

Summer 2002

Volume 2001-2002 - Issue 2 - Summer, 2002

Echoes Staff

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Echoes

ROSE-HULMAN INSTITUTE OF TECHNOLOGY

Summer 2002

Vol. 2001-2002, No. 2

Promoting the Power of the Force

*Paul Palmer leads marketing effort
of intergalactic proportions*



DISTINGUISHED YOUNG ALUMNI

Four recognized for impact in careers, communities

FOCUS ON STUDENT PROJECTS

Students solve real-world problems



heard in the halls of Moench

“Your success and my success as Rose-Hulman graduates are the result of those alumni who have gone before. Those who come after you depend on how well you do out there in the real world.” ”

— *Ozgur Ozkaya*, (B.S. '96, M.S. '99)

(digital signal processing technical sales rep for Texas Instruments, challenging the Class of 2002 at this year's Senior Sendoff during commencement rehearsal)

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It is the policy of Rose-Hulman Institute of Technology to admit students on the basis of their academic ability. Rose-Hulman does not discriminate with regard to race, color, religion, sex, national origin, or disability. The Institute does not discriminate on the basis of disability in admission or employment in its programs and activities.

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PAGE 7 – Thom Kondas

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PAGE 22-23 – Thom Kondas

PAGE 24 – Mike Lanke

BACK COVER – Don Harrington



ON THE COVER

Alumnus Paul Palmer has been spending some quality time with R2-D2 of "Star Wars" fame. Palmer serves as the senior brand manager for Hasbro, Inc. He has the job of promoting the "Star Wars" toy line across the country. To read more about the career of this alumnus, turn to pages 22-23 for an article by Dale Long, associate director of communications. The photography is by Thom Kondas.

Great Days

A LETTER FROM THE PRESIDENT

REAL-WORLD PROJECTS FORM BASE FOR THE LEARNING UNIVERSITY

Tagging a university as a “research” institution or as a “teaching” school can lead to some lively debates in the halls of academia: Which is better? How are students served? Publish or perish? Are we just chasing research dollars? Those are valid questions, and there is no doubt our country is blessed with excellent research universities and good teaching universities. However, I believe Rose-Hulman blends both types of those approaches and is best described as a “learning” university where teaching and research combine to enhance the educational experience.

The linchpin of the learning university is the real-world project where students are involved in research and development with members of the faculty and staff. You learn engineering, science and mathematics by doing engineering, science and mathematics. The project emphasis allows students to do and to learn.

As we focus on project-based learning, I do not want to discount the importance or necessity of traditional classroom teaching and of scholarly research. We have some of the best classroom and laboratory faculty in the country, but they are aware that research for creative scholarly activity is the foundation of teaching. A great technological educational institution such as Rose-Hulman is based on research to provide the new knowledge that we make available to our students through the teaching process. It is essential that our faculty be not only committed to excellence in teaching and scholarly activities, but it is critical that they involve students as their colleagues. Such involvement through projects allows research and traditional teaching to interact to enhance the learning process.

That is what we are all about at Rose-Hulman. Every significant decision we make is based upon the answer to the question: “Will it improve student learning?” Our faculty may work in different areas and take different approaches to their work, but they all have one thing in common – their dedication to assisting Rose-Hulman students in the learning process.

That premise sounds so simple on the surface, but some educators can be distracted from that focus in their work. They may spend so much time in the research aspect of their jobs that they lose sight of the student. Or they may become so immersed in the material of their lectures that the classroom experience becomes nothing more than a voice echoing the printed word of a textbook.

Teaching conveys a concept of transmitting information from teacher to student. Learning is where the student takes the information and does something with it and comprehends

it. A student can learn the basic laws of thermodynamics and that is necessary, but when you use them to come up with a new energy system, they become real. We want the concepts of engineering, science and mathematics to become real for our students. That’s when excitement begins and learning takes place.

Excitement describes what has been happening on our campus. Students have been involved in teams addressing real-world projects. The following is a small sampling of the type of work in which they have been involved:

- Solubility studies of albumin protein solders used for laser-assisted tissue repair;
- The time-dependent resonance light scattering of insulin aggregates;
- A hauled waste receiving project;
- A management information system for a nursing home in St. Louis;
- Avionics cooling fluid supply under aerobatic flight conditions;
- A piston surface temperature measurement for a major truck manufacturer; and
- A transfer device for cerebral palsy patients.

Through these projects, students learn about engineering, science and mathematics. They must know the basic principles gleaned from research and shared in the classrooms and laboratories. Then they must apply that information to the project at hand. That’s when the learning process kicks into high gear. Students not only implement basic engineering principles, but they learn that there can be several routes to successful solution of a problem. And they also learn there are some unsuccessful routes along the way.

Our project emphasis also forces our students to learn to work together on teams, which is what many of them will face after graduation. Additionally, they must work with the project clients from the beginning to the end of the project. This sharpens communication skills, an essential trait for any successful engineer or scientist. You may have invented the better mouse-trap, but if you can’t explain it, no one will ever know about it.

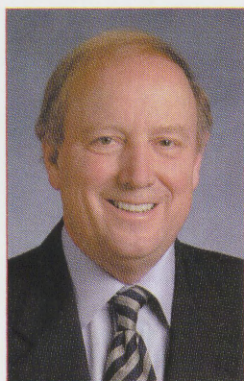
The real-world project combines the best of traditional teaching and scholarly research to answer the important question: “Will it improve student learning?” I’m pleased to report Rose-Hulman answers in the affirmative. ■



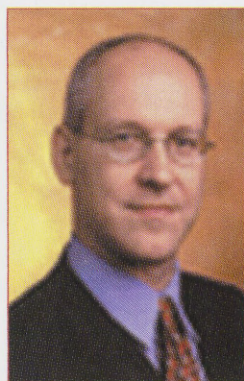
By Samuel Hulbert, President of
Rose-Hulman Institute of Technology

SEE PAGES 12-15 FOR EXAMPLES OF REAL-WORLD STUDENT PROJECTS

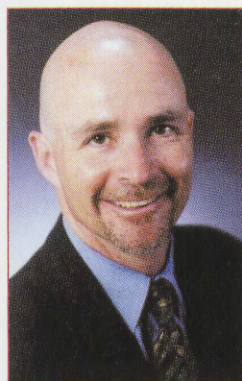
TECHNOLOGY LEADERS ELECTED TO BOARD OF TRUSTEES



Chuck Boesenberg



Scott Jones



Jeff McCreary

The Rose-Hulman Institute of Technology Board of Trustees has elected three new members who are highly successful executives in the technology industry.

Elected to fill vacancies on the board are Chuck Boesenberg, Jeff McCreary and Scott Jones. Boesenberg and McCreary are Rose-Hulman alumni.

Boesenberg is president and chief executive officer for NetIQ, which is headquartered in San Jose, Calif. NetIQ is a leading provider of e-business infrastructure management and intelligence solutions. A 30-year veteran in the technology industry, his career includes creating strategic initiatives

that accelerated sales or acquisitions for Apple Computer, IBM, Magellan, MIPS, and Integrated Systems.

As a senior vice president at Apple, Boesenberg managed United States sales and marketing organizations consisting of over 2,000 employees. U.S. sales at Apple more than doubled to over \$2.8 billion in less than two years of his leadership. Boesenberg graduated from Rose-Hulman in 1970 with a degree in mechanical engineering.

McCreary serves as senior vice president and manager of Worldwide Semiconductor Sales and Marketing for

Texas Instruments in Dallas, Texas.

McCreary, a 1979 Rose-Hulman electrical engineering graduate, directs a sales and marketing organization of nearly 1,000 people of which half are located outside the United States. He led the sales and account management efforts that have helped build the world's largest digital signal processing and analog business. He has directed the development and implementation of the industry's first large-scale database to track design opportunities and engagements at customers.

Jones was a pioneer in the development of voice-messaging technology developed by Boston Technology, which he co-founded and chaired in 1986. He is currently chairman, chief executive officer and president of Escient Technologies in Indianapolis, Ind. Escient Technologies is a high technology management company that channels promising new technologies into strategic positions in the marketplace. Its five affiliate companies offer high-tech products and services for home entertainment, data storage and the internet. ■

LAXER APPOINTED TO HEAD DEPARTMENT OF COMPUTER SCIENCE AND SOFTWARE ENGINEERING

Cary Laxer is the new head of the Department of Computer Science and Software Engineering following the retirement of Frank Young. Laxer became head of the department effective July 1.

A Rose-Hulman faculty member since 1981, Laxer has served in a variety of positions at the college with his most recent assignment being professor of computer science and electrical engineering and director of the Imaging Systems Laboratory. He has taught several computer science courses, and his research interests include biomedical computing, computer graphics and



Cary Laxer

computer science education. During the 1995-96 year, he served as acting department chair.

Awards and honors for Laxer include the Dean's Outstanding Teacher Award (1987), and Teacher of the Year by Triangle fraternity (1984).

On campus, Laxer has been the faculty representative to the Board of Trustees; chair of the Faculty Affairs Committee; chair of the Promotion, Tenure and Retention Committee; and faculty adviser to the Rose Drama Club, the student chapter of the Association for Computing Machinery, Triangle fraternity and Alpha Phi Omega service fraternity.

Laxer holds a Ph.D. in biomedical engineering from Duke University, and he earned a B.A. degree in computer science and mathematics at New York University.

Young retired this past summer after serving as department head since 1987. ■

MICROELECTROMECHANICAL SYSTEMS TECHNOLOGY IS FOCUS OF NEW PROGRAM

MEMS technology creates microscopic, moving, electric devices

BY DAVID PIKER

A gear the diameter of a human hair and an optical mirror the size of the tip of a pin that can aim beams of light have been created using technology called microelectromechanical systems (MEMS), which is the focus of a new academic program at Rose-Hulman Institute of Technology.

A \$400,000 grant from the W.M. Keck Foundation of Los Angeles has made it possible to develop a new MEMS fabrication and application course and to equip a new MEMS laboratory in Moench Hall. The new class was taught during spring quarter. Remodeling is currently under way in the B Section of the second floor of Moench Hall to change an existing area into a clean lab environment.

The W.M. Keck Foundation is the nation's largest philanthropic foundation that focuses its grantmaking primarily on the areas of medical research, science and engineering.

"MEMS technology creates microscopic, moving, electric devices so small that often gravity doesn't have an impact on their operation," explained Azad Siahmakoun, professor of physics and optical engineering, who is coordinating the introduction of MEMS at Rose-Hulman.

"MEMS will result in some of the most significant technical advancements of the 21st century," he stated "It is a technology that has been developed into a multi-billion dollar industry. The grant enables Rose-Hulman to begin educating students to meet the tremendous need for new engineering graduates who will have the expertise to further develop MEMS technology."

In a recent report, the Keck Foundation staff listed miniaturizing sensors, instruments, and computers as one of the five greatest opportunities to advance our knowledge and understanding of nature in the next decade.

Alumnus Chris Mack, who was among three persons that Rose-Hulman sought to review the preliminary proposal to seek funding for the MEMS initiative, says students will learn problem solving skills about unique microstructure problems that will be invaluable.

"Although direct MEMS experience will be valuable to some employers in the near future, more valuable will be the basic concepts of microstructure design and fabrication that students will learn," said Mack, vice president for technology at KLA-Tencor in Austin, Texas. The company is the world's leading supplier of process control and yield management solutions for the semiconductor and related microelectronics industries.

Because MEMS is having an impact on a wide range of professional fields, the new class is taught by a team of eight professors from five engineering and science departments.

"Students will learn that physics and chemistry influence the choice of materials for fabrication, and how tiny electrical



Student Corey Trobaugh working in front of an oxidation furnace, inspects a silicon wafer upon which a MEMS device will be fabricated. The wafer is placed inside the furnace, and a thin oxide layer grows on the wafer surface. The layer then is patterned and etched using standard photolithographic techniques to produce a MEMS device.

mechanical systems can be developed for data acquisition and analysis," Siahmakoun said in explaining the interdisciplinary impact of the technology.

Chemists have borrowed technologies used in the fabrication of MEMS to develop miniaturized systems for chemical analysis, said Dan Morris, assistant professor of chemistry, who is one of the faculty teaching the new course. These systems are designed to carry out all aspects of chemical analysis, hence the birth of the micro-total analysis system or lab-on-a-chip.

"Performing chemical analyses on microchips offers the advantages of extremely small sample size requirements and superior separation of complicated samples in minimal amounts of time," Morris explained.

"Minimizing the amounts of materials and time required for chemical analysis is attractive, especially when one considers the importance of combinatorial chemistry in drug discovery and the explosion of biotechnology," he stated.

Students will design and fabricate simple MEMS devices using silicon wafers. Tiny mechanical devices with one or more moving parts can be fabricated on the silicon surface. "To enable students to understand such tiny motions, we will require them to design, model and characterize the electrical, mechanical or fluidic behavior of MEMS," Siahmakoun stated. A scanning electron microscope will be used to enable students to examine their device during and immediately after fabrication. ■

CASEY BEHRINGER NAMED OUTSTANDING STUDENT LEADER IN GREAT LAKES AREA



Casey Behringer

After organizing town hall meetings between students and administrators, Rose-Hulman's Casey Behringer was named Student of the Year by the Great Lakes Association of Colleges and University Residence Halls (GLACURH). The award honors Behringer for outstanding campus leadership, service in the area of residence life, and being a valuable colleague to students.

Behringer, a 2002 mechanical engineering graduate, was president of Rose-Hulman's Student Government Association for most of the 2001-2002 school year. He was also a former president of the Residence Hall Association, a two-year Resident Assistant, a Sophomore Adviser and creator of a residence hall study program.

Behringer was a member of the Blue Key Honor Society, Delta Sigma Phi fraternity, Order of Omega Greek Honor Society and American Society of Mechanical Engineers.

The GLACURH's Midwest region covers over 60 colleges in Indiana, Illinois, Wisconsin, Michigan and a province of Canada.

Behringer plans to attend graduate school in agricultural engineering at the University of Wisconsin this fall. ■

ECHOES AND VIEW BOOK RECEIVE NATIONAL RECOGNITION

The Rose-Hulman *Echoes* alumni magazine has received recognition in two national publishing competitions. The Rose-Hulman admissions view book "You've Known it Since You Were a Kid" also garnered a national award.

Echoes received a silver award in the Admissions Marketing Report competition for external publications. *Echoes* also received an award in The Communicator competition. *Echoes* is staff written and the design is provided by WilliamsRandall Marketing Communications.

The admissions office view book "You've Known it Since You Were a Kid" earned a bronze medal in the national Circle of Excellence Awards sponsored by the Council for the Advancement and Support of Education (CASE). ■

HULBERT HONORED BY EDUCATION GROUP

The Council for the Advancement and Support of Education (CASE), an international organization consisting of public and private higher education institutions, has chosen Rose-Hulman President Samuel F. Hulbert as one of two recipients of its District Five Executive Leadership Award.

Hulbert was chosen from 26 higher-education officials from schools in eight Midwestern states who were nominated for the award. Hulbert received the award during the CASE International Assembly July 6 in Chicago.

He was honored for creating a vision and inspiring the Rose-Hulman community to be innovators who achieve important strategic institutional goals. The selection committee noted that Hulbert has led Rose-Hulman through historic growth and success that has earned the college national recognition as one of the best schools for engineering, mathematics and science education. ■

HULBERT RECEIVES HONORARY DEGREE FROM CLARKSON UNIVERSITY

Rose-Hulman President Samuel F. Hulbert received an honorary doctor of science degree at Clarkson University's 109th Commencement in Potsdam, N.Y., on Sunday, May 12.

The degree was awarded "for his groundbreaking humanitarian achievements in biomedical engineering and ceramic science, and for his distinguished career and visionary leadership in higher education."

