

Spring 2011

Volume 2011 - Issue 1 - Spring, 2011

Echoes Staff

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Recommended Citation

Staff, Echoes, "Volume 2011 - Issue 1 - Spring, 2011" (2011). *Rose Echoes*. 70.
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ROSE-HULMAN INSTITUTE OF TECHNOLOGY

Echoes


SPRING²⁰¹¹

Vol. 2011, No. 1



Every Picture Tells a Story

*Time, talent and treasure aid
Rose-Hulman and its students*



OUR PRIDE IS IN THE GUIDES

"ROSE-HULMAN IS ESSENTIALLY A UTOPIAN COMMUNITY OF ENGINEERS AND SCIENTISTS."

Barron's Guide to the Most Competitive Colleges, 2011



"STUDENTS COMMITTED TO CAREERS IN ENGINEERING OR THE SCIENCES WILL FIND A TOP FLIGHT EDUCATION AT THIS MIDWESTERN TECHNICAL SCHOOL."

The Fiske Guide to Colleges, 2011



"THOSE WHO MAKE IT THROUGH FOUR YEARS HERE ENJOY THE ADDED BENEFIT OF A GREAT ALUMNI BASE. WITH ALMOST 99 PERCENT JOB PLACEMENT, IF YOU GET A DECENT GPA YOU'RE ALMOST GUARANTEED A JOB IN THE FIELD OF YOUR CHOICE."

The Princeton Review's Best 373 Colleges, 2011



"WHILE MANY NEWLY MINTED GRADS ARE DESPERATELY SEARCHING FOR JOBS NATIONWIDE... ROSE-HULMAN GRADS ARE IN HIGH DEMAND."

U.S. News & World Report College Guide, 2011



IN A STUDY OF 2,000 ENGINEERING ACADEMIC DEPARTMENT HEADS, DEANS AND PROFESSIONAL SOCIETY THAT ASKED, "WHICH COLLEGES OR UNIVERSITIES ARE CONSIDERED LEADERS OR INNOVATORS IN ENGINEERING EDUCATION?" ROSE-HULMAN WAS CITED MORE TIMES THAN ANY OTHER INSTITUTION FOR INNOVATIVE ENGINEERING EDUCATION PRACTICES.

American Society of Engineering Education's Journal of Engineering Education, 2011



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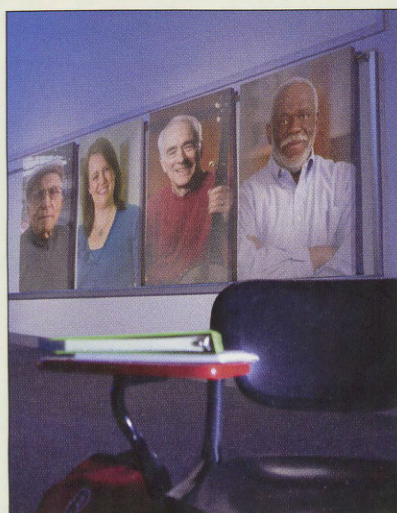
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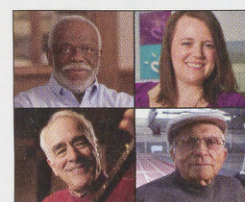
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ON THE COVER

This issue of Echoes features the stories of generous benefactors whose time, talent and treasure strengthen Rose-Hulman for current and future generations. As shown on the cover, they are Coach Bill Welch, Young Alumni Council President Sarah Sanborn '04, Emeritus Professor David Voltmer and Trustee Warren Mickens '77.



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Echoes is published by:
Rose-Hulman Institute of Technology
 5500 Wabash Avenue, Terre Haute, IN 47803

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Printed on recycled paper

Echoes

1

Today's Students Need Support from Those Who Led the Way

by President Matt Branam



Today, about 2,000 students live, study, work and play on the main campus of Rose-Hulman. But Rose-Hulman is not simply a place where our current students come after high school, or a place where our faculty and staff pursue their chosen field. Rose-Hulman is much more than a college campus and the people who populate it. Rose-Hulman is an organization of dedicated people on a mission to be the

best at something important. Rose-Hulman is a community of people with a passion for and commitment to making a difference in a way that they truly believe matters. Rose-Hulman is you.

If you are an alumnus of Rose-Hulman, you are a lifetime member of something very special. You are a lifetime member of a small and powerful group that has nurtured and perpetuated excellence in learning for 137 years.

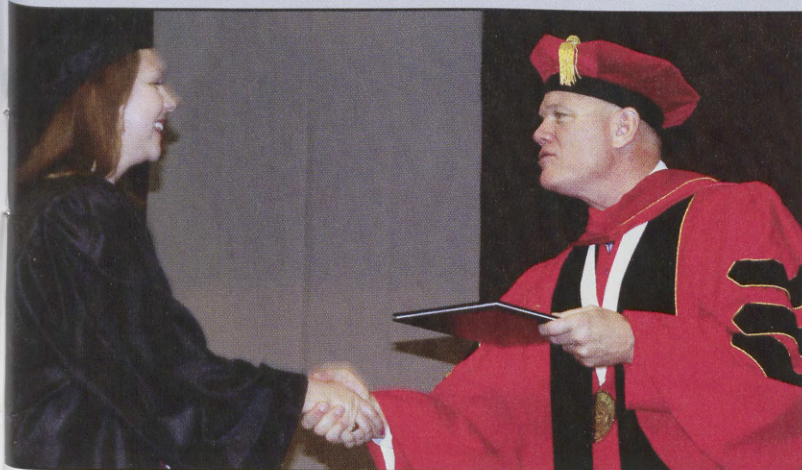
Never in that long history has what we teach at Rose-Hulman been more important to the competitiveness of our national economy or the protection of our future. Never has the connection between education, workforce development, economic development and jobs been so clear as in this age of

globalization. Never has a technical education in engineering, science or math been in such demand as in today's knowledge economy. These unique demands place a premium on a technical education, and an onus on those of us who deliver it. To compete with other emerging economies around the world, our nation needs a hundred Rose-Hulmans, and literally tens of thousands of engineers and scientists with the kind of education we provide.

The High Cost of Excellence

Our continued pursuit of excellence in teaching at Rose-Hulman requires commitment from our entire community. Our faculty molds and crafts our present and future academic platform, our administration juggles and balances the many demands of supporting that platform, and all the elements of student life, and our trustees provide stewardship and oversight. But it is you, our alumni, who own our reputation, our brand, our aspirations and our future. Our alumni are Rose-Hulman.





You are rightful and active participants in our first-in-class institution of higher education. You bring us counsel, guidance, opportunity, capacity and reality checks at every juncture. You recruit many of our students to their first professional assignments. You volunteer for mentoring, orienting, coaching and counseling. You populate the academic advisory councils of every academic department and comprise our real-world feedback loops that inform our faculty of needed developments and curricular opportunities.

money, but it is manageable for even our most challenged students.

In order to make this kind of commitment to our students, 30 percent of our operating budget is expended on scholarships. The endowment only covers 31 percent of our scholarship budget; the rest of it is considered “unfunded.” That’s why we turn to our alumni for support. When you give to Rose-Hulman, your gift goes to help us pay for the unfunded scholarship needs of our students. Need I say that every little bit helps?

A ‘Gateway’ to the Future

My experience at Rose-Hulman as a student was pivotal in my life. For me, Rose-Hulman represented a “gateway” to the life I have known since graduation. That’s true for many, if not most, of our alumni, and it’s true for today’s students too. For that reason, we have instituted our new “Gateway Initiative,” designed to help assure the pivotal experience of students who are here by virtue of our commitment to their unfunded scholarships. I invite you to call today to become one of 1,000 dedicated alumni who will help us by donating \$1,000 toward this scholarship effort. Together, through the Gateway Initiative, we will raise \$1 million in new funds for financial aid.

If you are able, I also invite you to participate in shaping the future of Rose-Hulman as a member of my 40-person President’s Advisory Council by donating \$25,000 toward financial aid. If

**“It is you, our alumni, who own our reputation,
our brand, our aspirations and our future.
Our alumni are Rose-Hulman.”** — *President Matt Branam*

You serve as ambassadors on our Indianapolis and Wabash Valley Boards of Associates. You help us build capacity for the future through our Alumni Board and through your private giving. You introduce us to our new friends and our best students. You serve as faculty, administrators and trustees. You deliver lectures and serve as guest speakers. You are athletic boosters and generous philanthropists.

We need you now more than ever. Among our many challenges at Rose-Hulman is keeping the expense of an education under control. Nearly 40 percent of all of the tuition we collect is given back in the form of financial aid to students who could not otherwise afford a first-in-class education. This year, after financial aid was awarded, the average net cost of tuition for the 25 percent of our highest-need freshmen was \$10,500. That’s still a lot of

your Rose-Hulman education has helped you to be financially successful enough to help fund our scholarship programs at this level, then I believe you should have a seat at the table to discuss with me the next chapter of Rose-Hulman’s history. (Learn more about the Gateway Initiative and President’s Advisory Council on Page 9.)

As an alumnus, your participation as an active lifetime member of this community is a key component of our pursuit of excellence. At Rose-Hulman, we understand that students come and go, but alumni are forever.

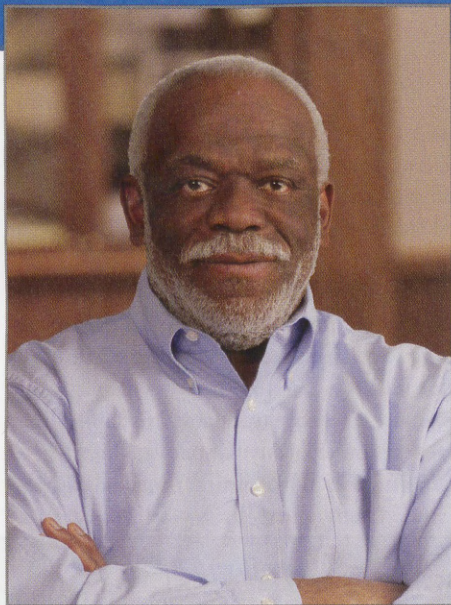
President Matt Branam is a 1979 civil engineering alumnus of Rose-Hulman. ■

GIVING THEIR TIME, TALENT AND TREASURE

Warren Mickens, Sarah Sanborn, David Voltmer and Bill Welch have taken divergent career paths, but have something much deeper in common: their unflagging generosity to Rose-Hulman. Each has made significant gifts, but those financial contributions are only part of the story. They also share their knowledge, expertise and enthusiasm on campus—recharging long-standing connections with students, faculty and administrators. Their time, talent and treasure help strengthen Rose-Hulman for future generations.

WARREN MICKENS Makes Change Happen

by Debra Townsend



Warren Mickens has been a Rose-Hulman trustee since 2000 and a donor to his alma mater even longer. He recently established a scholarship fund to help make a Rose-Hulman education available to students currently under-represented on campus. He and his wife Joyce, a former elementary school teacher (and Indiana State University graduate), strongly believe that for graduates to be fully prepared, they must learn in an environment where students, faculty and staff fully represent the widely diverse world.

"It is important to stay active with your undergraduate institution and to give back," he said. "I haven't given a lot to Rose-Hulman yet. My major financial focus right now is my two sons in college, but I do what I can."

Mickens is extremely proud of his sons, both high-achieving Valparaiso University students. One son, Jarrett, is studying pre-med and biology, and has become a track and field star, breaking several long-standing records and winning multiple athletic and academic awards. A second son, Justin, is a freshman engineering student.

Although Mickens may downplay his contributions to Rose-Hulman, he has done a great deal for the Institute. He has not only given monetarily, but also of his time. He returns often to campus for board meetings, and to speak to students about business and life.

Mickens' career has been one of great accomplishment. After receiving a degree in mechanical engineering in 1977, Mickens worked for three years at Cummins Engine before earning an MBA from Harvard University.

"Both academically and culturally, Rose-Hulman was more stressful than Harvard," he said.

Now in his "second career," after an unsuccessful attempt at retirement, Mickens has been vice president of operations for Qwest Wholesale Markets since early in 2008. He manages a team that provides a broad range of support and service functions critical to the division's daily operations, including customer support, service delivery, process management, project management and collections. (He will continue in the same role after Qwest is acquired by CenturyLink later this year.)

Before joining Qwest, Mickens was vice president for Alcatel in Wellington, New Zealand, and supervised engineering and operations for Telecom New Zealand on an outsourced basis. Prior to joining Alcatel, he served as vice president of network planning and engineering for AT&T/Ameritech, vice president of strategy and interconnection with SBC Telecom and vice president for operations for Ameritech Information Industry Services.

Mickens is known through his industry as a problem solver, according to emeritus engineering management/economics professor Tom Mason, a long-time friend and mentor.

Mickens was also a driving force in launching Rose-Hulman Ventures, and he continues to help the Institute increase diversity in science and engineering.

"To be successful as a leader or entrepreneur, students must learn to innovate—and to do that effectively, they must see problems and solutions from different perspectives," Mason said. "Warren continues to push us on this front and remind us that the markets are global and diverse, and we must be as well. He has great credibility because he himself is an example of this and a reminder that the American dream is alive and well."

Mickens' story is the American dream. As a young African American growing up in Gary, Ind., Mickens took to heart the advice of his father, a steel plant worker who died when Warren was just eight years old. "He said that an engineer can always get a good job," Mickens recalls.

"I considered schools like Marquette, Creighton and the military academies, but Rose-Hulman seemed the right fit for me to provide the best career opportunities."

As a big guy, and one of only a handful of African-American students when he arrived at Rose-Hulman in 1973, Mickens stood out on campus. "I had no ability to be anonymous," he recalls. "I had gone to an all-Black high school, so I was unprepared for that. No one told me what it would be like."

"I was not the happiest person my first two years," he added. "I've mellowed since then. But I still have a responsibility to help change things—to make Rose-Hulman a better place and a more diverse environment. That is not just a service to under-represented minorities. It improves the level and breadth of education for all students. Our corporate partners have told us this over and over." ■



SARAH SANBORN

Stands in the GOLD Circle

by Debra Townsend

For young alumni, the GOLD Circle represents donors who have given \$5,000 or more to Rose-Hulman within their first 10 years after graduation. (GOLD stands for Graduates of the Last Decade.)

Sarah Sanborn, a 2004 alumna who is a senior engineer at Procter & Gamble, achieved that vaunted level seven years after receiving her diploma.

"When I was a student, I pulled together the tuition every way I could—outside scholarships, help from my parents, student loans and financial aid," she said. "And, then, one day I found out that I had been chosen to receive a competitive \$1,000 Distinguished Alumni Scholarship, one of four given each year to honor a special alumnus. Mine was in honor of Dr. Eric Mooney.

"Even \$1,000 made a big difference to me and my family," she added. "I decided right then and there that I would give \$500—to be matched by P&G—every year so that I could help a student in the same way." she said. "It's something I'll do at whatever level I can afford from now on."

But to Sanborn, the GOLD Circle membership is just one of many things she enjoys about being a connected alumna. She considers her investment of time as important as her monetary contributions.

"I really enjoyed my experience as a student, and it's a pleasure to stay active as an alum," says Sanborn, who redefines the term "active." She participates in the Rose Alumni Recruiting Engineers (RARE) program, recruits Rose-Hulman students for P&G's internship program and full-time positions, and co-hosts Summer Send Off parties for Cincinnati-area high school graduates preparing to enter Rose-Hulman. She also returns to campus frequently as the current president of the Young Alumni Council.

"I like to stay busy," she says, in a characteristic understated fashion. Sanborn took her first of several internships with P&G as a freshman, while also being involved in volleyball, softball and Chi Omega. She started on her master's degree in biomedical engineering even before completing coursework for her bachelor's degree in chemical engineering. Early on, she got involved with the Student Alumni Association as a volunteer, helping out at homecoming and other major campus events that serve as a bridge between students and alumni. Her brother, David, is about to follow her across that bridge. He'll graduate from Rose-Hulman in May.

Sanborn has worked her way up through several positions within P&G's research and development organization.

Her "baby" has been the new Pampers diaper with Dry Max, its first high-performance diaper—designed to be better for the baby and the environment.

"I led product development for this project globally," said Sanborn, explaining that she interacts with Western Europe and Asia, requiring international travel and electronic communications at all hours. She jokes that sometimes she even conducts "research" in her off-hours, dragging her friends down the diaper aisles of grocery stores to see the product on the shelves.

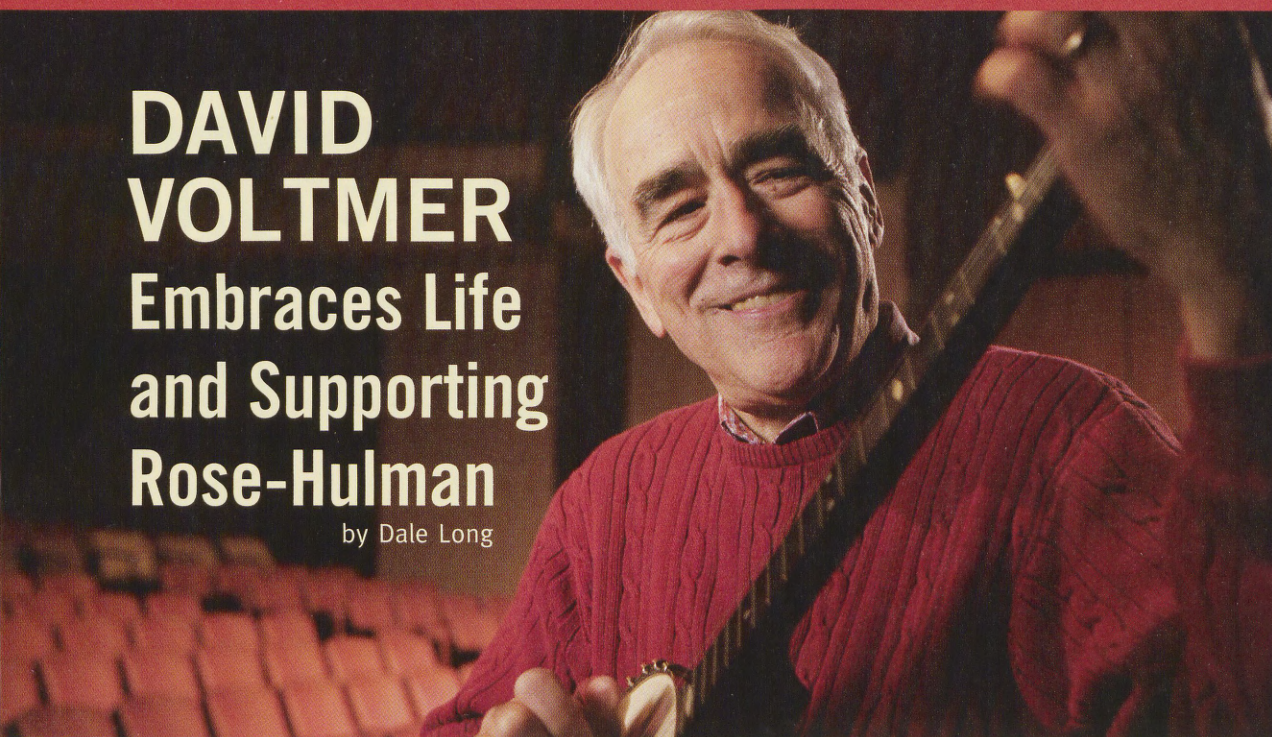
In addition to her long professional hours, Sanborn plays club volleyball and runs regularly. In fact, she competes in the Indianapolis Mini Marathon every year with sorority sisters Amy Haymaker ('03) and Heidi (Brackmann) Davidson ('03). She stays in touch with fellow alumni near Cincinnati through various Rose-Hulman functions and urges fellow young alumni to do the same.

