewed papers by 17 undergraduate authors and one high-school author from institutions such as the University of Michigan, Duke University, North Carolina State University and Denison University.

"Roger's contributions to undergraduate engineering go beyond teaching," admits Mathematics Department Head Allen Broughton. "He's an excellent scholar, faculty colleague and, of course, mathematician."

Lautzenheiser, who twice has served as Rose-Hulman's Mathematics Department chair, admits his classroom techniques have been influenced by a year (1998-99) teaching advanced calculus with a Japanese colleague at Kanazawa Institute of Technology, and two technical sabbaticals in industry.

Obviously, that calculus class is still paying off big dividends — to him and his students. ■





REACHING OUT

Rose-Hulman and Lilly Endowment working together to help educators and entrepreneurs throughout Indiana

Thanks to almost \$6.3 million from the Lilly Endowment of Indianapolis,

Rose-Hulman will be expanding its service to students and teachers in Indiana middle schools and high schools, to entrepreneurs, and to the college's own students.

BY DAVID PIKER AND DALE LONG

The combination of these projects will allow Rose-Hulman to help create jobs, interest more middle- and high-school students in mathematics and science, expand access to ideas, give Rose-Hulman students more real-world project experience, and bring student-designed technical solutions to the marketplace.

This series of articles on pages 14-16 provides an in-depth look at the grant details and the impact they will have on Rose-Hulman and its outreach.

During the past eight months, the Endowment made the following gifts:

- \$2.6 million to expand the Homework Hotline across Indiana school regions;
- \$1.9 million to develop a Web Mall to improve chances of taking Rose-Hulman student ideas to the marketplace; and
- \$1.77 million to create a Web portal to increase teaching resources available to middle-school teachers of science, mathematics and technology.

\$2.6 Million Lilly Endowment Grant Paves Way For Homework Hotline Expansion Throughout Indiana

The telephones are ringing off the hook for Rose-Hulman Institute of Technology's Homework Hotline, giving tutors an opportunity to help middle- and high-school students to better comprehend the complexities of mathematics and science, and improve their problem-solving skills.

Through January of the 2001-2002 school year, the toll-free service helped 5,563 callers — well on the way to meeting the goal of 10,000 calls.

And, the prospects are even better in the future. A \$2.6 million grant provided by the Lilly Endowment Inc. will help the Homework Hotline expand its reach across Indiana school regions, starting this fall.

The expansion will be done in three phases through the following schedule:

- 2002-2003: Northeast/East Central Indiana, including Fort Wayne, Anderson, Muncie and Richmond (Wayne County).
- 2003-2004: Southwest/Southeast Indiana districts, including Evansville, New Albany, Vincennes and Jeffersonville.
- 2004-2005: North Central/Northwestern Indiana districts, including South Bend, Kokomo, Lafayette and Gary/Hammond.

The \$2.6 million grant continues a partnership that has paved the way for the Homework Hotline to become an important educational resource for students, teachers and parents, according to

Learning Center/Homework Hotline Director Susan Smith.

The Endowment provided a \$1 million grant in 1999 to expand the hotline into central Indiana school districts during the past two years. The service was started in 1990 after Rose-Hulman was approached by officials of the Greater Terre Haute Chamber of Commerce and Vigo County School Corporation; expanded into nearby Clay Community Schools (Clay County) in 1991; Blackford County (Hartford City) in 1992; and Monroe County and five west central school districts this school year.

"With the Homework Hotline, Rose-Hulman had the spark of an idea and the will to develop it," said Sara B. Cobb, Lilly Endowment vice president for education. "Now, through strategic collaborations involving Rose-Hulman, teachers, schools and students, Indiana middle- and high-school students who have questions about their math or science homework can get immediate help. The college students on the other end of the line don't just give them the answers, they teach them how to arrive at the correct results."

The Homework Hotline is available from 7 p.m. to 10 p.m. on Sundays through Thursdays during the school year. The toll-free telephone number is 1-877-ASK ROSE (1-877-275-7673). A total of 54 Rose-Hulman students serve as tutors, with 20 available to answer calls each night at the hotline's state-of-the-art communications center. ■

Web Mall to Increase Use of New Technical Ideas Developed by Students; Project Funded by \$1.9 million Lilly Endowment Grant

Technical innovations created by Rose-Hulman students will soon be featured on a Web Mall to improve the chances those ideas will make it to the marketplace. The Web Mall project also intends to create more jobs for students at Indiana entrepreneurial companies, encourage more students to become entrepreneurs, and increase sponsored projects available to students.

The Web Mall is being funded through a three-year, \$1,992,000 grant from Lilly Endowment Inc. of Indianapolis. It will be online later this year via the Rose-Hulman Web site (www.Rose-Hulman.edu).

"Students generate hundreds of technical ideas that result from projects they've completed as part of their course work," said Art Western, vice president for academic affairs at Rose-Hulman. "Often those projects help only a single person or business. Our goal is to expand the access to those ideas, which may help businesses launch new products or services of value to the public."

The Web Mall will display prototypes of student projects that would be of interest to venture capitalists, corporations, entrepreneurs, government agencies or non-profit groups. Successful prototypes in use that could reach larger audiences via the Web Mall include low-cost data acquisition systems, devices to help children and adults who are physically disabled, and software for microcontrollers.

"Student project opportunities will increase after potential sponsors visit the Web Mall and better understand how students can effectively move ideas to the prototype stage," Western explained.

The increased interaction between students, innovators and businesses will encourage more students to view Indiana as a desirable location to develop new companies and products, Western said. The grant also provides funds to create 20 new student internships at Indiana entrepreneurial companies.

"The Web Mall is another example of the exciting ideas we have seen coming from Rose-Hulman," said Sara B. Cobb, Endowment vice president for education. "The Web Mall will provide a way for its talented students to get their ideas before a broad audience, and the process will teach them entrepreneurial skills so vital to their future success."

Web Mall activities will be integrated into engineering and entrepreneurial undergraduate courses at Rose-Hulman. Management of the Web Mall will be coordinated by six students, including a chief operating officer who will report to a six-member governing board of faculty and staff, according to Dan Moore, interim associate dean of the faculty, who will serve as chair of the governing board. The student CEO is Nat Bowe, a junior mechanical engineering major.

"Students will operate the day-to-day activities of the Web Mall," he said. "They'll decide what projects to feature, manage budgets and be responsible for interacting with external audiences," Moore stated. ■



Lilly Endowment Funds Creation of SMART, a New Web Portal to Improve Middle-School Education

Indiana middle-school teachers will soon find it easier and quicker to use rapidly increasing Internet resources to improve science, mathematics and technology education by accessing an interactive Web portal that will be created and hosted at Rose-Hulman Institute of Technology.

The new virtual resource center will feature a digital librarian, databases of multimedia teaching resources, access to real-time data for use in science projects, Web-delivered simulations, and resources for course development.

The creation of the Web portal is being funded by a \$1,770,000, three-year grant from the Lilly Endowment of Indianapolis.

The portal will be called SMART, which is an abbreviation for Science and Mathematics Access to Resources for Teachers. SMART will be launched this fall.

SMART will be highly interactive and include a Community of Practice where teachers can rapidly share ideas, collaborate on projects, host workshops on the Web, receive assistance from Rose-Hulman faculty, and create customized Web services, according to Patricia Carlson, project director and Rose-Hulman professor of American literature.

"Perhaps at no time in educational history has there been such a rich variety of educational resources available to teachers because of the Internet," Carlson said. "However, the demands placed on teachers make it increasingly difficult for them to have

the time to use those resources to benefit their students. The ease of using the Web portal will create professional development opportunities for teachers on a daily basis and encourage them to use advanced technology in the classroom."

Sara B. Cobb, Endowment vice president for education, said, "SMART will unleash the potential of the Internet to provide busy teachers with creative strategies to improve student learning, and they will be offered in efficient and user-friendly ways. This is especially significant in light of Indiana's new academic standards for math and science."

"Through its Homework Hotline and other programs, Rose-Hulman has built a substantial record of offering relevant and meaningful assistance to teachers and students, and we see SMART as yet another exciting development in this impressive portfolio."

Middle-school students are the target population because the transitional years of grades six through eight prove critical for students who lose interest and lack success, according to Carlson. "Those students typically don't take the proper high-school courses needed to pursue a college degree in science, mathematics or technology."

SMART will help teachers achieve the key strategies outlined by the Indiana Department of Education K-12 plan for technology, according to Carlson.