In addressing the graduates Hulbert said, "I believe the more you put into every one of your relationships, the more you'll get out of it. I believe the more you put into your career, the more you'll be rewarded. I believe the more you put into your community, the more you'll get out of it."

"Find a career for which you have a great passion; life goes by very, very quickly. Help develop a magic bullet for cancer, a cure for diabetes, or a new hip prosthesis. But most of all, make this a better world for your fellow human beings."

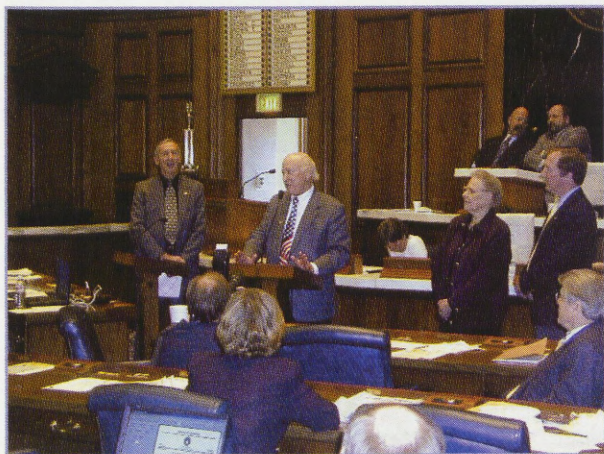
Since becoming the eleventh president of Rose-Hulman Institute of Technology in 1976, Hulbert has led Rose-Hulman through a period of unprecedented growth and quality improvement resulting in the college earning a national reputation.

Hulbert is not only well known for his Rose-Hulman leadership. He also is a pioneer in the use of ceramics to create artificial knees, hips and dental prostheses. In addition to a career of accomplishment in teaching and educational administration, he has been the principal investigator on eight major research projects. He has been honored by American and European medical societies for his contributions to biomedical engineering. He has also served as the president of the American Association of Independent Technological Universities.

Clarkson University, located in Potsdam, New York, is an independent technological university with 2,600 undergraduates and 350 graduate students. ■

INDIANA LEGISLATURE HONORS ROSE-HULMAN

Rose-Hulman was the center of attention recently at the Indiana capitol building when the Indiana House and Senate honored the college for the increasing national recognition it has achieved. A concurrent resolution honoring Rose-Hulman was sponsored by the Wabash Valley delegation. The resolution was read Feb. 11 in the House by Rep. Vern Tincher, D-Terre Haute, and in the Senate by Mark Blade, D-Terre Haute.



President Hulbert addresses the Indiana House of Representatives.

The resolution lauded the quality of Rose-Hulman faculty, the academic talents of its students, and the successes of its alumni and staff. The college's third consecutive No. 1 ranking by U.S. News & World Report as the best college among schools that offer the bachelor's or master's as their highest degree in engineering was also cited by the legislators.

Rose-Hulman President Samuel Hulbert's 26-year tenure was noted as a key factor in the college's rise to national leadership. "He has been recognized nationally for his vision and contributions to engineering education."

Hulbert addressed the House of Representatives and said, "The Rose-Hulman community sincerely appreciates the pride you have expressed in the college. Rose-Hulman is committed to increasing its role as a vital resource to Indiana's educational system and to stimulating the state's economic development." ■

POINT OF DISCUSSION



President Samuel F. Hulbert spoke to the American Society of Naval Engineers, Southern Indiana Section, this past spring at the Naval Surface Warfare Center near Crane, Indiana. Included in the audience were several Rose-Hulman alumni who work at the center.

RETIRING FACULTY



Three faculty members retired this year. They are, from left: Stuart Leipziger, professor of chemical engineering, 18 years of service; Frank Young, head of the Department of Computer Science and Software Engineering and professor of computer science, 15 years of service; and Mallory North, professor of mechanical engineering, 22 years of service.



STUDY SHOWS STUDENTS BENEFIT FROM WORK EXPERIENCE AT VENTURES

Students have overwhelmingly indicated that the professional experience they've received working at Rose-Hulman Ventures (RHV) has enhanced their education and helped with their career planning. Those findings are contained in a student assessment study conducted by the Rose-Hulman Office of Institutional Research, Planning, and Assessment.

The survey of 73 students indicates that working at Rose-Hulman Ventures has had the following positive benefits for students:

- enhanced and reinforced on-campus coursework,
- enhanced teamwork capabilities,
- provided work experience of interest to recruiters, and
- provided a context for career decisions.

Ninety-one percent of the current students and 89 percent of the alumni expressed satisfaction with their RHV work experience.

Jim Eifert, president of Rose-Hulman Ventures, said: "The results of our student assessment demonstrate that the opportunity to work at RHV has provided exactly the kinds of educational opportunities we want for our students. It is also noteworthy that we have involved students from Saint Mary-of-the-Woods College, Indiana State, DePauw, Indiana, and Purdue universities, as well as Rose-Hulman students."

The study was conducted to assess the experiences of students who are or have worked on project teams at RHV from spring 2000 through spring 2002, according to Gloria Rogers, vice president of institutional research, planning, and assessment. Students and alumni who had worked at RHV as undergraduates were surveyed to determine their perception of their experiences related to work on project teams, the influence of RHV work experience on their job interviews and employ-



Students Adrienne Henderson, Adam Sekela and Charlie Howell discuss a project at Ventures.

ment, and general satisfaction with their work at RHV.

AMONG THE FINDINGS:

Coursework. All of the alumni respondents and 90 percent of the current students reported that they were able to apply what they learned in their on-campus coursework to their RHV work assignment.

Teamwork. Alumni reported that they have had significant experience working on teams since graduating from Rose-Hulman and many reported that their experience was similar to the one they had while working at RHV.

Recruiters' Interest. Of the current students who have already interviewed for work, all but one had discussed their RHV project work experience with a recruiter(s), while 83 percent of the alumni reported discussing RHV with recruiters. Of those who discussed RHV, over 85 percent of them indicated those recruiters were interested in their RHV experience. Over 90 percent of respondents reported that they were able to demonstrate their engineering/science-related skills by referencing their RHV work. Eighty percent of the current students and 93 percent of alumni indicated that their RHV experience had a positive effect on the interview outcome.

Career Decisions. While students were not asked to comment specifically on the issues of staying in Indiana or working for start-up companies in particular, some of the student workers offered related comments:

- "Ventures allowed me to determine my likes and dislikes of my work. I now have a better feel for what type of job I would like to have in the future."
- "Working at Ventures has made me realize that working for a small company is a viable alternative to a large corporation (especially in today's economy)."
- "My position at Ventures has really given me something with which I can finally compare other companies

against. This has allowed me to evolve different, more substantial questions that I plan to use during interviews, job fairs and other such events."

- "I had never thought of using my chemical engineering knowledge in the software industry. I will definitely keep this option in mind when I graduate."

"The responses infer that the experience of working at RHV has encouraged students to stay in Indiana after graduation," Eifert said. "The students are seriously considering possible career paths with smaller, early stage companies: the very companies that lead to the creation of a strong base of 'world headquarters' companies in Indiana and the professional employment opportunities that accrue to the location of such headquarters."

"Rose-Hulman Ventures is helping to reduce the brain drain of new engineering graduates who have been leaving the state to begin their careers. Providing more opportunities for new graduates to work in the state has been identified by the Lilly Endowment and Indiana government officials as a critical factor to improving the state's economy," he added. ■

GIFTS TO ROSE-HULMAN TO BE MATCHED BY LILLY ENDOWMENT

The Lilly Endowment Inc. will match contributions totaling up to \$3.5 million to Rose-Hulman Institute of Technology until Dec. 31, 2003. The Endowment's "Special Initiative to Strengthen Philanthropy for Indiana Higher Education Institutions" is designed to encourage contributions from alumni, faculty, staff, students, parents and others who have a special interest in Rose-Hulman.

Each of Indiana's 38 two- and four-year private and public accredited colleges and universities is eligible to participate in the matching gift program which could potentially provide \$138 million to strengthen higher education in the state. All the funds will be used for academic purposes. The matching grant funds will be allocated at the discretion of each institution's president, according to the Endowment. The breakdown of the challenge program includes:

- * Up \$3 million must come from alumni.
 - * Up to \$250,000 from parents and students (including parents of alumni).
 - * Up to \$250,000 from current or former faculty and staff.
- "This initiative is another example of

the Lilly Endowment's outstanding leadership that is providing vital support to the development of higher education," said Rose-Hulman President Samuel Hulbert. "This initiative will have a significant, positive impact on our efforts to achieve goals that are important to Rose-Hulman's future."

In announcing the program, Sara B. Cobb, Endowment vice president for education, stated, "It is known that higher education institutions that have broad support from their alumni and other interested parties are frequently among the strongest institutions in the country. We hope that this initiative will cause more of those closest to Indiana institutions to develop habits of supporting them. We also hope that in providing that support they will become more engaged in the affairs of their college or university."

This program complements an earlier approved, potentially \$38 million Endowment initiative for the same institutions. The "Initiative to Strengthen Board Commitment" provides challenge grants to encourage giving by members of the governing boards of Indiana colleges and universities. ■

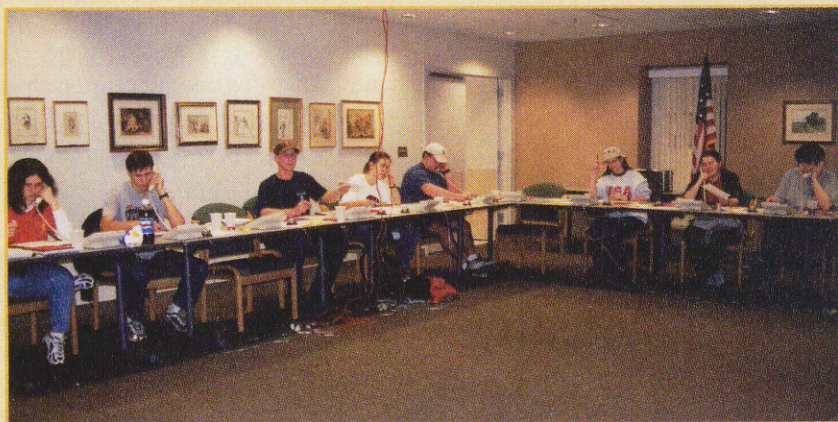
GENERAL MOTORS FOUNDATION GIVES ROSE-HULMAN \$40,000 TO SUPPORT SCHOLARSHIPS, MINORITY RECRUITMENT INITIATIVES

The General Motors Foundation has awarded Rose-Hulman Institute of Technology \$40,000 to support the college's continued efforts to recruit women and minority students in engineering and science academic programs.

The donation renews four annual GM minority or women scholarships, including a summer internship at a GM production facility; educational technology stipends that underwrite the costs of required laptop computers for freshman students; and a commitment to recruit high school students for Rose-Hulman's Operation Catapult pre-engineering/science summer program.

General Motors' support helps Rose-Hulman attract high quality students and helps increase the diversity of the student body, according to Richard Boyce, Rose-Hulman's director of corporate and foundation relations. Rose-Hulman is considered one of General Motors Corporation's priority campuses for the recruiting of new employees and ongoing support. Chet Huber, president of GM OnStar, is the automaker's key executive contact with the college. ■

MOST SUCCESSFUL PHONATHON YET



The annual Phonathon received \$144,700 in pledges during the 2001-02 academic year compared to \$98,126 the previous year. Students called more than 14,000 alumni and friends in two Phonathon sessions in the fall and spring. The fulfillment rate surpassed the amount pledged with \$155,615 being received. The average phonathon pledge fulfillment rate is 36 percent at other colleges.

NEW CONSTRUCTION FOR HABITAT FOR HUMANITY

A service learning project on campus this fall will be construction of a Habitat for Humanity House on campus. After it is constructed, it will be moved to a permanent location in Terre Haute. For more information about the project or to provide support, contact Professor Caroline Carvill at 812-877-8284 or via e-mail at: caroline.carvill@rose-hulman.edu.

CLASS OF 2002 TOLD TO TAKE CHANCES

Rose-Hulman Institute of Technology graduates were told by commencement speaker Robert Compton to take chances because fortune favors the bold.

Compton, venture investor and entrepreneur who is chairman of five private companies, delivered the commencement address to 356 students who received either bachelor's or master's degrees during the 124th commencement program at Rose-Hulman. He was also one of six persons to receive an honorary degree.

Graduating senior Elizabeth Huttshell of Indianapolis received three of the seven special awards presented to faculty, staff and students. Huttshell was one of five students presented with the Heminway Medal, which is given to the graduating senior who has earned the highest grade-point average during his or her four years at Rose-Hulman. It was the first time in school history that five students graduated with perfect 4.0 grade point average.

She became only the second graduate



A capacity crowd packed the Sports and Recreation Center for Rose-Hulman's 124th commencement.

from Rose-Hulman to receive the Herman Moench Distinguished Senior Commendation and the John Tuller Royse Award. The Senior Commendation honors Huttshell for her outstanding potential professional achievement. The Royse Award is given to a senior in recognition of their outstanding leadership, academic achievement and participation in extracurricular activities.

Other Heminway Award winners were Kenneth Barnes, Terre Haute; Justin Self, Manchester, Mo.; Andrew Lehman, Amherst Junction, Wis; and Chris Unton, Munroe Falls, Ohio.

The Outstanding Graduate Thesis



Commencement Parade Marshal Pete Gustafson, vice president for students affairs, leads the traditional commencement walk through campus.

Award was presented to Matt Kuester of Newburgh, Ind. Kuester received a master's degree in mechanical engineering.

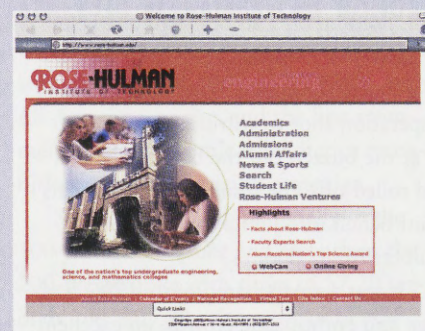
The Dean's Outstanding Teacher Award was presented to Dale Bremmer, professor of economics. Richard Dittion, professor of physics and optical engineering and director of the Oakley Observatory, received the Board of Trustees' Outstanding Scholar Award. The President's Outstanding Service Award was presented to Brian Dyer, director of alumni affairs and special events.

Others receiving honorary doctor of engineering degrees, in addition to Compton, were Guille Cox, Jr., senior partner in the Terre Haute law firm of Cox, Zwerner, Gambill & Sullivan; Scott Jones, chairman and CEO, Escient Technologies, Indianapolis; and Ralph Stahl, president of Stahl Engineering, Indianapolis. Honorary doctor of humane letters degrees were awarded to Susan Porter Rose, former deputy assistant to president George H.W. Bush and chief of staff to Barbara Bush, McLean, Va.; and Katherine Utley, English and Latin teacher at Terre Haute North Vigo High School. ■

ROSE-HULMAN WEB SITE SPORTS NEW LOOK

The Rose-Hulman web site has a new look that provides easier access to lower-tier pages.

The new design went live earlier this summer. The main navigation links will remain the same, but there are more ways into the site from the portal page. One of those enhancements is a "quick link" feature that provides a drop-down menu for many Rose-Hulman offices and programs. Also more accessible are pages dealing with basic Rose-Hulman information, calendars, a campus tour and national recognition.



"Our surveys found our external users appreciated the navigation logic we had been incorporating; so we didn't change the major links into the site," explained Bryan Taylor, director of publications and member of the Rose-Hulman webmaster team. "However, we did reorganize some of the groupings and add more entrance points off of the front page."

The new look was designed by web developer Hyung-Jung Chang with input from the offices of admissions, academic affairs, student affairs, and instructional, administrative & information technology. The new look is the fifth design for the Rose-Hulman web page.