Sanborn is very aware of the heavy time and financial obligations among the under-40 group who are in hard-charging careers, starting families and buying first homes. Many, like Sanborn herself, are still paying off student loans.

"It's not the amount so much as the willingness to step forward and give to whatever extent you can," she said. "That expression of support—shown by the percentage of alumni giving—makes a big difference when Rose-Hulman is being evaluated from the outside. I know how much my fellow students loved Rose and I want the world to know it too." ■

DAVID VOLTMER Embraces Life and Supporting Rose-Hulman

by Dale Long



As a wordsmith extraordinaire who has never met a pun he didn't like, **David Voltmer** has to enjoy the irony of having the perfect name for an electrical engineering professor. Volt-mer, get it?

It's this good-natured charm that has made Voltmer a favorite with Rose-Hulman students for 32 years, a mentor in and out of the classroom and an award-winning educator.

And, now David and his beloved wife, Joan, are giving back to the Institute through significant financial donations to support the Department of Electrical and Computer Engineering and its students. The couple has joined Rose-Hulman's Chauncey Rose Society with total personal contributions between \$50,000 and \$249,000, and was recognized during last fall's homecoming with a dashing tartan jacket and scarf. The Chauncey Rose Society honors persons who have shared foresight, dedication and generosity with the college.

"I enjoy helping others," he said. "I believe that you give back to those in need. I have been blessed many times over in my life through family, friends and work. Rose-Hulman and the Department

of Electrical and Computer Engineering, in particular, have been very good to me, Joan and our family. It's simply the right thing to do.

"Really, teaching at Rose-Hulman has been a labor of love. It hasn't been work. Rose-Hulman made it possible for me to do things I couldn't have done other places," he said. "My faculty colleagues have been great friends, and the students have been enjoyable to teach and many, as alumni, have become cherished comrades. I've enjoyed every minute of it."

That enjoyment is expressed through Voltmer adorning a referee's uniform to officiate at the robotics challenge that culminates the principles of design course; playing his cherished 1908 A.C. Fairbanks banjo in weekly campus jam sessions; performing with students and faculty/staff colleagues at the annual Rose-Hulman Community Concert; broadcasting each Sunday Rosie's Pickin' Parlor Show on the campus radio station; and riding his bicycle across the country with students, alumni and colleagues.

"I embrace life and try to get others to do likewise," he said. "Life is too short to worry about little, trivial things. There's

a great big world out there for us to admire and enjoy. I'm trying to get people to appreciate those little things—the unique sounds of a banjo, the challenge of working a crossword puzzle and the sounds of birds chirping during an early-morning bicycle ride. I'm simply going along for this glorious ride of life."

Maybe that's why students affectionately refer to Voltmer as "Smiling Dave."

Voltmer gave up a tenured teaching

position at Penn State University to join the Rose-Hulman faculty in the spring of 1979. He specializes in electromagnetic fields (wearing the unofficial title of "Dr. Emag"), satellite communications, microwaves, antenna theory, computer-based instrumentation and wireless applications.

His career contributions had Voltmer becoming the first Rose-Hulman faculty member to be named to the American Society for Engineering Education's Academy of Fellows, earning the ASEE's Distinguished Service Citation from the DELOS Division, and receiving the distinguished Ronald J. Schmitz Award for his support and leadership of the Frontiers In Education conference. He has served as ASEE's electrical engineering division officer and was general co-chair for the FIE's 1987 and 2005 conferences.

"As a teacher, I'm most proud of learning about my former students' achievements. They're doing some amazing things," Voltmer said. "I couldn't be more delighted in their successes. Hopefully, I played a small role along that trail."

Spoken like a true cyclist and educator. ■



BILL WELCH

COACHED STUDENTS TO CLEAR HURDLES ON TRACK, IN LIFE by Dale Long

Coach, teacher, mentor and friend... **Bill Welch** symbolized each of these roles during a successful 22-year career at Rose-Hulman that brought glory to the track and cross country teams and its athletes.

Seven track and field athletes earned two national championships and 19 All-American honors under Welch's guidance, and countless others earned all-conference recognition as the Engineers won seven titles from 1987-2003. Five cross country teams came home with conference championships from 1982-2003.

Welch also served as a special coach for the U.S. Olympic Training Camp in 1970 and was the National Track Coach of Iran in 1964. His Terre Haute North High School team captured the 1972 Indiana state championship—the first for the city.

It's not surprising then that Welch has been honored as National High School Track and Field Coach of the Year (1970), Indiana's Track (1968) and Cross Country (1972) Coach of the Year and has been inducted into the Indiana High School Track and Field Hall of Fame (1989).

However, while the recognition is nice (and well deserved), what Welch cherishes most is the time he spent in Rose-Hulman's former Shook Fieldhouse, the new Sports and Recreation Center, the outdoor track or the campus' front lawn

working to help student-athletes achieve their personal goals.

"Ultimately, I was a teacher and the sports arena was my classroom," Welch said. "You have to be a good teacher to be a good coach."

Now in retirement, Welch is still striving to mentor current and future Rose-Hulman students through the establishment of a special scholarship fund.

"Rose-Hulman students are a special breed. They are high-character people with good work ethics and strong families. I want to make sure those qualities endure in the future," he said. "I appreciated my 22 years at Rose-Hulman. I thoroughly enjoyed coaching the student-athletes. I think it is always important to give back to those things that matter in your life. And, Rose-Hulman and its students matter to me."

Rose-Hulman has been showing its gratitude to Welch in recent years. He was inducted into the Athletic Hall of Fame in 1997, and the outdoor track around Phil Brown Field was named in his honor in 2002.

"I'm very proud of the improvements in (Rose-Hulman's) athletic facilities during the past decade, and how the track and cross country programs continue to achieve at a high level," Welch said. "I only want

the best for Rose-Hulman. That's what I'm doing with the scholarship fund, helping students achieve their personal and professional goals."

Welch's contributions haven't been forgotten by those he touched. Not a day goes by that Welch doesn't receive an email update from a former student-athlete. More than 200 former athletes attended a recent recognition party, organized by former Rose-Hulman and Terre Haute North athlete Greg Gibson; former All-American hurdler Phil Reksel checks in with Welch during each birthday; and the Christmas season brings countless cards, many with personal notes or family photographs.

"I have been invited to so many weddings that I have lost count," he says, smiling like a proud father. "The other day a former track athlete called me following a company meeting. His team had just spent the morning talking about goal-setting techniques, discussing the same things I preached every day in practice. He said, 'Coach, it was like I was back with you in Shook Fieldhouse at Rose-Hulman.' We shared quite a laugh about that."

You see, Bill Welch is still coaching and teaching. ■

FINANCIAL AID THE KEY TO MAINTAINING EXCELLENCE

Rose-Hulman relies on the vision and generosity of alumni, parents, corporations, foundations and other supporters to continuously build upon the standards of excellence that Chauncey Rose envisioned for the Institute nearly 140 years ago.

Mr. Rose and the other founders could never have imagined that the total annual cost of attending a private college would one day approach \$50,000. From the very beginning, they did, however, know that it would be necessary for leaders who understand the value of such an education to help defray the cost of it for future generations.

Today, 98 percent of our students receive some kind of financial aid. In fact, the average net cost of tuition for 25 percent of our students is now less than \$11,000. The balance is offset through gifts to the endowment and the annual fund. This gift of an education is essential in order that Rose-Hulman continue to impact the lives of today's students in a way that every alumnus can understand.

By far, the lion's share of scholarship gifts have always come from alumni who understand the value of their own Rose-Hulman education and, through a sense of pride and understanding of responsibility, "give back" to their alma mater and its students.

"We are deeply appreciative of each and every member of the Rose-Hulman community who believes in our mission and who understands the ever-increasing importance of it in today's world," said President Matt Branam. "Today, our sights are set on excellence in all that we do, and we understand full well that we are pursuing excellence in an increasingly competitive academic and economic environment.

"The challenge is great. Every single gift, large or small, helps us meet our financial aid needs," he added. "A high participation level among our alumni is a hallmark of Rose-Hulman. In addition to directly impacting the lives of our students, a high percentage of alumni contributing to Rose-Hulman impacts the funding decisions of organizations less familiar with our heritage and is also an important factor in our national ranking among colleges like ours." ■

98%

TODAY, 98 PERCENT OF OUR STUDENTS RECEIVE SOME KIND OF FINANCIAL AID.

Fiscal Year 2010 Alumni Giving Percentages by Class Year

Class	Giving %	Class	Giving %
1930	0%	1970	34.1%
1932	0%	1971	40.6%
1933	100%	1972	36.3%
1934	0%	1973	35%
1935	0%	1974	39.9%
1936	50%	1975	40.9%
1937	0%	1976	33.2%
1938	75%	1977	37.9%
1939	50%	1978	35.9%
1940	37.5%	1979	28.3%
1941	58.3%	1980	35.1%
1942	55.6%	1981	33.2%
1943	38.7%	1982	30.4%
1944	70%	1983	33.2%
1945	50%	1984	31.3%
1946	50%	1985	28.5%
1947	47.5%	1986	29.1%
1948	48.8%	1987	28.6%
1949	45.9%	1988	23.5%
1950	41.5%	1989	27.6%
1951	41.7%	1990	27.0%
1952	58.5%	1991	27.2%
1953	57.9%	1992	22.1%
1954	56.5%	1993	26.4%
1955	60.5%	1994	23.2%
1956	69.5%	1995	24.8%
1957	65.2%	1996	23.2%
1958	55.1%	1997	17.9%
1959	53.2%	1998	23.6%
1960	52.5%	1999	25.1%
1961	85.7%	2000	27.3%
1962	56.5%	2001	27.9%
1963	47.9%	2002	25.9%
1964	59.0%	2003	27.0%
1965	36.6%	2004	24.0%
1966	46.7%	2005	22.1%
1967	37.4%	2006	22.9%
1968	36.3%	2007	24.8%
1969	37.6%	2008	24.1%
		2009	18.2%

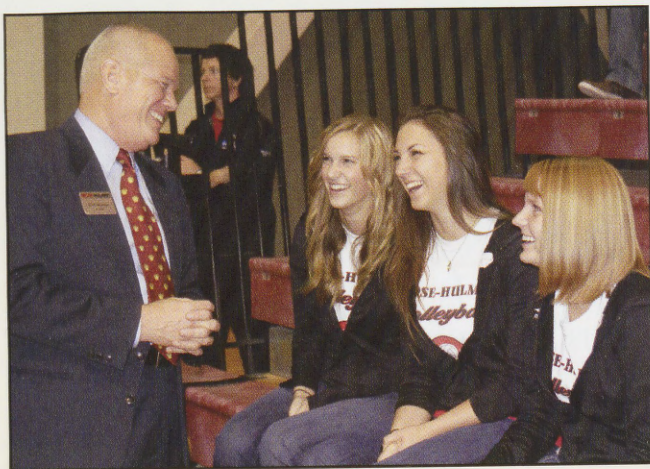
NEW SCHOLARSHIP PROGRAMS LAUNCHED

“This institution always has, and always will, rely on the generosity of those who understand the importance of the education we provide.”

— President Matt Branam

The Gateway Initiative

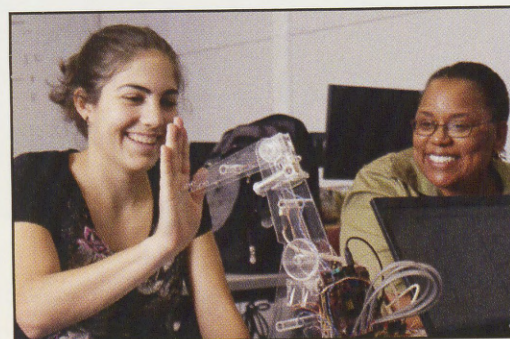
Because Rose-Hulman has been the gateway to success for so many of its graduates, the Gateway Initiative seeks to attract 1,000 gifts of \$1,000—adding a total of \$1 million in new scholarship funds. Gifts to the Gateway Initiative will go directly toward scholarships. Any matching gifts provided by employers will be counted toward our goal and your gift.



The President's Advisory Council

The President's Advisory Council serves as a foothold in the “real world” as Rose-Hulman charts a course into the future. Membership will be limited to 40 highly successful major donors who are able to contribute \$25,000 toward scholarships. Donors at this significant level, in addition to making an enormous difference in the lives of our students, will meet with President Matt Branam and other campus leaders to discuss and advise on the landscape through which we chart the strategic direction of the Institute.

Donors to both initiatives will be acknowledged in Rose-Hulman publications, including Echoes, as well as the website and at major campus events, including homecoming and commencement.



“This institution always has, and always will, rely on the generosity of those who understand the importance of the education we provide,” concluded President Branam. “Never has what we do at Rose-Hulman been more important. And, never have we needed more help doing it.” ■

IF YOU HAVE QUESTIONS...

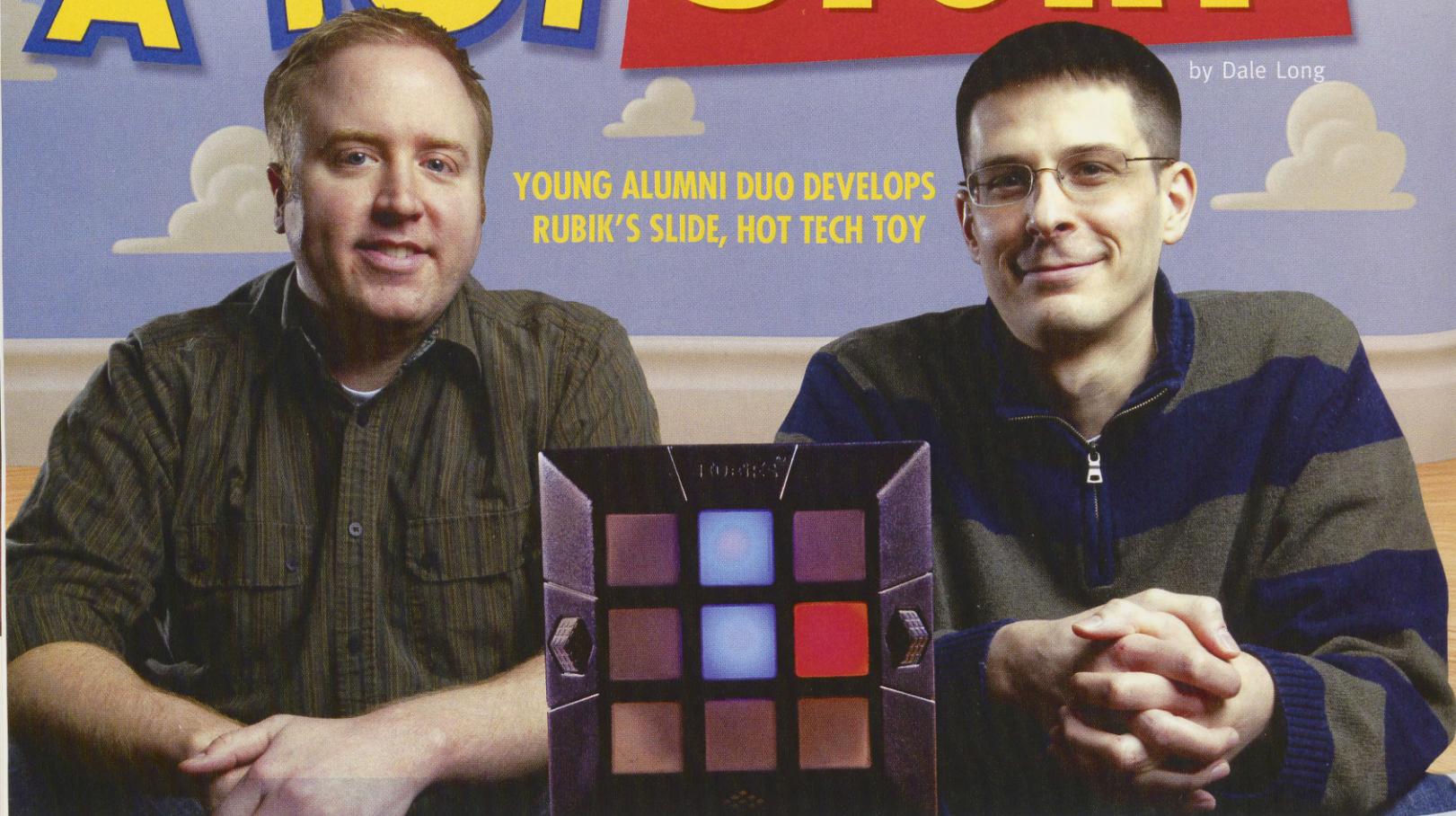
...on the **Gateway Initiative** or the **President's Advisory Council**, contact Brian Dyer, interim vice president of institutional advancement, at (812) 877-8359 or Brian.Dyer@rose-hulman.edu

... about **matching gifts**, please check with your employer to find out if such a program is available, and refer to Rose-Hulman's development website at www.rose-hulman.edu/development. Click on the “Matching Gifts” link.

A TOY STORY

by Dale Long

YOUNG ALUMNI DUO DEVELOPS
RUBIK'S SLIDE, HOT TECH TOY



Michael Gramelspacher (left) and **Rory Sledge** are creative young Rose-Hulman alumni who are still spending time playing with toys, literally, to develop fun-filled objects that are captivating today's youth.

