Game Plan
Booting Up with a New Major

Worcester on the Grow:
Project Center Targets WPI’s Home City

Back on the Fast Track with Ed Sandoz ’03

Ed Parrish Recaps Nine Years in the North
On Family Traditions

"My father grew up in a small village in Germany, where he put himself through college working as a mechanic in coal mines," says Hans Koehl. "He instilled in me a commitment to education and a passion for engineering. There was no question about whether I would go to college, or what I would study." After earning a degree in mechanical engineering at WPI and a law degree at Stanford, Koehl joined his father in business. That taught him another family value. "My dad believed community is built through giving and service. He made a tradition of giving back to our local community, and I have continued that tradition—and the business—proudly."

Hans H. Koehl ’56
Chairman, Spirol International Corporation, Danielson, Conn.
Gift Arrangement: Scholarship Fund

On Gift Planning at WPI

On the occasion of his 40th Reunion, Hans Koehl and his wife, Christina, established the Koehl Merit Scholarship Fund in memory of his parents with gifts of stock and an insurance policy; they have provided future funding through a charitable remainder trust and their estates. "The scholarship is based on merit, not financial need," Koehl says, "with preference given to students from northeastern Connecticut who have given their time and talents to their community or to people in need. I believe community service should go hand in hand with scholastic achievement, and I've learned from experience that if we help others, they will probably do the same when they can." That's a philosophy Koehl puts into practice in his support for his alma mater. "In addition to our scholarship fund, my company regularly hires WPI graduates," he says, "and we have sponsored a number of WPI projects, which have been wonderful and valuable experiences. These all are ways of saying thank you for all that WPI has done for me, and what it continues to do for the young people who are our future."
Can we hear you now?

When *Transformations* was launched two years ago, it was our hope that the magazine would be half of an ongoing dialogue. The aim was to make this a publication that would not just talk to you, but would give you a chance to have your say, too.

WPI's alumni and friends are interesting, involved, accomplished people with intriguing ideas and opinions. Providing a forum for those voices could only make this a more lively and thought-provoking magazine. Well, that was the plan, anyway.

Our first seven issues have, for the most part, been a one-way conversation. The problem, it seems, is that we simply didn't provide the right opportunities for us to "hear" your voice.

As we begin work on issue No. 8, we're doing something about that.

The Winter 2004 issue will be the first overseen by Amy Dean, *Transformations* new editor. Amy has already developed a number of interactive features that I'd like to preview for you here.

"Illuminations"

WPI's faculty members are experts in a wide range of fields. What if you could turn to those authorities for answers to your questions about technology, science, the arts, current events, or everyday life? That's the idea behind this new feature.

So, what do you want to know? Why does a curve ball curve? What's the next big thing on the Internet? When will fuel cells be in every home? Send your questions to transformations@wpi.edu or mail them to the editor at the address you'll find on page 2 (be sure to include your name, your class year, and your contact information). We'll select a few to share with the appropriate faculty experts. We plan to publish at least one question and answer in each issue, and share others on the *Transformations* Web site.

"The WPI Exchange"

There are nearly 30,000 *Transformations* readers. Odds are that many of them share your interests, hobbies or passions.

Do you have a timeshare to swap? Are you looking to fill in the gaps in your World's Fair souvenir spoon collection? Want to find out about the best places to eat in Melbourne, Australia? This new classified ad section will give you the chance to ask our entire readership. There's no charge. All we request is that you keep your text short.

Submit your classified note to exchange@wpi.edu or send it to WPI Exchange, Transformations, WPI, 100 Institute Road, Worcester, MA 01609-2280. (This service is strictly for exchanging items, services, or advice—no items for sale, please.)

"Vox Alumni"

In each issue, we will pose a question and invite readers to send in their responses. We'll gather up a small group to publish in the next issue, and put them on the Web. Please keep your answers brief. Here's your first question:

What single invention or new technology has done the most to change the quality of your life (for better or worse)?

Send your answer to transformations@wpi.edu or snail-mail it to the editor. We'll publish the most intriguing responses in the Winter 2004 issue.

OK. Those are just a few icebreakers to get the conversation going. Maybe you have ideas for others. We'd love to hear them.