"The digital librarian will compile collections of teaching materials for use to meet the state's guidelines," she noted. "The online librarian will also partner with Rose-Hulman faculty to create learning modules, Web-delivered workshops and provide daily help to middle-school teachers."

Carlson will rely on input from Indiana educators to ensure that SMART will deliver the "best educational practices available." A seven-member board of advisors will be created along with a team of 20 teachers who will be selected to serve as SMART leaders within their school districts.

"Our goal is for SMART to not only increase the amount of new media-related activities in the classroom, but more important, we want to raise the quality of that educational activity," Carlson stated. "This will be accomplished by creating a powerful easy-to-use gateway to Web-delivered resources that enable teachers to develop exciting, new ways for students to learn." ■

SENIORS REACT TO TIGHTER JOB MARKET

ALUMNI PLAY KEY ROLE IN HELPING STUDENTS FIND JOBS

By David Piker

Rose-Hulman seniors are reacting to a tighter job market by being more aggressive, less concerned about job location, and using all the resources available to seek information about career opportunities, according to Kevin Hewerdine, Rose-Hulman director of career services and employer relations.

"Seniors have reacted very well to market trends," he stated. "Overall, they're being very proactive in their job search."

The number of job offers accepted by seniors is down slightly compared to a year ago. "Seniors are accepting offers sooner than their counterparts last year," he explained. "Interview schedules have been full. The number of on-campus interviews per company has increased compared to a year ago. The increase illustrates that students are being more aggressive. They're taking advantage of every opportunity."

National news stories about fewer job opportunities for 2002 college graduates have mostly reported about the job market in general rather than the outlook for specific degree areas. While agreeing that the market is not as strong as last year, Hewerdine notes that some engineering majors will find excellent job opportunities.

"It's a favorable job market for chemical engineering and civil engineering graduates," he said. "The job opportunities for chemical engineering grads have markedly improved over the past few years. There will be more job offers than we have civil engineering seniors."

Companies doing the most active recruiting are pharmaceutical, energy, government, construction and technical security businesses. Despite a sag in the national economy, Rose-Hulman's annual Career Fair last October attracted the second largest number of employers ever. A Job Fair in late January that focused only on internship and co-op opportunities was attended by 43 companies.

Although Rose-Hulman has not avoided the slowdown in recruiting that is common on campuses nationwide,



Kevin Hewerdine counsels senior Kelly Sullivan.

Hewerdine is beginning to see a "slow turnaround in the job market. I'm encouraged that we may experience an upswing in hiring if first-quarter corporate financial reports are positive."

Alumni and other Rose-Hulman supporters play a key role in helping students find that first full-time job or summer internship, Hewerdine stated. "Students are sending more e-mails and making more calls to alumni and others associated with Rose-Hulman than I've seen in previous years."

"Alumni do a great job letting us know quickly if their company's hiring is going to resume or increase. We especially need leads on job opportunities for mechanical engineering majors, which represent the largest number of Rose-Hulman seniors," noted Hewerdine.

Seniors know they're going to have to be more patient than students in previous years, he said. "Instead of completing the job search in three months it could take four to six months."

About 15 percent of Rose-Hulman's senior class enrolls in the top graduate school of their choice. Hewerdine sees a slight increase in seniors applying to graduate school.

"Some are still pursuing a job, knowing that they won't find out about graduate school admissions until spring." ■

INCREASE IN INTERNSHIP AND CO-OP OPPORTUNITIES

The number of entrepreneurial internships available to Rose-Hulman students has increased compared to a year ago, thanks to funding from the Lilly Endowment and the Kauffman Center for Entrepreneurial Leadership. Thirty summer internships are available to sophomores or juniors through this program. The funding enables Rose-Hulman to help subsidize the wages of students placed in summer internships with small, entrepreneurial companies in Indiana. Companies must have less than \$15 million a year in sales and have fewer than 150 employees to qualify.

"There are more co-op opportunities than students who

are applying for them," said Arleen Anderson, assistant director of career services and coordinator of internship and co-op programs at Rose-Hulman.

She pointed out that co-op positions usually last at least two academic quarters. Many co-op positions give students the opportunity to work during a spring/summer or summer/fall time period.

At least half the companies at the Career Fair and the Job Fair in January were offering co-op jobs, she noted.

Eighty-five percent of Rose-Hulman's 2001 graduates completed an internship or co-op. ■

2001: A Year of National Recognition and Continuous Improvement

2001 was a year that saw Rose-Hulman earn additional national recognition, launch new academic initiatives, and continue an unprecedented facility improvement program. The year also marked Samuel Hulbert's 25th year as president of Rose-Hulman.

Because of the fast pace of last year's developments, Echoes provides the following summary of the significant events that impacted Rose-Hulman in 2001. By creating the summary, it is our intention to provide our readers with a perspective about the college's achievements during 2001.

A YEAR IN REVIEW

JANUARY

New Web-based Rose-Hulman Institute of Technology Undergraduate Mathematics Journal creates national and international recognition for the mathematical skills of Rose-Hulman students and other undergraduate mathematicians.

Rose-Hulman Ventures announces it is collaborating on new projects totaling \$1.8 million to help knowledge-based companies develop in Indiana.

FEBRUARY

Lilly Endowment provides \$2.6 million grant to expand successful Homework Hotline program statewide. Three-year expansion will start in the fall of 2002.

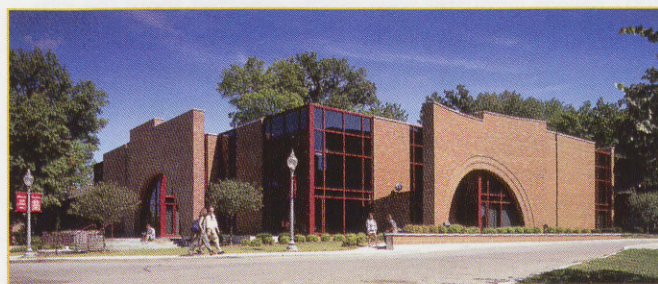
Applied optics graduate program named one of the best in the nation, according to the American Institute of Physics. Program was cited as one of the top 22 programs of its kind at preparing students for high-tech careers.

Significant improvements to on-campus computing network include doubling of Internet bandwidth.

MARCH

Computer science major Chris Unton becomes Rose-Hulman's 49th Academic All-American. Unton is a starting forward on the Rose-Hulman men's basketball team.

Rose-Hulman mathematics team defeats 27 other college squads to win Indiana Collegiate Mathematics Competition.



Professor Fred Berry becomes new head of the Department of Electrical and Computer Engineering.

APRIL

Construction begins on Hatfield Hall to create a new theatre, space for student drama and music groups, an alumni hall and offices for development and external affairs staffs.

Mechanical engineering professor Rick Stamper selected by the American Society for Engineering Education as one of the nation's best young teachers of mechanics.

Professor Robert Houghtalen selected as new head of Department of Civil Engineering. Long-time department chair Jim McKinney returns to full-time teaching. Houghtalen also selected as 11th Rose-Hulman professor to receive a Fulbright grant.

200 faculty from across the nation attend Best Assessment Symposium IV at Rose-Hulman.

Rose-Hulman is having "extraordinary success recruiting quality candidates for faculty positions," Dr. Hulbert reports.

MAY

Senior placement rate is 88 percent, two weeks before graduation.

350 receive degrees during 123rd commencement.

Society of Biomaterials presents President Hulbert with one of the organization's most prestigious honors, the Founders Award.

Indiana Information Technology Association presents Rose-Hulman Ventures President Jim Eifert with CyberStar Award for his contributions to the development of Indiana's technology industry.

JUNE

64 Rose-Hulman student-athletes participating in winter or spring sports receive academic honors from Southern Collegiate Athletic Conference.

Rose-Hulman top private college choice among Indiana high-school seniors chosen to receive prestigious, four-year Lilly Scholarships.

JULY

Rose-Hulman selected by NCAA to host 2002 and 2003 Division III Women's Basketball Championships.

Solar Phantom starts 2,300 mile, American Solar Challenge from pole position. Solar Phantom completes longest solar-car race in America in eighth place.

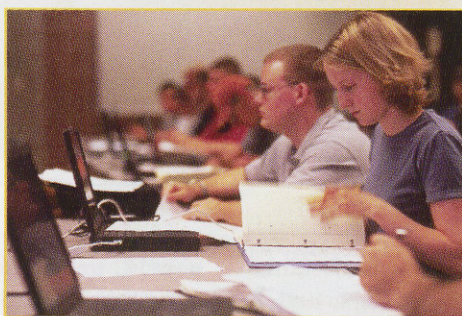
AUGUST

Fall quarter marks beginning of new applied biology undergraduate degree program.