The 2001 graduates used their entrepreneurial spirit to invent the Rubik's Slide, the electronic version of the fast-paced, brain-busting Rubik's Cube, with over 10,000 possible options. The popular electronic handheld game was one of the hottest high-tech toys of the 2010 holiday season. It earned *Creative Child Magazine's* "Game of the Year Award," and was featured on The Today Show, Fox Business News and Good Morning America.

Gramelspacher and Sledge develop unique, patentable toy concepts, promotional items and consumer

devices through SG Labs, their enterprise located in O'Fallon, Ill. They provide descriptions and renderings, prototypes suitable for evaluation and play testing, detailed schematics, software, mechanicals, and manufacturing instructions.

Rose-Hulman-educated engineers and have the knowledge to bring fresh and high-tech functionality to toys. That, coupled with our component sourcing contacts, means we can go to toy manufacturers with products that have unique functionality but that already

Toys are fun. We are both gamers, and we both appreciate the art and ingenuity that goes into toy design.

— Michael Gramelspacher, Co-Developer of Rubik's Slide

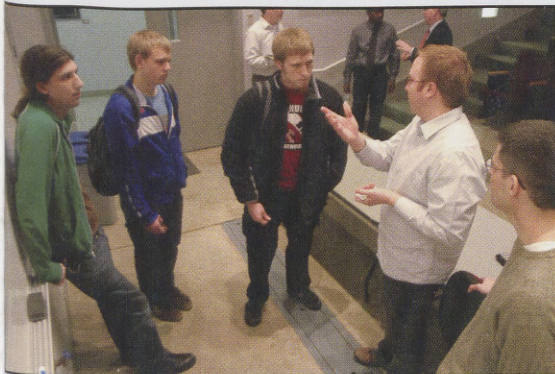
"The toy industry thrives on invention and creativity. We bring a unique perspective to the creative process," states Gramelspacher, an electrical engineering graduate. "A lot of toy designers come from the artistic disciplines (drawing, sculpting and industrial design). We are both

have all of the hardware and software issues solved with a fully vetted bill of materials. It makes the decision easier for them and, we hope, gives us a leg up in the development process."

Observing the resurgence of the Rubik's brand, Gramelspacher and Sledge looked into further opportunities

with the puzzle. "Rubik's Cube Update" was one of the concepts on their brainstorming list. Instead of the six-sided cube, the duo had the idea to limit the device to just a single side and design a puzzle around that concept. The single-sided design allowed them to create puzzles that could vary in difficulty to accommodate all skill levels instead of the pass/fail design of the original Rubik's Cube.

"We really wanted to maintain the tactile feel and manual dexterity required for a classic Rubik's Cube," Gramelspacher stated.



Michael and Rory speak to Rose-Hulman students during a recent campus visit.

The toy industry thrives on invention and creativity. We bring a unique perspective to the creative process... We are both Rose-Hulman-educated engineers and have the know-how to bring fresh and high-tech functionality to toys.

— Michael Gramelspacher

The unique twist-and-slide interface is part of patent-pending technology.

"We had a good idea for the mechanical user-interface, which is the core of the product, and just needed to make sure the associated game play was compelling," Gramelspacher said. "Rory implemented the proof-of-concept software and game logic, and I mocked up a rough sample to prove out the mechanical interface."

"We did feel like we had something

that could be great," he added. "We knew the concept was easy to learn, engaging to play and scaled well for all ages and skills. Seven Towns (Rubik's brand license manager) told us they see 300 or more potential Rubik's concepts per year, but that they had never seen anything like our design. You just have to put your best ideas out there and hope that someone shares your vision."

Other popular toys created by Gramelspacher and Sledge include the CRA-Z-ART Electra Doodle Creative Light System, a first-of-its-kind product that allows young artists to design, create and animate using colorful light, and the Smart Builders Piano, the first electronic piano that combines musical wonder and building fun.

"Toys are fun. We are both gamers, and we both appreciate the art and ingenuity

that goes into toy design," Gramelspacher said. "Also, we were attracted to toy development because of the industry's willingness to consider inventor concepts."

Future projects had the duo returning to Rose-Hulman this winter to seek assistance from physics and optical engineering professors. They also talked about their career experiences in a campus presentation that was well attended by students, faculty and staff.

Rubik's Slide combines the simplicity and fun of casual games with fast-paced, mind-testing cubing. Players begin each puzzle by checking the goal pattern and then sliding the lights into the correct pattern by twisting and shifting the top panel. Techno Source, the toy's manufacturer and distributor, bills Rubik's Slide as "the 'twisted' electronic puzzle you can't put down!"

Toys aren't the only interest for the alumni team, whose friendship was forged when living on the same floor in Rose-Hulman's Mees residence hall as freshmen. SG Labs was originally formed in 2003 as Straylight Innovations to develop embedded systems, including short-range wireless, audio/video processing and other portable electronics. Now, SG Labs provides the innovative technology behind many products and promotions that have been recognized with numerous international awards.

Michael and Rory brainstorm new toy ideas from their office near St. Louis.



Sledge, a 2001 computer engineering graduate, has made significant contributions to Bluetooth technology and has worked on items that have won CES' Best of Innovation Award, sponsored by PCWorld.

Meanwhile, Gramelspacher was co-inventor of the patented VRAM Copy Protection System, which was introduced to the federal government's 2005 Digital Transition Content Security Act. Both are named as inventors on several other video watermarking and data embedding patents.

Learn more about SG Labs at www.sg-labs.com. ■

Verdeyen Helps NASA's Robonaut 2 Take Small Step for Robotics

NASA and Rose-Hulman alumnus Kris Verdeyen have taken one small step for robotics through February's launch of the first human-like robot into space to become a permanent resident of the International Space Station (ISS).

Robonaut 2, or R2, was developed jointly by NASA and General Motors under a cooperative agreement to develop a robotic assistant that can work alongside humans, whether they are astronauts in space or workers at GM manufacturing plants on Earth.

designed to work like one. With human-like hands and arms, R2 is able to use the same tools as station crew members. In the future, the greatest benefits of humanoid robots in space may be as assistants or stand-ins for astronauts during spacewalks or for tasks too difficult or dangerous for humans.

"R2 is faster, safer, reaches farther and is smaller than the original R1B was, by a long shot. R2 can do more real work than any other humanoid in the world," stated Verdeyen, a 2000 electrical engineering graduate.

Verdeyen has worked on versions of the Robonaut project for all of his 11 years with NASA. However, Robonaut 2 wasn't conceived for space travel. In fact, Verdeyen states that Robonaut 2 was simply a lab experiment until mid-2010. At that point, engineers started working to get the robot ready to both survive the turbulent trip to the space station and operate there over a long period of time.

"In January of 2010, it became apparent that there was enough spare payload on STS-133 that we could put a Robonaut on ISS. Could we have one ready to launch in eight months? Our bluff had been called," Verdeyen said.

A challenge was retrofitting all of the robot's



Kris Verdeyen with the Robonaut 2.

electronics to withstand radiation in space. R2 underwent extensive testing in preparation for its flight. Verdeyen built a new safety circuit when the original system failed under radiation testing. He also rewrote embedded software and took over responsibility for some of the hardware originally designed by a GM engineer.

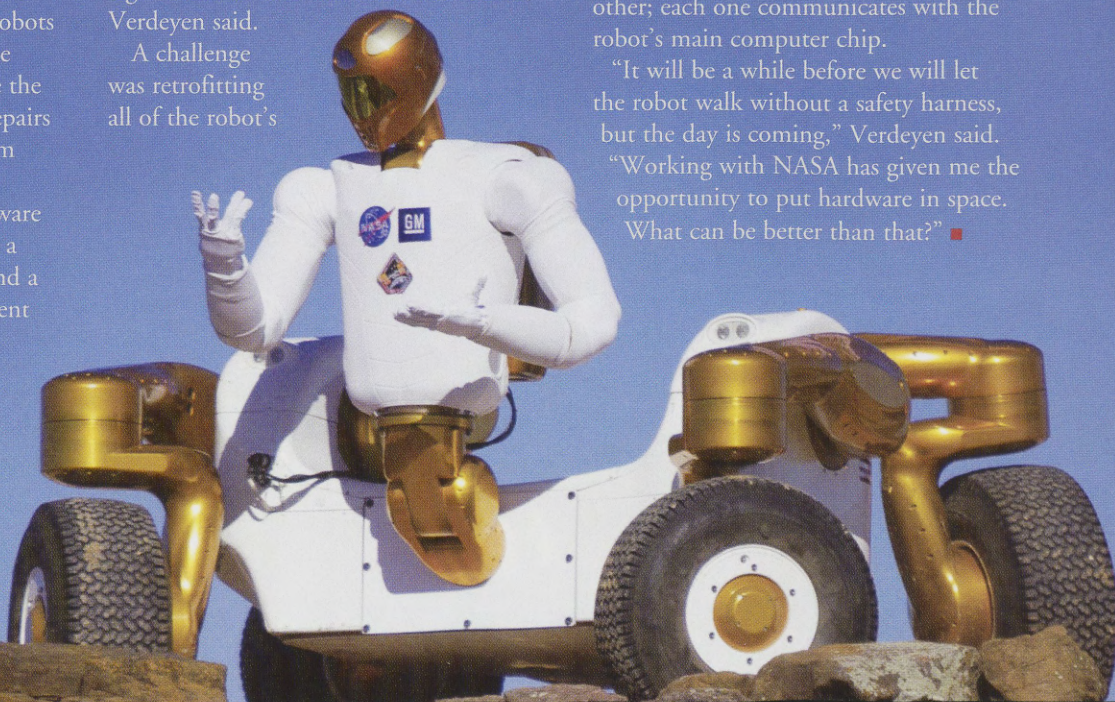
Robonaut 2 has 38 Power PC processors, including 36 embedded ones. The embedded chips are running in the machine's joints—its hands, shoulders, waist, elbows, neck and five large joints in each arm. Each of the embedded processors control senses and movement in each joint. However, the embedded processors don't communicate with each other; each one communicates with the robot's main computer chip.

"It will be a while before we will let the robot walk without a safety harness, but the day is coming," Verdeyen said. "Working with NASA has given me the opportunity to put hardware in space. What can be better than that?" ■

The 300-pound R2 consists of a head and a torso with two arms and two hands. The space shuttle Discovery was launched as part of the STS-133 mission. Once aboard the station, Verdeyen and other engineers will learn how dexterous robots behave in space. The hope is that the robot could one day venture outside the station to help spacewalkers make repairs or additions to the station or perform scientific work.

"It's about as cool a job as a hardware guy could hope for," said Verdeyen, a NASA electrical robotics engineer and a member of the Robonaut development team. "If you're talking about the evolution of humans and robots working together, these kinds of things now seem possible. It's a big step in the evolution of human/robotic work."

The dexterous robot not only looks like a human but also is





Trailblazing Co-ed Returns to Inspire Future Chemical Engineers

Kimberly Henthorn had a head start on the campus tour, college history lesson and background information that was part of the orientation program for Rose-Hulman's 2010-11 new faculty and staff members.

She had been there 15 years earlier as one of the 80 members of the college's historic first female freshman class, creating the co-educational environment that has prospered to include 18 percent of the student body.

Henthorn (formerly Hayden), a 1999 chemical engineering alumna, returned to the Rose-Hulman classroom as an associate professor of chemical engineering, following in the footsteps of her idol educators Ron Artigue and Hossein Hariri. She is now also the alumna advisor for the Delta Delta Delta sorority chapter that she helped charter in 1996.

Back Where She Belongs

Henthorn left a tenured faculty position at the Missouri University of Science and Technology and moved her family (husband David, a biomedical engineering professor at St. Louis University, and a 3-year-old daughter) to realize her lifelong goal of teaching at her alma mater. She earned a doctorate degree (2004) while serving as a teaching assistant at Purdue University.

"This is the ideal place for me. It's very focused and driven, like me. Coming back has been totally worth it. The environment at Rose-Hulman is so wonderful and rare in undergraduate engineering education," said Henthorn during a recent interview. "My teaching style was inspired here. There's a sense of cooperation and level of expectation that's unique and appreciated."

At Front Of The Class

Henthorn is now teaching the same material balances (aka Meatballs) course that she took in Olin Hall. She's also teaching mass transfer and intro to design courses, and serving as a mentor for a unit operations laboratory section.

"My students can relate to me because I was once in their shoes. In some cases, I have been in the same class, room and seat that they're in now," she said. "I push (students) very hard. As a professor and as an alumna, I want them to succeed and represent Rose-Hulman well in their careers."

Education Community

Whenever Henthorn needs advice, she heads down the hall to seek out Artigue, a senior member of the Rose-Hulman faculty, or department head Mark Anklam, who arrived on campus during her senior year.

"There's a sense of community, a close relationship between the faculty and students, that I appreciated as a student and appreciate even more now as a professor," she said. "Ron was always my favorite professor (as a student). Now, he's my faculty mentor and right around the corner. It still sounds weird to call him Ron. He'll always be Dr. Artigue to me... I feel like I'm still a student here. I still go to these people (chemical engineering faculty) for help. They have always been my mentors."

Inspiring Women Engineers

Henthorn's interest in mathematics and science led her toward a career in engineering, thanks to a helpful high school counselor.

"Girls are really bright in science and math. I think they second-guess themselves and their abilities. They think it's not cool to be an engineer. We need to keep them interested. They need role models and successful professionals, like myself."

Henthorn specializes in particle technology and two-phase microfluidic systems. She serves as a consultant with the Mo-Sci Corporation (since 2004) and has had work experience with Pfizer Inc., The Dow Chemical Company, Reilly Industries and Brewer Science Inc. ■

Wes Bolsen Named Among World's Top 100 in Bioenergy

Wes Bolsen is one of the most energetic and outspoken presenters in the world of bioenergy. That's why BiofuelsDigest named the electrical engineering alumnus in its list of the "Top 100 People in Bioenergy," as voted by the publication's readers and editors.

Bolsen, a 2000 graduate, is chief marketing officer and vice president of government affairs for Coskata, a biology-based energy company. Its low-cost platform technology allows for the production of fuels and chemicals from a variety of input material (including biomass, agricultural and municipal wastes, and other carbonaceous materials).

Using proprietary microorganisms and patented bioreactor designs, Coskata is

ready to produce FlexEthanol, or feedstock flexible ethanol, to fuel energy security, economic growth and environmental sustainability.

In January, Coskata received the largest biofuels plant loan guarantee ever, \$250 million from the U.S. Department of Energy, for a cellulosic ethanol facility in Green County, Ala. with an annual capacity of 55 million gallons per year.

Biofuels Digest calls Bolsen "one of the handful of people in the business residing outside of (Washington) D.C. who has an authentically informed view on the



progress or lack thereof in policy circles."

Bolsen was paired at No. 57 with Coskata Chief Executive Officer Bill Roe.

Joining Coskata as one of its early executives, Bolsen has been responsible for publicly unveiling the company, creating and executing their communication strategy, developing the company's strategic partnerships, and managing relationships in Washington, D.C., and at the state level. ■

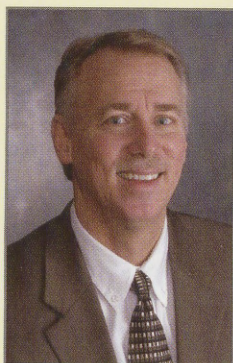
McCullough Leading Utility Company's Generation Efforts

Electric generation of one of America's largest utilities, American Electric Power, is being led by mechanical engineering alumnus **Mark C. McCullough**. He is now executive vice president of generation after serving as senior vice president of fossil and hydro generation since 2008.

McCullough, a 1981 graduate, succeeds Nicholas K. Akins, who is now president of the company.

In his new position, McCullough is responsible for the management of AEP's fossil, hydro and wind generating units. This includes engineering, construction and operation of generating units, and activities related to fuel procurement and emission monitoring and logistics. He reports to Akins.

"Mark has clearly demonstrated the leadership skills and technical knowledge



ensuring that our customers have an efficient and reliable supply of energy available to them."

McCullough has worked his entire career at AEP. Following graduation, he joined the company in 1981 at AEP's Tanners Creek Plant in Lawrenceburg, Ind. He held a variety of positions at

needed to lead our power generation activities," said Akins in a company news release. "He is the right person to address the strategic and operational objectives for our fleet while

Tanners Creek, including maintenance superintendent and operation superintendent, before being named assistant plant manager at AEP's Amos Plant in St. Albans, W.Va., in 1994.

From 1995 to 1997, McCullough was manager of the Northern Region Service Organization, responsible for the management of scheduled outages and major project work for more than 10,000 megawatts of coal-fueled generation. He also has helped develop and track strategic initiatives for AEP's Power Generation Group, and led generation efforts for the Ohio and West Virginia regions.

With headquarters in Columbus, Ohio, AEP delivers electricity to more than five million customers in 11 states and ranks among the nation's largest generators of electricity. ■

Keep up with the latest alumni news at www.alumni.rose-hulman.edu

Cartwright Helping Lead GM's Globalization & Technology Efforts



As General Motors Europe's new vice president of alliances and new business development, alumnus **Fred M. Cartwright** will be on the front lines of the unprecedented growth in globalization and technology advancement in the automotive industry.

The 1980 mechanical engineering graduate relocated to Ruesselsheim, Germany. His new position includes membership on the Opel/Vauxhall Leadership Board. He is responsible for

the development and maintenance of product alliances with other companies in the European region. He also coordinates regional intellectual property management, in concert with GM's global IP strategy.

Globalization and technology advancement in the automotive industry bring opportunities and

challenges, according to Cartwright.

"This is an exciting time for technical leaders who enjoy the challenges of collaboration and appreciate the mutual benefit that it can bring," said Cartwright. "I'm looking forward to the challenge of leading this activity for General Motors' European operations."

Key to a successful collaboration is the development of a company's strategy around its intellectual property, and how to

create, protect and use it, Cartwright states.

"This is an additional area of responsibility that is vital to any company that has a vast intellectual portfolio and understands its importance to a long-term, robust business plan," said Cartwright.

After graduating from Rose-Hulman, Cartwright joined GM's Allison Transmission Division in Indianapolis. He advanced through several production supervision and transmission engineering positions to become program manager of Allison's hybrid bus program, the forerunner to GM's two-mode hybrid system for automotive applications.

In 2003, Cartwright became director of technology planning for GM Powertrain, followed by several leadership positions in new business development, intellectual property management and outside sales activities. ■

Crowell to Oversee Pioneering Effort in Community Wind Energy Projects Across U.S.