Amy and I encourage you to continue to send in letters to the editor. That's another excellent way to join in on the never-ending discussion that a good magazine should strive to develop and maintain.

Thanks for listening. Now, we're all ears.

Michael Dorsey
Director of Communications

Oct. 8-9, Homecoming, including reunions for the classes of 1989, 1994, 1999 and 2004; the Class Boards of Directors annual meeting; a Graduates of the Last Decade event for the classes of 1995-2004; and a celebration of the 40th anniversary of the Delta Sigma Tau chapter of Alpha Chi Rho. Visit alumni.wpi.edu to learn more.

Dec. 11, Radio City Christmas Spectacular at the Wang Center in Boston. Alumni and friends may purchase tickets for the 2 p.m. show for $74.50 each at alumni.wpi.edu or by contacting the Alumni Office at 508-831-5600 or regional-events@wpi.edu.

April 2, Phantom of the Opera at the Opera House in Boston. Alumni and friends may purchase mezzanine tickets for the 2 p.m. show for $59.70 each at alumni.wpi.edu or by contacting the Alumni Office at 508-831-5600 or regional-events@wpi.edu; tickets must be purchased by Dec. 20.
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WPI's Worcester Community Project Center immerses students in the culture and history of, and the university's connection with, New England's third-largest metropolis. By Joan Killough-Miller

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Former WPI President Ed Parrish leaves New England's bleak winter days behind, along with a university that blossomed during nine years of his leadership. By Ray Bert

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So what's wrong with going to college and playing video games? WPI hopes a proposed major in Interactive Media and Game Development will be a win-win situation. By Jimmy Guterman
President Dennis Berkey's journey to WPI; professor links time and art; the university's first music man retires; Edgar Allan Poe gets an editor; WPI student wins Marshall Scholarship; more news from WPI.

Vicki Cowart '75, former Colorado state geologist, shifts from rocks to women's rights.

Chowing down eons ago: a microscopic analysis of fossilized teeth reveals animal appetites; how animal-brain MRIs can solve the mysteries of human mental disorders.

Oh, ROMEO! A student-designed submersible camera gives a great performance in the frigid waters of Antarctica.

Students test their metals at the Higgins Armory Museum.

Karen Kosinski '02 will use her medical degree to care for Latin America's poor.

While you're waiting for your next issue of Transformations, check out The Bridge—a monthly e-newsletter that keeps you up-to-date on campus happenings, important events, job postings, Alumni Association notes, sports, and much more. Visit alumni.wpi.edu to sign up for your free subscription.
**Jupiter Aligns with Mars:**

The search for the 15th president of WPI concluded at the end of April when the university announced that Dennis D. Berkey, provost at Boston University, would succeed Edward Alton Parrish. Berkey was an administrator at the nation’s fourth-largest private university for more than 20 years, serving a total of 13 years as provost, five years as dean of Arts and Sciences, and several years as vice provost, associate vice president for academic affairs, and chairman of the Department of Mathematics.

As provost, Berkey oversaw 14 schools and colleges, 29,000 students, and the university’s Corporate Education Center. He also guided information technology, student life, and international programs, and administered $275 million in annual research sponsorship.

**Former BU Provost Is WPI’s 15th President**

“Dennis Berkey’s extensive and successful background makes him the ideal person to lead WPI,” notes F. William Marshall, chairman of the WPI Board of Trustees. “He is highly regarded nationally as an educator, and he has a vision well matched to that of this university. His leadership will be critical as WPI addresses the opportunities and challenges inherent in technologically oriented education, particularly as science and technology-based programs become this century’s academic foundation, replacing liberal arts programs of the past.”

Trustee David K. Heebner ’67, presidential search committee chair, told the Boston Globe that Berkey brings to WPI “a rich background of experience that shows him to be a great scholar, an experienced educator, and, above all, a terrific leader. This is Jupiter aligning with Mars: a perfect fit of an extremely well-qualified individual with an institution that has a great deal of opportunity in its future.”

Berkey says WPI’s innovative academic programs and growing strengths in research were among the qualities that attracted him to the position. “Long distinguished by its honors-college approach to engineering and science-based education, and emphasizing close student-faculty relations, project-based learning and international experiences, WPI attracts outstanding students, highly talented in the arts as well as in the sciences,” he says. “As knowledge of science, engineering, and technology becomes increasingly important for all students, WPI is positioned for continuing national leadership in undergraduate education.”