First event conducted in the new White Chapel.

Rose-Hulman selected as one of the nation's five best colleges or universities where students receive a high level of individual attention from faculty. Selection was based on a survey of high-school guidance counselors conducted for Kaplan/Newsweek College Catalog.

Freshman class includes record number of female students (93).



SEPTEMBER

Campus community reacted to Sept. 11 terrorist attacks by contributing blood, donating dollars and conducting patriotic special events.

Rose-Hulman ranked No. 1 in its category for third consecutive year by engineering educators in survey conducted by U.S. News & World Report magazine. All five of the college's engineering departments ranked No. 1 for second consecutive year.

Web Mall project funded by \$1.9 million grant from Lilly Endowment will improve the chances that technical innovations created by Rose-Hulman students will make it to the marketplace.

Excellent student retention pushes fall enrollment to a record 1,751 students.

OCTOBER

Two Rose-Hulman student teams invited to exhibit their inventions at the Smithsonian Institution in Washington, D.C. during National Collegiate Inventors and Innovators Alliance national conference.

Oakley Observatory ranks 20th among 273 worldwide in number of asteroid observations submitted to the Minor Planet Center.

310 recruiters, second largest number ever, attend annual Career Fair.

NOVEMBER

Freshman poll results show 89 percent of new students are pleased with their decision to attend Rose-Hulman.

\$1.8 million Lilly Endowment grant will enable Rose-Hulman to create SMART, a new web portal to make it easier for middle-school teachers to use Internet sources to improve math and science education.

DECEMBER

\$200 million *Vision to be the Best* campaign reaches \$193 million mark ahead of schedule.

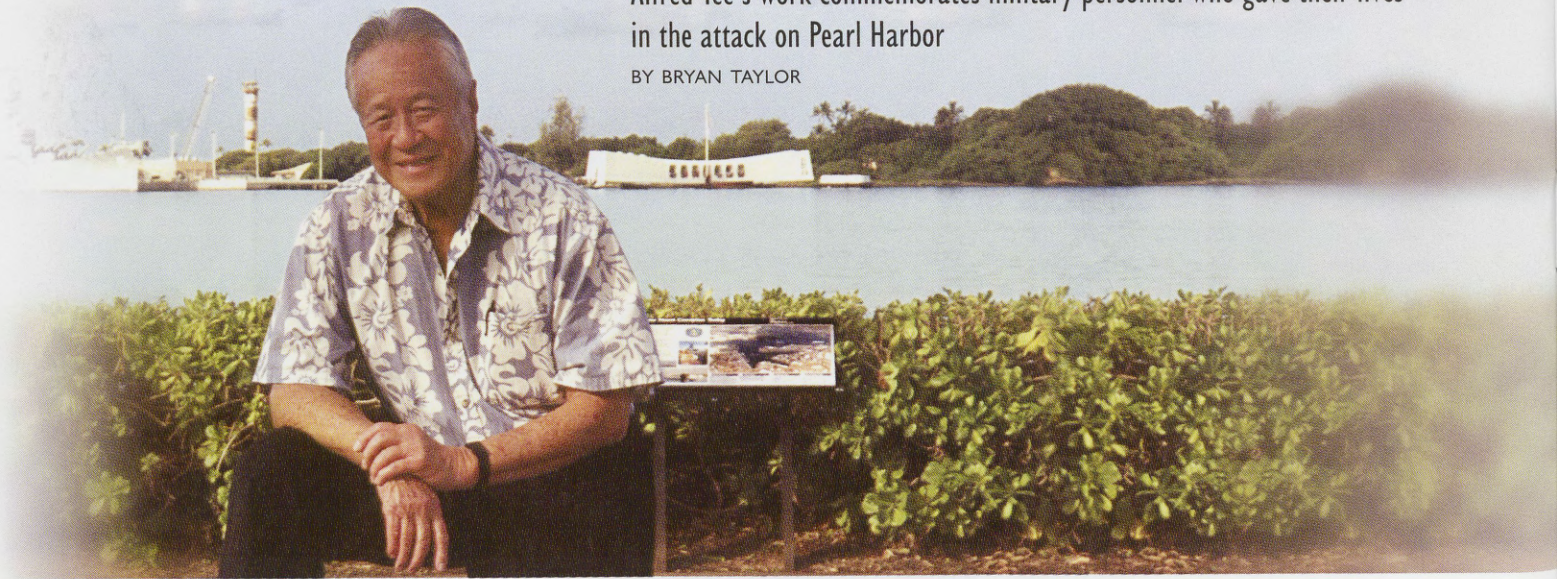
Robert Guratzsch selected among the nation's top civil engineering students in CE News magazine's Star Student competition.

Civil engineering professor Jim McKinney named "Mr. Asphalt" by Asphalt Pavement Association of Indiana. ■

SPANNING ETERNITY

Alfred Yee's work commemorates military personnel who gave their lives in the attack on Pearl Harbor

BY BRYAN TAYLOR



When 16-year-old Alfred Yee saw Japanese bombers navigating low over his Kaimuki house on December 7, 1941, he thought his life was over. Little did he know he would play a role in commemorating all American military personnel who gave their lives for America that day during the attack on Pearl Harbor.

The 1948 civil engineering graduate was the lead structural engineer for the USS Arizona Memorial, which straddles the hull of the battleship USS Arizona that was sunk during the attack. The memorial, which was completed in 1961 and dedicated in 1962, received much attention last December with the observation of the 60th anniversary of the Japanese attack on Pearl Harbor.

Yee's job was to implement the design of architect Alfred Preis. As described by Preis, "the memorial sags in the center but becomes strong and vigorous at the ends, expressing initial defeat and ultimate victory."

To achieve the desired effect of the memorial "we had to build a structure to span clear of the width of the ship," Yee explained. "Due to ground settlement, the hull of the battleship keeps moving and we can't depend on it for support." The 184-foot span is supported by independent

piers 111 feet apart. The Arizona lies in water 40 feet deep, and pilings for the piers had to be driven to 150-foot depths.

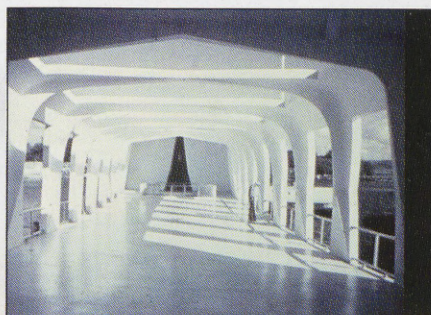
A solution for building the span led Yee to precast a set of "tuning fork-shaped" girder sections in concrete that geometrically fit to provide balance to the various sections. Each precast section weighs 137 tons and is post-tensioned together to produce a structure combining precast with poured concrete.

Discussing the memorial with Yee could earn the listener a continuing education credit in structural engineering, but the structure is more than an engineering project to him: "Whenever I went to the memorial site during the construction, I got a lump in my throat and I became emotional because there are 1,177 dead at that site. It's really a graveyard."

"The memorial park has a movie about the history of the USS Arizona and the attack on Pearl Harbor which is shown to the visitors before boarding a shuttle to the USS Arizona. As I frequently take visitors to the memorial, I must have seen the movie at least 100 times, and I always get tears in my eyes when it's over."

Yee's relationship to the memorial goes back to the Pearl

Yee's relationship to the memorial goes back to the Pearl Harbor attack itself. "I was one of many who saw Japanese pilots, their faces, goggles and leather helmets," Yee remembered.



The memorial spans the width of the USS Arizona, which shows underneath the water in the photo on the left. In the center, we see a view of the observation area of the memorial. At the right, the design shows what architect Alfred Preis described: "the memorial sags in the center, but becomes strong and vigorous at the ends, expressing initial defeat and ultimate victory."

Harbor attack itself. "I was one of many who saw Japanese pilots, their faces, goggles and leather helmets," Yee remembered. "The thought I had was that they were going to land and then imprison and starve us to death. I thought I was never going to have the opportunity to grow up to be a man."

The young man's prediction did not come true. He grew up quite quickly, as did many people his age in that era. He volunteered to help in a chemistry lab at Pearl Harbor shortly after the attack. When he was subsequently drafted into the military, he was assigned to the Signal Corps as a buck private teaching electronics at Fort Shafter in Honolulu.

After the war, he came to Rose Poly and made what he calls "the best choice I ever made....Rose gave me such a strong basic engineering education." After receiving his degree in civil engineering, he went to Yale where he received a master's degree in structural engineering in 1949.