Civil engineering alumnus **Robert Crowell** has been named Head of Development for OwnEnergy, Inc., a community wind development company that partners with landowners to help them develop and own commercial scale mid-size wind farms.

In his new position, Crowell will have ultimate responsibility for seeing all of the company's community wind farm projects through to construction. The 1984 graduate has been responsible for the development of over 1,600 megawatts (MW) of operating generating plants, including six wind projects totaling over 830 MW in the Midwestern and Northeastern United States.

OwnEnergy, Inc. is a developer of utility scale wind projects that enable landowners

and communities to build and profit directly from their own local wind farms. The company is based in Brooklyn, N.Y.

Prior to joining the four-year-old company, Crowell had been Senior Vice President for Development at E.On Climate & Renewables, a subsidiary of E.On Group, a large European-based utility. There, Crowell helped grow a small development team, more than quadrupling the average monthly acreage leased, establishing a development portfolio of 13 projects in six states. He came to E.On with over 20 years in the power industry, in both traditional and renewable energy utilities.

Jacob Susman, founder and CEO, noted the importance of Crowell's hire both for OwnEnergy and for the burgeoning

movement in locally-owned community wind farms.

"Bob brings the unique combination of deal-making talent and deep experience in development that will allow OwnEnergy to dramatically increase the scale of our operations," stated Susman in a company press release. "Perhaps more importantly, his move from a senior position in a mature utility to a rapidly-growing, VC-backed renewables venture signals both his confidence in the vision of OwnEnergy and the enormous potential of our approach to renewable energy development." ■



SOMETHING VENTURED,

VENTURES THRIVES THROUGH ALUMNI WHO KNOW ITS QUALITY, ABILITIES

Rose-Hulman Ventures has served 132 clients—on multiple projects ranging in cost from \$1,000 to \$1 million—since its inception 11 years ago. The one thing the widely diverse companies have in common is their need for innovative solutions to unique challenges that must be addressed before products can be taken quickly and affordably to market.

Rose-Hulman alumni play a key role in every level of Rose-Hulman Ventures, but alumni are also some of the enterprise's best customers.

Mark Garringer, a 2005 computer engineering graduate, worked on several intense software coding projects during two summers and one academic year as a Rose-Hulman Ventures intern. After working with two start-up software companies, he knew the high expectations and level of quality demanded by and delivered to the client. So, when he went to work for Thornberry Consulting, helping develop a new enterprise called GeoEstimator, he knew where to turn for additional development resources.

Less Expensive, More Innovative

GeoEstimator uses satellite and aerial imagery to provide complex and accurate roof dimensions for insurance companies and other businesses to make precise damage estimates. The work is much more affordable, and safer than hiring people to climb on top of buildings. Garringer and his colleagues sought a prototype software application, based on sophisticated modeling algorithms.

"My company's challenges are not standard. We wanted unique algorithm-based software that hadn't been developed yet," Garringer explained. "We needed solutions requiring both mathematical and imaging experience.

"If we'd gone to a software house, we would get a chip or line-of-business



coding; if we hired a management consultant, we wouldn't get the depth of scientific and mathematical know-how we needed," he added. "I knew Rose-Hulman Ventures had strength in both areas and could custom-design a solution that incorporated both."

GeoEstimator has returned to Rose-Hulman Ventures for yet another project, an engineered tool.

"On both projects, we had access to really smart, up-to-date students who could figure out the code, as well as project managers (2002 alumnus Sandor Pethes and 1994 alumnus Will Mathies) and Ph.D. professors who could help them break through any issues that arose," Garringer said.

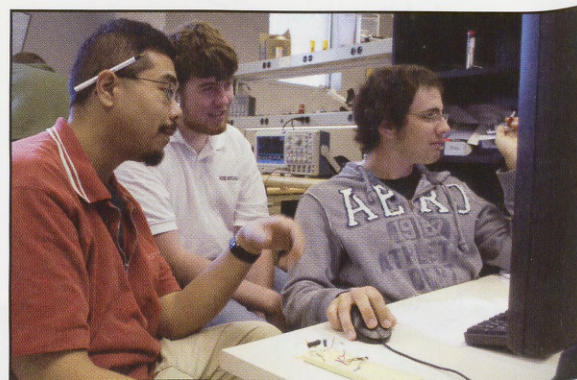
Later, he added: "Not only are the students less expensive, they're more innovative. They are awesome at doing in-depth research, recommending options for the best approaches, and building demo apps to help us evaluate best practices.

"Communication was another terrific factor. On our last project, we did daily stand-ups with video and white board discussions. The whole experience was

very high quality."

Clay Fette, a 1999 chemical engineering alumnus and 2010 Rose-Hulman Honor Alumni Award recipient, worked at a variety of medical device companies before helping start ACell, Inc., where he is vice president of product development. He has been a guest lecturer in tissue engineering and bioseparations courses, and has hired Rose-Hulman interns, sponsored senior design projects, and is setting up animal studies on campus to support medical device research. He is listed as an inventor on numerous medical device patents or published applications.

ACell develops, manufactures and



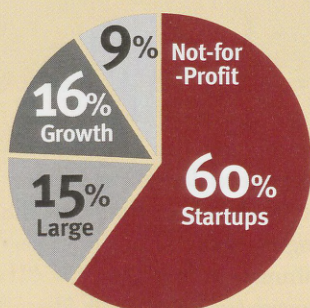
SOMETHING GAINED

by Debra Townsend

STUDENTS (SINCE INCEPTION)

Total Internship Opportunities	2,572
Total Students	825
Total Student Project Hours	391,465

TOTAL COMPANIES: 132



distributes medical devices in the regenerative medicine industry based on their proprietary bladder matrix (UBM) technology. The company has been featured on many television shows—including 60 Minutes, Oprah and National Geographic—for its ground-breaking technology. ACell is collaborating with various research agencies and the military to develop unique regenerative solutions to help heal traumatic injuries. ACell's products have been used in a wide variety of applications, including plastic and reconstructive surgery, trauma, general surgery, urology, gynecology, orthopedics and craniofacial surgery.

Fette has brought a number of projects to Rose-Hulman Ventures. The most recent and complex relates to processing UBM material. The project involves the design, development and manufacture

of equipment to assist in medical device manufacturing.

Unlike metal and plastic manufacturing, tissue-based products are not produced from homogeneous raw material, and thus have unique challenges when developing production processes and equipment.

Custom, Not Off-the-Shelf, Solutions

There are few, if any, off-the-shelf products, equipment or instruments that have direct applicability with the tissue processing industry. The only solution is to design and develop custom equipment to address specific individual needs. The project manager on this challenge is Barry Davignon, a 1990 alumnus.

Previous projects included design and testing of other processing equipment.

"I use Rose-Hulman Ventures because they are a unique resource in regard to skill, capabilities and resources," Fette said. "Having experience working with Rose-Hulman students in senior design projects and as summer interns, I am



I use Rose-Hulman Ventures because they are a unique resource in regard to skill, capabilities and resources design.

— Clay Fette, Vice President, ACell, Inc.

very aware of the knowledge, innovation and drive that they bring to a project. Even though I shouldn't be, I have been surprised with the quality and quantity of work with every project I have undertaken with Rose-Hulman students."

"They are excited about working with industry and have demonstrated superior problem solving skills compared to many experienced industry professionals," he added.

Taking Success A Step Further

"Rose-Hulman Ventures is taking my successful experiences a step further, as it combines the innovation and enthusiasm of the Rose-Hulman student with the experience and knowledge of a Rose-Hulman Ventures' project manager," Fette said. "Considering our need for custom-designed equipment for the majority of our processing, Rose-Hulman Ventures is an ideal partner. We receive superior deliverables at a beneficial cost savings when compared with using a traditional R&D design firm.

"Rose-Hulman Ventures is ideal for a small company since they have dedicated students who drive the project, while also having experienced project managers to ask the right questions from the company and steer design and prototyping in the right direction," he said. "They do some of their best work with a vague initial project scope, researching the problem or task, exploring options and alternatives, proposing multiple solutions

and working with the client to achieve the best possible solution.

"Small companies often don't have the resources to dedicate to as many projects as they like, nor hire out expensive consultants or design services. Rose-Hulman Ventures allows for cost-effective, innovative solutions with a lot of attention and communication with the client that isn't seen elsewhere," he said. ■

Do you have a challenging project? Companies seeking assistance from Rose-Hulman Ventures can contact Mitch Landess, manager of client programs, at (812) 244-4027 or mitchell.landess@rhventures.org

PEDAL POWER

Rose-Hulman Bringing ASME Human Powered Vehicle Challenge to Indianapolis Motor Speedway

Innovation, creativity and competition will be featured during the American Society of Mechanical Engineers' Human Powered Vehicle Challenge international racing event, being hosted by Rose-Hulman Institute of Technology, on April 29-May 1 at the Indianapolis Motor Speedway (IMS).

The competition brings together enterprising engineering students from colleges and universities throughout the world to demonstrate efficient, sustainable and practical human powered vehicles. These prototype vehicles could be used for everyday use such as commuting to work and transporting goods from the market.

As many as 40 teams will participate in three days of testing and competition at IMS. The event will include four events: design presentations, a sprint race, a utility endurance event and a speed endurance event. Scores from each event will determine an overall team score and event champion.

The ASME event is taking place as IMS continues its Centennial Era honoring the 100th anniversaries of the opening of the track in 1909 and the inaugural Indianapolis 500 in 1911.

"The ASME Human Powered Vehicle Challenge is just one more way to highlight the Indianapolis

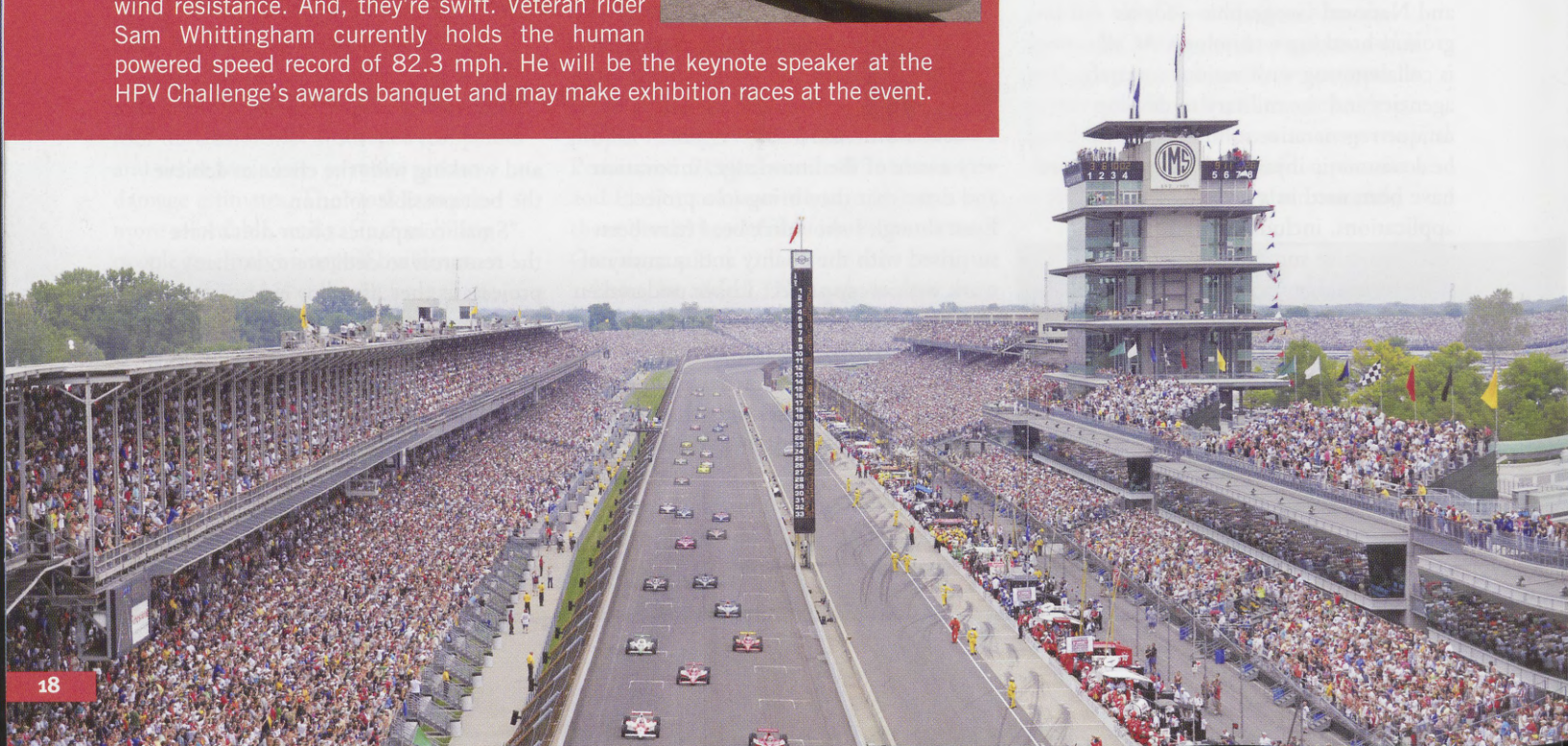
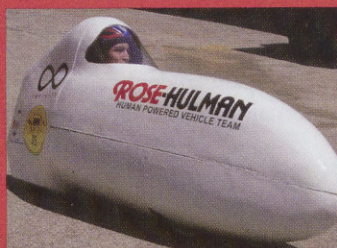
Motor Speedway's legacy as an incubator and proving ground of transportation innovation for more than a century," said Jeff Belskus, IMS president and chief executive officer. "We're pleased Rose-Hulman is bringing this event and the future generation of automotive engineers to IMS."

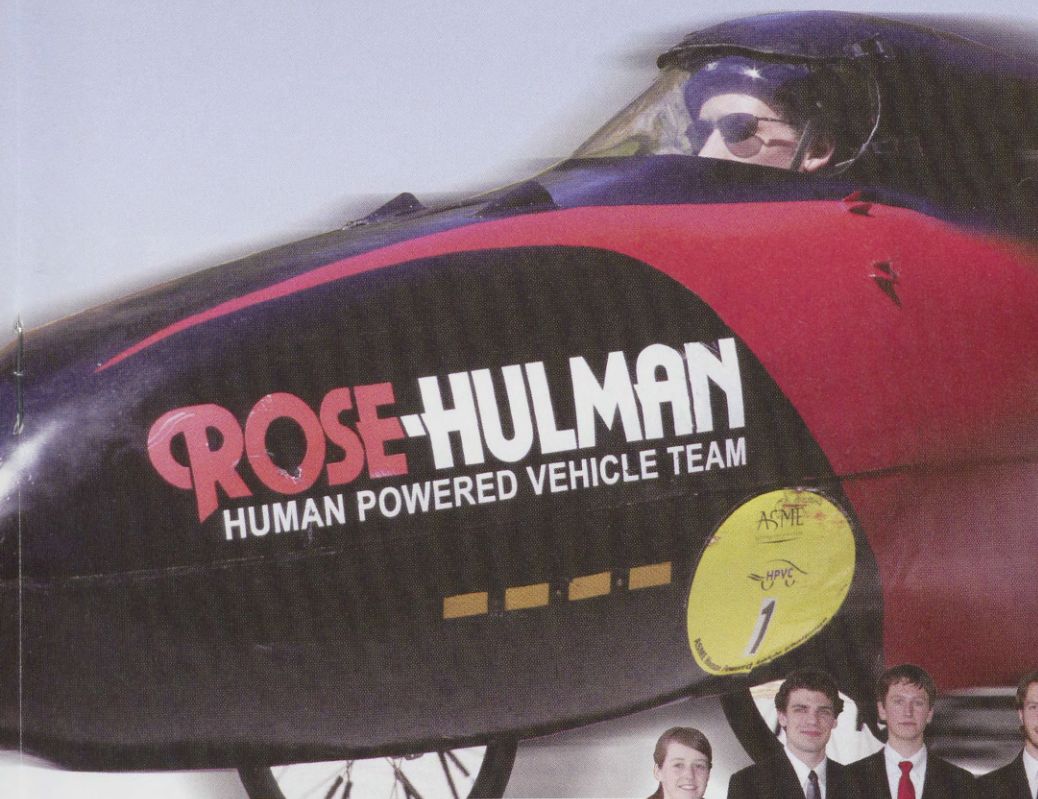
Rose-Hulman President Matt Branam expressed gratitude to IMS for its participation in the event and said the Speedway's heritage as The Greatest Race Course in the World is a perfect fit for the HPV Challenge event.

"We're fortunate to have the Speedway's generosity and support for Rose-Hulman and our students," Branam noted. "Our students learn by doing. Racing their own design, built with their own hands, at the iconic Indianapolis Motor Speedway will be the ultimate learning experience for our students and others throughout the world."

What is a Human Powered Vehicle?

Human powered vehicles are sleek, high tech and innovative devices propelled solely by human power. There are no motors or stored energy. Most entries take the form of recumbent bicycles or tricycles with aerodynamic fairings to overcome wind resistance. And, they're swift. Veteran rider Sam Whittingham currently holds the human powered speed record of 82.3 mph. He will be the keynote speaker at the HPV Challenge's awards banquet and may make exhibition races at the event.





Keep Track of Rose-Hulman's Vehicle Development

Rose-Hulman's Human Powered Vehicle Team is putting the finishing touches on developing its new car and sharpening its driving skills for this year's HPV Challenge. You can follow all of the exciting details at www.rose-hulman.edu, through Twitter and Facebook, and on Rose-Hulman's developing YouTube Channel. See video of students talking about the experience, their design ideas and their thoughts on the competition. A special HPV Challenge website will provide ongoing coverage of the event.

The IMS's popularity may also attract international teams from India, Venezuela and Ecuador to this year's HPV Challenge event, according to Rose-Hulman Faculty Advisor Michael Moorhead, assistant professor of mechanical engineering.

"Having the opportunity to compete at the Indianapolis Motor Speedway will be a once-in-a-lifetime experience for engineering students throughout the country," stated Moorhead. "This could become the signature event for collegiate human powered racing."

ASME President Robert T. Simmons added: "This ASME competition brings classroom engineering theory and design to actual concept and fabrication. These highly talented students learn to work in a team environment, thus providing them with the tools to be successful in the engineering workforce." ■



Rose-Hulman Defending Champions!