You can access the site at <http://www.rose-hulman.edu>. ■

TOURNAMENT DRAWS NATIONAL ATTENTION TO CAMPUS

BY KEVIN LANKE, SPORTS INFORMATION DIRECTOR

Months of preparation led to four days of national attention for Rose-Hulman in March when the college hosted the 2002 NCAA Division III Women's Basketball Championship.

A near-capacity crowd joined 51 members of the media from around the nation, more than twice the media credentials that were issued for the 2001 championship. Media from The Washington Post and The Indianapolis Star joined colleagues from Wisconsin, up-state New York and Western Indiana at an event that featured a breathtaking finish.

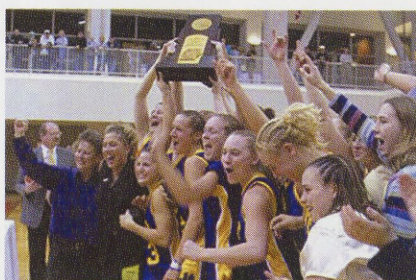
The University of Wisconsin-Stevens Point emerged as the 2002 national champion, holding off a second-half charge by St. Lawrence University (N.Y.) to earn a 67-65 victory. St. Lawrence had a final desperation shot to win the game in the air at the buzzer, but the ball hit the rim and rolled off. The result sent the Stevens Point bench into jubilation on the Hulbert Arena floor.

"It was a great championship. We had large and enthusiastic crowds, an excellent media contingent and thrilling games. Our first championship was an overwhelming success," said Rose-Hulman Athletic Director Greg Ruark.

Planning for the highly successful championship began in the summer of 2000, when a five-member committee began the process of obtaining the 2002 event. After emerging as one of two finalists and enduring a thorough interview process, Rose-Hulman was chosen to host the Championship.

Ruark, Facility Director Matt Sinclair, Sports Information Director Kevin Lanke, Women's Basketball and Softball Coach Jody Prete and Athletics Administrative Assistant Linda Flo Sears formed the original committee that helped secure hosting rights.

"We wanted the student-athletes to have a great experience. We wanted them to walk away thinking: 'That was one of the greatest experiences I've ever been



University of Wisconsin - Stevens Point players celebrate national title at Rose-Hulman.

through in my life'. I think we accomplished that in 2002," said Ruark.

A promotional campaign for the event served as an indirect benefit for Rose-Hulman. The NCAA financed a campaign that featured newspaper, radio and television advertisements in both Terre Haute and Indianapolis. The advertisements promoted both the championship and Rose-Hulman's role as event host.

"The main goal of the promotional campaign was to increase awareness of the event both locally and statewide. The campaign featured extensive media coverage in Terre Haute and advertising through several statewide outlets, along with billboards, banners and posters. The campaign would not have been possible without the help of Dave Patterson of the Terre Haute Convention and Visitors Bureau," said Lanke.

Rose-Hulman students played a significant role in hosting the event. The Rose-Hulman Chorus performed the national anthem both evenings, the Air Force ROTC Color Guard presented the colors, the college pep band provided entertainment during timeouts and between games, student-athletes provided concession stand help and Sports and Recreation workers provided security and other needs.

"Anytime a national championship is held, it will bring excitement. We increased the exposure of Rose-Hulman and continued to build a positive awareness about the school statewide. I think this was a great marketing tool for Rose-Hulman and the city of Terre Haute," said Sinclair. ■

ROSE-HULMAN 2001-02 SPORTS HIGHLIGHTS

The Rose-Hulman athletic department continued its tradition of success throughout the 2001-02 academic year.

The men's basketball team recorded its eighth-straight winning season and remained in the Southern Collegiate Athletic Conference title chase until the season's final week. The Engineers finished 14-11 overall and tied for third place in the league standings with a 12-6 record.

The women's basketball squad set a school record for wins in a season with seven. Senior Christina Forsyth became the second player in school history to score over 1,000 points in a career (1,224), while senior Molly McKeown graduated with single-game, single-season and career records for assists.

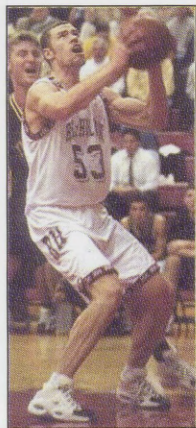
Rose-Hulman's football team traveled to London and Paris, defeating the French National Team 34-26 in an offensive shootout. The game capped a memorable 2001-02 year that featured a single-season school record for first downs and single-season marks for passing completions, attempts and yardage.

The Rose-Hulman baseball team enjoyed its fourth-best season in school history with 26 wins. The Engineers placed third in the SCAC Baseball Championship, highlighted by an opening round victory over nationally ranked Trinity University, and placed four players on the all-conference team.

The rifle team finished in the top 25 nationally for the seventh consecutive year. The squad, which competes against NCAA Division I, II and III institutions, finished 18th nationally and second among Division III programs.

Finally, head men's swimming coach Melissa Thompson and head volleyball coach Brenda Davis were named the SCAC Coach of the Year in their respective sports after leading their teams to fourth-place finishes. ■

STUDENT ATHLETES EARN NATIONAL HONORS

CHRIS UNTON NAMED FIRST-TEAM ACADEMIC ALL-AMERICAN

Rose-Hulman men's basketball forward Chris Unton (Akron, Ohio/Archbishop Hoban) earned first-team Verizon Academic All-American honors in balloting by the College Sports Information Directors of America.

Unton's honor marked the 16th consecutive year that a Rose-Hulman student-athlete has earned Academic All-American honors. He earned third-team Academic All-American honors in 2001 and became the 53rd Academic All-American at Rose-Hulman.

The all-Southern Collegiate Athletic Conference standout was a finalist for conference Defensive Player of the Year this season. Unton averaged 10.0 points and 5.9 rebounds per game for the Engineers as a senior and led the team in field-goal percentage (63.4%), blocked shots (30) and rebounds (147).

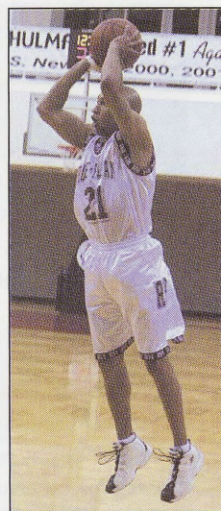
In the classroom, the computer science major maintained a perfect 4.0 grade point average and graduated one academic quarter early.

ANDREW SCHIPPER EARNS ALL-AMERICAN HONORS IN POLE VAULT

Rose-Hulman Institute of Technology junior pole vaulter Andrew Schipper earned his fourth career All-American honor with a fifth-place finish at the 2002 NCAA Division III Indoor Track & Field National Championships at Ohio Northern University.

Schipper cleared 15' 5" in his first attempt to earn fifth-place honors and become the fourth Rose-Hulman track and field athlete to earn four career All-American honors. He previously placed second at the 2000 Outdoor Nationals, third at the 2001 Indoor Nationals and fourth at the 2001 Outdoor Nationals.

Schipper joins fellow pole vaulter Ryan Loftus, sprinter Phil Reksel and jumper Tony Allen as four-time All-Americans at Rose-Hulman. The college's tradition of track and field success includes 31 All-American awards by 14 different student-athletes since 1975.

RASHAD GOLD NAMED FIRST-TEAM MEN'S BASKETBALL ARTHUR ASHE ALL-STAR SCHOLAR

Rose-Hulman junior guard Rashad Gold was named to the first-team men's basketball Arthur Ashe All-Star Scholar by the editors of Black Issues in Higher Education.

Gold has maintained a perfect 4.0 grade point average in the classroom

while helping the Rose-Hulman men's basketball team achieve three consecutive winning seasons and a conference co-championship in 2001. The chemical engineering major appeared in 23 of the team's 25 games this season, averaging 2.3 points per game.

Arthur Ashe All-Star Scholars nominees must have a cumulative grade point average of 3.2; participate in intercollegiate athletics; be active on their campuses

and in their communities; and exemplify the standards set by Ashe, who died in 1993. The program is currently in its 10th year of honoring student-athletes at all levels and divisions of intercollegiate athletics.

**MATT SMITH EARNS ACADEMIC, ATHLETIC ALL-AMERICAN HONORS**

Senior Matt Smith became the second swimmer in Rose-Hulman history to earn All-American honors and the first swimmer to earn Academic All-America recognition in a record-setting campaign.

Smith placed sixth nationally in the 100-yard breaststroke and seventh in the 200-breaststroke with times of 57.20 seconds and 2:05.90 to earn a pair of All-American honors at the 2002 NCAA Division III Swimming National Championships.

In addition, Smith earned third-team Verizon Academic All-American honors for his efforts in the classroom. The electrical engineering major competed with members of golf, tennis, wrestling, rifle and ice hockey teams across the country for one of 30 places on the national team.

He was named the Southern Collegiate Athletic Conference Tri-Swimmer of the Year after earning three individual championships and helping two Rose-Hulman relay teams earn all-league recognition. ■

Making a splash at Smithsonian exhibit

You didn't have to be an Olympic-caliber swimmer to know that three Rose-Hulman Institute of Technology electrical engineering students were onto something big.

A Nobel Prize-winning scientist knew it. So, too, did engineering professors and students from Massachusetts Institute of Technology, California Institute of Technology and Case Western Reserve University.

They all huddled around Richard Barton, Keith Huster and Brent Weigel as they demonstrated a prototype of their digital swimming lap counting and timing device at a National Collegiate Inventors and Innovators Alliance-sponsored exhibit this spring at the Smithsonian Institute's Lemelson Center for the Study of Invention and Innovation at the National Museum of American History in Washington, D.C.

The device was also the object of much attention at the American Society for Engineering Education's Frontiers in Education national conference last fall at Reno, Nevada. Nearby was a lightweight, battery-heated jacket with a temperature control unit, designed by students at the University of Pittsburgh; a credit card-size, automatic epinephrine injecting system for people threatened by allergies from bee stings, from the University of Virginia; and a flexible bolt that allows builders to easily connect two parts that are out of alignment, from California Polytechnic-San Luis Obispo. But Rose-Hulman's exhibit was the highlight of both shows.

"We had Smithsonian visitors from all over the world, high school swimmers and parents fascinated by our design and what the device can do. A patent attorney quizzed us about complicated technical matters," Weigel said. "The response was encouraging. We knew we had a marketable product." Huster added, "The display in Reno was a real morale boost and gave us some new ideas. We then refined our original concepts. The Smithsonian exhibit showed us that we really were onto something big. It gave us an extra boost to finish the job."

The Precision Swim Trainer is an underwater device (24 inches tall-by-28 inches wide-by-1/2 inch thick) that can be easily placed at the end of a swimming pool lane (weighing only 15 pounds). Touch sensors throughout the padded device record valuable training information for a swimmer, allowing the athlete to focus on perfecting his or her strokes, not counting laps.

While recording total number of laps (in a green-illuminated display on top), the device can also report two types of information (in the red numbers across the bottom): Lap interval time (down to a hundredth of a second) or total swimming time (minutes and seconds). A microprocessor can record a swimmer's daily training regime for downloading on a personal computer. This would allow the athlete and coach to study swimming tendencies between practices.

"This device gives everyday swimmers an opportunity to benefit from an Olympic-type training regime," said Barton, a former high school and college swimmer. "I would have loved to have had this training partner, because I kept forgetting what lap I was swimming. Coaches



Keith Huster, Richard Barton, and Brent Weigel

will no longer have to spend time using stopwatches to keep track of lap times. They can utilize their coaching skills to improve the swimmers' techniques, shaving valuable seconds off a race. Coaches fall in love with the device."

That's why the Rose-Hulman students have formed a limited liability corporation (Sports Dynamics), which will pursue manufacturing design and marketing research studies this summer, and have started discussions to find potential venture capital. This comes as Barton begins work at the U.S. Air Force's Research and Development Office; Huster is employed at Hill-Rom; and Weigel waits to begin graduate school at Rose-Hulman.

The secret to the swim training device is new display technology, co-developed by the students and local entrepreneur Greg Stump, that allows for large-scale, efficient and inexpensive displays — to meet any design specification. It utilizes high-brightness LEDs which provide the display with a long life cycle, making the device a perfect match for other uses (billboards, road construction signs and traffic information signs).

"There's endless potential with this technology. Hopefully, it will be developed and marketed, but it will depend on what we learn and get accomplished this summer," Weigel said. "It has gone much further than a simple senior design project."

Indeed, the lap-counting device was originally a science fair project that earned Barton a first-place award in the Duracell Invention Challenge (sponsored by the National Science Teachers Association) and induction into the National Gallery of America's Young Innovators, a part of the Inventors Hall of Fame.

"Whenever I have wanted to stop I've been encouraged to take the concept one step further," Barton said. "Now, through lots of hard work by Brent and Keith, it may become a product that we'll reap benefits from in the future." ■

Working Wireless

STUDENT PROJECT FEATURED AT NATIONAL INVENTOR'S GATHERING

Tomorrow's bright idea can be yesterday's news.

This was one of the lessons that four Rose-Hulman Institute of Technology electrical engineering students learned while striving to develop cutting edge technology to possibly revolutionize the digital photography industry.

The idea: Utilizing state of the art Bluetooth technology to create a wireless system that could transmit images from a digital camera to a personal computer. The system would expand the memory capabilities of digital cameras and make digital technology more desirable to amateur and professional photographers.

The problem: Expanded memory cards were introduced this spring to digital cameras, making the team's system obsolete.

"We had a great idea," says Joseph Baumgarte, the project's lead software manager. "However, we weren't alone, and we didn't have enough time to act on our plans before companies had a marketable product on the market, severely damaging our efforts." That opinion was shared by team members Chad Alojipan, Elizabeth Huttshell and Quentin Kramer.

"We learned that technological advances proceed at light-breaking speed," stated Alojipan, who worked on the Bluetooth technology part of the project.



Elizabeth Huttshell, Quentin Kramer, Chad Alojipan, Joseph Baumgarte

The wireless image transmission system was one of 19 advanced entrepreneurial projects funded in 2000 by the National Collegiate Inventors and Innovators Alliance. The team received \$3,000 to help develop its idea, which was featured at this year's NCIIA education conference in Washington, D.C., and the American Society of Engineering Education's Frontiers In Education conference. "The feedback from companies on our product concept was immeasurable," said Huttshell, the project leader. "The FIE experience was one of the most enjoyable and educational of my years at Rose-Hulman."

The project consisted of two transceivers. One module would attach to a digital camera using the Compact Flash standard memory card slot and be able to compress and transmit the images. Through Bluetooth technology, the image data would be sent from the digital camera device to the computer module. The computer module will have the ability to seek out and find digital camera modules within range. At the computer module, the image data will be decompressed and saved to a specified directory. This application will be designed for computers running the Windows 98/2000 or higher operating system.

During the project's development, the team experienced major challenges in implementing a UART designed for communication between serial devices and Compact Flash and PC Card devices. After many different implementation efforts and communication with the manufacturer, it was determined that the utilization of this UART made the team's solution improbable and therefore was a major design flaw of the system.

"We learned that communication is the key to any project," stated Kramer, the team's hardware leader. "It didn't take us long to realize that we needed to talk to the engineers involved in the technology that we were hoping to utilize in our system. We got the run around and broken promises from so many salespeople. The next time, we'll go straight to the source."

This is just one of the valuable learning experiences of the NCIIA innovation projects, according to Fred Berry, Rose-Hulman's electrical and computer engineering department chair. "The students work together in interdisciplinary groups to work collaboratively to identify real-world problems, develop practical solutions, and commercialize their innovations. They were really turned on about their futures and got much more out of it than what NCIIA put in," Berry said.

Finally, the team created a paper design of a new solution for the system consisting of the Intel StrongARM Processor as the system's processing core.