Yee returned to Hawaii where he participated in organizing one of the first precast/prestressed concrete production facilities in the country. He remembers analyzing the economics of prestressing and precasting concrete to significantly reduce the amount of concrete and steel needed to carry the same load for the same span. Through the years,

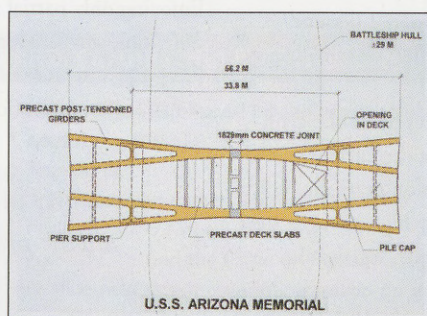
Yee has obtained numerous patents for his inventions in the area of precast construction devices, methods, and structural framing systems. He has put his skills and knowledge to use throughout the Pacific Rim in high-rise buildings, offshore platforms and oceangoing concrete vessels.

At the age of 76, Yee shows no signs of slowing down. He is president of Applied Technology Corporation, an international structural engineering consulting firm, specializing in precast concrete design.

Yee's work graces several locations, including the Philippines, Mexico, Saudi Arabia, Indonesia, Singapore, Australia, China and Guam. Yee even works with the country that struck fear in his heart 60 years ago. "At the time of the bombing, I was sore at the Japanese, but today I'm doing business with them. They're good people, and it all goes back to their

leadership at that time."

Although Yee has moved beyond the Pearl Harbor attack, he said he carries a lesson from it even today: "Be prepared. When the terrorists hit New York City, I was called to inspect and structurally evaluate a damaged 57-story building bordering the World Trade Center and at Ground Zero, the same message rang out – we must be prepared." ■



Deck plans for the USS Arizona Memorial.



Dave Badger, left, and James Ingle

Friends for Life

1953 CLASSMATES TEAM UP ON MOBILE OFFSHORE DRILLING INVENTION

By Dale Long

When James Ingle has an idea, it's usually a good one.

Take the concrete spreading system that helped pave a portion of the nation's interstate highway system and runways at Dulles International Airport in Washington, D.C., O'Hare International Airport in Chicago, and Hartsfield International Airport in Atlanta.

Or, the machine that can extract coal from a flooded – steeply angled coal mining seam.

So, when the 1953 civil engineering graduate – holder of 12 patents – came up with an innovative plan to raise and lower platforms on mobile offshore jackup drilling units, people took notice.

Especially, former Rose-Hulman classmate David Badger (Elect. Eng.), an Indianapolis-based patent attorney.

"The more I looked into Jim's invention, the more I became intrigued . . . Really, it's a novel piece of engineering," says Badger, the holder of four patents.

Ingle's invention, named the HydroJack, utilizes hydraulic cylinders and programmable logic computers to replace the current line-contact and highly stressed system of rack and pinion gears that holds platforms in place with rotary gears, requiring very high strength steel for leg chord members. Hydraulic cylinders – on each leg chord – work together to systematically "walk" the platform up or down along the drilling rig's legs, positioning the platform steady for its drilling operation on the high seas.

The device has the potential to save oil companies nearly \$10 million on each new drilling unit purchased. And, with 20 to 25 jackup units being put into service each year, companies engaged in offshore drilling are eagerly anticipating the unveiling of a HydroJack prototype in May at the Offshore Technology Conference in Houston. The product is being marketed internationally by OSL Offshore Systems & Deck Machinery, LLC.

Ingle's expertise in the area of mobile offshore drilling platforms, barges and tow boats came from over a quarter of a century as the chief engineer and vice president of engineering for Transworld

Drilling Co., a division of Kerr-McGee Corp., and as the chief engineer of the marine division and as manufacturing division manager of Maxon Corp.

"I've always wanted to find an easier way to get things done," states the 70-year-old who lives with his wife, Carol, near Ellettsville, Ind. "My mind is not retired. There are always problems that need to be solved."

Ingle came up with the idea for the HydroJack several years ago. After perfecting the idea, he showed his invention to Badger after one of their golf outings.

"At the time, there wasn't a need. The oil industry was dormant and there were very few drilling platforms coming to the end of their age. Now, there's a demand for new drilling units and producing oil in a cost-effective manner," concedes Ingle. "When I worked in

industry, I never gave much thought to patents. It

was a side issue of getting the job done. The

company's attorneys handled all of the legal

matters and protected the company. When I

was on my own, I needed legal assistance to protect my ideas. I knew that I was onto something big."

That brought him to call upon his old friend.

"I was trying to find the best people to put on my team. Dave was the best patent attorney I knew," Ingle recalls.

It didn't take Badger long to agree that Ingle's invention had merit. After considerable discussions and elaborate engineering drawings, a patent application was filed on the hydraulic lifting system, which included a number of separate inventions.

"I was amazed at the number of novel technical innovations which were included in Jim's system," says Badger, 70, who worked as an engineer for 10 years before earning his law degree from Indiana University and becoming an attorney who specialized in patent cases. Enjoying only partial retirement with his wife, Donna, he picks up only those challenging cases that pique his interest. "This has been a fun project because of my friendship with Jim, and the novelty and scope of Jim's invention. I could talk honestly with Jim about things. There was a history."

"My mind is not retired. There are always problems that need to be solved."

— James Ingle, class of '53

Those memories include wiping away beads of sweat while drawing engineering designs in a hot summer drafting class in Moench Hall and living in the Deming Hall residence hall and later at the Sigma Nu fraternity house. The classmates kept in touch through meetings at class reunions.

"It's amazing that it has taken us over 50 years to finally work together on a project," Badger states. "I knew that Jim was a fine engineer and a good person. Now, I have developed a much deeper respect for his technical expertise. He's an outstanding engineer."

Ingle quickly brushes aside such praise, simply stating "Once you establish a relationship in college, you're friends for life."

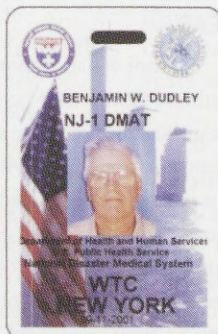
"At least at Rose-Hulman," Badger adds. ■

DUDLEY ASSISTS DISASTER TEAM AT WORLD TRADE CENTER

Alumnus Bill Dudley was part of the emergency assistance effort at "Ground Zero" following the terrorist attacks at the World Trade Center on Sept. 11.

Dudley was deployed to the site the afternoon of Sept. 11 as part of a New Jersey Federal Disaster Medical Assistant Team (DMAT). Dudley's team established one of the temporary morgues near the World Trade Center site. The DMAT teams are part of the National Disaster Medical System. He serves as a health technician (EMT) and a logistics specialist.

Initially, Dudley's group expected to be on a medical mission treating casualties from the trade center site. "Inasmuch as we are a medical team, we did not have a medical mission Sept. 11," Dudley, a 1965 electrical engineering graduate, recalled. "We were called to ground zero to assist in establishing one of the temporary morgues



Dudley's "Ground Zero" identification badge

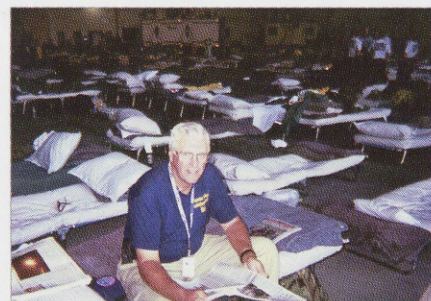
because of our tents, lighting, water systems and other equipment we carry."

The team's mission focused on erecting two 20' x 35' tents. The setup included a water system with sinks, a diesel generator, lighting and fans. "We maintained 12-hour shifts around-the-clock for nearly a week," Dudley said.

"This temporary morgue was to receive remains as they were found and attempt to identify whether they were fire, police, EMS or civilian personnel," Dudley explained. "Each set of remains was logged into a database as to all pertinent information, including where found at the site and any other clues as to the identity of the individual."

"Whenever a firefighter, police officer or EMS person was brought to the morgue, there was intense reverence displayed by fellow brothers in their service," Dudley said. "The first night I was there on the 7 p.m. to 7 a.m. shift, ... a fireman was driving an all-terrain vehicle with a body bag on the back and there were seven or eight firemen on each side as an honor guard. I was really choked up when I saw this as I have been a fireman for more than 35 years."

In civilian life, Dudley is officially retired, but he is active in his local fire department. He lives in New Vernon, N.J. ■



Dudley at his DMAT dormsite.