Rose-Hulman is the three-time defending HPVC national champions after achieving top-scoring performances in the East and West Coast events during the 2008-10 competitions. Colleges expected to challenge Rose-Hulman for top honors this spring will be Missouri University of Science & Technology (Rolla, Mo.), University of Toronto, Franklin W. Olin College of Engineering (Mass.), University of Wisconsin, Drexel University (Pa.), California Polytechnic-San Luis Obispo and Ohio Northern University.

Help Rose-Hulman Host this National Event; Support Advanced Transportation Program

There are several ways for alumni, corporations and others to support Rose-Hulman as it hosts the HPV Challenge, and support the college's Advanced Transportation program.

Sponsorship opportunities are available for the awards banquet, which will put

companies before hundreds of leading engineering undergraduate students—vehicle engineers of the future—from throughout the world. Each racing event offers the opportunity to sponsor hospitality tents for all contestants. The event's social media and website are also

available for sponsorships.

Contact Dick Boyce, director of corporate and foundation relations, for information at (812) 877-8443 or boyce@rose-hulman.edu. ■



HERE Program To Plant Seeds For Sustainability

Rose-Hulman has initiated an educational program to educate future engineers, scientists and mathematicians about sustainable engineering. The Home for Environmentally Responsible Engineering (HERE) will be a unique multi-disciplinary, living-learning community focused on sustainability.

Students will learn about sustainability and sustainable engineering in a shared curriculum; design and implement real sustainable engineering projects; develop skills for a changing world; work with faculty with expertise in sustainability studies; and, most importantly, help shape the future.

The program is partially funded by a grant from Proctor & Gamble.

"This marks the beginning of a new direction for engineering education at

Rose-Hulman," said Assistant Professor of English Corey Taylor, one of 10 faculty members who have worked with administration to develop the program.

Professor Patsy Brackin, professor of mechanical engineering, added: "Sustainability is a growing priority for our corporate partners, and this program will help ensure that our graduates have the skills in sustainable design necessary for the future."

HERE will be a living-and-learning cohort of first-year students who elect to join the program. The students will take four courses focused on sustainability as part of their first year of coursework, and will live on the same residence hall floor(s), so that they may continue their in-class work and conversations as a group. ■

4,000 and Counting... Increases in Female and International Applications Help Push Admissions to Record Levels for 2011-12 Class



More students than ever before are clamoring for a Rose-Hulman education. The Office of Admissions has received over 4,000 applications for the 2011-12 freshman class—a new record.

A tremendous increase in applications from women and international students has contributed to this year's total, according to Jim Goecker, vice president of enrollment management.

A 23 percent increase in applications from women would be cause for alarm at many campuses, where women already outnumber men nationally. This isn't the case in engineering, where only 18 percent of 2010 bachelor's degrees were awarded to women.

"We are very excited about the prospect of more women being interested in the engineering profession," Goecker said. "Our female enrollment has historically been at or slightly above the national average. To have this sudden surge of applications from women is great for Rose-Hulman and the engineering profession."

Rose-Hulman has also experienced a 38 percent increase in freshman applications from international students. This built upon an increase of 35 percent for the current 2010-11 freshman class.

"Rose-Hulman is now recognized as a top-tier academic institution throughout the world," Goecker said. ■

Alcoa & Beckman Coulter Support Robotics Initiative

The Alcoa and Beckman Coulter foundations have provided \$70,000 to enable Rose-Hulman to add project workstations that simulate industrial robotic systems. Student teams will use the workstations to obtain practical experience on the technology of industrial robotics, how robotic systems are selected, and how applications are developed that use modern robotics systems.

Applied robotics is a concentration area in the multidisciplinary robotics academic minor and technical certificate programs.

Playing key roles in obtaining these grants were Joseph Haniford, vice president of global manufacturing for Alcoa Power and Propulsion, and Tim Bruemmer, vice president of instrument systems development center for Beckman Coulter. ■

Improving Economy Brings Recruiters to Career Fairs

Rose-Hulman students are in demand to fill full-time, internship and co-op positions to develop the innovative products necessary to lead America's economic recovery. That's why more than 170 companies came to recruit students at the college's first two career fairs of the 2010-11 academic year.

Indications of an improving economy can be found by the 20 percent increase in the number of companies participating in the college's career fair, and the automotive industry's return to seek entry-level engineers.

"That's a very positive sign in the manufacturing sector," said Kevin Hewerdine, director of career services and employer relations. ■

Learn the latest news about Rose-Hulman at www.rose-hulman.edu

STUDENTS GIVE BACK IN MANY WAYS



The Engineers' Creed pledges engineers to use their professional knowledge and skills for the advancement and betterment of human welfare. Rose-Hulman students help others in the community and campus each school year through a long list of service projects. In fact, the student body logged over 12,400 hours and collected \$63,466 for organizations during 2009-10—putting Rose-Hulman on the President's Higher Education Community Services Honor Roll.



Up Til Dawn: Students support St. Jude Children's Hospital



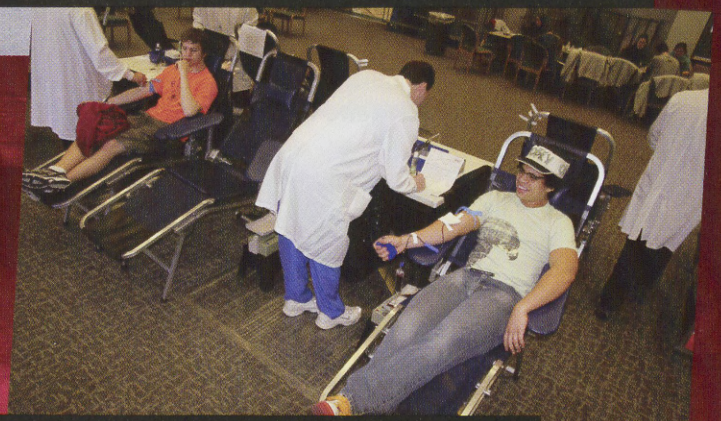
Engineers Without Borders: Building Dominican Republic medical center



Brush Up For Homecoming: Greek community comes together to get campus ready



Bikes For Tykes: Assembling 450 bicycles for the holiday season



Campus Blood Drives: Giving blood for Indiana Blood Center

Bailey Challenge

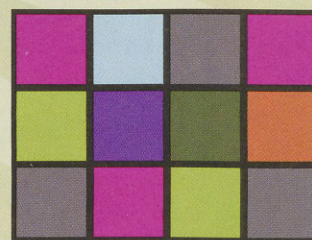
By Professor Emeritus Herb Bailey

Your first problem for this issue is to color each state of a country with square states, using the fewest number of colors. The general map coloring problem is a classic and dates back to 1852. A link to a nice summary of this problem is <http://people.math.gatech.edu/~thomas/FC/fourcolor.html#Why>.

PROBLEM 1

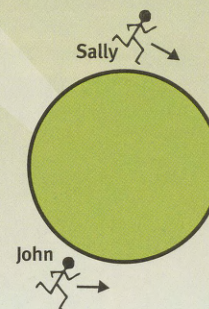
An m by n rectangle encloses mn squares, the case $m = 3$, $n = 4$ is shown in the figure. The squares must be colored so that two squares that have a side or a vertex in common must not be the same color. This goal is achieved in the figure by using six colors.

- Find the minimum number of colors required for the 3×4 case.
- Find the minimum number of colors required for the 30×40 case.
- How do your answers change if we delete only the vertex restriction?
- How do your answers change if we delete only the side restriction?



PROBLEM 2

Starting at the same time from diametrically opposite points, Sally and John travel around a circular track at uniform speeds, their speeds need not be equal. Sally travels clockwise and John counterclockwise (as viewed from the sky). If they first meet after John has traveled 100 yards and meet a second time 40 yards before Sally completes one lap. Find the radius of the track.



SOLUTION TO THE WINTER ISSUE PROBLEM: The link, http://www.youtube.com/watch?v=mb_cFtCE2aM, is a YouTube solution for the four Jeep problem that was posed in the previous issue of *Echoes*. Much help for my first YouTube effort was provided by my son Mark, a 1976 alumnus, and Thomas Foulkes, a Terre Haute North High School senior who is taking calculus classes this year on campus. I take credit for two spelling and one speaking error in the video. Can you find them?

Send your solutions to Herb.Bailey@rose-hulman.edu or to Herb Bailey, Math. Dept., Rose-Hulman, 5500 Wabash Ave., Terre Haute IN 47803. Please include your class year if you are an alumnus.

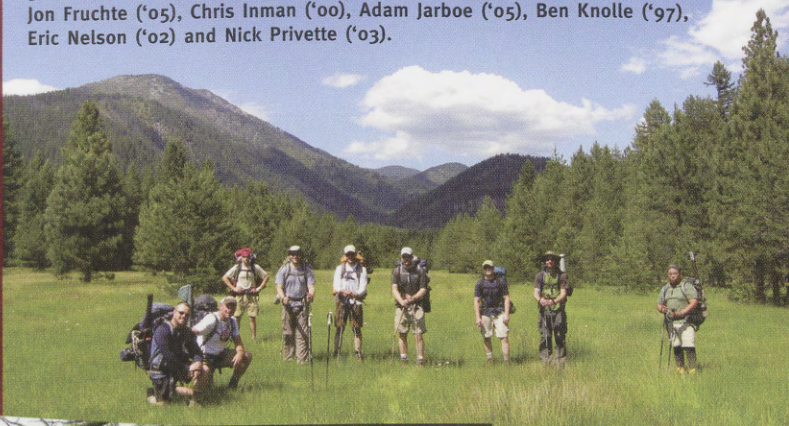
Solvers of the last issue problems are:

ALUMNI: C. Cooper, 1956; D. Bailey, 1959; J. Tindall, 1961; R. Ireland, 1961; J. Snyder, 1962; J. Albertine, 1969; R. Collins, 1969; J. Born, 1970; W. Pelz, 1971; M. Bailey, 1976; J. Schroder, 1976; R. Priem, 1979; J. Koechling, 1980; M. Taylor, 1982; D. Johnson, 1987; M. Lancaster, 1987; T. Doerr, 1988; P. Marken, 1989; S. Perkins, 1989; D. Gossert, 1990; J. Harris, 1991; B. Burger, 1991; J. Mathison, 1996; M. Pilcher, 1998; C. Cole, 2001; P. Mauer, 2001; D. Harrington, 2002; R. Hart, 2005 and A. Hart (nee Cornwell), 2006

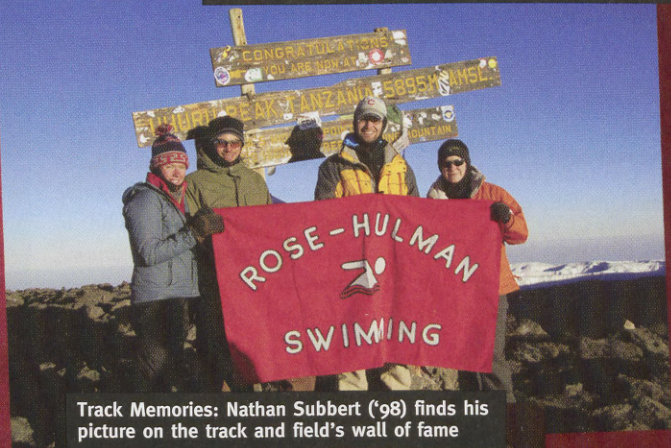
FRIEND: J. Ley, J. Segal, J. Marks and R. Savolia

ALUMNI | PHOTO ALBUM

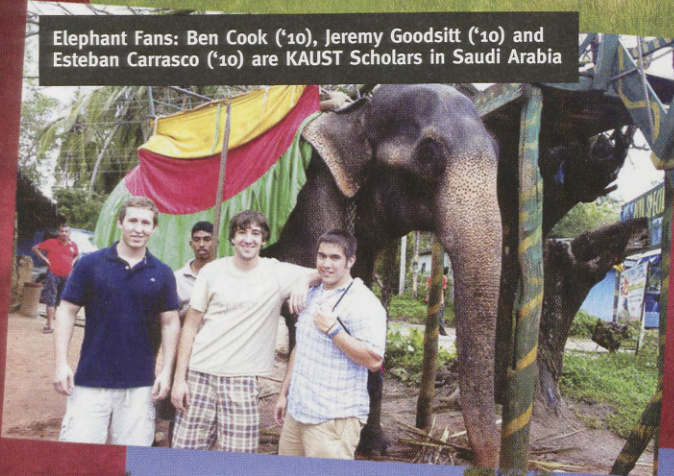
Western Hikers: Erik Hayes ('97), friend Casey Calkins and alumni completed a 56-mile hike through beautiful Idaho. The group included Chad Alojipan ('02), Jon Fruchte ('05), Chris Inman ('00), Adam Jarboe ('05), Ben Knolle ('97), Eric Nelson ('02) and Nick Privette ('03).



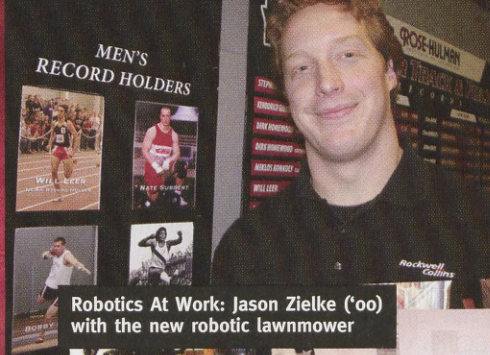
Scaling New Heights: On December 25, Elaine Kratz ('07), Ryan Mackos ('04), Phil Isom ('03) and Sarah Stalnaker ('03) summited Mt. Kilimanjaro, the world's tallest freestanding mountain.



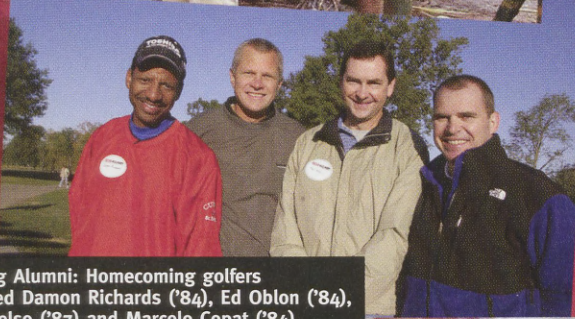
Elephant Fans: Ben Cook ('10), Jeremy Goodsitt ('10) and Esteban Carrasco ('10) are KAUST Scholars in Saudi Arabia



Track Memories: Nathan Subbert ('98) finds his picture on the track and field's wall of fame



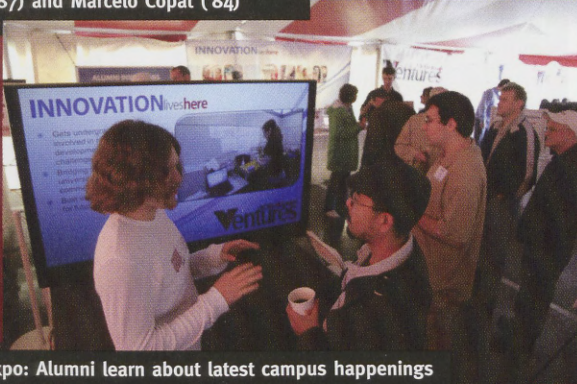
Smiling Alumni: Homecoming golfers included Damon Richards ('84), Ed Oblon ('84), Kurt Kelso ('87) and Marcelo Copat ('84)



Robotics At Work: Jason Zielke ('00) with the new robotic lawnmower



Innovation Expo: Alumni learn about latest campus happenings



Enriching Greek Ties: Lambda Chi Alpha alumni complete more projects



Homecoming Bonfire: Alumni join in campus tradition



Class Notes

1956

John Chinn (ChE) was honored by the Rose-Hulman Alumni Association during the 2010 homecoming with the Honor Alumni Award for his loyalty, unselfish and meritorious service in furthering the interests of Rose-Hulman. He is a retired project director for the U.S. Shippers Association, and also worked for Air Products and Chemicals Inc. and BASF.

(See photo on page 25)

1970

Richard Kirkman (CE) recently received certification as a building inspection engineer from the National Academy of Building Inspection Engineers. He is operating a home inspection business. He also has served a two-year term as president-elect and president of the Arkansas Association of Real Estate Inspectors and is the president of the Arkansas chapter of the American Society of Home Inspectors.

1972

Ronald L. Loyd (ChE) is serving as President and Chief Executive Officer of Ohio Valley Gas. He began his career with Ohio Valley in 1972 as project engineer. He was promoted to chief engineer in 1979, vice president in 1990 and assumed the role of vice president and general manager in 2005.

1974

Dennis Paustenbach (ChE) received the Henry F. Smyth Jr. Award from the American Industrial Hygiene Association for career achievements in the industrial hygiene profession. The award was presented at the Professional Conference on Industrial Hygiene in October, 2010.

(See more on page 29)

1975

Dr. Jack Farr (BIO) has been named to scientific advisory board for ProChon Biotech Ltd., an innovator of tissue regenerative technologies.

1976

Rich Petke (CS) graduated from Southwest College of Naturopathic Medicine in July, 2010, with a doctorate degree. He is now a licensed naturopathic physician in Flagstaff, Ariz., where he operates a pediatrics and family medicine practice, All Ways Health, PLLC.

1980

Fred M. Cartwright (ME) has been appointed General Motors's vice president of alliances and new business development. He has recently relocated to Ruesselsheim, Germany, and become a member of the Opel/Vauxhall Leadership Board.

(See more on page 15)

1981

David Hannum (ME) has been appointed to Rose-Hulman's Board of Trustees. He is chairman and chief executive officer of Garmong Construction Services and Hannum, Wagle & Cline Engineering.

(See more on page 28)

Mark C. McCullough (ME) is the new executive vice president-generation for American Electric Power, one of the largest electric utilities in the U.S. He had been the vice president-fossil and hydro generation since 2008.

(See more on page 14)

1984

Robert Crowell (CE) has been named head of development by OwnEnergy, Inc., a community Wind development company. He is responsible for all of the company's community wind farm projects through to construction.

(See more on page 15)

1985

Jeff Gilbert (ME) received the Rose-Hulman Alumni Association's Honor Alumni Award during homecoming for his loyalty and meritorious service to Rose-Hulman. He is president and chief executive officer of Software Engineering Professionals in Carmel, Ind.

(See photo on page 25)

Randy Karvanek (ChE), sales manager for Jif-Pak in Phoenix, was mentioned in Southwestern Airlines Magazine article on "Rapid Rewards Freedom Story."