A mathematician, Berkey has authored more than 15 peer-reviewed scientific papers and two calculus textbooks. He received the Metcalf Cup and Prize for Excellence in Teaching from Boston University. A native of Ohio, he earned a B.A. in mathematics at Muskingum College, an M.A. in mathematics from Miami University, and a Ph.D. in mathematics from the University of Cincinnati.

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**Curran Lays Down Baton After 38 Years**

At the annual Honors Convocation this spring, WPI’s first professor of music did what he has done so well throughout his career—he let his music speak for itself. Honored by the faculty on the occasion of his retirement, Louis Curran declined to make a speech, but instead stepped aside as historical photos of the Men’s Glee Club were projected on the screen in Kinnicutt Hall and the sounds of singing filled the room.

“This is what I inherited back in 1966,” Curran explained over a recording of the 13 Glee Club members and 12 musicians who made up WPI’s student music program that year. From those humble beginnings, he produced a polished, professional, highly regarded choral powerhouse whose music has dazzled audiences around the world. Curran holds a bachelor’s degree in music from Yale and a master’s from the University of Tulsa; he completed postgraduate study at the New England Conservatory of Music and Oxford University (where he was a Fulbright scholar). He stepped down in 2001 as Glee Club director, but continued to teach music theory and history and advise projects until his retirement.

Curran’s career at WPI was celebrated during an April weekend of concerts and gatherings; the highlight was a stirring performance of the Mozart “Requiem” directed by John F. DeLorey, associate adjunct professor of music, who now conducts WPI’s vocal ensembles. The chorus of 300 voices was made up of current and alumni members of the Glee Club, Alden Voices, and various vocal groups from nine other colleges.

“We knew a lot of WPI alumni would return, but we were not expecting the participation from so many of the other colleges WPI sang with throughout the years,” says Ted Dysart ’94, co-founder of the Glee Club Alumni Associates, which helped organize the event and provided funds for a 40-piece orchestra. Curran received a standing ovation from the capacity audience and evoked tears on stage when he stepped up to the podium one last time to conduct several perennial favorites from the Glee Club’s repertory.

Of Curran’s legacy, Patrick J. Quinn, head of the Humanities and Arts Department, says, “The progress of any academic program is dependent on the people who teach it. Louis Curran brought energy,
WPI Students Again Recognized for Scholarship

For the second consecutive year, a WPI student has been named a Marshall Scholar. Three other undergraduates were named Barry M. Goldwater Scholars, bringing to eight the number of Goldwater Scholarships won by WPI students (seven since 2000).

WPI's second Marshall Scholar is Ian Bonzani '04 of New Haven, Conn., a biomedical engineering major who will study for a master's in tissue engineering at Imperial College in London. In 2003, he worked at Johns Hopkins Medical School with a National Science Foundation research fellowship, and says his aspiration is to become a pioneer in the field of bone tissue engineering.

Bonzani is already something of a pioneer on the basketball court, where he became the first WPI freshman since 1949 to lead the team in points scored and scoring average. A four-year starter and two-year co-captain, he led the NEWMAC conference in scoring in his freshman and sophomore seasons.

Bonzani was one of 44 American college students to receive Marshall Scholarships in 2003-04, the 50th year of the program. The scholarships, established as a British gesture of thanks to the people of the United States for the assistance received after World War II under the Marshall Plan, enable American students to study at British universities. WPI's first Marshall Scholar, Nicholas Baker '03, is studying digital games technology at Liverpool John Moores University (see Game Plan, page 28).

Matthew J. Black '05 (chemical engineering), Helen Hanson '06 (physics), and David J. LaRay '05 (mechanical engineering and mathematics) are WPI's latest Goldwater Scholars. They were among 310 students chosen from 1,113 applicants to receive 2004 awards.

Goldwater scholarships are awarded to sophomores or juniors who have records of outstanding academic performance and who have a demonstrated potential for and commitment to a career in research in mathematics, the natural sciences, or engineering.