Another group of electrical engineering seniors is expected to pick up the project next year. Meanwhile, the four Rose-Hulman students have advanced to pursue their postgraduate careers. Alojipan and Kramer are planning to attend graduate school; Baumgarte is now working at Delphi Electronics in Kokomo; and Huttshell has started work at Intel in Portland, Ore. ■

LEMELSON FOUNDATION ENCOURAGES INVENTION AND INNOVATION

The National Collegiate Inventors and Innovators Alliance hopes to advance the teaching of invention and innovation in American higher education. It is an initiative of the Lemelson Foundation, a private philanthropic organization founded by inventor Jerome Lemelson (1923-97), who held more than 500 patents covering a wide range of technologies, including machine-vision systems and flexible manufacturing systems.

The NCIIA provides grant support to colleges around the country for the creation of student invention teams (called "E-Teams" for excellence and entrepreneurship), courses, projects, networking opportunities and resources for faculty and student innovators.

Four senior electrical and computer engineering projects from Rose-Hulman Institute of Technology received NCIIA support during the past two years, and applications for 12 projects have been filed for the 2002-03 school year, according to ECE Department Chair Fred Berry.

"These students are transforming the future with their innovations," says Phil Weilerstein, executive director of the NCIIA. "The act of turning a creative idea into an innovative and viable product - while still in school - represents a new movement in education that gives students the opportunity to build the skills they need to be successful in a dynamic, collaborative workplace."

The smiles that beamed across the faces of Dillon Mitchell, Marlana Simms and Dan Raubuck

*were worth more than the final grades awarded for three design projects
completed this spring by Rose-Hulman Institute of Technology mechanical
engineering students.*

*Three devices were constructed over the course of 20 weeks, completely from
scratch, to help make life easier for children and teenagers who suffer disabling
ailments that restrict normal body movements.*

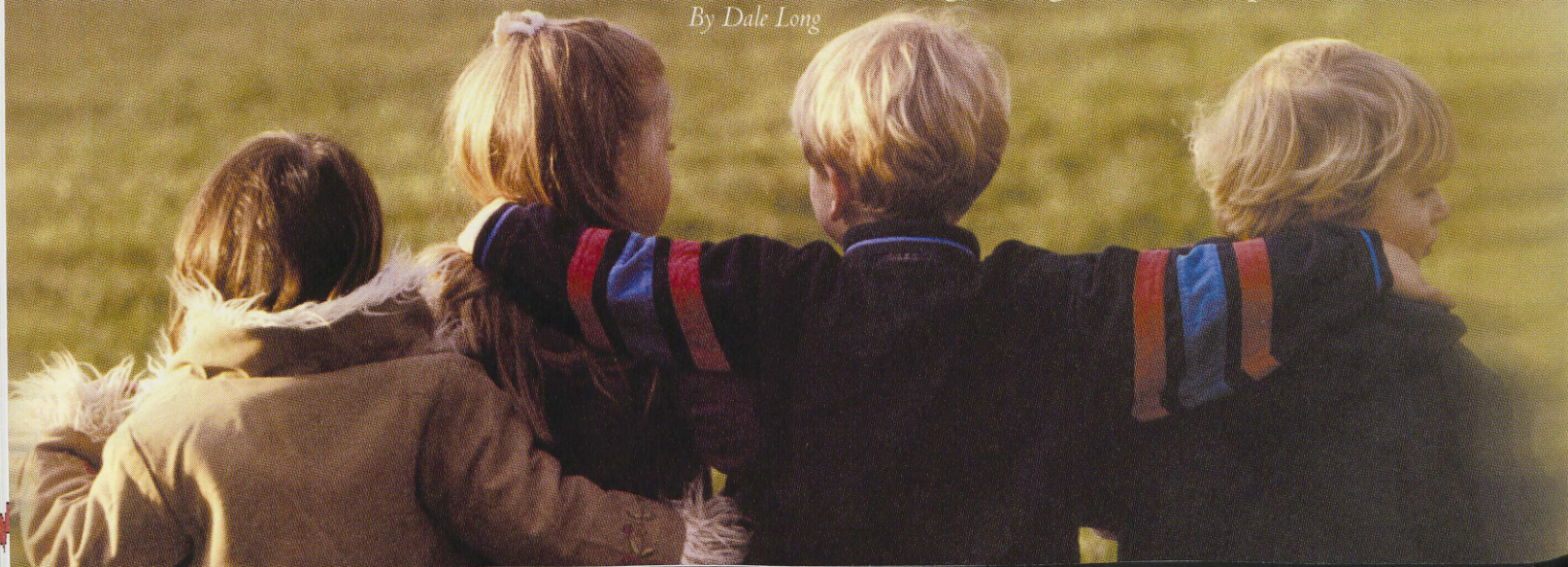
*The Modified Quad Crutch pediatric therapy device allows for Dillon
Mitchell, 6, of Terre Haute, Ind., to walk without direct assistance from phys-
ical therapists or his parents. It was produced by recent graduates Jennifer
Anderson, Brandon Cushman, Meryl Dillon and Matthew King.*

*Mitchell suffers from arthrogryposis, a congenital disease in which children are
born with stiff joints and weak muscles. He was separated at the colon shortly
after birth from his twin brother, Landon. Mitchell's weak arms restricted his
ability to complete therapy exercises at Terre Haute Physical Therapy.*

Making A Difference

Mechanical Engineering Students Help Disabled Youths

By Dale Long



Modified Quad Crutch Utilizes Wheels



The device utilizes four tiny wheels to support Mitchell's legs while walking – without assistance from therapists – during his physical therapy. He quickly has

learned how to use the crutch, walking more than 100 feet during one session.

"I didn't think he would be going that fast and that far on the first day," stated Anderson. "We knew that Dillon would work hard at it during his physical therapy. I'm delighted that it is accomplishing all of our design goals and that it is going to help Dillon's physical development."

"He wants to walk so bad," added Dillon's mother, Gwenda. "I've been patiently waiting for him to have a way to walk

around. This device answers our prayers."

Dillon's physical therapist Martha Sullivan added, "Not all vendors have the means and the patience to adapt a device to meet the needs of one child. That's what makes this so unique. The Rose-Hulman students took the time to learn what Dillon needed. Then they came up with a prototype that worked, but needed some modifications. The final product is just great."

Eventually, the device will allow Mitchell to walk around his

school classroom or house. The crutch currently stands at 24 inches tall, but will be adjustable up to 32 inches as Mitchell grows physically.

"Our final project presentation (for grading) was a week before we finally presented the crutch to Dillon," noted Cushman. "It still needed modifications. We could have stopped after receiving our final grade, but we didn't want to disappoint Dillon. We wanted to satisfy our client."

Device Helps With Transfer from Wheelchair



Meanwhile, Marlana Simms, 13, of Clinton, Ind., suffers from cerebral palsy. She needed a simple

table-like mechanical device that would help her transfer from a wheelchair to a nearby desk, chair or bed – movements that had been completed by being picked up by her parents, physical therapists or teachers. This lifting has become more strenuous as Simms has grown.

"After being in the wheelchair most of my life, I cherish those opportunities to be out of the chair," Simms said.

Rose-Hulman students Travis Eisenhour, Adam Keown, Jennifer Klingenberg, Gordon Thompson

and Casper Wright designed a padded device that allows Simms to lift herself out of the wheelchair and then swivel to the new seating position. It is adjustable to account for future physical growth, is padded and covered in an eye-appealing cloth, and is collapsible for easy storage under a bed or in a family van.

Simms giggled and couldn't wait to demonstrate the device during a classroom presentation. "It's just what I wanted," she said. "Thank you."

That reaction was reflected

across the faces of the Rose-Hulman students. "After seeing Marlana it was hard not to get personally drawn into the project. It became a mission for us," Klingenberg said. "We owed it to her to design something that would make a difference in her life." Wright added, "You quickly learn that the final project grade isn't important. It's helping others, and playing a small role in making a difference in their life, that means everything."

Wheelchair Device Improves Swimming Pool Accessibility for Disabled Middle-Schoolers



Four Rose-Hulman students also retrofitted a wheelchair to improve indoor swimming pool accessibility for disabled children participating in physical education classes at Woodrow Wilson Middle School in Terre Haute.

The device will increase valuable swimming time, improve physical therapy and improve self-esteem, according to teacher Dan Raubuck. It will be used when school resumes in the fall.

"Swimming is one of the few physical activities that allows these children to get out of the wheelchair," said Rose-Hulman student Bryce Clark. "Every minute in the pool is important. Our device should increase their aquatic experiences and allow teachers to have more meaningful time in the pool with each student." The device adapts elements of a collapsible lawn chair,

pvc pipe, a polyurethane reinforced yoga mat and a seat cushion.

"The Rose-Hulman student team did a wonderful job incorporating our needs into a finished product," assessed Raubuck. "They showed that the process of developing a new product is sometimes complicated, but works."

Once again, the project brought personal rewards for Rose-Hulman students. "It's a great feeling to help another person that's less fortunate. You learn to appreciate those gifts that you have and don't get bothered by

other things. There are people that are less fortunate," stated Rich Thacker. "This was the best experience of my college years. I just wish I could have done more projects like this."

Ryan Crisel and Eric Soller assisted on the project, one of 30 completed this year for industry clients, engineering competitions, local schools or health care agencies. The list of clients included Delco Remy, Cummins Engine, Caterpillar, Raytheon, Rolls-Royce and Dana Corporation. Professors Darrell Gibson and Patricia Brackin supervise the senior design program. ■

Bailey Challenge

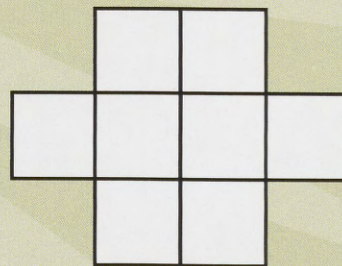
By Professor Emeritus Herb Bailey

"Die ganze Zahl schuf der liebe Gott, alles Übrige ist Menschenwerk."

This quote is due to the famous German mathematician Leopold Kronecker 1823-1891, and it translates to "God made the integers, all else is the work of man." It is probably more accurate to give God only credit for the positive integers. In the seventh century, the Indian mathematician-astronomer Brahmagupta was one of the first to give the rules for arithmetic involving zero and negative numbers. The two problems for this issue will deal only with the positive integers.

Problem 1.

Eight squares are arranged as shown in the figure. Two squares are said to be touching if they have at least one vertex in common. In how many different ways can the numbers 1,2,3,4,5,6,7,8 be assigned to the 8 squares so that each square is assigned a different number and that no touching squares contain consecutive numbers?



Problem 2.

Find a nine digit number N formed from the digits 1, 2, 3, 4, 5, 6, 7, 8 and 9 with the following two properties.

- each digit used exactly once,
- the two digit numbers formed by each pair of consecutive digits in N can be expressed as a product of two single digit numbers.

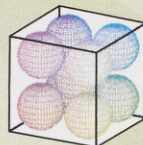
For example the number 126547983 satisfies condition a). It does not satisfy condition b) since it contains many consecutive two digit pairs (e.g. 26) that cannot be expressed as a product of two of single digit numbers.

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: A. Kelsall, 1940; W. Barrick, 1941; D. Heath, 1943; W. Soudritte, 1943; H. Payne, 1947; J. Hurt, 1948; C. Cook, 1949; A. Junker, 1950; W. Rinker, 1951; C. Hirshfield, 1954; C. Cooper, 1956; J. Chinn, 1956; J. Moser, 1956; A. Sutton, 1956; D. Bailey, 1959; P. DeStefano, 1960; J. Tindall, 1961; J. Snyder, 1962; R. Kraus, 1969; M. Avery, 1976; M. Bailey, 1976; J. Slupesky, 1979; W. Atterbury, 1980; R. Orr, 1980; K. Moraga, 1981; D. Lyon, 1983; G. Cullen, 1985; M. Lancaster, 1987; C. Abdnour, 1989; B. Burger, 1991; D. Hector, 1992; E. Francher, 1992; K. Fredrick, 1993; J. Atkins, 1994; J. Rott, 1995; T. Adams, 1996; D. Martin, 1998; C. Miesse, 1998; M. Pilcher, 1998; G. Lara, 2000; J. Hochstedler, 2006; D. Rotenberg, 2006; T. Cline, 2006; N. Snyder, 2006; S. Galler, 2006; J. Hanson, 2007

Friends: L. Gaintner; D. Voltmer; F. Bernard; K. Duffy; G. Elmer; L. Gaintner; J. McGaha; K. Smith



Solution for Previous Issue

You all did well on problems 1 and 2 but some missed problem 3 which was to find the ratio of sphere volume to cube volume for the packing shown. The body diagonal of a box is the line segment joining 'opposite' vertices, and if the box is a cube with sides of length s then the length of the body diagonal is $s\sqrt{3}$.

Let A and B be one of the pairs of opposite vertices of the cube. Then the body diagonal AB will pass through three of the sphere centers say C_A , C_O and C_B where C_A is near A , C_O is the center of the box and C_B is near B . If r is the radius of the spheres and x the distance from A to C_A then $AB = 4r + 2x$. Since x is the length of the body diagonal of a cube with edges of length r then $x = r\sqrt{3}$, and thus $AB = r(4 + 2\sqrt{3})$. The side of the cube is then $AB/\sqrt{3}$ and the required volume ratio is

$$\frac{V_{\text{spheres}}}{V_{\text{total volume}}} = \frac{9(4\pi r^3/3)}{(r(4+2\sqrt{3})/\sqrt{3})^3} \approx 0.471$$



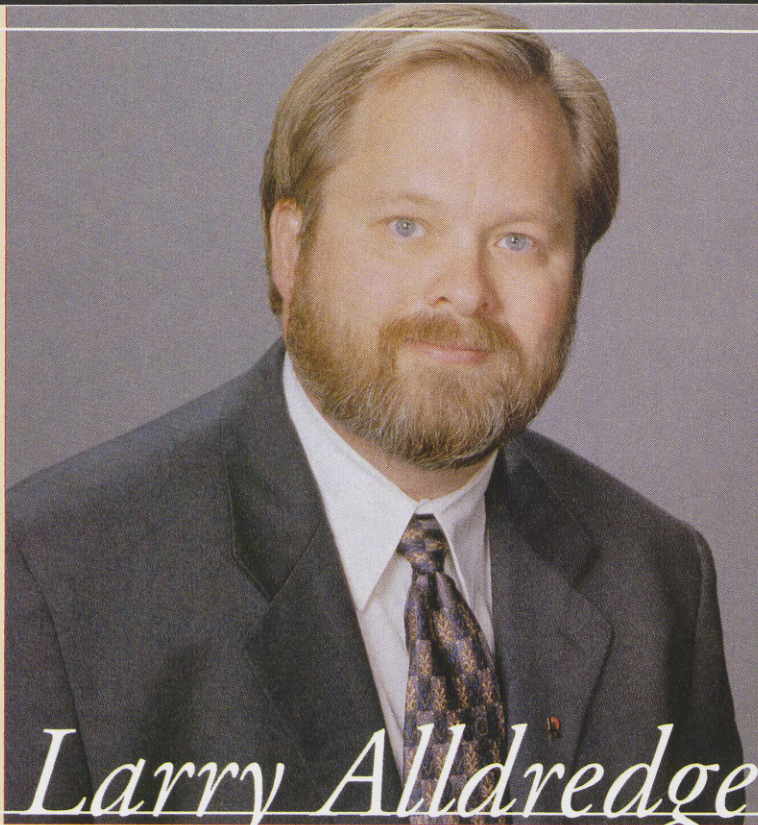
Distinguished Young Alumni

THE CLASS OF 2002

FROM LEFT: CURT BILBY, BEN BRIAN, LARRY ALLDREDGE, AND ERIC MOONEY

Each year, Rose-Hulman honors four alumni with the Distinguished Young Alumnus Award. It recognizes impact the alumni have made in their professional fields and communities. The honor goes to alumni who have graduated within the last 20 years.