1986

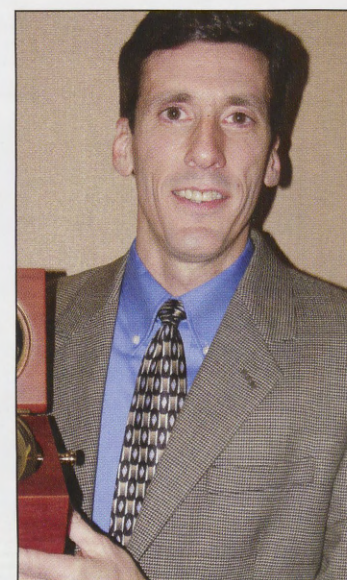
Kevin E. Stroud (CS) ran his fourth consecutive Boston Marathon on April 19, 2010, in a Rose-Hulman singlet, which numerous people recognized by shout outs during the run. His time, including stops to kiss five Wellesley College girls and high-five numerous kids along the way, was 3:13:28. This beat his qualifying time for next year's Boston Marathon by more than 17 minutes on a very tough course.

Robert Wilkins (ChE) was unanimously confirmed by the U.S. Senate to a spot on the judicial bench of the U.S. District Court for the District of Columbia. He was nominated by President Barack Obama for the position. Wilkins has been a partner at the Washington, D.C., law firm Venable since 2002.

(See more on page 30)

1987

Andrew F. Jones (EE) received the 2010 Jess Lucas Alumni Leadership Award from Rose-Hulman for career achievement, community service and family commitment. He has 23 years of experience in operations, engineering and quality leadership with Roche Diagnostics' Indianapolis operations center. The Lucas Award honors former leaders of Rose-Hulman's residence life staff. It was named in honor of Jess Lucas, who served as Rose-Hulman's vice president of student affairs and dean of students from 1976-2000.



Andrew F. Jones – 2010 Jess Lucas Alumni Leadership Award Winner

2010 Homecoming Honorees

HONOR ALUMNI AWARD WINNERS



Earning Honor Alumni Awards from the Alumni Association and Rose-Hulman President Matt Branam (right) for career achievements were (from left) Anne (Trueblood) Trobaugh ('03), Steve Meyer ('89), Jeff Gilbert ('85) and John Chinn ('56).

DISTINGUISHED YOUNG ALUMNI AWARD WINNERS



Receiving the Young Alumni Council's Distinguished Young Alumni Awards from Rose-Hulman President Matt Branam during homecoming were (from left) Paul Jeffrey Nord ('97), Jason Zielke ('00), Matt Kuester ('00) and Clay Fette ('99).

We Want Your News—Promotions, Achievements, Weddings and Birth Announcements!

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to dale.long@rose-hulman.edu

1989

Robert Benning (PH), Anthony Higdon (EE), Kevin Muckerheid (EE), Myles Nakamura (ME) and Adam Remaly (ME) were recently selected for promotion to colonel in the U.S. Air Force—nearly 11 years after being commissioned for military service on the same day in 1989 before graduating.

Mike Lindsey (ME) has been chosen as the Indiana Association of School Business Officials' School Support Professional of the Year by the IASBO Awards Committee.

Steve Meyer (ChE) was among four alumni receiving Rose-Hulman's Honor Alumni Award from the Alumni Association during the 2010 homecoming. Meyer serves as director of client engineering for Milliken Performance Solutions Business at Milliken & Company in South Carolina. He has led the company's recruitment efforts to attract more Rose-Hulman graduates to the company. (See photo at left)

1991

Douglas Rosenberger (EE) was named manager of the Appalachian Power Company's Kanawha River Plant in Glasgow. He joined American Electric Power in 1991.

1992

William Meyers (AO) has been elected a new partner in the Indianapolis law firm of Baker & Daniels LLP. He focuses his intellectual property practice on patents. Meyers also earned a master's degree from Rose-Hulman in 1994 and graduated cum laude from the Indiana University School of Law in 2002. He joined Baker & Daniels in 2004 after co-founding and co-owning a



mechanical engineering design firm for almost five years. Baker & Daniels provides advice and counsel to regional, national and international clients.

Daniel Rich (CE) earned his doctorate in civil engineering from Texas A&M University. Through his consulting firm, Rich Engineering, he specializes in performing forensic investigations of residential and light commercial buildings. He also serves as an adjunct professor in civil engineering at Prairie View A&M University.

David Will (ME) is the new Dean of the School of Technology for Ivy Tech Community College's Wabash Valley campus. After graduation, Will earned a MBA from Indiana University.

1993

Scott A. Woods (ME) spent his first season on the bench as an assistant basketball coach at Wright State University. He previously served as the director of basketball operations for three years. Woods, a two-time all-league basketball player for the Engineers, was inducted into Rose-Hulman's Athletic Hall of Fame in 2003. He served as assistant coach at Saginaw Valley State University before going to WSU in 2003.

1994

Joel Magsig (ME) is pending promotion to lieutenant colonel in the U.S. Army, serving as commander of the air interdiction unit, a branch of the Afghan government responsible for policing the drug trade in the country. Magsig will be responsible for training and mentoring over 200 Afghan pilots in this program. He has been deployed to Iraq (2002-03) and Afghanistan (2008).

1995



Michael Meneghini, MD (CE) has returned to Indiana and opened a new practice called Indiana Clinic Orthopedics in Indianapolis. He will be part of a nationally-recognized team of physicians with Clarian Human Motion. He formerly led the joint replacement program at the University of Connecticut Health Center.

1996



Shawn Wischmeier (ChE) was selected by North Carolina State Treasurer Janet Cowell to become the new chief investment officer for the state's \$68 billion pension fund. An experienced investing

professional, Wischmeier had served as chief investment officer of the \$14 billion Indiana Public Employees' Retirement Fund (PERF) since 2006.

1997

Kevin Lanke (ECON) earned a master's degree in recreation and sport management from Indiana State University in May, 2010. He is promoting Rose-Hulman athletics and student-athletes as assistant athletic director for sports information & communications.

Paul Jeffrey Nord (ChE) received the Distinguished Young Alumni Award during the 2010 homecoming. After working as a project engineer for Morton International, Nord entered the Saint Meinrad Archabbey in southern Indiana. Receiving "Paul" as his religious name, he made Solemn Profession as a monk in 2006 and one year later was ordained a Catholic priest. *(See photo on page 25)*

Scott Safer (ME) is currently serving as a major in the U.S. Army in Afghanistan. He is the planning officer for the first brigade, 10th mountain division out of Fort Drum, N.Y.

1998

Brent Nemeth (CE) graduated from West Virginia University's College of Law in May, 2010. He practices land use, environmental and constitutional law in Wheeling, W.Va. He is also a professor in the organizational leadership and administration program at West Liberty University. He has been promoted to general counsel for Walden Industries, Inc., a masonry production facility in Tiltonsville, Ohio. Brent lives on his farm in Rayland, Ohio with his wife and two children.

Peter Haug (CE) is now a water resources engineer at Ayres Associates in Eau Claire, Wis. He is responsible of hydraulic and hydrologic modeling, dam design and river engineering.

1999

Dave Dusick (ME) is sales account manager for GE Jenbacher for the Inland Power Group, a distributor for several major companies. Dusick is also president of his own company, Race Track Engineering.

Clay Fette (ChE) was honored by the Young Alumni Council during the 2010 homecoming with the Distinguished Young Alumni Award. He is director of product development for ACell, Inc., a company that specializes in regenerative medicine technology, and is listed as an inventor on over 10 medical device patents or published applications. *(See photo on page 25)*

Kirk Myers (CE) has completed a master's degree in urban and regional planning, along with a certificate in transportation planning and analysis.

2000

Matt Kuester (ME) and Jason Zielke (ME) were recognized with Rose-Hulman's Distinguished Young Alumni Award by the Young Alumni Council during homecoming. Kuester serves as U.S. product manager for Tornier, Inc., with a portfolio of shoulder implants, after starting his career with Zimmer. Zielke is president and chief operating officer Precise Path Robotics in Indianapolis. *(See photo on page 25)*

2001

Brett Bobzien (CM) and Tracy Johnson of Schererville, Ind., were engaged while on a cruise to Grand Cayman. The wedding is planned for this June. He is a project manager for Aptuit in West Lafayette, Ind.

Ann Swistek (ChE) has received her MBA from West Virginia University.

2002

Jennifer (Krause) Lawrence (CE) is now the executive director of the Boone County Solid Waste District in Wash.

2003

Beau D'Arcy (ME) graduated with a MBA from Harvard Business School and has since founded Effortless Efficiency, a company that helps homeowners to become "green" by eliminating wasted energy and water. The company is located in Chicago.

Alison Bailey (EE) was among a group of Northrop Grumman employees receiving the company's 2010 Team Award of Excellence for her work on the revolutionary Multi-Role Electronically Scanned Array radar, part of Boeing's 737 Airborne Early Warning and Control aircraft system. *(See more on page 31)*

Walter Flood (CE) recent became engaged to Nicole Maston. The couple is planning a wedding in the fall of 2012.

Jason Meyer (CE) was recently engaged to fellow Chicago resident Jennifer (Jen) Boeckman. He is employed by MWRD and is pursuing a law degree from the John Marshall Law School.

Anne (Trueblood) Trobaugh (ME) received Rose-Hulman's Honor Alumni Award from the Alumni Association.
(See photo on page 25)

2004

Jessica Farmer Albert (CHE) passed the chemical professional engineering exam in October and is now licensed in Texas.

Matthew Albert (CE) passed the structural I professional engineering exam. He is now licensed in Texas.

2005

Brian Meyer (ME) is serving his second tour in Afghanistan as captain with the 101st Airborne. He pilots the OH-58D Kiowa Warrior Helicopter. When not stationed in Afghanistan, Meyer resides in Clarksville, Tenn.

2006

Theodore Cox DuPuis (ME) is the founder, president and sole pilot for Cloud Nine Rescue Flights. He transports dogs destined to be killed to central New York for adoption. More than 280 dogs have been saved since August 2009. Ted's day job is as an engineer for Lycoming Engines in Williamsport, Pa.

Kevin Hanson (CE) has passed the PE exam.

Michael Reeves (CE) is now employed at MACTEC Engineering's Cincinnati office.

Abby Richards (CE) has passed the PE exam.

2007

Joel Anderson (CE) has passed the California professional engineers exam to earn a Civil PE license.

Richard Franko (CE) is currently training to become an Army special officer, a Green Beret. He was served in Iraq in 2008, being selected to lead the first combined U.S./Iraqi route clearance platoon with a mission of detecting and neutralizing improvised explosive devices emplaced by anti-coalition elements.

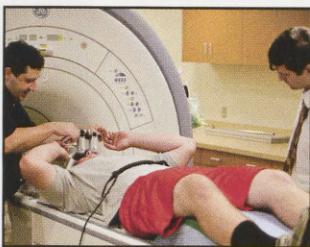
Dan Pechacek (ME) will be deployed to Afghanistan as an attack helicopter platoon leader with the U.S. Army later this year. He is currently stationed with the 159th combat aviation brigade at Fort Campbell, Ky.

2008

Kristina Lawyer (ME) won the National Hot Rod Association's 2010 Super Quick North Central Division championship. She was honored at the division's "Land of the Winners" Awards Banquet.
(See more on page 29)

Nick Ohrn (CS) is proving that anything is possible when you have a Rose-Hulman degree—he has already written his first book! The WordPress 2.8 Themes Cookbook has over 100 simple but incredibly effective recipes for creating powerful, custom WordPress themes.

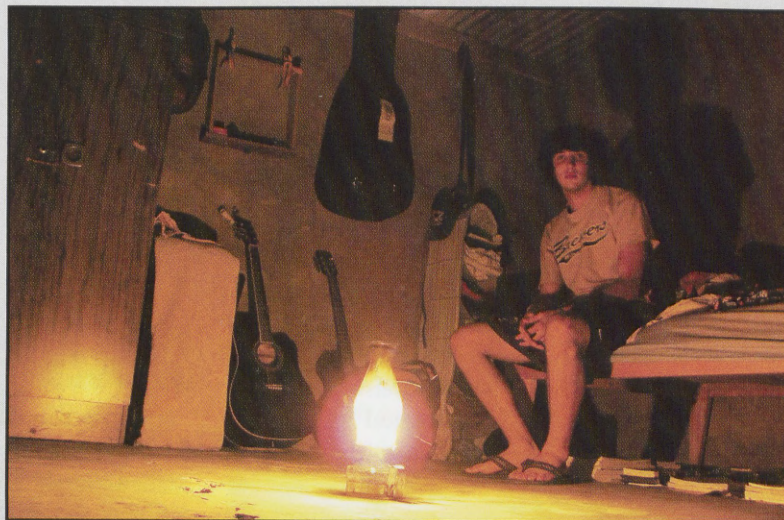
2009



Evan Breedlove (right) works with high school football players and the effects of concussions.

2008

Nick Bloss (CE) has completed a two-year assignment teaching math and science in a remote village in northern Namibia with the Peace Corps. He lived in a village that is about a 1.5-hour walk from the nearest road. Most of the village did not have electricity and residents received water from a few communal water taps. Bloss designed a drip irrigation system for the village, with assistance from former Department of Civil Engineering Chair/Professor Robert Houghtalen. The system now provides food and income for the villagers. Bloss was back in the U.S. for a short visit in March before returning to Africa to begin another tour with the Peace Corps, putting his civil engineering skills to use in Kenya. He plans to design and build bridges, catchment dams and drip irrigation fields in northern regions of the country. Follow Bloss' adventures and see photos on his blog at natebloss.blogspot.com.



Meager Surroundings: Alumnus Nate Bloss sits in the dark in his room in the Namibia village during his two-year service term with the United States Peace Corps program. (Photo Courtesy Nate Bloss)

Evan Breedlove (ME) is helping professional, college and high school officials better understand the harmful effects of crushing football tackles. He is participating in an extensive research project on gridiron concussions, and was featured in a special issue of Sports Illustrated magazine. Breedlove was part of a Purdue University research team that spent the 2009 football season examining the extent of tackles on Lafayette Jefferson High School football players.

Quintin Coppola (ME) has been selected to attend the U.S. Army's sapper leader course. He is serving as a platoon leader in the group service support company, group support battalion, 7th special forces group (airborne) at Fort Bragg, N.C.

Harrison Sand (AB) has committed a year of volunteer service with Jesuit Volunteer Corps Northwest. He is working for the transformation of our world. ■

Baumgardt Awarded Honorary Degree for Achievements

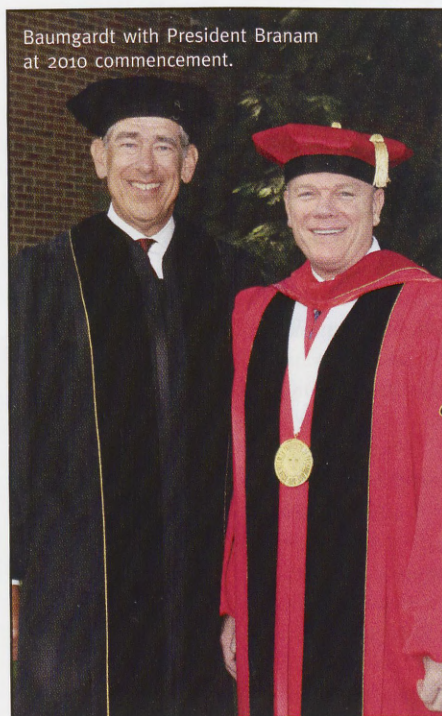
James R. Baumgardt was recognized at Rose-Hulman's 132nd Commencement for his career achievements in business and higher education by receiving an honorary doctorate of engineering. The honorary degree is the highest honor that Rose-Hulman confers to a person in recognition of achievements and support to the Institute.

Baumgardt is a visionary and highly successful leader whose business interests are in development stage companies focused on minimally invasive surgical technologies. He served as chairman of Rose-Hulman's Leading the Next Decade of Innovation Gala.

The 1970 chemical engineering alumnus serves as chairman of the board for the NICO Corporation, as a director of Neochord, Inc. and as partner of Twilight Ventures, an Indiana-based life science venture capital enterprise. He is a former director of Laserscope and co-founder of Suros Surgical Systems.



Decade of Innovation Gala Dinner Chairman James R. Baumgardt and his wife, Sharon, share a moment with Indiana Gov. Mitch Daniels.



Baumgardt with President Branam at 2010 commencement.

Baumgardt serves as emeritus member of Rose-Hulman's board of trustees and on the advisory boards of Butler University's School of Business and Purdue University's School of Biomedical Engineering. He is former chairman of the trustees' Rose-Hulman Ventures Affairs Committee.

Baumgardt served as president of the Guidant Foundation, president of Guidant Sales Corporation, and in numerous roles during his 25-year career with Eli Lilly and Company, including service as executive director of business development.

In addition to his Rose-Hulman degree, Baumgardt has a master's of business administration from Butler. ■

Trio Strengthens Alumni Ties on Board of Trustees

Rose-Hulman graduates **David Hannum**, **Robert Pease** and **Heidi Davidson** are now representing the college's heritage, alumni association and young alumni on the Institute's Board of Trustees.

Hannum has a rich family tradition with Rose-Hulman which continues today—into a fourth generation—with his own children. The 1981 mechanical engineering alumnus is chairman and chief executive officer of Garmong Construction Services and Hannum, Wagle & Cline Engineering.



Pease is the alumni association representative to the Board of Trustees. The 1980 chemical engineering alumnus has been active in the association, serving as alumni clubs chair, and helping host alumni events in the Houston area. He is president and chief executive officer of Motiva Enterprises LLC, a refining and marketing joint venture owned by affiliates of Shell and Saudi Aramco.



Davidson is serving a two-year term as the trustees' young alumni representative. The chemical engineering alumna has been a class agent since graduating in 2003, a Young Alumni Council member since 2007 and has organized alumni events in the Evansville area. She is a technical development engineer for Solvay Chemicals' SOLVAir Products Group, supporting select products for air pollution control through trials demonstrating efficiency and effectiveness. ■



Keep up with the latest alumni news at www.alumni.rose-hulman.edu

Gerald Dinkel Named President & CEO of Colt Defense

Gerald R. Dinkel's expertise in global defense systems made the electrical engineering alumnus the ideal choice to be the new president and chief executive officer of Colt Defense LLC, one of the world's leading designers, developers and manufacturers of small arms weapons systems for individual soldiers and law enforcement personnel.