Notes from the Playing Fields

Grebina: Hits the Big Four-Oh-Oh

imagination, passion, and dedication to WPI's fledgling musical division. Today, the presence of wide-ranging musical diversity on this campus owes its success to his vision and determination to make WPI a place where humanities and technology come together in harmonious sympathy."

Do you have a favorite memory of Professor Curran? Post your story in the Alumni Café at alumni.wpi.edu.

During the 32 years he has coached wrestlers at WPI, Phil Grebinar has won just about every honor available to a coach in his field. To name just a few, he's been NECCWA (New England College Conference Wrestling Association) Coach of the Year three times and inducted into four halls of fame, including WPI's. But on January 25, he hit a new milestone that few NCAA coaches see—a 400th career victory.

During the NECCWA Dual Team Tournament at Bridgewater State, "Grebby's Grapplers" notched wins 399, 400, and 401 with victories over Roger Williams College, Coast Guard, and Trinity. Over the years, Grebinar's teams have won about 70 percent of their matches and gone to four NECCWA championships (1985, 1987, 1994, and 1995). He's coached 183 All-New England wrestlers, 46 who have competed in the NCAA National Championship Tournament, and eight who've earned All-America status.

Women's Crew: No. 2

It was a Cinderella year for the women's crew team. The only thing lacking was a trip to the ball. As the end-of-year championships approached, the team was ranked No. 4 in the nation in the Division III coaches poll—the highest ranking ever for women's crew, a varsity sport at WPI only since 2000. After two big championship finishes, it looked like the next step would be an invitation to the NCAA national rowing championships in California, but the phone call never came.

In Division III women's rowing, schools chosen for the finals need to have two strong varsity boats. While both of WPI's varsity eights are good, only one was exceptional throughout the year. That group of rowers came in third at the NECs (the best finish ever in that event) and second at the ECACs. They also consistently defeated four of the six teams invited to row in the nationals.

The WPI team continued to amaze right up to the end of the year. In the final Division III coaches poll of the year, WPI placed second in the nation.

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In 1843, when a farmer in Attleboro, Mass., decided to try his hand at the craft of poetry, he did what many aspiring writers do: he sought some pointers from experienced authors. Abijah M. Ide Jr. (above left), just a teenager at the time, sat down and wrote to some of the literary giants of his day, including James Russell Lowell, Henry Wadsworth Longfellow, and Edgar Allan Poe. They all replied, in letters filled with advice and encouragement.

Two remarkable letters written to Ide by Poe came to light in 2001 when they were sold at auction in Boston. Kent Ljungquist, professor of American literature at WPI and a Poe scholar, was given the chance to edit the letters, and he wrote about them, along with letters by Lowell and Longfellow, in a recent article in the journal Resources for American Literary Study.

The author of The Grand and the Fair: Poe's Landscape Aesthetics and Pictorial Techniques, Ljungquist notes that Poe, in an October 1843 letter he wrote hastily while in Philadelphia, shared with Ide a bit of his own philosophy about fame. “A literary reputation, it is true,” Poe wrote, “is seldom worth much when attained...but in the struggle for its attainment is the true recompense.”

In the second letter, after his 1845 move to New York City, Poe critiqued a poem of Ide’s (“I think it a remarkably fine poem.”), then advised him about the realities of the publishing world. “I may be in error,” Poe cautioned, “but I do not believe you will be able to sell the poem anywhere. Its merits are far higher than those of many poems that are sold for high prices; but what is paid for is the name of the poet.”

In fact, Ide went on to contribute poetry to a number of American magazines and to edit the Union Gazette and Democrat and the Taunton True Democrat. In 1849, just after Poe’s death, the True Democrat published an anonymous tribute to the poet. In his recent essay, Ljungquist revealed for the first time that the poetic eulogy, filled with references to Poe’s The Raven, was almost certainly penned by Ide.
As an Artist, J. D. Sage Has Time on His Side

When geologists look at a hillside, they see a window to the past, for contained in the layers of rock within that hill is a record of geologic events that often span millions of years. Perhaps it’s not surprising that Joseph D. Sage, a geologist and civil engineer by training, is fascinated by time and ways to visually represent the connections between the past, present, and future.