2002



Larry Alldredge

A Follower Becomes a Leader

LARRY ALLDREDGE MAKING MARK AS
QUALCOMM VICE PRESIDENT

In 1988, Larry Alldredge received one of those life-changing phone calls from his former Rose-Hulman roommate, Mark Muri, a 1982 computer science graduate. Alldredge, employed by Rose-Hulman as associate director for academic software services, listened while his friend asked if any recent graduates would be interested in a job with a company called Telesoft. Alldredge could think of only one clear candidate: himself.

Six years later, the same roommate accepted a position with Qualcomm. Alldredge would follow after receiving another call from his roommate. This time, the job offer was for one in the Qualcomm OmniTRACS division, which developed a satellite data network used by the trucking industry.

In 1999, Alldredge helped the OmniTRACS division complete a restructuring that formed Qualcomm Wireless Business Solutions. The follower completed his transformation into a leader by accepting the position of vice president.

Today, Alldredge serves as the technical visionary for the business solutions division. The 1982 computer science graduate hand-selected a team of 50 highly specialized individuals to work on a next-generation satellite communication project that could revolutionize communication in the trucking industry.

"My story is not a traditional climbing of the ladder. I wanted to experience the corporate world rather than the academic world. I certainly didn't think that satellite transportation would be in my future, but now I could be at Qualcomm forever," said Alldredge.

The Solitude, Indiana, native entered Rose-Hulman as an electrical engineering major in 1978. He became interested in electricity in the third grade, but had never touched a computer prior to college.

He remained at Rose-Hulman for the next 10 years as a student and Waters Computer Center employee. He developed terminal connecting software and Ethernet structures that networked Rose-Hulman through the VAX system for the first time. At Telesoft, Alldredge continued his work

with the VAX to develop an Ada compiler for F-22 fighter planes.

"The Ada compiler software was innovative technology at the time. The work was fun for a while, but the market eventually dried up and another company acquired our research. I started looking for something new," said Alldredge.

At Qualcomm, Alldredge relied on his VAX background to edit 200,000 lines of computer code into a product that allowed 50,000 truck drivers to form an information network. He gained added responsibilities as the director of engineering for the OmniTRACS division.

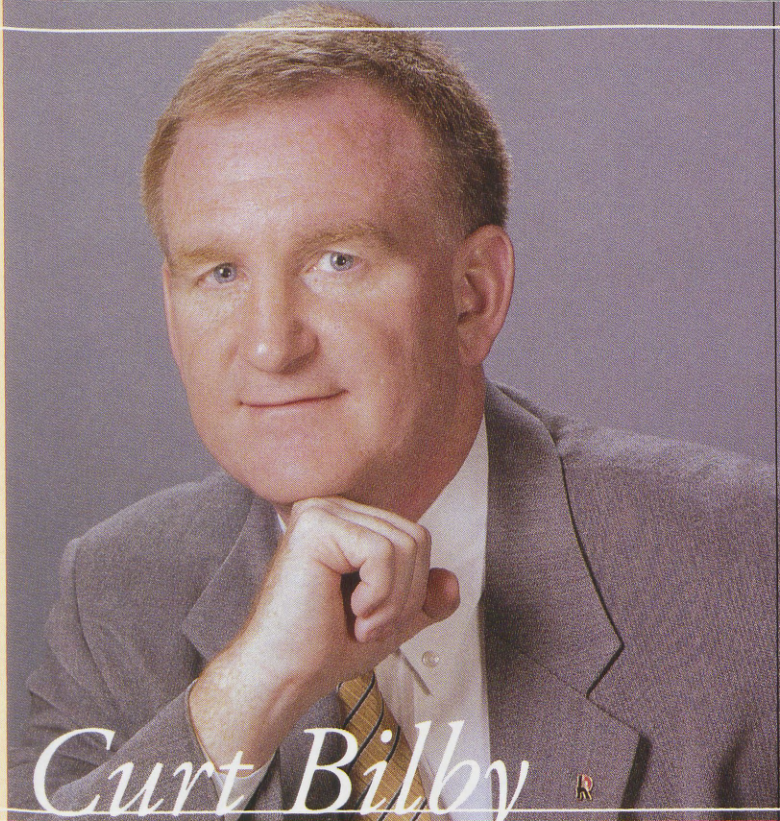
Today, Alldredge leads a team that hopes to create a less-expensive version of satellite networking for truck drivers. The communication theory involves moving bits of information at a faster rate. On-board computers and increased intelligence inside vehicles have prompted much of the technological advancement.

"We built our first product like a tank. Now, we want to manufacture a more versatile product with new and lighter materials," said Alldredge. The next-generation product should be available within two years.

"We have a great variety of disciplines on our product team. We have software engineers, embedded programmers, digital engineers and mechanical engineers integrating with business and pulling together as one. It is an exciting time in the product cycle," said Alldredge.

The path to Qualcomm began with a simple phone call and could end with a product linking much of the nation's transportation network together in a state-of-the-art satellite system. Through it all, Alldredge has remembered his most valuable Rose-Hulman learning tools.

"The most important thing that graduates can do is maintain contacts with their friends and professors," said Alldredge. "The outside-the-classroom and campus environments may have been more important to me than class projects. They provided the foundation for the skills that I use everyday at Qualcomm."



Curt Bilby

Motivated by Mentoring

BILBY ATTRIBUTES SUCCESS TO MENTORS WHO CARE

When asked what has been the key to his success in the volatile, high tech/biotech business sector, Curt Bilby answers with one word - mentors.

Without hesitation, Bilby names his mentors who range from high-school and Rose-Hulman teachers, to Teledyne co-founder and National Medal of Technology winner George Kozmetsky, to Hans Mark, former Air Force Secretary, and his parents, wife and brother.

Bilby encourages people to not only seek out mentors, but also to be mentors.

His ability to mentor management and staff has been vital to his career as the president of four companies. He now serves as chairman and chief executive officer of Evacyte Corporation in Austin, Texas. Evacyte is an early stage, biotech company that will improve therapeutics and diagnostics to treat metastatic cancer.

"My accomplishments aren't my own. I've had tremendous mentors who cared about me and my career," says the Sheridan, Indiana, native.

His first mentors helped lead him to Rose-Hulman. "My high-school teachers, such as John Terhune and Kent Harris, motivated me to succeed in math and science which created an interest in engineering," he recalled.

As an all-state baseball and football player, Bilby looked at Rose-Hulman as a way to not only receive an excellent education, but also to continue his athletic success. His first three years at Rose-Hulman weren't what Bilby had expected.

"I quickly discovered that the academics at Rose-Hulman were the biggest challenge that I had ever faced," says Bilby, who earned a mechanical engineering degree in 1981. Repeated injuries limited his athletic participation, which added to his frustrations.

In his senior year, two faculty became important mentors who guided him to academic success, graduate school and a rewarding career.

"Drs. Roper and Hulbert gave me the advice and motivation I needed at that time in my life," he stated.

"Professor Roper cultivated my interest in aeronautical and aerospace engineering."

As Student Government Association president his senior year, Bilby often met with President Hulbert. "He was persistent at encouraging me to consider graduate school," he said. Bilby took that advice and earned graduate degrees in aerospace engineering from Auburn University and the The University of Texas at Austin.

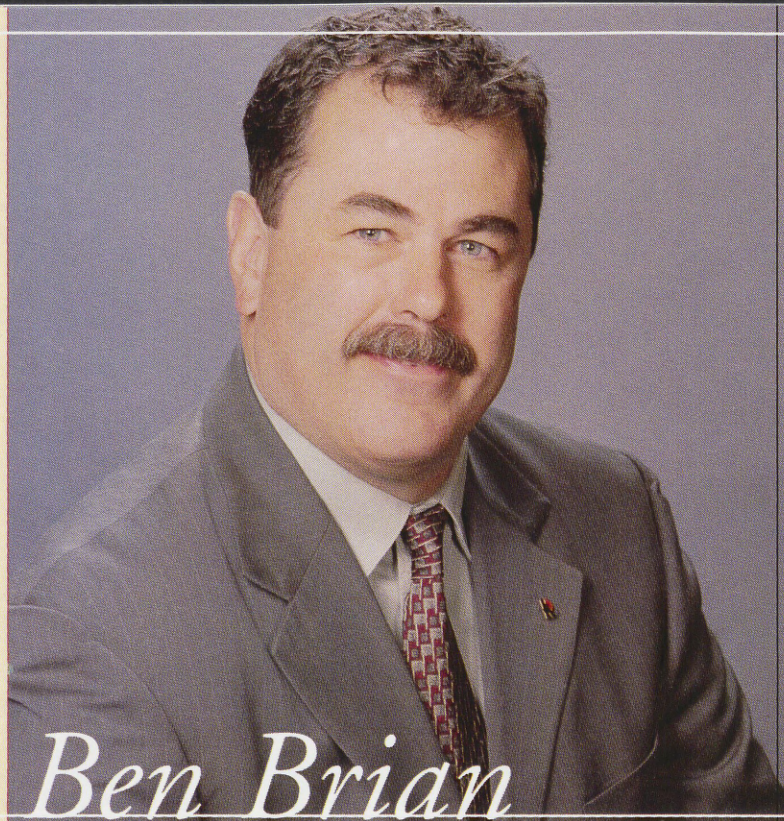
During a NASA fellowship, Bilby met Drs. Mark and Kozmetsky, two mentors who would have the most significant impact on Bilby's career. Kozmetsky served as dean of the university's graduate school and played a key role in Austin, Texas, becoming a center for high-tech business. Mark was then the chancellor of the University of Texas system.

Bilby's leadership philosophy was strongly influenced by Kozmetsky as well as his pastors, Frank Boswell and Jim Rose. "Successful managers must be servant leaders," Bilby stressed. "Serve your employees by doing everything you can to help them achieve more than they think they can. Put yourself in the position of the people you're asking to follow you," he added.

After the NASA fellowship, Bilby became general manager for a division of KDT Industries, which did work for NASA and the Strategic Defense Initiative. He then co-founded Arrowsmith Technologies, which is a leading provider of GPS-based workforce management systems. His career next led him to the medical field when he took the presidency of a subsidiary of Ambac, a supplier to clinical research laboratories. After Ambac, Bilby commuted to Europe while leading a pan-European clinical research group. When the board of Eurimed wanted Bilby and his family to move to Paris, France, he decided to stay in the United States and joined Evacyte.

Bilby brought his mentoring role to Rose-Hulman students during presentations in a biomedical engineering class, and at a seminar on entrepreneurship. He told students, "Inventors always want to talk about technology, but a successful technology business must focus on creating a product that will lead to value-based business transactions (i.e. sales)."

He encouraged them to "be introspective. Find your passion." Bilby has found his passion. It's to be a great mentor.



Ben Brian

Living the Start-Up Dream

BRIAN HELPS BRING NEW HEART-LUNG BYPASS SYSTEM TO MARKET

Ben Brian pursued a career in biomedical engineering, hoping he could make a difference in people's lives.

Those dreams are finally becoming a reality with the 1982 chemical engineering alumnus leading the development of a new, compact heart-lung bypass system that could drastically change patient care/life-support during cardiac surgery.

As vice president of research and development for CardioVention Inc., a Santa Clara, Calif.-based start-up company, Brian, one of this year's Distinguished Young Alumni, is developing innovative proprietary products for use in cardiovascular therapies. The company's first product is the CORx System that potentially avoids many of the harmful effects of current heart-lung machine technology.

Aimed at the \$1 billion annual cardiovascular surgery market, CORx debuted in January and initial clinical trials have shown that, compared to the blood circuitry of today's much larger heart-lung bypass machines, the small unit – slightly larger than a coke can – is able to function with one-tenth the amount of surface area exposed to blood and with minimal to no priming volume required for the system.

The effect of priming, known as "hemodilution," thins the patient's blood, reduces its oxygen carrying capacity and compromises other body functions. By reducing hemodilution and the surface area exposed to blood, the new system is expected to play a critical role in minimizing platelet loss, blood damage, blood transfusions and systemic inflammation.

"This is the first major advance in heart-lung bypass technology in more than 20 years," states Dr. Valavanur Subramanian, chairman of the department of surgery at New York's Lenox Hill Hospital. "Using the CORx heart-lung machine is like going from a mainframe computer to a laptop . . . It should enable better heart access in beating-heart procedures."

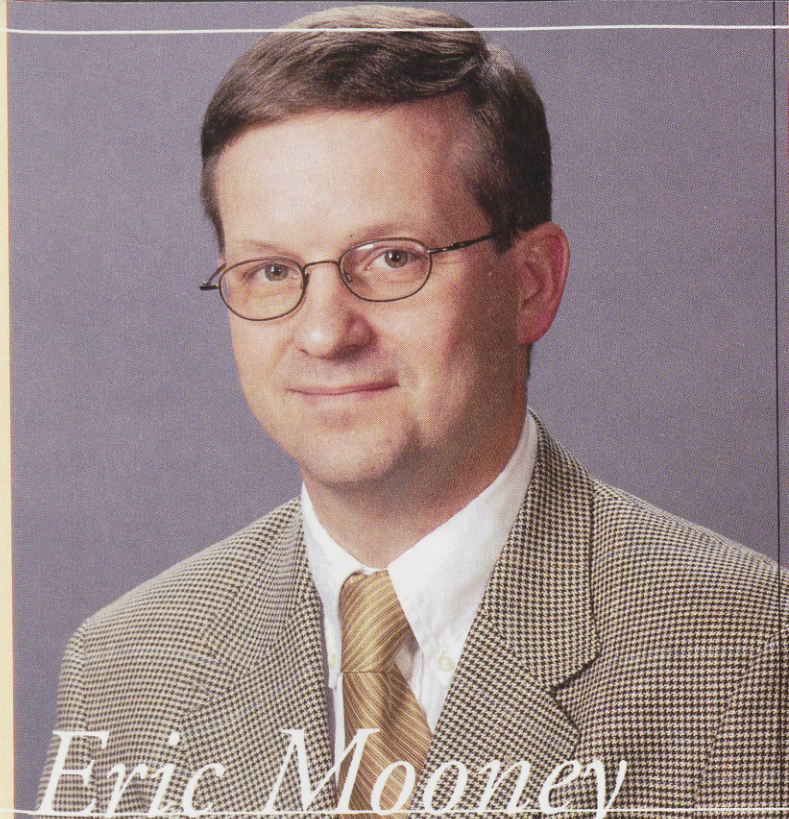
Such praise brings a smile to Brian and his hard-working colleagues, whom he is quick to credit.

"We're living the medical device version of the start-up dream," stated Brian, who arrived in January of 2000, initially as CardioVention's director of marketing and business development (from strategic marketing director of Johnson & Johnson's Ethicon Division). However, he had to brush off his engineering and biomedical expertise when the company's initial development direction hit a snag. Project "Bypass Light" began in June of 2000 under his leadership, with 14 remaining key employees.

"Like most Silicon Valley start-ups, we were surviving month to month," Brian stated. Amazingly, within one year, the CORx System was used clinically in India and Argentina. The successful completion of those trials and the surgeon testimonials were crucial to the subsequent closure of a \$21.1 million C-round of financing, as the company was running out of money.

CardioVention's staff is now at 60 persons and rising. Great news arrived in April with the FDA clearance of the device for the U.S. market. The challenge ahead will be scaling up manufacturing to meet the market demand (projected 40,000 units at full-year adoption).

"My name isn't the first one listed on the pending device patents, I was just the leader of a team of quality people that were committed to a worthy cause," said Brian, who earned his doctorate in chemical engineering (1991) from Arizona State University and was principal design engineer and a marketing manager (1989-1998) for COBE laboratories (Golden, Colo.). "Luckily, I have been part of development teams that have focused on patient benefit in device design. If you're not going to focus on the patient, you're vision isn't going to take you very far in the health care industry."