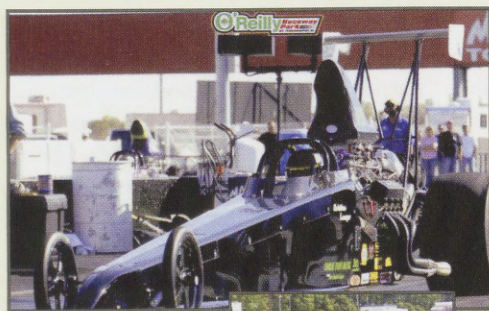
Dinkel, a 1968 graduate, has a strong background in defense systems development, program and general management, international business, and mergers and acquisitions. He formerly was president and chief executive officer

of White Electronic Designs Corporation, a defense technology company acquired by Microsemi Corporation, and a senior advisor with Washington, D.C.-based Renaissance Strategic Advisors.

From 2000 to 2007, Dinkel served as president and chief executive of Cubic Corporation's defense segment, where he restructured the business and substantially grew revenue and profitability. Prior to joining Cubic, he had a long career at Westinghouse Electronic Systems, playing key roles in the development and deployment of major weapon systems, including the F-16 and AH-64D

Longbow Apache.

The company's portfolio of products and services meets evolving military and law enforcement requirements around the world. It has supplied small arms weapons systems to the United States government and other governments throughout the world for more than 160 years. Colt Canada Corporation is the Canadian government's center of excellence for small arms and is the Canadian military's sole supplier of the C7 rifle and C8 carbine. ■



Kristina Lawyer has taken another step toward realizing her dream of becoming a driver in the National Hot Rod Association Top Fuel series after winning the racing circuit's 2010 Super Quick North Central Division championship. The 2008 mechanical engineering alumna captured the title at the season-ending NHRA Fall Classic National Open at O'Reilly Raceway Park in Indianapolis.

Lawyer, now a doctoral student at Michigan Technological University, was honored at the North Central Division's "Land of the Winners" Awards Banquet.

Heading into the final race of the season, Lawyer trailed two-time series champion James Monroe by one



LAWYER UP TO SPEED ON RACETRACK, WINS NHRA SUPER QUICK TITLE

point, and eight other racers were mathematically still in the chase for the title. Monroe lost in the opening round by .0021 against Terry Smith, opening the door for Lawyer. She won her first-round match to climb into first place, a position she held despite losing a second-round race.

The Jeg's Super Quick series consists of nine races at nine different racetracks throughout the Midwest. Racers earn points for each round won and use their six highest scoring events to calculate their season-long points standing.

Lawyer won the event at Bunker Hill (Ind.) Dragstrip, was runner up at Beech Bend Raceway Park (Bowling Green, Ky.), and lost in the quarterfinals at Coles County Dragway (Charleston, Ill.) and Pacemakers Dragway Park (Mount Vernon, Ohio). That accounted for 355 points, which was 10 points better than Monroe, a two-time division runner-up.

"It took a total team effort," said Lawyer. "This title realizes a lot of dreams

and aspirations, and keeps me motivated for the future."

During the 2010 season, Lawyer competed in 14 events in five states, winning 25 rounds with 21 losses. As a high school and college student, Lawyer has competed in NHRA district divisions for 18 years and earned one series title and three track season championships.

"If I can't make it as a driver in NHRA's Top Fuel or Funny Car professional divisions, hopefully my engineering skills, technical knowledge and enthusiasm will keep me in the motorsports field," stated Lawyer in an earlier interview.

At Michigan Tech, Lawyer has done research on hybrid vehicle modeling for her doctorate and will publish her thesis on service learning in sustainability engineering education.

Learn more about Lawyer's racing career at <http://www.lawyer motorsports.com>. ■



Gibson Joins Business Leaders as Board of Trustees' Officer

Successful entrepreneur and Terre Haute businessman **Greg Gibson** has been

elected secretary of Rose-Hulman's board of trustees, joining business and industry leaders in helping set the course for the Institute's future.

Gibson, a 1984 civil engineering alumnus, has led a variety of business ventures located throughout the United States, with business operations including commercial real estate development, the hospitality and food service industry, trucking, excavation, coal, solid waste landfill development and waste industry advisory services.

Over the past 20 years, the Terre Haute resident has obtained extensive experience in the successful development and operation of waste management companies, including both integrated and non-integrated business operations. Among his non-business activities,

Gibson has served on the Indiana Judicial and Ports of Indiana Commissions, appointed by Gov. Mitch Daniels.

In addition to his waste management and regulatory backgrounds, Gibson also currently serves on the board of directors for First Financial Bank and its holding company First Financial Corp. He is involved in several charitable organizations, including the Methodist Health Foundation, the Bird-Gibson Sports Center, Hospice of the Wabash Valley and the Terre Haute Convention and Visitors Bureau.

Gibson replaces Niles Noblitt as Trustees' secretary.

Other board officers are William Fenoglio, retired chief executive officer of Augat Corp. and former General Electric Company executive, chairman; Jeffery Belskus, president and chief executive officer of the Indianapolis Motor Speedway, vice chairman; and Thomas Dinkel, president of Sycamore Engineering, treasurer. ■

Paustenbach Earns National Honor for Career Achievements

Dennis Paustenbach was recognized by the American Industrial Hygiene Association for his significant contributions to the industrial hygiene profession. He received the Henry F. Smyth Jr. Award at the Professional Conference on Industrial Hygiene.

A 1974 chemical engineering graduate, Paustenbach is the President of ChemRisk, Inc., a consulting firm that specializes in human and ecological risk assessment and risk analysis of pharmaceuticals and medical devices. He is a distinguished Fellow at the American College of Toxicological Sciences, a

member of AIHA, a certified industrial hygienist and safety professional, and a registered professional engineer-in-training.

Paustenbach is also a certified environmental assessor who serves as diplomat of the American Board of Toxicology, is an executive committee member of the Board of Scientific Counselors, has published approximately 200 peer-reviewed articles. His textbooks on risk assessment are among the most popular ever published and have been



Update: Senate Confirms Wilkins as District Judge

In the final hours of the 111th Congress, the U.S. Senate unanimously approved alumnus **Robert Wilkins'** appointment to the judicial bench of the U.S. District Court for the District of Columbia.



Wilkins was nominated by President Barack Obama for the position. He was approved by the Senate Judiciary Committee last September and had been awaiting a floor vote for three months.

A 1986 chemical engineering alumnus, Wilkins had been a partner at the Washington, D.C., law firm Venable since 2002, specializing in corporate defense/white collar, technology and commercial litigation practice. From 1990 to 2002, he worked for the Washington D.C. Public Defender Service, was recognized as one of "90 Greatest Washington Lawyers of the Last 30 years" by Legal Times and one of the "40 under 40 most successful young litigators in America" by the *National Law Journal*.

Wilkins was the lead plaintiff in *Wilkins, et al. v. State of Maryland*, winning a landmark settlement in a "racial profiling" case. It inspired data collection requirements in an executive order and legislative proposals in Congress and states all over the country. He has appeared frequently in national print and broadcast media, and played a key role in the creation of the National Museum of African American History and Culture within the Smithsonian Institution. ■

Continued on page 31

Bailey Flying High in Telecommunications Industry

The sky has been the limit, literally, for alumna **Alison Bailey's** career ambitions in the telecommunications and networking industry for Northrop Grumman, a Fortune 500 corporation that's become an industry leader in flight electronic systems—thanks to Bailey's contributions.

Bailey has spent the past six years working with a team of engineers, scientists and technicians developing Northrop Grumman's revolutionary Multi-Role Electronically Scanned Array radar, part of Boeing's 737 Airborne Early Warning and Control (AEW&C) aircraft system. She has prepared the radars for test, executed ground and flight tests, and maintained the electronic systems. Along the way, she has logged more than 1,700 flight hours in both the United States and Australia.

Those efforts landed Bailey and her colleagues one of Northrop Grumman's top employee awards, the 2010 Team Award of Excellence, at a recent dinner in Washington, D.C.

The team was recognized for providing outstanding ground, flight test and requirement verification support, and their collaboration and customer relations skills.

Bailey was also featured in the winter issue of *Woman Engineer* magazine for her career contributions in telecommunications and networking.

"It is really nice for an Electronic Systems Wedgetail Field Engineering Support team to be recognized at the corporate level, especially with all of the work in the last two years by a large group of people," acknowledged Bailey, a 2003 electrical engineering alumna who now lives in Seattle. "This takes my pride in flight tests to the next level...



I am honored to be part of the team receiving the award, but could not have supported the customer to the extent we did without the engineering team back in Baltimore (Northrop Grumman's Electronic Systems sector headquarters) and my fellow team members all over the world."

Bailey was on the first radar flight of six different Boeing aircraft, from August of 2005 to March of 2010. ■

Paustenbach Continued from page 30

adopted at a number of universities.

Donna M. Doganiero, president of the AIHA's Academy of Industrial Hygiene, stated: "With his personal and professional achievements, his drive for the betterment of public welfare, and his dedication and loyalty to his colleagues, Dr. Dennis Paustenbach exceeds the (award) requirements."

The academy presents the Smyth Award annually to a person who has recognized the needs of the industrial hygiene profession and made major contributions, thereby contributing to the improvement of the public's welfare. Henry F. Smyth Jr. was a dedicated teacher and productive researcher whose projects enhanced the profession.

Paustenbach received an honorary doctorate from Rose-Hulman in 2007, earned the college's Career Achievement Award in 1994 and he sponsors a campus lecture series that encourages students to think in new ways about a career in science and technology. ■

Corrections From Last Issue



Dr. Lawrence J. Giacioletto's photo was incorrectly published in the winter issue. The correct photo is now being featured,

thanks to his daughter Carol. Also, the graduation year of Lawrence's brother, John, was incorrectly listed. It should have been 1935.

The story about Scale Computing failed to list two persons with Rose-

Hulman ties that had instrumental roles in founding the company: **Mike Olson**, a 1997 computer science and math alumnus, and former student **Nate Hardt**.

Marriages

1995

Jeff Markwardt (PH) married Andrea Sharos on October 9, 2010. Jeff works as a product design engineer for Duke Manufacturing Company in St. Louis.

1998

Todd Allen Burch (CE) married Kathryn Ruth Callahan on May 22, 2010, at Odon (Ind.) First Christian Church. He is a civil engineer at Simon Property Group in Indianapolis. The couple resides in Indianapolis.



2002

Joseph Henry Hilger (ME) married Sarah Ann Harmeyer on April 12, 2008, at Saint Mary Catholic Church in Rushville, Ind. He earned a master's degree from Purdue University in 2004 and a MBA from Indiana Wesleyan in 2007. The couple now resides in Fort Wayne.

2003

Alex Woods (ME) and Ariane Levy (EE, '05) were married on October 10, 2009, at sunset on Bradenton Beach, Fla. They were joined by 45 close friends and family for a barefoot ceremony by the ocean. Alex works at Cummins, designing air handling components for the 15L engines.

2005

Scott Tourville (CE) married his wife, Katie, in July during a destination wedding on Sanibel Island, Fla. He is working as an engineer for the city government in his hometown of Westerville, Ohio, and also works part-time as a cross-fitness trainer at a local gym.

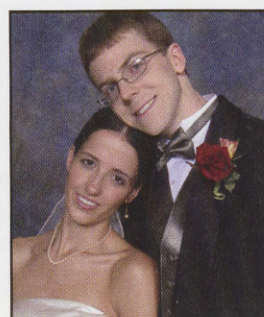
2006

Pamela Dopka (EE) and Nicholas Trombly were married on December 11, 2010, in Elk Grove, Ill. They are currently living in Chicago. She is a medical technical sales representative for Avago Technologies.

Ashley Young (ChE) and **Philip Rendina (EE)** were married on October 23, 2010, in Leesburg, Va.

2006

Joseph Gland (EE/ME) and **Amanda Rohde (ChE/MA, '07)** were married on November 1, 2008, in Fargo, N.D. Their formal names are now Mr. and Mrs. Joseph Galante, they live in



Beltsville, Md., and are working on doctorates at the University of Maryland. Joseph will receive his degree in aeronautical engineering and Amanda in applied mathematics.

2007

Bradley Otto (CE) married Meghan Luttrell on November 13, 2010. He has recently completed his MBA from the University of Cincinnati.

2008

Douglas Thornton (EE) and Carla Cranny were married on November 27, 2010, at St. Malachy Catholic Church in Brownsburg, Ind. The couple honeymooned in Costa Rica. He is a first lieutenant in the U.S. Air Force and is stationed at Wright-Patterson Air Force Base in Dayton, Ohio, working in the National Air and Space Intelligence Center's LASER Division. He received a master's degree in electro-optics from the Air Force Institute of Technology in 2010. ■

Rosebuds

1997

Chris Russell (ChE) and his wife, Gina, welcomed their fifth child, Ashley Rose, on March 23, 2010. He is a production manager for Kalsec, Inc., a spice extraction company in Kalamazoo, Mich. He is also pursuing a MBA from the University of Notre Dame.

1999

Marcie (Kam) Morrison (ME) and Adam Morrison (ME, '00) welcomed their latest child, Maile Pearl, on Christmas Eve. The family also features Albie (5) and Asa (3).

2002

Joel Ericson (CE) and his wife, Amy, had their first child, Berton Joseph, on June 3, 2010. He was born in the Arab Emirates, where the proud parents are living.

2003

Keith Moench (ME) and his wife, Stephanie, had their first child, Conrad Lee, on December 26, 2010. Keith earned a medical degree from Indiana University in 2003, and will be completing his residency in physical medicine and rehabilitation at the University

of Minnesota in June. In September, he plans to join Healthpartners Medical Group, with privileges at Regions Hospital in St. Paul, Minn.

2005

Ryan Hart (CE) and Ashley Hart (ChE, '06) shared the news of the birth of their first



child, Keianah Leslie Hart, on June 22, 2010. Ryan is currently working as a process engineer at AeroMetals in LaPorte, Ind. Ashley is working as a product engineer at Alcoa in LaPorte, Ind.

Jason Lange (CE) and his wife welcomed their second son, Elliot, on September 3, 2010. Big brother, Connor, is 2½ years old. ■



Shelton Hannig

His many philanthropic donations supported Rose-Hulman students and alumni, including covering the registration fee for thousands of senior engineering majors to take the annual Fundamentals of Engineering Exam—a prerequisite for earning a professional engineer's license. He was awarded an honorary degree from Rose-Hulman in recognition to his loyal support to the college.

Hannig will be remembered by family and friends for his outgoing personality, generosity and sense of humor.

After earning a degree in architectural engineering at the University of Illinois, Hannig started his own construction company in 1960. He designed and built a variety of commercial buildings in the Terre Haute area.

Hannig was predeceased in death by a son, Mark. He is survived by his wife, Muriel; two daughters, Cindy Neels and Vickie Hannig; and two grandchildren.

The family requests that any donations in Hannig's memory be made to the Mark Shelton Hannig Scholarship Fund at Rose-Hulman Institute of Technology. Donations may also be made to the Office of Institutional Advancement in Hannig's memory to support future students taking the FE exam. ■

Obituaries

1935

Wayne Gustave Siegelin (EE) died on December 19, 2009. Wayne had a long and rewarding career specializing in power generation. His last position was senior vice president of electrical transmission for CP&L, until his retirement in 1977. He was named the Texas State Distinguished Engineer in 1977 and a finalist for the Jefferson Award in 2003.

1941

Simon P. Gary (ChE) died on February 28, 2010. He was the former owner of Scientific Control Laboratories in Chicago. He was preceded in death by his wife, Betty, and son, Simon III. Survivors include daughters, Cheryl Currie, Jean Dolezal and Karen Tjernlund; a sister, Lois Case; seven grandchildren and 12 great-grandchildren.

1943

Charles R. McKinney (EE) died on June 30, 2009. He is survived by Norma, his wife of 65 years; a daughter, Kathy Schreiner; two grandchildren; and a great-grandson.

Frederick J. Hill (ChE) died on May 20, 2010, in Lancaster, Pa. He served as a corporal in the Army's chemical warfare service during World War II.

Robert J. Howell (EE) died on January 11, 2011, in Howard County, Md. He served in the Army during World War II before working for Westinghouse in the U.S. Department of Defense. He is survived by his wife, Gwen; children, Donald and Ann; and three granddaughters.

1945

Henry F. Schoemehl (EE) died on March 20, 2010, in Laguna Woods, Calif. He developed three patents on methods to improve recorded sound while working at RCA in Indianapolis. He also worked for the U.S. Navy, and in the semiconductor, solar cell and variable-speed motor industries. He is survived by his wife, Barbara; two sons, Frederick and Mark, and a daughter, Karen Reinsel.

1947

John Leins (ChE) died on January 20, 2010. He also attended Purdue University before enlisting in the Air Force. He was shot down over Romania, where he was held as a POW until the end of the war. He worked as a loss prevention engineer for Factory Mutual Insurance Co., a safety engineer for Dupont Corp., and liquids safety manager with Aerojet in Rancho Cordova, Calif. He is survived by his wife, Anita; a son, Douglas; two daughters, Marcia and Kimberly; several grandchildren and great-grandchildren.

Robert W. Wolf (EE) died on September 20, 2010, in Carmel, Ind. He was a first lieutenant in the Army Air Corp. in World War II, serving as a meteorologist for weather reconnaissance. Later, he worked at Indiana Bell from 1949-82. He was preceded in death by his first wife, Marguriete. He is survived by his second wife, Dorothy; a daughter, Karen Osburn; a son, Douglas; three stepsons, Frederick, William and Tom Yde; 19 grandchildren; a grandchild; and three brothers.

Richard Wright Hickman

(EE) died on November 12, 2010, in Columbus, Ohio. He served as first lieutenant in the Army in Germany during World War II. He then worked for AT&T in New York City before moving to Ohio in 1955 to take a management position with Accuray. He served as senior vice president with the company until his retirement in 1984. He is survived by his wife, Mary Jane; two sons, Bill and Tom; a stepson, Scott Trimble; a stepdaughter, Cindi Marangoni; several grandchildren; and nieces and nephews. He was preceded in death by his first wife, Miami.

1948

Joseph Gordon King (ChE) died on March 13, 2010, in Canton, Ohio. A pioneer in clean room technology development, King was the first inductee into the Clean Room Hall of Fame. He began his work in that area with Sandia Laboratories in Albuquerque, N.M., and continued on to direct the building of clean rooms all over the world with Texas Instruments. After retiring from TI, King established a consultancy in the field of contamination control.

John W. Bryant (ME) died on April 16, 2010. He was a salesman for MCC Powers Co. He was preceded in death by his wife, Rosemary. Survivors include two sons, Robert and Douglas; five grandchildren; and a great-grandchild.