Sage, professor emeritus of civil engineering, has taught WPI students for 38 years, with an emphasis on geologic science and engineering. He has also been an artist for much of that time. Two years ago he collected examples of his creative output, along with his ideas and unique perspectives about art, in a book titled MetaForms and MetaNudes etcetera (Sagama Publishing, 2002), a work he calls a labor of love for his children and friends. “I have a tendency to want to explain things,” he says.

Much of the book is devoted to explaining the evolution of Sage’s unique approach to art, which merges aesthetics and mathematics. Sage’s artistic journey began in the early 1980s when he first experimented with applying mathematical transformations to photographs. Plotting the coordinates on graph paper at first, and later using a slide rule to perform the calculations, he ran photos of his own image through a variety of mathematical shifts to see how his features would change.

Having studied Neolithic and Paleolithic rock paintings at various sites around the world, he was intrigued when he saw that certain mathematical transformations resulted in primitive forms that were reminiscent of the ways early artists depicted human beings. He also knew from his study of art history that a number of artists, including Renaissance masters such as Albrecht Dürer, have used similar spatial transformations to create unusual and intriguing artworks.

Sage's art and the connections it made to ancient rock art led him to begin exploring ways to capture another type of transformation: the passage of time. In recent years, he has been creating extraordinary works that compress different points in time into a single instant. It’s a style Sage likes to call “Timist,” after Cubists who squeezed three-dimensional space into a two-dimensional plane.

One example of Sage’s timist works is Time Travel, a painting that consists of four panes of glass on which are painted images from three points in time and the equations for time travel. Another, Personal Journey Through an Ancient Burial Ground, was inspired by a visit he made to a cemetery in Greece; accidentally locked inside, he climbed a wall and found himself beside a church. When he entered, he found that a baptism was taking place.

“I had gone from the oldest of ancient Greece to the youngest of modern Greece just by scaling a wall,” he says.

Sometimes Sage includes diverse time elements in artwork by using materials and images of varying ages. Homage to Women/Women Time (above) is a large installation that was part of his recent show, “Explorations,” at the Worcester Artist Group gallery. The work consists of nine large panels made from dental material in which bones and rocks (some 200 million years old) are imbedded.

Sage says he has always found a strong connection between his pursuits as an artist and the work he has done as an educator and engineer. “There are similarities between art and engineering,” he says. “Fundamentally, they’re just different ways of exploring the world. That’s something I tried to help my students understand. We all have a creative side—that is not limited to artists. There are many avenues and many methods for expressing our creativity.”

The Freshmen Are Coming

At press time, about 750 freshmen were expected to enroll in late August, the largest incoming class in WPI history. The Class of 2008 is also one of the most academically talented (median SAT scores up 7 points from last year, to 1294; 30 high school valedictorians, compared to 15 last year) and diverse (214 women, nearly 28 percent of the class, up from 171 last year; 29 African-Americans, up from 10 last year).
Vicki Cowart ’75
President & CEO, Planned Parenthood of the Rocky Mountains

Vicki Cowart oversees the third-largest Planned Parenthood affiliate in the United States. It serves more than 108,000 clients in 31 health centers in six states, with an operating budget of just over $20 million. Before joining Planned Parenthood of the Rocky Mountains (PPRM) in 2003, Cowart was Colorado’s state geologist for 10 years, the first woman to be appointed to that position. She was elected president of the Association of American State Geologists, again the first woman to hold the post. In addition to her physics degree from WPI, she holds a master’s in geophysics from the Colorado School of Mines.

When did you become interested in women’s rights?

When I was at WPI, I began to awaken to gender politics in the world. I was in one of the first classes to have a substantial number of women (about 20). The Colorado School of Mines was much like WPI; though it has always been open to women, I often was the only woman in a class. From there I chose to go into the oil business, another male-dominated arena. When I interviewed for my first job, I was asked what I planned to do about having babies. It startled me. Why would I pursue a profession so seriously, then be confronted with a question like that? I realized that advocates like Margaret Sanger, founder of Planned Parenthood, had given women control over our reproductive destinies. They had opened a significant door that allowed women to enter the workforce in large numbers. Because of Sanger and others like her, I was able to pursue my career.

How has your WPI education made a difference?