UPDATE ON PENTAGON ATTACK

In the last edition of *Echoes*, we reported on Rose-Hulman alumni in the Pentagon during the terrorist attack on Sept. 11. We have learned that another alumnus was in the classroom that contained a group from the Crane Naval Surface Warfare Center in southern Indiana. A fifth alumnus present was Eric Scheid, a 1998 mechanical engineering graduate.

ALUMNI AND CAMPUS HELP OLYMPIC TORCH RELAY

The Olympic flame received a Rose-Hulman boost thanks to at least two alumni and the campus community.

On Jan. 8 the 2002 Olympic Torch Relay passed through the city on the way to its final destination, the Salt Lake Olympic Cauldron in Rice-Eccles Olympic Stadium. Rose-Hulman alumnus Carl



Warren Mickens

Troike helped in the festivities that day by carrying the torch through downtown Terre

Haute. The 1988 Rose-Hulman graduate is a production manager at Cabot Corp. in Tuscola, Ill.

Three days earlier, alumnus Warren Mickens, a 1977 mechanical engineering graduate, carried the flame on Poplar Avenue near downtown Wilmette, Ill.

"My mom briefly mentioned she had nominated me last February, but I blew it off thinking it was very nice of her to do, but what have I really done to deserve the honor? To say the least, I was very surprised when the Airborne Express person came to my door asking me to sign for a package from Nebraska. I was even more surprised when I opened the letter and it was from Coca-Cola informing me of my nomination," Troike said.

Mickens was nominated for the honor by Lucent Technologies. At that time, he was vice president of network planning and engineering for Ameritech and had just



Troike, right, poses in downtown with his former Rose-Hulman coach, Bill Welch.

spent a long year improving the performance of the Ameritech network.

The most moving part of the run, Mickens recalled, was hearing the other runners share stories of how they were nominated. "There are some very special people in this country who just refuse to surrender in some very tough circumstances. The survivors of cancer and other major illnesses were the most moving. ■



Alumni Board Officers

Officers of the Rose-Hulman Alumni Association Board for 2001-02 are, from left: Doug Stearley ('79), secretary-treasurer; Bob Schacht ('72), president; Owen Meharg ('54), vice president; and Pat Cahill ('67), past president.



Young Alumni Gathering

The Young Alumni Council has sponsored several events in recent months. Among those attending a gathering in Indianapolis were, from left: Becky Smith ('99), Rebecca Schenk ('99), Brian Huff ('00) and Jason Kasprzak ('98).

ASSOCIATION PRESIDENT BOB SCHACHT OUTLINES GOALS FOR YEAR

Alumni are an important part of the Rose-Hulman family. Our personal and corporate financial support of the school, our involvement in the many activities of Rose-Hulman, our identification and encouragement of outstanding young people considering attending Rose, and our support of those graduating from Rose are important opportunities we have to serve our school.

I'd like to encourage all of you to participate in the many activities of the Alumni Association. Our Board committees can also always use help. Many of our committees can meet by conference call, so volunteering doesn't necessarily mean a lot of travel, if any at all.

As part of our first Alumni Association Board meeting of the new year, we discussed several goals that we will concentrate on for this year. They are:

- Involve more alumni in the Association and the activities we sponsor. We need to give people a good reason to be involved.
- The Alumni Association needs to place a special emphasis on young graduates. Our Alumni Board needs to be more reflective of the current makeup of our alumni.
- Expand the size, number, and activities of the Rose Tech Clubs.
- We need more, and better communication to alumni in the ways that they want to be communicated with, i.e. *Echoes*, Web site, e-mail.
- Benchmark the Rose-Hulman Alumni Association with similar colleges. Use best practices to improve our association.
- Look for ways we can provide service and help to our alumni. Career services or continuing education may be examples.

I hope you'll join me this year in moving our Alumni Association forward. It takes all of us to be a success.

1943

Lloyd A. Buchalter (M.E.) reports he has finally stopped working. He left the United States Military Academy on Sept. 30.

1955

Wilfred Johnson (E.E.) reports he is enjoying his retirement. He lives one mile from the Los Angeles Airport.

1961

Russ Archer (Math.) retired from Lucent Technologies last July, just four days shy of 40 years of service.

1962

L. Robert Carter (C.E.) has been working for Entela, Inc., an ISO 9000/QS 9000 registrar located in Grand Rapids, Mich. He audits automotive manufacturers' quality management systems from Canada to Mexico. He also does environmental management systems audits.

J. Richard Schafer (E.E.) retired after 39 years with Western Electric, AT&T Network Systems and Lucent Technologies. He lives in Parkton, Md.

1963

Gary Valbert (M.E.) retired last year from Caterpillar Inc. after almost 38 years. At the time of his retirement, he was a technical coordinator in the product liability area. He continues to consult for the company in product litigation for engines. He has moved to Denver, Colo.

1965

Joe Griffin (M.E.) retired from Ispat Inland Steel Company last year after 36 years with the company.

1976

Dennis E. Main (Chem.) has been promoted to senior enterprise project manager with Citibank's Student Loan Corp., Business Projects Department.

1977

Phil Weihl (M.E.) recently was promoted to vice president of global manufacturing for Kennametal, Inc., in Latrobe, Pa. He is responsible for Kennametal's metalworking and metallurgical operations in North America, Europe and Asia. Those operations include approximately 4,000 people in 18 manufacturing plants. He also is responsible for leadership of Kennametal's Lean Enterprise Office. He

just celebrated his 15th year of service with the company.

1979

Earl Stalter (C.E.) happily announces his retirement from Accenture after 22 years. He and his wife, Peg, intend to buy a large motor home and travel the country, visiting friends and enjoying a relaxed lifestyle.

1981

John Brabender (Ch.E.) has relocated to Cincinnati, Ohio, where he has joined Cinergy Solutions as director of project development. Cinergy Solutions is part of the Energy Merchant Business Unit, a leading provider of energy outsourcing services.

Ronald Dale (E.E.) has been named to the 2002 Silver Anniversary Team by the Indiana Basketball Hall of Fame. The team recog-

nizes outstanding basketball players 25 years following their high school graduation. Dale was a graduate of Jeffersonville High School. He continued his hoops career at Rose-Hulman where he was named most valuable player during the 1978-79 season.

1983

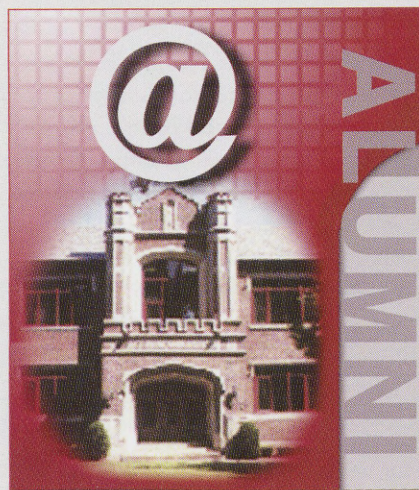
Gregory S. Augspurger (E.E.) now is engineering manager for Duke Power's Riverbend Steam Station near Charlotte, N.C.

Gergory W. Curtis (C.E.) has accepted the position of director of transportation services with Bonestroo, Rosene, Anderlik & Associates in Mequon, Wis. He has moved to Port Washington, Wis.

1984

Charles R. Snyder (E.E.) and his wife, Stasia, announce the arrival of their

ALUMNI DIRECTORY GOES ONLINE



You can now keep up with your classmates via the world wide web at <https://alumni.rose-hulman.edu/directory/index.asp>.

The Rose-Hulman alumni directory went online last fall. Alumni can search the directory by alphabetical listings, class year, geographical location, employer and Greek affiliation. It also has a custom search feature. The directory lets you update your personal file and send a class note to *Echoes*.

The directory runs on a secure server and is only accessible via a password system. All alumni should have received their passwords last fall. If, by chance, you may have forgotten your assigned access codes, contact Trudy Sladek in the alumni office at trudy.sladek@rose-hulman.edu. You can call her via telephone at 812-877-8976. ■

first child, Benjamin. He was born last spring.

1985

Doug Jackson (M.E.)

received a master's in automotive systems engineering from the University of Michigan last spring. He is a test development engineer for Ford Motor Co.

Scott Spoelman (C.S.) and his wife, Sandra, had twin boys – Sean and Eric – born Sept. 25.

1987

Frederec C. Green (Ch.E.)

and his wife, Carla, report the birth of twins – Frederec C. Jr. and Audrey Gale – born Aug. 31.

John R. Hoffman

(Math./C.S.) recently married Melanie Reisenauer.