1949

Robert W. Exline (EE) died on January 19, 2011. He worked his way up management ranks in the oil and gas industry, most recently as an energy consultant. He was preceded in death by his wife, Florence. He is survived by two sons, Gary and John; three grandchildren; and four great-grandchildren.

James F. Haring (ChE) died on August 4, 2010, after a year-long battle with multiple myeloma. He was a World War II veteran, a professional chemical engineer, Knights of Columbus member, community emergency response team member and volunteer firefighter. He is survived by his wife, Evelyn; five daughters, Marie Sweeney, Margaret Donegan, Karen Haring, Jeanne Garza and Lucy Haring; several grandchildren and great-grandchildren; and two sisters.

John D. Winters (ME) died on November 23, 2009. He joined Caterpillar in Peoria, Ill., after graduation. In 1950, he enlisted in the U.S. Air Force and completed pilot training in 1952. He served as a jet fighter pilot in the Korean conflict, and was awarded the Distinguished Flying Cross and Air Medal. He served as an instructor pilot until 1955. After his military service, Winters returned to work as a marketing manager for Caterpillar until 1975, when he became President of Caterpillar-Brazil in Sao Paulo. In 1979, he became the manager of Caterpillar's Aurora (Ill.) Plant before returning to Peoria in 1983 as vice president, with administrative responsibility for the engine division. He retired in 1990. He received an honorary doctor of engineering degree in 1987 from Rose-Hulman. He was preceded in death by his first wife, Marjorie and a

brother, Frank. He is survived by his second wife, Marilyn; a daughter, Susana David; a son, David; a brother, Robert; eight grandchildren; two stepsons; and numerous stepgrandchildren and great-grandchildren.

1950

Samuel Joe Lynch, Sr. (ME) died on October 9, 2010, in Elizabethtown, Pa. He was employed by RCA, as an electron and computer systems engineer; at ITT Federal Labs, as an engineering supervisor; and Link Belt Co., as a technical design engineer. During the last 15 years, Lynch was an engineering professor at University of Pittsburgh's campus in Johnstown, Pa., and at Penn State University's Harrisburg campus. He is survived by his wife, Margaret; three sons, Larry, Samuel Jr. and David; a brother, Fred; and a sister, Naomi Summerlot.

1951

Myron D. Hawk (CE) died on January 3, 2010, in Normal, Ill. He worked in California for over 50 years before returning to his hometown for retirement.

Alan L. Keal (CE) died on April 8, 2010, in Louisville. He owned and operated Alan L. Keal, a consulting engineering company, for 40 years (1955-95). He is survived by his wife, Jean; seven children; 15 grandchildren and five great-grandchildren.

1955

Walter C. Purcell, Jr. (CE) died on August 1, 2010, in Mount Carmel, Ind. He served in the U.S. Army during the Korean War before becoming a civil engineer with the State of Illinois for 32 years. Survivors include his wife, Anna; two

daughters; several grandchildren; a sister, Mary Mae Eaton; and several nieces and nephews.

James H. Sherman (ME) died on January 18, 2011. He served in the Air Force during World War II before working at Bendix (South Bend), Delco (Kokomo) and Chrysler Corporation (New Castle and Kokomo for 33 years). He retired in 1988 as supervisor of process engineering. He was preceded in death by his first wife, Lora; a second wife, Betty; and a daughter, Deborah Sherman. Survivors include his third wife, Suzanne; three sons, Robert, Steven and Thomas; two daughters, Marietta and Georgia; two stepsons, Keith Eltzroth and Michael Miller; a stepdaughter, Julia Vossler; grandchildren and step grandchildren; and step great-grandchildren.

1956

William S. Gaither (CE) died September 11, 2009 in Tucson, Ariz. After leaving Rose-Hulman, he earned three graduate degrees from Princeton University, and served as a college dean and university president. He is survived by his wife, Robin; a daughter, Sarah Setton; and two grandchildren.

1957

James E. Calabro Sr. (EE) died on September 10, 2010, in Kokomo after a long battle with ALS. He had a 35-year

career as an electrical engineer with Delco's General Motors Division. Early in his career, Calabro was issued a patent and obtained a master's degree in engineering from Purdue University. He finished his career in Milwaukee as a quality manager and returned to Kokomo after retiring. He is survived by his wife, Carol.

James T. (Tom) Pebworth (ChE) died on December 16, 2010, in Canfield, Ohio. He was an avid runner and in March, 2010, reached a personal milestone by running enough miles to cover the circumference of the earth. Shortly thereafter he was diagnosed with mesothelioma.

1958

Jay S. (Gappy) Stevens III (ME) died on April 29, 2010. He succeeded his father as president of Shonk Land Company, and also served as managing general partner, director and chairman of Shonk entities.

1959

Larry E. Grimes (CE) died on July 9, 2010, in Indianapolis. He was vice president of Stace-Allen Chucks Inc., and participated in the development of the Atlas Missile. He is survived by his wife, Marcia; three sons, Tim, Steven and Philip; two sisters, Sandy Surico and Becky Bright; and four grandchildren.

Jan R. Sonner (EE)

died on December 8, 2010, in Lexington, S.C. After graduating from Rose-Hulman,

he earned a master's degree in electrical engineering from the University of California in 1961. In 1972, he earned a doctorate in higher education from Southern Illinois University. He retired in 2002 after 40 years of teaching electrical engineering, math and physics. Surviving are his wife, Barbara; two sons, Craig and Byron; a daughter, Heather; and seven grandchildren.

1961

Robert P. Amos (EE) died in July, 2009, in St. Simons Island, Ga. His career with the Army Corps of Engineers brought him to Fort Belvoir, Va., where he met his wife, Ellen. After his tour in Germany with the Army, Amos worked in South Carolina and Nebraska before retiring from Hercules Inc. He was awarded the Bronze Star for his military service in Vietnam.

1968

Robert J. (Bob) Mason (ChE) died on September 30, 2010, in Webster, Texas, after living several years in West Terre Haute, Ind. He retired from Marathon Oil after 32 years of service. He is survived by his wife, Nancy; his mother; a daughter, Angela M. Clingan; two sons, Paul and Eric; two sisters; three brothers and several grandchildren.

Jesse C. Daugherty (ME) died on April 19, 2010, in Danville, Ill. He served in the Army during the Vietnam War before becoming a mechanical engineer for Parker-Hannifin. He is survived by his wife, Pamela; a daughter, Anne Daugherty Stevens; a son, Jesse; several brothers and sisters; and several grandchildren.

1970

Michael J. Ring (EE) died on January 21, 2011. He earned master's degrees in industrial operations and management from Purdue University, and served as a captain in the Army Reserves during the Vietnam era. Ring retired from Lucent Technologies in 2001. He was preceded in death by his first wife, Peggy. Survivors include his second wife, Feiyl; three sons, Matthew, Jeffrey and Kevin; two daughters, Anna Ring and Julie Van Wyk; two grandchildren; two brothers; and several nieces, nephews and cousins.

1971

Allan K. Mahler (ME) died on January 26, 2011, in Seminole, Okla. He added a master's degree in mechanical engineering from Rose-Hulman in 1973. He served as a first lieutenant in the U.S. Army Reserves. Survivors include wife, Ann; a former wife, Sarah Baxter; a daughter, Cristina Elaine Mahler; a stepson, Clifton Conatser; a stepdaughter, Sherri Conatser; a brother and sister; and several family members and friends.

1973

Donald A. Jones (EE) died on October 20, 2010, in Terre Haute. He served in the National Guard for six years. In 1973, Jones founded Numerical Concepts, Inc. His motto in life and business was to be "frank, firm, friendly and fair." He is survived by his wife, Nancy; four children, Matthew, Luke, Aubrey and Eleanor; nieces and nephews; and grand-nieces and nephews.

1975

Joe W. Curtis (ChE) died on June 11, 2010, in Lafayette, Ind. He was an associate engineer with Eli Lilly & Company for 10 years. He is survived by his wife, Sharon; his parents and two nieces.

1976

Richard C. Lee (EE) died on August 9, 2010, near Channahon, Ill. He began his engineering career with Mobil Chemical Company and his last position was director of operations at Ineos-Nova, formerly BASF. He is survived by his wife, Janice; three children, Deanna Foley, Jason Lee and Michel Lee; two grandchildren; and a sister, Barbara Lohse.

1978

Bradley J. Stearley (CE) died on May 20, 2010, in Center Point, Ind. He worked for Amax Coal Company, Peabody Coal Company, Indiana State Highway Department and the City of Terre Haute. He most recently managed the Center Point Hardware store.

1979

Kyle E. Davis (ME) died in May, 2010, in Plainfield, Ind. He worked for Allison Engines in Indianapolis, from 1979-96, and spent the last 14 years as a heat transfer engineer at Belcan Corp. in Cincinnati. Survivors include a son, Morgan; his mother, Jan Davis; a sister; and three nephews.

1980

Bruce Alden Wight (CS) died on August 4, 2010, in Fort Wayne. He served as a captain in the U.S. Army before becoming a systems engineer with ITT for 26 years. Survivors

include his wife, Deborah; two daughters, Sharon Hicks and Laura Wight; and his mother, Arlene Wight. He was preceded in death by his father, Robert, and a sister, Linda Cheeseman.

1981

C. William Grant (ME) died on July, 2009. He was the owner of Nautilus Consulting Group. Survivors include his wife, Darlene, and a brother, Guy.

1985

Joseph J. Heister (EE) died in Birmingham, Ala., where he was executive vice president of welding and assembly systems for Variant Machine and Tool Inc. He is survived by his wife, Nikki; two sons, Jordan and Mathias; his father, Richard; and several siblings.

1987

John A. Kantner, Jr., (ME) died on March 19, 2010 in Homestead, Fla. He was a mechanical engineer who enjoyed solving pump and seal problems for 23 years. He had three patents for hydrostatic transmissions in Indiana. He is survived by his wife, Christi; his parents, John and Sandra Kantner; two brothers and a sister; and several nieces, nephews, a great-niece and a great-nephew.

1991

Robert Leroy Lind (ME) died on October 3, 2010. A bicycle enthusiast, he worked at Penn Cycle and Erik's Bike Shop for several years. He is survived by his parents, LeRoy and Pat Lind, and a sister, Kathy Nelson.

1996

Jeffrey L. Foale (EE) died on May 12, 2010, in Tecumseh, Okla. He worked for Hewlett Packard, 3DFX, Texas Instruments and ATI. He was preceded in death by his sister, Natalie Foale. Survivors include his father, Bob; mother, Deanna Fields; ex-wife, Tracy Leitner; sister, Amber Leslie; stepmother, Kay Foale; and numerous other family members and friends.

1998

Christopher G. Swindle (CS) died in West Alabama after a courageous battle with cancer. He worked for Dawn Food Products, SEP and Jackson Community College. He returned to school and earned

a master's degree in history from the University of Alabama. He had completed coursework for a doctorate and was preparing to take his oral exams.

2008



Clayton Andrew Lewis (CE) died on November 13, 2010, in Huntsville, Ala. He was employed by Rocketdyne.

Faculty/Staff

Irene Mitchell, assistant in the Hulman Union's Student Activities Office for 15 years, died on June 29, 2010, in Farmers Branch, Texas.

Condolences may be sent to her daughter Alexandra Mitchell, 4040 Spring Valley Road, Apt. 209C, Farmers Branch, Texas 75244.

Special Friends

Audrey Olah, mother of alumnus/trustee William M. Olah, died on June 22, 2010, at the age of 90. Contributions in honor of her life can be sent to the Hux Cancer Center or St. Margaret Mary Church in Terre Haute.

Ona E. Thomas, mother of alumnus/trustee Mike Thomas, died on April 5, 2010, at the age of 92. Donations may be made to the Clay County Food Pantry, 506 E. Pinckley St., Brazil, Ind. 47834.

Jeanette Titsworth, wife of alumnus/former chairman of the board John Titsworth, died on January 9, 2011, at the age of 85 in Wayzata, Minn. She was a devoted wife, mother and grandmother, and a dedicated volunteer at church and community hospitals. Survivors include her husband, John; two sons, John and Steve; two daughters, Susan and Sandra; 12 grandchildren; and six great-grandchildren. ■

JOIN THE CONVERSATION...

While you're waiting for your next Echoes, catch snapshots of your fellow alumni's lives on Rose-Hulman's Facebook pages. In addition to the alumni page, many alumni check in at the Rose-Hulman Institute of Technology page. Recently, we asked alums about their most exotic quarter break adventures. Here are some of their responses:

Jade Champ Katinas: "Drove to AZ—camped in MO and TX, lost two people in the mountains who had to be airlifted out—not quite exotic, but VERY fun."

Mark Ellis: "My girlfriend and I went to Central America to explore the Altun Ha and Kohunlich Mayan ruins."

Matt King: "Terre Haute Pizza City—we had to stay in town for baseball."

Read what your classmates have to say about our upcoming Spring Break question and give us a shout-out on Facebook at Rose-Hulman Institute of Technology.

And now, Rose-Hulman also keeps a live Twitter stream going so you can keep a finger on the pulse about what's happening on campus... all on [@RoseHulman](https://twitter.com/RoseHulman). ■



ALUMNI CALENDAR

ALUMNI NETWORKING NIGHT | APRIL 21
6-8 p.m.; University Place Conference Center,
Indianapolis

INDIANAPOLIS MINI MARATHON | MAY 7
Military/Recovery Park, Indianapolis

INDIANAPOLIS 500 FIELD BUMP DAY | MAY 22
11 a.m. to 3 p.m.; Indianapolis Motor Speedway,
Indianapolis

SENIOR SOIREE 2011 | MAY 27
6-7:30 p.m.; Hulbert Arena
Rose-Hulman Institute of Technology, Terre Haute

COMMENCEMENT 2011 | MAY 28
11 a.m.; Field House Area
Rose-Hulman Institute of Technology, Terre Haute

INDIANAPOLIS INDIANS GAME | JULY 4
Pregame Picnic: 4:30 p.m.
Game: 6 p.m.; Victory Field, Indianapolis

SCHOLARSHIP GOLF SCRAMBLE | JULY 21
Harbour Trees Golf Club, Noblesville

HOMECOMING | SEPTEMBER 23-24
Rose-Hulman Institute of Technology, Terre Haute

STUDENT COMPETITONS EVENTS CALENDAR

Rose-Hulman Efficient Vehicle Team
SHELL ECO-MARATHON* | APRIL 14-17
Houston, Texas

Design-Build-Fly Team
AIAA COMPETITION | APRIL 15-17
Tucson, Ariz.

Human Powered Vehicle Team
ASME EAST COAST CHALLENGE* | APRIL 29-MAY 1
Indianapolis Motor Speedway; Speedway, Ind.

Gran Prix Engineering Team
FORMULA SAE MICHIGAN | May 11-14
Michigan International Speedway

Human Powered Vehicle Team
ASME West Coast Challenge | May 13-15
Montana State University, Bozeman, Mont.

Robotics Team
**INTELLIGENCE GROUND
VEHICLE COMPETITION | JUNE 3-6**
Oakland University, Rochester, Mich.

EcoCAR Team
FINAL COMPETITION* | JUNE 11-16
GM Proving Grounds, Milford, Mich.

Gran Prix Engineering Team
FORMULA SAE CALIFORNIA | JUNE 15-18
Auto Club Speedway of California

Robotics Team
**UNDERWATER REMOTELY
OPERATED VEHICLE COMPETITION | JUNE 16-18**
NASA Space Center, Houston, Texas

**Alumni-related events may be planned,
see <http://alumni.rose-hulman.edu> for details*

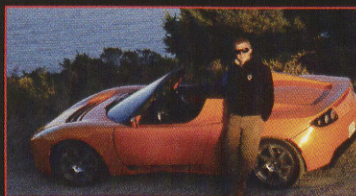
LOOKING AHEAD

Echoes

Coming Up in the Summer Issue:

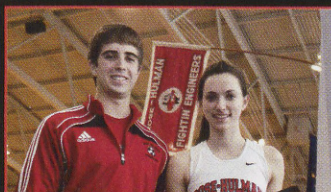
It's All About the Students...

Rose-Hulman exists because of its students. And, we have some of the best and brightest young minds throughout the world. The summer issue will showcase some of these talented young people.



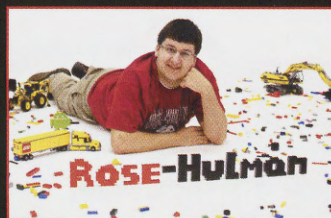
Catching the Next Wave with Electric Vehicles

Chad Conway believes electric vehicles are the future. He drove a converted electric vehicle to his high school prom. Now, he's been the leader of Rose-Hulman's EcoCAR sustainable vehicle challenge team and enjoyed a battery engineering internship with Tesla Motors, a California-based company that's producing increasingly affordable electric cars for mainstream buyers. He also writes entries to the blog Electric Vehicle Revolution.



Student-Athletes Excel in Class and on Field

The term "student-athlete" is taken very seriously at Rose-Hulman, with 87 current and former athletes being named Academic All-Americans. That ranks the institution sixth nationally among all North American colleges and first among NCAA Division III colleges for having at least one honoree in each of the past 25 years. Find out how student-athletes juggle the demands of intercollegiate athletics and Rose-Hulman academics.



Sky's the Limit for Lego Developer

Andrew Milluzzi has known he wanted to be an engineer since he was a kid, through his love of everything Lego. Now, he's a Lego Mindstorms Community Partner—the second youngest in the U.S. He also is a member of the Indianapolis Lego Users Group; has built large-scale models (from approximately 15,000 pieces) for National Instruments; and is part of a North American team currently building a special project for NASA.

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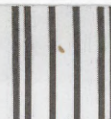
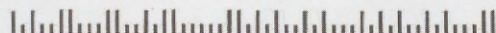
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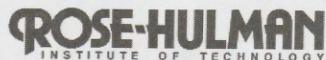
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ECHOES Spring 2011

Echoes

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PARTING SHOT

Rose-Hulman Caught 'In The Middle'

Alert television viewers may catch a glimpse of a Rose-Hulman Institute of Technology pennant on ABC's popular comedy television series "The Middle" (Wednesdays at 8 p.m. ET/PT). The show features a middle-class family that lives near the small fictional town of Orson, Indiana. The Rose-Hulman pennant is part of the show's set. ABC has picked up the show for a third season. So, look for Rose-Hulman to be featured more in the future! (Photos by ABC/Richard Foreman & Larrison Campbell)