I was young and naive when I arrived at WPI and the professors taught me how (not what) to think, how to tackle problems creatively and how to ask questions. I learned how to work hard, and I learned discipline. The critical thinking skills that professors such as Van Bluemel, Jerald Weiss, and Ralph Heller taught me were as valuable as any of the equations from their physics classes. I am known in geologic policy circles for insisting that disciplines like physics and geophysics be taught at least as often as liberal arts for business people, lawyers, and generalists. I wish more people in our government had the critical thinking skills that are learned in good science and engineering programs.

What prompted your career shift?

Being the state geologist of Colorado was like winning the lottery. But I was always aware that I had my career because of those doors that others had opened and because I had control of my reproductive health. I grew up in an enlightened age when comprehensive sex education was provided in the schools and I benefited from it. I always wanted to put back into the system that helped me, and from graduate school on I volunteered in organizations that supported women’s rights and reproductive freedoms. When the PPRM job came open, I thought, “It’s time to put my money where my mouth is.”

What is the biggest misconception about Planned Parenthood?

People focus on the fact that we are abortion providers and rights advocates, but we spend most of our money and energy on giving people resources so they won’t be faced with the decision.

In the move from volunteer to director, what have you learned?

As a volunteer I didn’t realize the Golden Age is truly over. There have been significant rollbacks, a whistling away of Roe v. Wade; even birth control access is stymied. The biggest surprise was learning about the extensive rollback of comprehensive sex education. It has effectively been shut down. The system has been flooded with ample money for abstinence-only education, but nothing else. This is very frustrating, because studies show that while an abstinence message causes some delay in sexual activity, young people eventually become sexually active without knowing how to protect themselves from disease or pregnancy. If all they’re armed with is abstinence-only education, they don’t have the information to make good decisions.

How has technology changed the reproductive rights debate?

Nuances and tactics have changed because of technology, but it’s still the same basic debate: Is reproductive health an individual choice or is it up to the government? The most wonderful technology is EC [emergency contraception]—also known as the “morning-after pill”]. It is not an abortion; it is a dose of hormones that discourages ovulation and conception. We have seen a drop in the abortion rate, and we attribute it to EC more than any other factor.

Looking forward, what are your greatest concerns?

Funding is the biggest one. One of my goals is to approach this as a business, to be as cost effective as possible. I aim to stretch every dollar, just like I learned to do in the oil business. The other piece is education. People need to know that their freedoms are being undermined, that however they choose to make decisions about reproduction—be it by themselves, with their religious advisor, with family—it is in grave danger of no longer being up to them.

—Carol Cambo
Shedding New Light on What We Eat

When people think of sciences like archeology or biological anthropology, many of them think big: teams of scientists surrounded by enormous excavations in the desert. But much of the fascinating research being done in anthropology—or, more specifically, paleoanthropology or human paleontology—addresses minutiae and occurs in laboratories rather than sun-swept dunes. Indeed, some of the smallest, and most revelatory, parts of the fossil record are teeth. Teeth provide a track record of lives and habits. They hold the secrets to what species ate, when their eating patterns changed, and how the environment affected their diet.

Professor Christopher Brown and graduate student Torbjorn Bergstrom ’95, working in WPI’s Surface Metrology Lab, are examining an even smaller component of the fossil record: the microscopic marks left on teeth by different foods. To the naked eye, it is impossible to discern the subtle features of a fossilized tooth that indicate what its owner ate, and by extension, how it behaved. But thanks to today’s most advanced microscopic imaging techniques, tiny abrasions and perturbations known as dental microwear magnify into a landscape of fossilized clues from which ancient diets may be understood.

Brown and Bergstrom’s focus has been on creating quantitative standards by which dental microwear researchers can measure what those landscapes reveal.

Why is quantitative analysis important? Traditionally, dental microwear researchers have obtained images of tooth surfaces using the scanning electron microscope (SEM). The technique produces high-quality images, but does not yield results that lend themselves easily to standardized quantitative analysis. Instead, scientists have had to identify and measure tooth surface marks by hand, a time-consuming, subjective and inconsistent method. Scientists may describe and count the demarcations on teeth, but there is little reliability in how they define, say, a scratch or a pit. One person’s mountain is another’s molehill, and objective consistency loses out.

Furthermore, Brown says, “there are important applications in manufacturing that can come from this research. As we go further in developing technology for bioengineering, micro-electro-mechanical systems devices and nano-fabrication surface textures, their measurement and analysis become increasingly important.”