Mark Wiley (E.E.) reports the birth of his second child, Luke Wayne, on Oct. 23. He joins six-year-old sister Paige.

1989

Jim Blackburn (M.E.) is an operational test pilot with Air Test and Evaluation Squadron NINE at the Naval Air Warfare Center, Weapons Division, China Lake, Calif. He serves as branch head and chief test director/pilot for AV-8B Harrier projects. He currently is involved with flight tests of new AV-8B Harrier weapons systems as well as the Navy's newest

fighter, the FA-18E/F Super Hornet.

Stacey Bowling (E.E./Math) has accepted a position as senior electrical engineer with Orbital Sciences Corp. in Chandler, Ariz.

Kristofer H. Hebel (M.E.) married Holly A. Austin on Sept. 8.

Paul "Scooter" Palmer (M.E.) has relocated to Providence, R.I., where he is the senior brand manager of the Star Wars toy line for Hasbro. He is involved in all aspects of toys related to the the new Star Wars movie, scheduled for release this spring.

Dean Woodward (Ch.E.)

reports he and his wife, Vanessa, celebrated the birth of their first children – Julianne and Dylan – born March 25. On the job front, Dean has taken a position as in-house patent attorney for RTI International in Research Triangle Park, N.C.

1990

Scott L. Barndt (E.E.) has been promoted to system protection and control district engineer for Bonneville Power Administration in Lewiston, Idaho.

Timothy Presby (E.E.) and his wife, Nicole, report the birth of first child, Alison Michelle, born last November.

1991

Chris Arnold (M.E.) has been promoted to the position of site manager for Roll Coater, a business of ArvinMeritor, in Hawesville, Ky. He and his family reside in Owensboro, Ky.

Jerrod Carter (C.S.) and his wife, Joan, announce the birth of their first child, Anna Marie, born Sept. 18. Jerrod is director of Human Resources for Pepperweed Consulting, a national information technology consulting firm. The family resides in Zionsville, Ind.

Edward J. Huonder (E.E.) and his wife, Mary, report the birth of their third child, Adam James, born July 30.



Golden Moments

Members of the Class of 1951 returned to campus during Homecoming 2001 for their 50th class reunion. In addition to their own special gathering, the men of '51 were initiated into the Fifty-Plus Club.



25 Years Out

Members of the Class of 1976 gathered for their 25th reunion during Homecoming 2001. They met on campus to reminisce and visit with fellow classmates and their spouses.

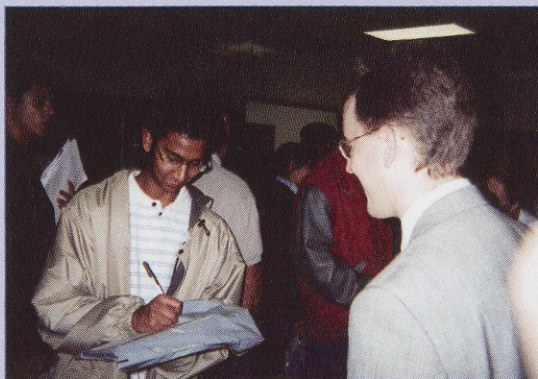
RARE AND WELL DONE- ALUMNI REPRESENT ROSE-HULMAN

Rose Alumni Recruiting Engineers (RARE) was very busy this past fall with almost 40 alumni representing Rose-Hulman at 36 college fairs in 10 states and one foreign country.

"Without RARE, it would be impossible to take the Rose-Hulman story to such a broad area," said Jim Goecker, associate director of admissions and on-campus coordinator of the RARE program. "Through the effort of alumni, we are able to reach hundreds of students we otherwise would not be able to meet and see.

RARE members are a valuable part of the Rose-Hulman admissions effort."

Alumni who represented Rose-Hulman at fall college fairs included: Jay Bernheisel '96, Charissa Bolind '00, Frances Bowley '01, Tony Broadnax '89, Marc Cwik '96, Kristen Dahle '99, Rob Danforth '94, Darrin Davidson '86, Greg Dixon '92, Andy Engle '01, Jamie Funk '00, Chris Guffey '00, Morgan Hawker '99, Dan Hohne '99, Nellie (Magnanti) Hohne '99, Jonathan Hulsman '00, Nathan Jenniges '98, Brett Kleeberger '98, Dan Krieg '92, Larry Myers '74, Jeremy Nolan '96, Chuck Ormsby '92, John Payne '81, Kristy Powell '01, Steve Randolph '71, Alyssa Riley '00, John Rivard '00, Jenny Schwartz '00, Steve Shadix '94, Chuck Sigman '80, Dave Sitz '00, Kyle Smith '01, Kenneth Smolinske '74, Derrick Snell '98, Paul Sparacino '00, Sara Speckhard '99, Donnie Stash '99, Erin Swango '00 and Peter Townsend '93.



Andy Engle '01, right, shares the Rose-Hulman story at a Chicago college fair.

Ed currently is a senior design engineer for Xilinx, Inc.

Darrell Marsh (Ch.E.)

and his wife, Katherine, announce the birth of their fourth child, Emily Faith, born Aug. 21.

Joseph E. Matthews (E.E.)

was promoted to the position of commodity manager at Delphi-Delco in Kokomo, Ind. Via a team of 21 people, he is responsible for the procurement of approximately \$1 billion of electrical passive and wireless components.

1992

Doug Guinn (Ch.E.)

has been promoted to superintendent of the spinning and production services departments at Wellman, Inc. He resides in Florence, S.C., with wife, Laure, and daughter, Delaney.

Greg Kemp (E.E.)

and his wife, Peggy, announce the birth of their first child, daughter Zoey Claire, on Sept. 24. Greg continues in his job as a senior component design engineer with Intel Corporation's Intel Architecture Group in Austin, Texas.

Brian Miller (Ch.E.)

married Dorcas Gray Frye last May. They live in Spartanburg, S.C., where Brian continues to work for Milliken & Co. as plant chemist at the Magnolia Finishing Plant.

HELP INCREASE NATIONAL AWARENESS ABOUT ROSE-HULMAN

Rose-Hulman is creating a new publication as part of its marketing efforts to increase national awareness about the college. The nationally focused newsletter will contain engineering and science news that will be important to the success of the reader's business and career.

Here's how you can help! You can be a valuable source to help us identify professionals who should receive this newsletter. Our target audiences are senior-level managers responsible for technology-related decisions who are not Rose-Hulman alumni. We need their name, title, and address.

Send the information to David Piker, executive director of external affairs, via e-mail at david.piker@rose-hulman.edu. You can also fax the information to Piker at 812-877-8362.



Drive with pride

Indiana residents can order a Rose-Hulman license plate online at <https://banner.rose-hulman.edu/~rhplate>. A special \$25 fee for the plate goes to the Rose-Hulman financial aid program.

1993

Joe Schmits (M.E.) completed his MBA at the University of Southern Indiana last May. He has a new job as a technical sales representative with Morton Powder Coatings in Nashville, Tenn.

Scott Woods (M.E.) married Betsy Nottoli last August.

1994

Daniel Berzsenyi (M.E., '94) and **Agnes Berzsenyi (M.S.M.E. '95)** welcomed their second daughter, Sophia Anna, last May. She joins big sister Isabell.

Joel Klein (C.S./E.E.) recently received his master of science degree from the University of Illinois at Urbana-Champaign where he was in the Department of Computer Science. His thesis was "Design and Implementation of a Programming Language with First-Class Classes." He has been working as a software engineer on firewall manage-

ment software for Cisco Systems, Inc., in Champaign, Ill.

1995

Joseph Chowning (Ch.E.) married Carolyn Hollifield in May of 2000. They welcomed their first child, Gabriel Joseph, Sept. 28, 2001. He joins four-year-old sister Shai.

Timothy Andrew Hoffmann (M.E.) wed Crystal Leigh Lanman on Oct. 20.

Tobiah Huwe (E.E.) updates *Echoes* with a report of the birth of daughter Micah Rachelle Huwe in December of 2000.

Scott Monroe (E.E.) married Geraldine Carpenter last June.

1996

Beth (Knoy) Brock (M.E.) is now the RCRA Group Leader in the Environmental Services area at Tippecanoe Laboratories for Eli Lilly and Co., Lafayette, Ind. RCRA stands for Resource Conservation Recovery Act, an EPA regulation.

Troy Madlem (C.E.) and his wife welcomed their first child, Anna Irene Madlem, on Nov. 26.