Eric Mooney

Surgeon Finds Payoff in Grateful People

ALUMNUS MAKES A DIFFERENCE SHARING HIS SKILLS ACROSS THE GLOBE

Some of Eric Mooney's patients walk four days to take advantage of his skills as a plastic surgeon. This is not the result of some no-frills HMO. Instead, it is an outreach Mooney volunteers for through an organization of plastic surgeons called Interplast, a non-profit organization that provides free reconstructive surgery for children in developing nations.

A 1982 chemical engineering and chemistry graduate, Mooney is a team leader and administrator for Interplast. His volunteer work has taken him to countries such as Vietnam, Brazil, Ecuador and Bangladesh. During a January trip to Ecuador, Mooney and his colleagues operated on 120 children in eight days.

"In our country, we probably have the best-developed medical technology. It's incumbent upon us who have gifts of technology to help those who don't have the resources to help themselves," Mooney explained of his involvement in Interplast.

Usually 12 to 15 people, including three or four plastic surgeons, form a visiting Interplast team. In addition to their skills, team members bring all of their own equipment for the surgeries. Interplast teams also train local surgeons and coordinate technology transfer so the work can continue after the volunteers leave.

When he is not traveling the world for humanitarian work, Mooney, one of this year's Distinguished Young Alumni, serves as an attending plastic surgeon for Bassett Healthcare in Cooperstown, New York. Each year he performs 600 major surgeries and another 100 charitable surgeries. Ninety percent of his work is reconstructive surgery.

Mooney also teaches students from Columbia, Syracuse and Albany medical schools. In addition, he conducts clinical research, focusing largely on tissue-engineered skin.

Mooney earned his medical degree from the University of Cincinnati, and he is a former fellow at the University of Massachusetts Medical Center where he received the Center's Mitch Kaplan Memorial Award for excellence in resident training.

People are the reason Mooney spent 14 years in medical training. "As plastic surgeons, we get scientific about how we do things, but the big payoff is when the patients come back able to do things they couldn't do before," Mooney said. "My biggest reward is seeing how grateful people are after we help them.

"Prior to each surgery, a colleague of mine says 'This is the most important day in this person's (patient) life.' I adopt that approach in my work."

Each surgery is different and Mooney many times has to adapt as "surprises" arise during an operation. His longest surgery has been 34 hours. During a visit to a Rose-Hulman biomaterials engineering class, he showed slides of a skull reconstruction that took 26 hours.

Mooney draws on his engineering background for his work in medicine. "At Rose-Hulman the number-one skill I learned was problem-solving. I learned how to approach a problem and solve it without getting frustrated by it," he said. "That philosophy applies to surgery as well as engineering."

Mooney's Rose-Hulman roots also serve him in the area of technology. "Because of the broad scientific education I received, I have a real appreciation of new technologies being applied in my field every day. It really surprises me there aren't more engineers who become surgeons. The next 20 years will be the most exciting time in medicine because of these technologies. The potential impact of engineering students on the medical field is boundless at the moment."

Paul Palmer recalls fondly the sense of anticipation among grade school friends to see the science fiction movie "Star Wars" at an Indianapolis theater in 1977.

They were about to see something spectacular.

George Lucas' futuristic big-screen adventure captured the imagination of a generation, spawning such pop culture characters as Luke Skywalker, Princess Leia, Han Solo and Darth Vader, and the affectionate astromech droids R2-D2 and C-3PO.

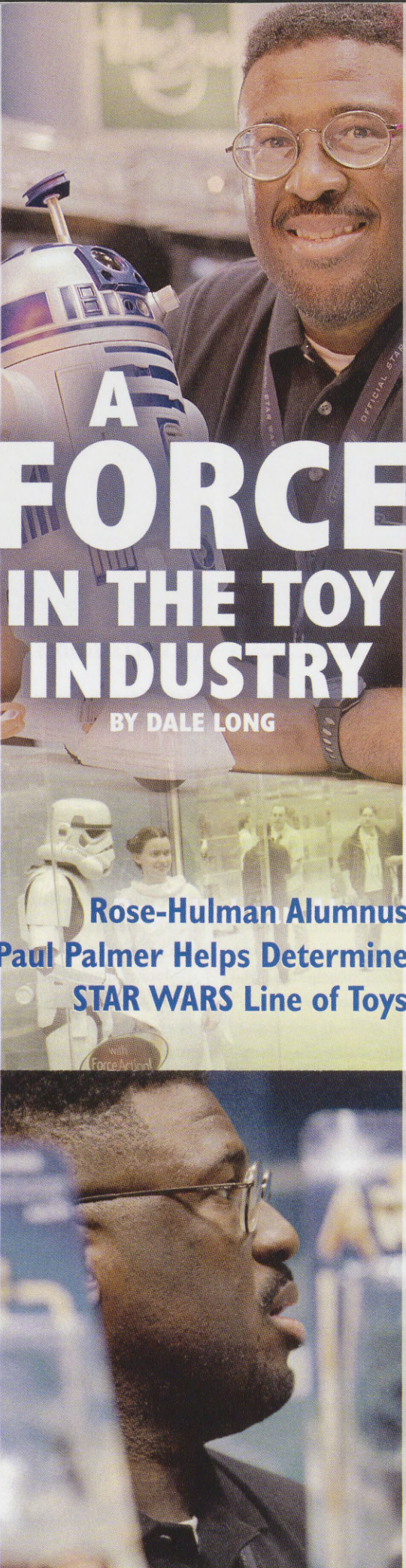
Palmer and his friends had seen the future and quickly became adoring fans. And, little did he know it, but Palmer also had a glimpse into his own future.

As a senior brand manager of Hasbro Inc., the 1989 Rose-Hulman Institute of Technology mechanical engineering graduate helps coordinate aspects of the diverse Star Wars product line. He was one of the first people to review the script for the latest installment in the sci-fi saga, "Star Wars Episode II: Attack of the Clones," helped determine which characters and objects would be featured as toys this year, and played a key role in marketing and promotions for this summer and the all-important Christmas shopping season.

"Really, I'm a big kid. If the toy interests me, and I want to play with it, it's going to fascinate a Star Wars fan," says Palmer, 34, who hasn't changed much from the 5-foot-9, 250-pound fun-loving person who was affectionately nicknamed "Scooter" and helped patrol the defensive line on the Engineers' football team. **"Working in toys just seemed to be a natural fit."**

Palmer's world has soared like a Jedi Starfighter during the past two years in anticipation of a line of toys — from authentic action figures to motorized vehicles to high-tech interactive products — designed to continue the fantasy for the young and young at heart.

Star Wars is one of the most popular and successful entertain-



A FORCE IN THE TOY INDUSTRY

BY DALE LONG

**Rose-Hulman Alumnus
Paul Palmer Helps Determine
STAR WARS Line of Toys**

ment properties of all time, according to Brian Goldner, president of Hasbro's U.S. toys group, which also includes Playschool, Tonka and Milton Bradley, and such popular toys as GI Joe, Monopoly and Play-Doh. The company worked closely with both LucasFilm Licensing and retailers to develop a product line that offers exciting play features for kids, while also providing products that crazed collectors will cherish.

Sixty new action figures put the power of "The Force" into kids hands with animated "force" and "flipping" features; two versions of lightsabers, the Jedi's weapon, allow for people to act out their favorite scenes; and Hasbro's vehicles, including Jango Fett's Slave I and the Jedi Starfighter, are more action-packed than ever before. Plus, kids will be able to have their very own R2-D2 interactive astromech droid (the most expensive toy at \$99.99) that answers to their call, obeys their commands and shows the spunk that made R2-D2 famous. Each new toy is an authentic reproduction of the item featured in the film, with Hasbro representatives being on the movie set to assist LucasFilm Licensing with toy development. Three-dimensional full-body images were created to showcase each character in the appropriate costumes — from the scene depicted in the action figure set.

"If you make a mistake, you're going to hear about it from Star Wars fans," stated Palmer, who has met countless fans during promotional exhibits. **"Fans are passionate about the series and they don't miss a thing, right down to the color of shoelaces on a character's boots. We try to be as precise as possible to maintain the authenticity of Star Wars."**

When filming concluded in January, 2001, production began on "Episode II" toy products. Hasbro's exclusive product line took flight in April to nationwide retailers.

In May, Palmer returned to his hometown to organize Hasbro's display at the largest Star Wars conven-

tion, Celebration II, attended by more than 35,000 fans. Hasbro's Star Wars-related exhibits, displays and events, including an appearance by original Princess Leia, Carrie Fisher, covered a majority of the 340,000-square-foot Indianapolis Convention Center and cost approximately \$250,000.

Palmer's fingerprints can also be found on all aspects of Hasbro's Star Wars product development, marketing strategies and promotional campaign, hoping to create excitement — and ringing cash registers — throughout Christmas and 2003.

"We're hoping that every kid in America is begging their mom or dad to buy them a Star Wars toy before they walk out of the store," said Palmer, adding that Hasbro has committed several millions in product development, marketing and promotions of its "Episode II" Star Wars products. **"The lifecycle of a typical toy is one year. Just look at Pokemon or Furby. Here today, gone tomorrow. You have to take advantage of every day if you're going to meet sales projections. It also helps to have a great brand identity and having George Lucas developing outstanding films. We think Star Wars is an evergreen property that will live on in the future."**

"Attack of the Clones" is set 10 years after the events of "The Phantom Menace." The galaxy has undergone significant change, as have Obi-Wan Kenobi (Evan McGregor), Padme Amidala (Natalie Portman) and Anakin Skywalker (Hayden Christensen). Anakin and Obi-Wan are assigned to protect Padme, whose life is threatened by a faction of political separatists.

"I think we have a winner. George (Lucas) has developed a film that will capture the imagination of die-hard Star Wars fans and expand the fan base with new fans," says Palmer, of course, an avid Star Wars fan. **"I eat and breathe Star Wars every day. People**



"Everything starts with believing in yourself," says Palmer.



have challenged me, thinking they know more about Star Wars. I've quickly proven them wrong."

Palmer still utilizes his engineering skills every day. However, it's his people skills, his ability to contribute to a team and being a goal-oriented person — traits developed at Rose-Hulman — that have helped him succeed in the competitive toy business.

"Every day is a new adventure. I walk into the office every day not knowing how many things on my 'To Do' list are going to get accomplished today ... What got me here is that I got tired of being a functional engineer. I wanted to use the other side of my brain," says the former Alpha Tau Omega member, who joined Hasbro in 1998 to work in girls toys after being an engineer with the Procter & Gamble Company (Cincinnati, Ohio), Firestone Industrial Products (Carmel, Indiana) and Vitro Corporation (Bloomington, Ind.). He also earned a master's degree in business administration, specializing in marketing and international business, from Indiana University in 1996.

"Everything starts with believing in yourself," added Palmer, who participated in a half marathon in Anchorage, Alaska, on June 22. **"Why Anchorage? It's a fun thing to do and I'm ready for the challenge, much like my days at Rose-Hulman. I wasn't the top student and sometimes I coasted along. Now, I recognize that I have been very fortunate to be associated with several fine people and institutions — Dr. (Samuel) Hulbert, Dr. (Andrew) Mech, Ron Reeves and ATO (fraternity) at Rose-Hulman, my engineering experiences at Procter & Gamble and now being a part of a great team at Hasbro ... They've helped me grow as a person. I'm hitting the stride of my life."**

Palmer doesn't have much time to celebrate this year's successes: "Episode III" is on the horizon in 2005.

ALUMNI News

LEGACIES

This year marked a bumper crop of legacies graduating from Rose-Hulman. The college takes pride in the men and women who have fathers or grandfathers who are Rose-Hulman graduates. These photos are from commencement 2002. Unless otherwise indicated, the alumni listed in the photos are fathers.



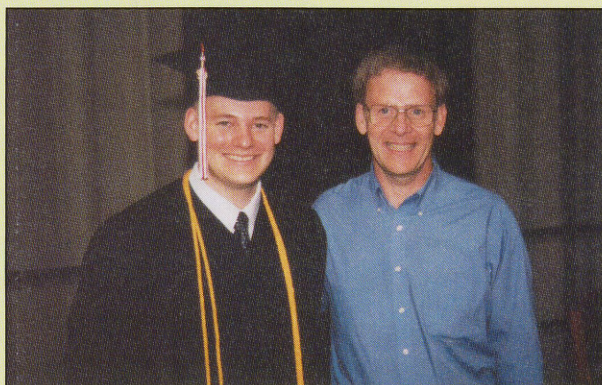
From left: Robert Neal ('77, M.E.), Teresa Neal, Frank Smidler ('80, M.E.), Kylee Smidler, Jeff Froyd ('75, Math.), Nathan Froyd, Douglas Meyer ('73, E.E.), Jennifer Meyer, Gregory Montgomery ('70, M.E.), Blake Montgomery, Gene Helms ('67, E.E. and '71 M.S.E.E.) and Daniel Helms.



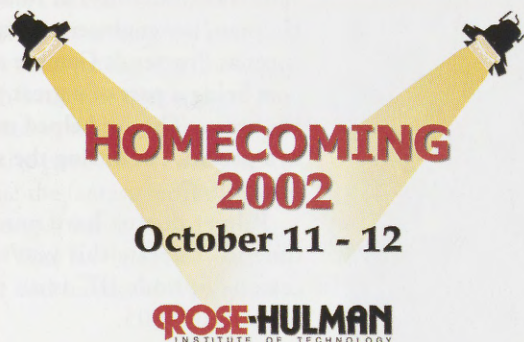
Harmon Shaw ('46, M.E., grandfather), Richard Barton, Ben Shanks, Jeffrey Shanks ('76, M.E.) and Roger Shanks ('52, M.E., grandfather). Not pictured Adam Summerlot, son of Raymond L. Summerlot ('74, M.E.) and grandson of the late Raymond D. Summerlot ('50, M.E.).



From left: Terry Maddux ('77, Ch.E.), Ryan Maddux, Braden Hudson and Billy Hudson ('74, C.E.).



Adam Keown and Marvin Keown ('75, M.E.).



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.

ASSOCIATION NEWS

WELCOME CLASS OF 2002

I want to welcome each of the graduates of the Class of 2002 to the Rose-Hulman Alumni Association. I'd like to encourage your continuing involvement in your Association wherever your career or further education takes you.

We have groups of alumni throughout the United States to associate with, offering you an opportunity to enjoy the company of your fellow graduates and continue to serve Rose through your involvement and leadership.

The image and reputation of Rose-Hulman are at an all-time high — a position in which we all can take great pride. Graduates of Rose-Hulman, both young and not-so-young, continue to be leaders in their chosen fields of work, known for their intelligence, drive and creativity. We want to take advantage of these assets on behalf of our Alumni Association and I'd ask each of you to examine ways that you can help.

The Alumni Association has a strong leadership team in place in terms of our volunteers and the staff at Rose-Hulman. Our plans and goals are in place and alumni activities continue to expand. But we need your involvement to make the Association even better. Just as Rose-Hulman has come to be recognized as number one through hard work and dedication, we need you and your efforts to keep our Alumni Association moving forward.

We have many committees to serve on, and I'd ask for you to give me a call at 219-647-5510 or e-mail me at rjschacht@nisource.com to offer your help. You can also call Brian Dyer in the Alumni office at 812-877-8359. We'll look forward to hearing from you.