In this National Science Foundation-funded project, Brown and Bergstrom are collaborating with researchers in the University of Arkansas Anthropology Department to develop ways to add quantifiable, three-dimensional information via a two-step imaging and analysis process.

First, the dental surfaces are imaged with white-light confocal microscopy, an innovative technology that produces high-resolution images comparable to those of the SEM but that also generates 3-D coordinate maps of the dental surfaces. Then, the maps are quantitatively analyzed using variations of the scale-sensitive fractal analysis (SSFA) software protocols that Brown and Bergstrom originally developed for applications in manufacturing engineering. SSFA software scans the confocal microscopy images and measures microwear by recording marks on the dental surface in three dimensions. The WPI software alleviates microwear researchers’ dependence on the human eye for analysis, thus yielding accurate, repeatable information about the marks.

As this new technology spreads through the research community, it is hoped that dental microwear paleontologists worldwide will be better equipped to uncover the secrets revealed, micron by micron, in the pits and scratches of teeth.
In the summer of 2001, Jean King used a small bottle to test a big idea. The associate professor of psychiatry at the University of Massachusetts Medical School wanted to know if she could capture pictures of the brain activity associated with inborn fear. But first she had to run a preliminary experiment to find out if she could elicit such fear in lab animals. So she walked into a laboratory at the Center for Comparative NeuroImaging (CCNI), which is run jointly by UMass and WPI, and uncorked a bottle, releasing the sharp odor of fox urine. Immediately, the dozens of white rats caged there scrambled, then froze, their eyes bulging in panic.

"This was definitely an expression of the animals' innate fear," says King. "They're all lab animals. None of them had ever seen or smelled a fox before."

Satisfied, she closed the bottle, and the rats calmed down.

King knew that as long as the rats feared the fox, she had the ingredient she needed to test the brain imaging capacity of a new MRI technology developed by a WPI team led by professors John Sullivan and Reinhold Ludwig. Ludwig, who teaches electrical and computer engineering, created the hardware, while Sullivan, who teaches mechanical engineering, directed software development.

The WPI researchers' challenge had been to find ways to use new, ultra-high-field magnets to capture pictures sharp and detailed enough that King and her colleagues could pinpoint which of the brain's many regions were activated by the animal's fear. Because resolution improves as a magnet's Tesla, or field strength, increases, the researchers knew that the most powerful MRIs had the potential to produce the desired images.

Most important for the applied research being conducted at CCNI, the scientists devised a way to gather images from the brains of alert animals. To do this, they had to solve the problem of movement because motion interferes with MRI scans. The new hardware keeps the animal's head immobilized while the rest of the body can squirm without compromising the image. Prior to this invention, laboratory animals had to be anesthetized during imaging. The unconscious animals didn't move, but they also didn't respond to stimuli the way conscious animals would.

A dual radio-frequency (RF) coil system is another critical innovation of the WPI team. It was developed to take advantage of the ultrastrong magnets. Traditional MRI technology uses superconducting magnets to generate a magnetic field roughly 20,000 times stronger than the earth's. Today's state-of-the-art magnets are at least three times stronger than that. In all MRI technology, the body's atomic nuclei react to the magnet's powerful force, spinning around the imposed field. A separate RF field causes a reorientation of the nuclei, which begin to relax when the RF field is turned off. The reversion of each nucleus to its original
technology could help diagnose mental illness

state gives off a signal that is captured through the process of magnetic resonance imaging. As magnets grow stronger, the nuclei spin at much higher frequencies, affecting signal reception and transmission. "The rapidly increasing field strengths of magnetic resonance instruments pose major RF coil design challenges," Ludwig notes.

Ludwig's brainchild is RF transmitter and receiver coils that can be activated and deactivated while the magnets work their magic on the body's nuclei. The frequencies at which the coils operate coincide with the new magnets' strength, so that the transmitter coil is capable of initiating the wildly spinning nuclei's reorientation. When the transmitter coil is switched off, the nuclei relax and give off their telltale signals, which are recorded by the receiver coil.