Terry Patcheak (Ch.E.) updates *Echoes* that he and his wife, Sheetal, were married in 1997. Terry graduated last May from the University of Toledo with a doctoral degree in engineer-

ing science, specializing in polymer science. He started working last May as a materials specialist at Owens Illinois in Perrysburg, Ohio.

Jacque Wilson (M.E.) has accepted a position with Zimmer, Inc., in Warsaw, Ind., as senior patent counsel. He is responsible for maintaining Zimmer's entire patent portfolio. He graduated from the Indiana University School of Law in 2000, and he is a registered patent attorney. He and his wife, Barbara, and their daughters have moved to Fort Wayne, Ind.

Thad Sheets (E.E.) and his wife, Jennifer, report the birth of daughter Abigail. The family resides in Greenwood, Ind.

1997

Wesley Dale Hoffman (C.S.) has accepted a position as a computer analyst for SBC Ameritech in Indianapolis. He and his wife reside in Carmel.

Benjamin Smith (Chem.) and his wife, Crystal, recently celebrated the birth of their first child, John Roland. Ben recently graduated from Indiana University School of Medicine and started residency in family practice at Deaconess Hospital, Evansville, Ind.

Brian Teegardin (M.E.) has a new job title as product engineer, restraints group, North American Car, Family

Vehicles Division, Ford Motor Co. He lives in Farmington Hills, Mich.

1998

Steve Clouse (E.E.) married Susie Parks (M.E., '01) on June 16. They reside in Indianapolis.

Nathan Jenniges (E.E.) married Sarah Stipher last June. They reside in Grayslake, Ill. Nathan is now a technical marketing manager with Motorola's Personal Communications Center.

Matthew Vincent (Ch.E.) married Tracey Lynn Samm in March of 2000. They have a daughter named Madison Grace. On the professional front, Matthew graduated from Tulane University with a Ph.D. in chemical engineering last

year. He has accepted a position as a research engineer in Olefins R&D with ExxonMobil.

1999

Michael W. Humes (Ch.E.) married Katherine M. Brinkmann last October. They reside in Clinton, Iowa.

Scott Kokoska (E.E.) and Carrie Ann Laidig were united in marriage last June.

Deborah Kroll (M.E.) has moved to Jackson, Mich., to work as a development engineer at Tenneco Automotive.

Derek Lengacher (E.E.) married Sarah Brooke Lilly last July.

Timothy R. Lueking (M.E.) married Katherine Heller from East Palestine,

Ohio, last July. Tim also updates *Echoes* that he started serving as the senior minister at Lake Fork Christian Church in Lake Fork, Ill., in August of 2000

Travis Sparks (CO) married Amy Chase on Nov. 17.

Matthew Youngs (M.E.) has accepted a new job as an engineer for Remington Arms Co. in Elizabethtown, Ky.

2000

Kelly Barney (C.E.) has changed jobs and now is working at Jaster-Quintanilla & Associates, Inc., in Austin, Texas, as a graduate engineer. Kelly also has registered as an EIT with the state of Texas.

Wes Journay (E.E.) married Kathleen Buchanan last July.

2001

Vinay Basavaraja (M.E.) has been racing F-2000 cars at the Bridgestone Firestone Racing Academy. He also has won a scholarship to race in the Elf/La Filiere campus program at Le Mans, France. It is a nine-month program to train race drivers.

Benjamin Brown (E.E.) married Megan Anne Leventis on Oct. 6.

Susie Parks (M.E.) married Steve Clouse ('98) on June 16. They reside in Indianapolis.

Gregory Piotrowski (M.E.) married Lynette Cornet on Nov. 3. They live in Torrington Conn.

KEEPING IN TOUCH WITH ROSE-HULMAN

My alumni record should include this important news:

Name _____
 Class Year _____ Degree _____
 Address _____
 City _____
 State _____ Zip Plus Four _____
 Telephone: Home _____ Work _____
 Fax _____
 E-mail: Home _____
 Work _____
 News for Echoes _____

- ☐ Promotion
- ☐ New Job
- ☐ New Address
- ☐ New Telephone
- ☐ Marriage
- ☐ Death
- ☐ Birth
- ☐ Award, Honor

SEND TO: Editor, Echoes, Rose-Hulman Institute of Technology, 5500 Wabash Avenue, Terre Haute, IN 47803
 OR E-MAIL: bryan.taylor@rose-hulman.edu

SPRING 2002

OBITUARIES

1933

Thomas H. Batman (Ch.E.) died September 15. He was a retired marketing manager living in Auburndale, Mass., at the time of his death.

1938

Wayne E. Alexander (Ch.E.) died Sept. 1 last year. His son, Michael, survives him. He was a retired director of engineering for Monsanto.

Adam H. Romeiser (M.E.) died Sept. 8, 2001. He was retired from American Laundry Machinery Industries. At the time of his death, he was a resident of Lake Forest, Ill. Survivors include daughters Judith and Katherine and son Adam.

1940

Allen T. Wilson (M.E.) died Oct. 12. He was a retired project engineer for General Motors.

1942

Benjamin K. Sollars (M.E.) died Nov. 11, 2001. Survivors include his wife, Sally. He was retired president of Diamond Chain Co.

1943

Ernest F. Shell (M.E.) died Aug. 18. His wife, Waneeta, and two sons survive him. He was retired from General Electric Co.

1947

John R. White (M.E.) died Nov. 23, 2001, at the age of 77. He was founder and president of Hydro-Power

Inc. Survivors include his wife, Elizabeth; son Steve (M.E., '73), daughter Linda White, daughter Carolyn Trueblood and her husband Jim (M.E., '77), and a sister, Marian Woosley. He received an honorary doctorate from Rose-Hulman in 1997. The generosity of John and his family made possible the construction of the White Chapel on the campus of Rose-Hulman. The chapel was dedicated Oct. 7, 2001. See page 4 for White Chapel dedication details.

1947

Charles W. Newlin (C.E.) died Nov. 27. Survivors include his wife, Hollister, and two children, Bob Newlin and Deborah Beeman. His career included

teaching at Swarthmore College and Arizona State University. At Arizona, he advanced to professor and civil engineering department chairman. From 1983 until his death, he was a private consultant specializing in forensic civil engineering.

1948

Kenneth P. Fessenden (E.E.) died June 15, 2001. He is survived by his wife Louise and daughter Linda Wenger. He was retired from Lockheed Martin.

1950

Ralph Conner (M.E.) passed away Sept. 12, 2001, at the age of 79. He is survived by his wife, Betty, and two daughters, Pat Bateman and Sue Woodward. He was a retired engineer for the Whirlpool Corp.

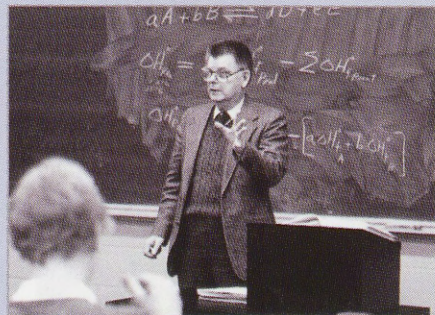
1956

Arther Mason (E.E.) died Sept. 18, 2001, at the age of 69. Survivors include his wife, Evelyn, a son Bruce and a daughter Stephanie Stahura. He was retired from the U.S. Army with 28 years of service. He served in both the Korean and Vietnam wars.

1966

Paul F. Kueber (Math.) died Sept. 15, 2001, at the age of 56. He was an automation engineer for Fluor Daniel.

RETIRED CHEMICAL ENGINEERING HEAD SAM HITE DIES



Sam Hite

Sam Hite, known as a demanding teacher and a leader in the development of the Rose-Hulman Department of Chemical Engineering, died March 8 in Terre Haute at the age of 79. Hite was chemical engineering department head and professor of chemical engineering at Rose-Hulman from 1966 until his retirement in 1989.

As he reflected on years at Rose-Hulman, Hite said his biggest achievement as department head was, "to strengthen and stress the fundamentals of chemical engineering." When asked to describe a

good teacher, he replied, "To be a good teacher you've got to like your students and your subject. You can't be an easy mark. You must be demanding, but you must be realistic in those demands. You must be helpful to the students."

Rose-Hulman honored Hite several times for his teaching skills. He was a recipient of the Dean's Outstanding Teacher Award, the Inland-Ryerson Foundation Outstanding Teacher Award and he was named the Robert Shattuck Distinguished Professor of Engineering. The Sam C. Hite Award is given each year by the Department of Chemical Engineering faculty to the senior who displays the greatest promise for a successful career in the chemical engineering field.

He is survived by his wife, Harriet and a son, S. Charles Hite, Jr.