Robert Schacht
Class of 1972
President of the Alumni Association

ALUMNI ASSOCIATION OFFICERS

PRESIDENT

Robert Schacht ('72)
e-mail: rjschacht@nipsco.com

VICE PRESIDENT

Owen Meharg ('54)
e-mail: meharg@juno.com

SECRETARY-TREASURER

Doug Stearley ('79)
e-mail: dougstearley@aol.com

PAST PRESIDENT

Pat Cahill ('67)
e-mail: cahillph@cs.com

ALUMNI REPRESENTATIVES TO THE BOARD OF TRUSTEES

Tom Dinkel ('72)
e-mail: TDINKEL@Sycamoreengineering.com
and Fred Clayton ('70)
e-mail: foclayton@earthlink.net

ALUMNI BOARD OPERATING COMMITTEE CHAIRS

Alumni Clubs – Jeff Burgan ('77),
e-mail: jburgan@leydig.com

Awards/Recognition – Bill Nicewanger ('63), e-mail: bill_nicewanger@inter-tel.com

Career Services – Mark Owens ('72),
e-mail: MTO@lilly.com

Continuing Education – Jacque R. Wilson ('96), e-mail: Jacque.wilson@zimmer.com

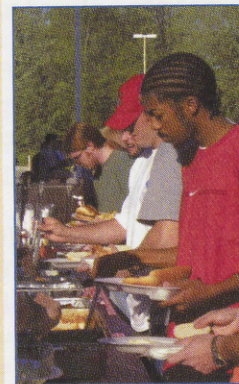
Fund Raising – Greg Holler ('79),
e-mail: Gregory.N.Holler@delphiauto.com

Homecoming – Nick Mahurin ('89),
e-mail: nick@csnetwork.net

Student Alumni Association – Pat Goodwin ('95), e-mail: keepeegoe@aol.com

Student Recruitment – Jeff Myers ('87),
e-mail: jeffm@wvpa.com

Young Alumni Council – Becky Smith ('99), e-mail: SMITH_REBECCA_C@Lilly.com



Senior Sendoff

The Alumni Association sponsored the annual Senior Sendoff after commencement rehearsal in May. The event included an outdoor picnic at Cook Stadium. The event is one of the ways the college welcomes graduates to the alumni ranks.



DEEP IN THE HEART

At the Texas Instruments Americas Sales Conference on May 4-8, 2002, in Dallas, several Rose-Hulman grads gathered for a group photo.

Front row, from left: Ozgur Ozkaya ('96/'99), Carl Cotter ('93), Steve Bakota ('93), Jeff McCreary ('79), Jenny McGuire ('01), Brent Mewhinney ('84); and second row: Kirk Milling ('78), Gregg Lowe ('84), Geoff Miller ('98), Paul Sparacino ('01), Nate Johannsmeier ('00).

1954

Joseph T. Verdeyen (E.E.) received the Distinguished Alumni Award from the Electrical & Computer Engineering Department at the University of Illinois at Urbana-Champaign last spring. He received his Ph.D. there in 1962. A professor emeritus at that university, he was honored for three decades of leadership in teaching and his pioneering work in laser interferometry and gaseous electronics.

1967

Charles Webb (E.E.) recently received a patent for a hydraulic cable piercing tool used for utility underground cable work.

1968

Michael R. Rayphole (C.E.) has been named vice president of sales and marketing for Peabody Energy. Most recently he was vice president of transportation and customer service for Peabody COALSALES.

1975

Denny Pasternak (C.S.) has founded the DennyP Travel company. Specializing in Caribbean resorts, he is located in Cave Creek, Ariz.

1976

David Dahl (C.E.), president of Midwestern Engineers, Inc., was recognized for 25 years of service with the company recently. He lives in Washington, Ind.

Jim Gidcumb (Ch.E.)

reports that after a 24-year career at Monsanto/Solutia, most recently as director of integration for new ventures, he has retired to embark on a second career as a financial adviser at PaineWebber in St. Louis, Mo. He and his wife, Cathy, continue to reside in Clayton, Mo., where they are active in many community nonprofit organizations.

Mark Schulz (M.E.) is

pleased to report he is not deceased as listed in the last issue of *Echoes*. The staff of *Echoes* regrets the error and apologizes for it.

1979

Pete Hylton (M.E.) recently married Wendy Otoupal-Hylton. They reside in Brownsburg, Ind. Pete has a new job as system engineering lead for the Joint Strike Fighter Liftfan program at Rolls-Royce. Also he was recognized as the outstanding adjunct faculty member at Indiana University-Purdue University (IUPUI) where he teaches for the mechanical engineering technology department.

Earl Stalter (C.E.) has purchased Pinnacle Sports in Medina, Ohio. The facility is a 72,000-square-foot multisport building. The business will serve various sports and provide sports training.

1980

Todd Royer (Ch.E.) married Judith Ann Brown last year. They live in Louisville, Ky.

1981

Scott Lindner (M.E.) has accepted a new position as a mechanical engineer with the Wireless Network Business Unit of Cisco Systems, Inc., in Akron, Ohio. He continues to reside in Hudson, Ohio, with his wife Julie, daughter Georgia and son Ben.

Kevin S. Rees (M.E.) was named to the Army Acquisition Corps earlier this year. He was promoted to chief of the Aviation Engineering Division at the U.S. Army Aviation & Missile Command. He is responsible for all field and depot maintenance engineering for Army helicopters worldwide. Based in Corpus Christi, Texas, he has civilian employees in Europe, Asia and throughout the United States. He also received his master's degree in mechanical engineering from Georgia Institute of Technology this May.

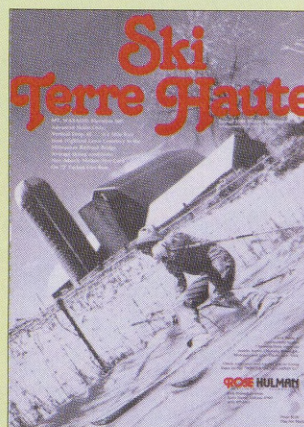
1982

Robert Heathcock (E.E.) married Karen Tubman of Ottawa, Canada, last April. They reside in Arlington, Va. Bob is the deputy program manager for the Department of Defense Joint Tactical Radio.

Mark Renholzberger (Ch.E.) married Mary Ellen Matthews last year. He remains employed at Reilly Industries in Indianapolis.

1983

Steve Bishop (M.E.) has two of his sculptures on display in the Columbus

**It's Back**

Rose-Hulman's Ski Terre Haute poster is available once again in a limited edition reprint. The special offering has been made possible by the Rose-Hulman Student Alumni Association. You can obtain your own personal copies for only \$10 per poster. Proceeds support the Student Alumni Association activities. Contact Bunny Nash at 800-248-7448, ext. 8465, to order yours over the telephone. Or visit our web site at <http://www.rose-hulman.edu/alumniaffairs/Ski-immediate.htm> to place your order online. You can also contact us via regular postal service at Alumni Office, Rose-Hulman Institute of Technology, 5500 Wabash Avenue, Terre Haute, IN 47803.

Gallery of the Indianapolis Museum of Art. They are part of an international exhibit of woodturned art called "Challenge VI – Roots: Insights and Inspirations in Contemporary Turned Objects." Check out Steve's personal website at <http://www.woodturningartist.com>.

Dave Oakley (Ch.E.) and his wife, Denise, welcomed their first child, Matthew Elias, born Jan. 14.

1984

C. David Fisher (E.E.) was activated for U.S. Air Force active duty during January. He is serving a one-year tour in the Reconnaissance Systems Program Office of the Aeronautical Systems Center at Wright-Patterson Air Force Base in Ohio.

Damon Richards (E.E.) was recognized as one of Indianapolis' top young business and professional leaders by the Indianapolis Business Journal in its annual "40 under Forty" feature. He is president of Port-to-Port Consulting, a company that provides technology consulting and training for more than 200 Indiana organizations.

1985

Joseph K. Edwards (E.E.) has been promoted to the rank of lieutenant colonel in the United States Army. He is assigned to the staff of the commander-in-chief of the U.S. Pacific Command at Camp H.M. Smith, Hawaii.

Mat Hardman (E.E.) and his wife, Cheryl, announce the birth of their fourth child, Annsli Grace. She joins siblings Cole, Addyson and Clay.

D. Lars Ho-Tseung (M.E.) has been promoted to the position of executive vice president of Impaxx, a \$200 million packaging company.

Gerald W. Roberts (E.E.) has started his own law practice with Indiano, Vaughan & Roberts. He focuses on patents, trademarks, copyrights and other intellectual property matters.

Steve Sauer (E.E.) and his wife, Mary Lou, announce the birth of Emily Grace on Jan. 29. She joins big brother Daniel. Steve is employed at Northrop Grumman, Xetron in Cincinnati as a senior manufacturing engineer.

1986

Richard Payonk (Ch.E.)

recently was named "Volunteer of the Month" for his work as campaign chairman of the United Way of the Wabash Valley 2001 campaign.

1987

John Gish (M.E.) has accepted a new position of gas turbine programs engineer with Siemens-Westinghouse in Orlando, Fla. He also earned a master of science degree in industrial engineering from the University of Miami.

Timothy Yarling (M.E.)

married Chiharu Sato last March in Tokyo. They reside in Speedway, Ind.

1988

Lynn Crockett (C.S.) reports the birth of Lexi Grace last fall.

Daniel Ferris (C.S.) reports the birth of a son last January.

Bradley Mills (E.E.) reports

the birth of daughter Meghan Elise.

Allen Shotwell (Phy.) and his wife, Chris, announce the birth of second son, Alexander Hugh. He joins brother, Quinlan Michael.

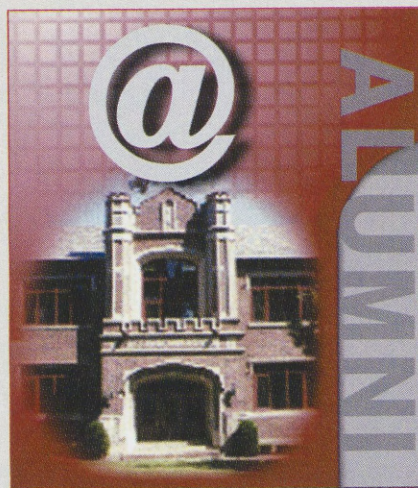
1989

Bryan E. Bell (Chem.) has accepted a position with Eli Lilly & Co. in Lafayette, Ind., where he works as an associate analytical chemist supporting the Quality Control Laboratory.

Bill Jurasz (C.S.) has been promoted to principal staff engineer/scientist at Motorola in Austin, Texas. He works in the semiconductor products sector, advanced systems platform, doing design verification of PowerPC processors and systems.

Raymond Pogliano (Ch.E.) now is a project engineer for Pharmacia in Kalamazoo, Mich.

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. ■

1990

Bob Jacobs (Ch.E.) and wife, Brandy, announce the birth of their son Nicholas John. He was born Feb. 19 in Geneva, Switzerland, where Bob continues working for Procter & Gamble.

Dennis Moore (M.E.)

reports the birth of Dennis Wayne Moore III on Jan. 14.

1991

Kirk Eisert (E.E.) married Karen Smith last year.

Kevin Love (M.E.) now is vice president of information systems for Elano Corp. in Beaver Creek, Ohio. He and wife Michele, have three children – Abby, Jacob and Spencer.

Anthony “Tony” New (E.E.) updates us he has been promoted to engineering manag-

er of information technology systems for Sony Disc Manufacturing. Also he received his master’s in engineering management from Rose-Hulman last year, and he is chairman of the board of trustees for the Rose-Hulman Alpha Tau Omega fraternity.

Kevin Wyatt (E.E.) and wife Alicia Gwynne report the birth of Rowan Elizabeth on Jan. 12. She joins sister Gwynne Katherine.

1992

Eugene Coughran (E.E.) reports the birth of second son, Cole Stephen, born last year.

Dustin DuBois (Ch.E.) and his wife, Tonya, announce the birth of daughter Jacqueline Victoria, born Dec. 11.

John D. Kellam (Ch.E.)

recently was promoted to plant manager at Milliken’s Magnolia Finishing Plant.

David C. Petruska (E.E.)

reports another child, Ian David, born last year.

Dan Rich (C.E.) has completed his master of civil engineering from the University of Houston.

Erik Wallace (E.E.) recently was promoted to director of the Wireless Data Division at Telecommunication Systems. He manages two groups that work on messaging service for 3G mobile phones.

Kevin Zaylskie (CO) has accepted a position at TRW in the Space & Electronics Group. He works at the Dayton Avionics Engineering Center.

1993

Brian Alexander (M.E.) and wife Brigid welcomed newborn Vincent on Feb. 20. He joins siblings Jacob and Jane.

Trevis Litherland (Math.)

married Sunchin Shi on Pingtung, Taiwan on Jan. 19.

Wade Stockton (M.E.) and his wife Marie announce their first child Mason, who was born last year. The family resides in Atlanta, Ga.

Michael R. Waldbieser (C.E.) reports the birth of a second daughter, Karen Elise, born Feb. 28.

1994

Michael Bayne (C.S.) reports a new employer – Three Rings Design, Inc. He lives in San Francisco.

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

SUMMER 2002

Jason Bisbee (Ch.E.) and his wife, Erin, welcomed their first child, Jared Ethan, who was born last year.

Hal Higley (M.E.) has reported to the USS Louisville as navigator/operations officer. The USS Louisville homeports in Pearl Harbor, Hawaii.

Joseph Joice (E.E.) married Kristan Suzana Young last fall.

Paul D. Neukam (M.E.) and his wife, Terri, had an addition to their family when Madyson Elizabeth was born last year. She joins big sister Taylor. Also, Paul has passed the Building Industry Consulting Service International Registered Communications

Distribution Designer certification.

1995

Dennis Burgess (Ch.E.) has accepted the assignment of senior buyer for Ecolab-Huntington in Huntington, Ind. He was promoted from the position of production/quality supervisor.

Lans Carstensen (CO) and wife Karla welcomed first daughter Andrea Evelyn last December. Lans is employed by Dreamworks SKG Animation. The family resides in Santa Clarita, Calif.

Scott Chase (M.E.) exchanged wedding vows with Christine Pecord last year.

Steve Cisco (E.E.) reports the birth of second child Sullivan Michael Allen, born last fall. Also, Steve has written a programming book titled "Migrating to Visual Basic .NET". It is available online and in bookstores.

David Seager (M.E.) and his wife Colleen welcomed their third son, Mason, recently. Professionally, David has accepted a new job with Centropolis Effects, LLC. in Los Angeles as a sequence supervisor for the upcoming feature films Matrix 2 & 3. He has just completed work on a short for the Animatrix as computer graphics supervisor. Also, last year saw the release of the film "Final Fantasy: The Spirits Within", a film for which he served as lighting supervisor.

1996

Karl Ammerman (CO) and his wife Daphane had their second child, Park David on Dec. 15. Also, Karl received his master's in computer science and engineering at the University of Denver, and he was promoted to member of the technical staff at Avaya.

Beth Knoy Brock (M.E.) has received her PE certification after passing the mechanical engineering PE exam last fall.

Scott Fisher (E.E.) has been busy since we last heard from him. He married Gina Marie Boyd in 2000, the same year he was promoted to captain in the U.S. Air Force. He is stationed at Wright-Patterson Air Force Base working at the National Air Intelligence Center as an electronic intelligence systems engineer.

Tim Ground (M.E.) married Sarah Russell on March 23. They reside in Jasper, Ind., where Tim is employed as a quality engineer for Kimball Electronics Group.

Craig Martin (C.E.) has been promoted to products division product manager for Dwyer Instruments in Michigan City, Ind.

Keith Martin (Ch.E.) and his wife, Jennifer, announce the birth of their first child, Adalynn Deanne. She was born last February.

David E. Orr (M.E.) married Kara E. Schertz March 16. They reside in Easley, S.C., where David is work-



Alumni and Friends at the Great Wall of China

President Samuel Hulbert and his wife Joy and 51 Rose-Hulman alumni, staff, spouses and friends enjoyed an exciting tour of China during June. Highlights of the trip included visits to Shanghai, Xian, Beijing, and a Yangtze River cruise. Faculty member Cary Laxer and retired faculty Frank Guthrie and Bill Ovens also attended.

ing toward a Ph.D. in bio-engineering at Clemson University.