1967

Jay Byron Sinex (Ch.E.), 57, died Oct. 27, 2001. He was a production planner for 22 years for National Starch & Chemical Co., retiring in 2001. Survivors include his wife, Lynn, and a daughter, Lisa Mansfield.

1968

Robert D. "Bob" Gravitt II (M.E.) died July 20, 2001, at his home in Fairfield, Ohio. In addition to his Rose-Hulman degree, he had a master's in aerospace engineering from the University of Arizona. While at Rose-Hulman, he was active in Lambda Chi Alpha activities, and intramural football and golf. He worked 32 years at General Electric Aircraft Engines in Cincinnati, Ohio. He is survived by his wife, Janet, sons Brian and Bob, and daughter Alison.

1976

E. Mark Schulz (M.E.) died last year, according to information received in the alumni office. He was a field engineer for Babcock & Wilcox Co.

1990

Allen Fredrick Dean (M.E.) died last year. Survivors include his wife Deanna Leatherman and a stepson, Kenneth Leatherman. He was an engineering manager for Superior Kiln & Mill Service.

HONOR ALUMNI AWARD NOMINATIONS

Each year at Homecoming, the Alumni Association presents the Honor Alumni Award. This award is given by virtue of being outstanding in (a) loyal, unselfish, and meritorious service by alumni in furthering the interests of the Institute, or (b) in contributing to the national interest of our country, or (c) professional achievement. The list of potential award recipients comes from nominations by classmates, peers, faculty, and staff with the most significant source being classmates. The Awards and Recognition Committee of the Alumni Advisory Board asks you to assist in identifying the most deserving alumni by nominating classmates who are worthy of this award.

The deadline for nominations is May 1, 2002.

Your Name _____

Class Year _____

Address _____

City _____

State _____ E-mail: _____

Telephone: _____

NOMINATION

Name _____

Class Year _____

Address _____

E-mail: _____

Daytime Telephone: _____

Please explain why you've nominated this alumna/alumnus. If you need more space, please submit your explanation on a separate sheet of paper.

PLEASE RETURN TO THE ALUMNI AFFAIRS OFFICE:

Rose-Hulman Institute of Technology, 5500 Wabash Ave., CM #13, Terre Haute, IN 47803.

PHONE: 800 - 248 - 7448

FAX: 812 - 877 - 8362

OR E-MAIL: brian.dyer@rose-hulman.edu

Looking Back

THE HANDBOOK: BRINGING UP "COURTEOUS GENTLEMEN"

by John Robson, Librarian and Archivist

In our last issue, John Robson took us back in time for a look at the rules and fatherly advice contained in The Student Handbook from the early part of the 1900s. This article continues that retrospective with a look at the pipe rush, athletics, fraternities and cheers.

RUSH (NOT THE FRATERNITY TYPE)

Success in the classroom was essential, particularly in the pre-war days when two of every three freshmen did not succeed in graduating. But there were other courts that mattered for success to the young men of Rose. The Challenge and Pipe Rushes were the subject of much gossip and lore over the years. From the circa 1925 era:

"The Challenge Rush occurs on the first Thursday night following the opening of school. A challenge is posted by the Sophomores for a baseball game with the Freshmen on the following Saturday. The challenge is hung upon some part of the Campus, and the Freshmen 'rush' it and attempt to capture it. The rush lasts until one side or the other is tied-up.

"The Pipe Rush occurs following the baseball game on Saturday, and consists of two parts. In the first part each Freshman has a pipe concealed somewhere upon his person, and Sophomores attempt to get as many away from the Freshmen as possible. The second part consists of a rush for a large pipe. The side having the most hands upon the pipe at the end of the rush wins. Hazing is not permitted."

The 1931 handbook summed up the philosophy of rush and life in a poem titled "The Test of a Man" by an unknown poet. Here is the last of three verses from that poem:

To test your mettle and prove your worth
It isn't the blows you deal,
But the blows that you take on this good old earth
That shows if your stuff is real.

The number of broken noses and bones led the school to abolish pipe rush and substitute canoe tilting on the lake, tug of war across a blasting fire hose, and a soccer match.

ATHLETICS

All athletics, whether varsity or what we would call intramurals, were under the control of the student-run Athletic Association. They raised the funds, hired the coaches, scheduled the games, and balanced the books. Students were strongly encouraged to not be a "grind" and get involved. Being varsity in the 1920s and 1930s did not necessarily take the talent and experience of today's Engineers. So try out! And remember this advice from the 1933 handbook:

A good sportsman:

He does not boast.

He does not quit.

He does not make excuses when he fails.

He is a cheerful loser.

He is a quiet winner.



A photo capturing preparation for a pipe rush when Rose Poly was located at 13th and Locust Streets in what is now north central Terre Haute.

FRATERNITIES

The importance of Greek life has always been prominent at Rose. The handbooks encouraged the students to check out the four social fraternities: ATO (1893), Sigma Nu (1895), Theta Kappa Nu (1925) and Theta Xi (1907). The endorsement had a reasonable caveat. The student must check out each for himself. "...a student should not be too hasty in pledging himself. The national and local standing of the organization, the financial

requirements, and particularly the moral characters of the members, should all be given the most careful consideration."

Search as you will in today's Handbook, you'll find little of the rules and advice offered in those of yesteryear. The end perhaps started after WWII. The returning war veterans had little time for such silliness, many having families and were eager to complete their educations and get good jobs. American youth became more challenging of traditions and social conventions in the 1960s.

Even good old Rosie has evolved from a freshman-built and -defended float into a costumed spirit figure, roaming the stands encouraging us still to cheer the Fighting Engineers. ■

FUTURE ALUMNI EVENTS

Contact Brian Dyer for more information on all the events listed below.

Phone: 812-877-8359

Email: brian.dyer@rose-hulman.edu

April 19, 2002

Dayton, OH

April, 2002

South Carolina

April, 2002

Southern California

May 19, 2002

Indianapolis, IN

Tour of China

With Dr. and Mrs. Hulbert

June 2-16, 2002

For more information:

contact the Alumni Affairs Office
alumniaff@rose-hulman.edu

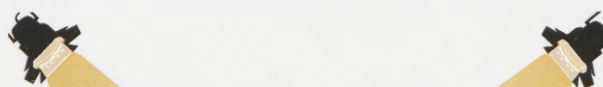
**Central Indiana Golf Outing
and Dinner**

Friday, June 14, 2002

The Links at Heartland Crossing,
Mooreville, Indiana

For more information:

contact the Alumni Affairs Office
alumniaff@rose-hulman.edu



HOMECOMING 2002

October 11 - 12

ROSE-HULMAN
INSTITUTE OF TECHNOLOGY

The tradition continues. Mark your calendar and make your motel reservations today. This is the first week of the Covered Bridge Festival and motel rooms will be at a premium. When you get here, attend a class with a favorite professor, mingle with other alumni, enter the Rosie Fun Run, catch the football game or tour the new Hatfield Alumni Center. There are activities for the whole family.

Reunion classes this year are 1942, 1943, 1947, 1952, 1957, 1962, 1967, 1972, 1977, 1982, 1987, 1992, and the Young Alumni Party for alumni from 1993-02.

For more information visit the Homecoming web site at
www.rose-hulman.edu/homecoming or call 1-800-248-7448
and ask for the alumni office.

WHILE CONSIDERING YOUR ESTATE PLAN...CONSIDER ROSE-HULMAN



"We support Rose-Hulman because it provides an outstanding education for young engineers and scientists to go out in the world and conquer it. Rose-Hulman has done a good job providing a top education for young people."

— Carl and Martha Ehrenhardt

Carl is a 1930 electrical engineering graduate of Rose-Hulman. He and Martha have endowed a scholarship to Rose-Hulman, and they contribute to the Rose-Hulman Pooled Income Fund.

For more information and our brochure, *A Guide to Creative Planned Giving Arrangements*, contact:

David D. Haynes

DIRECTOR OF PLANNED GIVING

(800) 248 - 7448, Extension 8453

email: giftinfo@rose-hulman.edu

Carl and Martha Ehrenhardt in their Chauncey Rose Society coats



PARTING SHOT

A capacity crowd was in attendance at Hulbert Arena during March when Rose-Hulman hosted the 2002 NCAA Division III Women's Basketball Championship. In addition to strong fan support, 51 media representatives from around the country, including reporters from The Washington Post and The Indianapolis Star, were in attendance. For the record, the University of Wisconsin-Stevens Point won the national title.

Echoes ROSE-HULMAN INSTITUTE OF TECHNOLOGY

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