Robert Waller (M.E.)

reports the birth of a second daughter, Allison Marie, born Feb. 21. Also, Rob has been promoted to transition team leader at PolyOne Corp.

1997

Eric Wather (C.E.) and wife Ann welcomed son Zane Robert on Dec. 27.

Vince Valenzuela (M.E.)

has graduated from the Kelley School of Business at Indiana University with an MBA. He is scheduled to start as a management associate with Citicorp's

Consumer Lending Operations and Technology Division in Englewood Cliffs, N.J.

1998

Dan Prentice (CO) and his wife, Alison, welcomed daughter Abigail Nicole, born Dec. 12. Also, Dan was honored by Rockwell Collins as Department Level Engineer of the Year earlier this year.

1999

John Collier (M.E.) recently graduated from Boston University with a master's in mechanical engineering. He now works at the Wooster Brush Co. in Wooster, Ohio, as a manufacturing engineer.

Michael C. Hoffmann

(M.E.) exchanged vows with Heidi D. English last fall.

Hanna Pekinpaugh (M.E.)

married Philip Fortwendel last fall. They reside in Hawesville, Ky., where Hanna is employed at Weyerhaeuser.

John Rivard (M.E.) was

selected as the 2002 winner of the Cincinnati Chapter of ASM's Focke award for the outstanding Materials Science and Engineering graduate student at the University of Cincinnati. He has been working fulltime on his Ph.D. thesis at the Oak Ridge National Laboratory in the area of rapid processing of titanium alloy sheet.

Joe Sacher (E.E.) is taking four months off work to ride his bicycle from Virginia to Oregon. If you want to follow the trip, check web site <http://transam.joesacher.com>.

2000

Wes Bolsen (E.E.) has been accepted to Stanford's Graduate School of Business in Palo Alto, Calif. He will attend Stanford after working for the international management consulting firm of McKinsey & Company for two years.

Ryanne Marie Jennings

(M.E.) and Matthew William Revercomb **(M.E.)** were married Oct. 20.

Adam Knoll (E.E.) and his wife, Nichole, announce the birth of son Ethan David, born Feb. 20.

Joe Marietta (M.E.) has

been promoted to senior design engineer for Stryker Leibinger.

Cody O'Neil has joined the Denver office of Stanley Consultants, Inc., as an electrical engineer in the substation department.

Todd Van Meter (E.E.) and his wife, Christina, announce the birth of their first son, Shawn Michael, on April 29.

2001

Jonathon Arbo (Ch.E.) and family report the birth of first child Cameron Mark, born March 26.

Ryan Barton (E.E./C.S.) married Kelli Wilkerson April 13.

Marsha Bergh (M.E.) and **Kevin Culbreth (M.E.)** were married on Feb. 2. They live in Daleville, Ind.

John C. Harris (E.E.) wed Holly R. McClyman last year. Jon works as an instrumentation engineer for Milliken & Co. in LaGrange, Ga.

Andrew M. Kraling (M.E.) is a graduate student at the Carlson School of Management at the University of Minnesota.



LEADERSHIP AWARD

Douglas Tougaw (E.E., '91), center, received the 2001 Jess Lucas Alumni Leadership Award that recognizes a former member of the Rose-Hulman residence hall staff for continued development as a professional engineer or scientist. Tougaw was a resident assistant for two years, a sophomore adviser and head counselor for Operation Catapult. He went on to earn master and doctorate degrees from the University of Notre Dame. He has been an electrical and computer engineering professor at Valparaiso University since 1996. He also serves as department chair. Tom Miller, left, associate dean of students, and Brian Dyer, director of alumni affairs, presented the award last December.

OBITUARIES

1936

Robert Shattuck (Ch.E.) died during April. He was a retired executive vice president of Borg-Warner. Long active in the affairs of Rose-Hulman, Shattuck was an emeritus member of the Board of Trustees, having been elected to the board in 1960. He was named an Honor Alumnus in 1968, and he was awarded an honorary doctor of engineering degree from Rose-Hulman in 1973.

1938

John E. Lindeman (C.E.) died Dec. 6. He is survived by his wife, Katherine. He was a retired district manager for environmental quality. He lived in Tucson, Ariz., at the time of his death.

1939

A.T. "Tom" Merrill (M.E.) died Dec. 18. He is survived by his wife, Lucille, and two sons, Tom (Class of '71) and Bill, a member of the Rose-Hulman Wabash Valley Board of Associates. He resided in Terre Haute and was retired from Merrill and Merrill.

1942

John J. Brehany (M.E.) died March 7. He is survived by his wife, Myrl. He lived in Los Angeles at the time of his death. He was a retired senior project manager for Ralph M. Parsons Co.

Gene F. McConnell (M.E.) died Dec. 4. Survivors include his wife, Louise, and a daughter, Carolyn. He was

a retired director of engineering for Whirlpool Corp.

1943

Richard C. Mott (M.S.) died Feb. 11. He is survived by his wife, Olga, and sons Steven and Philip (class of '77). Richard had a remarkable career at Honeywell with 43 U.S. patents and two prestigious H.S. Sweat awards, Honeywell's highest award. He was the only two-time recipient. On the personal side of life, he enjoyed watercolor painting, wood carving, amateur radio, photography, music and sailing. He kept in touch with his lifelong friends from Rose-Hulman, and he was a regular solver of the Bailey Challenge in *Echoes*.

1947

Richard D. Burdett (E.E.) died March 2. Survivors include his wife, Barbara. He was a retired instrument engineer for General Electric.

William H. Plenge, Sr. (E.E.) died Feb. 15. Survivors include his wife, Mary Ellen, and three children: Susan Nichols, Robert Henry and William H. Plenge Jr. (class of '68). He was a class agent and retired from Gulf Oil, where he was project manager, petrochemicals.

1949

I. William Matus (M.E.) died Nov. 15. Survivors include his wife Palma, son Michael and daughter Christine. He worked for

Brookhaven National Laboratories, several Long Island defense companies, and he retired from Consolidated Edison in 1982. He was a veteran of World War II and he served in various civic organizations.

Malcolm R. Meurer (C.E.) died Dec. 6 at the age of 83. Survivors include his wife, Queen, and two sons, Gordon and Douglas (class of '75). He was co-founder of Meurer, Serafini and Meurer, Inc. Consulting Engineering. He served as national president of the American Consulting Engineers Council from 1974-75, and he was a Fellow of ACEC Colorado and was the fourth recipient of its prestigious Orley O. Phillips Award. He was involved in many major projects throughout Colorado during the 1970s.

1950

Ralph S. Killion (M.E.) died Jan. 29. He is survived by his wife Yvonne.

1964

James D. Watkins (E.E.) died Dec. 1. Survivors

include his wife, Pat. He had been division vice president of Telesoft USA.

1981

Nghia K. Do (E.E.) died March 6, according to word received in the alumni office. He is survived by his wife, Bich Do. He resided in Irvine, Calif.

Faculty/Staff

Pauline Griffith, retired administrative assistant to five Rose-Hulman presidents, died Jan. 8, just shy of her 98th birthday. She joined the Rose-Hulman staff in 1953, serving until 1983. She was remembered by many as the "right-hand" to Rose-Hulman presidents. During her tenure, she worked with presidents Ford Wilkinson, Herman Moench (interim appointment), Ralph Morgen, John Logan and Samuel Hulbert. She also served as secretary to the Board of Managers. Survivors include her daughter Jane Ann Stevens; a son, John H. Griffith; five grandchildren; and four great grandchildren. Her husband, John, preceded her in death.

PRINTED DIRECTORIES AVAILABLE

Although the Rose-Hulman alumni directory has been successfully online for almost a year, the college has made a limited number of printed directories available. To obtain one, contact Brian Dyer, director of alumni affairs and special events, at

Rose-Hulman, 5500 Wabash Avenue, Terre Haute, Ind. 47803. He can be reached via e-mail at: brian.dyer@rose-hulman.edu or by phone at 812-877-8359. Directories will be distributed on a first-come, first-served basis.

Looking Back

ARCHITECTURE — AN EXPERIMENT IN CURRICULUM EXPANSION

by John Robson, Librarian and Archivist

The spirit of curricular innovation that has helped bring national recognition to Rose-Hulman in recent years is nothing new to campus. For more than a century, the college has demonstrated a willingness to experiment with course offerings, as evidenced in an architecture major, which became part of the Rose curriculum in the late 1800s.

Although the program faded, we should not be surprised by an architecture degree at Rose. Much of what an architect needs to learn is sprinkled throughout the various Rose majors — principles of design, materials properties, mechanics, project management, etc. So it must have seemed like a “no brainer” at the September 1897 meeting of the Board of Managers when approval was granted to a faculty request “that a course be established leading to Architecture, constituting a department of Civil Engineering, which could ultimately be expanded into a complete course in Architecture.” The editor of the *Rose Technic* noted that “...heretofore the East has been drawing many young men into her technical schools in pursuit of a course in architecture. The Rose Tech already has a wide spread reputation for her engineering courses and the addition of this branch of technical education will be only another move in the direction of making the Institute one of the best-known schools in our country.” The ever-frugal Board said the only cost would be to add books and reference materials to the library. Rose Poly officially added Architecture to the limited list of departments awarding majors (mechanical, civil, chemical, and electrical engineering), the first since 1890 when EE was added. It was a bit of a risk, but the demand was there in America for better-trained architects, and there was interest in the student body.

Professors Malverd A. Howe, professor of CE, who was to be the head, Frank C. Wagner, associate professor of steam and electrical engineering, and Orange E. McMeans (class of 1896), instructor in drawing and architectural design, formed the program. McMeans provided the mission of the department in an article for the March 1899 *Rose Technic*: “...[the architect’s] knowledge of the time-tried laws of harmony in proportion, of safety in construction, of beauty in decorations, and his familiarity with the uses of

materials, old and new, as shown in the practice of the various building trades, may one or all be worth more to him than his skill in making drawings.” The program was not to be an expanded program of draftsmanship.

The curriculum closely paralleled that of CE for the first two quarters of the freshmen year (yes, we were on the quarter system even then). In the third quarter, the architects took six hours of practice in metal and wood, while others were concerned with the foundry. Come the junior and senior years the catalogue states “the strictly Architectural work...consists mainly in working out

of practical problems of buildings of different types...” Classes in specifications, contracts, estimates of cost, sanitary plumbing, drainage, heating and ventilation all had their place in the curriculum.

The honor of the “first graduate” goes to William Insley, class of 1900. He went on to found Insley Manufacturing Company. Despite a bright beginning, there would be years in which there were no graduates. The peak came in 1934 with four. Russell Kerr, class of 1935, is the last alumnus of this elite major. There is no doubt that there are many reasons why the major failed to gain broad acceptance. Placement in the field of architecture has always been very tough. New graduates continue to serve an extended apprenticeship at low wages. War and depression, hard on all professions, are particularly hard on architects. Perhaps those for whom architecture was a passion did not select Rose Poly as

their college. In all, for the period 1900-1935, forty earned the degree. Based on alumni records, only nine can be identified as working in some aspects of architecture at the end of their careers. Most migrated into some aspect of construction, sales, real estate, and one became a community planner.

The Board took little notice of the disappearance of the department. The financial demands of keeping the doors open caused all to focus on the core mission — engineering education. Classes not carrying their weight were dropped. But the architecture program was an important experiment in curriculum expansion, not unlike Biomedical Engineering and Applied Optics of the modern era. As we embark on this century, curriculum innovation no doubt will continue and who knows what the future holds. ■

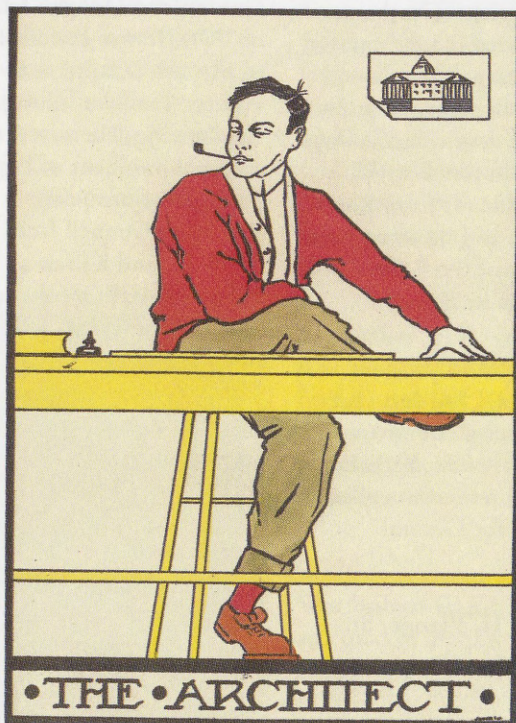


Illustration from an early 20th century Modulus yearbook.

FUTURE ALUMNI EVENTS

Contact Brian Dyer or Bunny Nash for more information on all the events listed below.
Phone: 800-248-7448
Email: brian.dyer@rose-hulman.edu or bunny.nash@rose-hulman.edu
Web: <http://www.rose-hulman.edu/alumni affairs>

Atlanta/Knoxville Area Alumni Tailgate Party

Saturday, September 14, 2002
Engineers vs. University of the South
For more information:
contact Matt Warstler '93
m_warstler@yahoo.com

Detroit Area Alumni Golf Outing

Saturday, September 14, 2002
Heather Highlands Golf Course
Holly, MI
For more information:
contact Todd Anderson '92
ctjanderson@msn.com

Chicago Area Alumni Golf Outing

Sunday, September 15, 2002
12:00 Lunch
1:30 Tee-off
The outing will be held at Willow Crest Golf Club at the Oak Brook Hills Resort.
Golf and lunch will cost \$90.00 per person.
For more information:
contact Jeff Borgan '77
jborgan@leydig.com

St. Louis Alumni Tailgate Party

St. Louis Area Alumni
Saturday, September 28, 2002
Rose-Hulman vs. Washington University
For more information:
contact Ted Jaenke '60
tjaenke@aol.com

Homecoming 2002

Saturday, October 12, 2002
Terre Haute
Stop by to see us in Hatfield Hall!
Contact Brian Dyer or Bunny Nash
(1-800-248-7448)

Career Fair Reception for Rose-Hulman alumni

Tuesday, October 22, 2002
Hatfield Hall Alumni Center on campus
For more information:
contact Brian Dyer
brian.dyer@rose-hulman.edu

Recent Summer activities included freshman welcome picnics in Minneapolis, Cincinnati, Seattle and Indianapolis. An alumni luncheon and tour of Hatfield Hall took place in August for Wabash Valley alumni.

STRENGTHENING HIGHER EDUCATION



The Lilly Endowment Inc. will match contributions totaling up to \$3.5 million to Rose-Hulman until December 31, 2003. The Endowment's "Special Initiative to Strengthen Philanthropy for Indiana Higher Education Institutions" is designed to encourage contributions from alumni, faculty, students, parents and others who have a special interest in Rose-Hulman. The challenge program breakdown includes: up to \$3 million must come from alumni; up to \$250,000 from parents and students (including parents of alumni); and up to \$250,000 from current or former faculty and staff.

For information about how you can play a role in this special initiative, contact the Rose-Hulman Office of Development at telephone number 812-877-8159 or visit the development web site at:

<http://www.rose-hulman.edu/develop/devintro.htm>



PARTING SHOT

A campus tradition continued this past spring with the annual Greek Games that brought the Greek organizations together for a series of competitions, including the cart race that zoomed through campus.

Echoes

ROSE-HULMAN INSTITUTE OF TECHNOLOGY

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Terre Haute, IN 47803
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