And there is more to the coils than their tune-ability. Ludwig holds up one of his inventions, a dome-shaped device equipped with the coils that fits over an animal's head and nestles close to the tissue being studied. "A coil that receives only information from the brain is going to produce much more accurate images of the brain," he explains, "because there's far less interference from other biological regions or atmospheric 'noise' sources."

All this new hardware needs software to analyze and manipulate the images. That's where Sullivan comes in. "We take the MR image and create a surface topology, a mesh comprising hundreds of thousands of data triangles," Sullivan says of the programs he and his team worked on for three years. "You can slice through this geometry, getting tremendous resolution."

Sullivan points to a computer screen showing a colorful 3-D image of a rat brain. "The entire brain—over 1,300 regions—is itemized," he explains, "so you can pinpoint which area is affected by, say, a certain medication."

Just as the MRI's pinpoint precision is helping researchers understand rats' brains, so too is it bringing scientists closer to solving the mysteries of mental disorders in humans. "We hope by better understanding the innate responses to fear, we'll have some clues about what sites or processes to target with pharmacological agents," King says.

She expects that within the decade scientists will be able to select medicine specifically geared to an individual's brain biology, thus providing targeted treatment of everything from psychological disorders induced by addiction to chronic illnesses like depression.

"This collaboration between our two schools," King says, "is bringing a different paradigm to the field of neuroimaging."

"This was definitely an expression of the animals' innate fear. They're all lab animals. None of them had ever seen or smelled a fox before."
Foraminifera, unusually large one-celled marine animals, are among the earth's most abundant organisms. They're of interest to scientists for a variety of reasons, not the least of which is the strong glue they make to build their shells, a substance that may one day be used in biomedical applications such as sutureless surgery. The Ross Ice Shelf in Antarctica is one of the few places where these creatures can be found close to the surface, but collecting samples in the frigid waters there is difficult, and can only be done during the brief Antarctic summer.

That's where Jeff Blair '04 enters the picture. A Major Project by this manufacturing engineering major will give scientists who study foraminifera or who need to observe other interesting phenomena in hard-to-reach places a powerful new window on the world. That window is called ROMEO, or Remotely Operable Micro-Environmental Observatory. Blair designed and built the high-tech underwater camera for Samuel Bowser, a biologist at the State University of New York at Albany who has studied foraminifera in Antarctica for several years. Last winter, Blair took his prototype to the "ice" to try it out.

ROMEO is a clear, waterproof enclosure containing a video camera equipped with a powerful zoom lens that can be operated remotely. On-board lights enable observations even in the sunless Antarctic winter. Images from the camera travel through fiber-optic lines to a base station, where they can then be transmitted by radio and the Internet to scientists thousands of miles away.

A three-year partnership between Blair, a San Francisco native, and Tony Hansen, an expert in scientific instrumentation in the Bay area, led to ROMEO. The two met when Blair sought help with a high school robotics project. Impressed with Blair's confidence and technical know-how, Hansen asked him to complete a contract he had to build an optical transmissometer for measuring atmospheric soot. Blair built the first device on his mother's kitchen table and has since sold units to university and government scientists.

Hansen often builds instruments for scientists working in Antarctica, which is where he met Bowser and learned about his dream of observing foraminifera year-round. Hansen proposed the idea of a remote underwater observatory, then asked Blair, who by then had transferred to WPI from the University of California, Davis, if he'd like to design it. "Tony called me and said he was going to Antarctica and
had a project I might be interested in," Blair says. "He said, ‘Do you want to go?’ It didn’t take me long to say yes."

At the suggestion of Gretar Tryggvason, head of WPI’s Mechanical Engineering Department, Blair turned the design challenge into his Major Project, with Tryggvason as his advisor. “I was going to take time off from school to go to Antarctica until I realized I could get academic credit for the experience,” Blair says. “I don’t think I could have done that anywhere else.” ROMEO would ultimately win Blair the 2004 Provost’s MQP Award for the best Major Project completed in mechanical engineering.

In early November 2003, after many late nights in the lab, Blair boarded a C-141 Starlifter in Christchurch, New Zealand, for the six-hour flight to McMurdo Station. After two and a half weeks of testing, during which a minor leak was detected and fixed, Blair, Hansen, and Bowser traveled by helicopter to New Harbor, where the permanent camera will ultimately be located. There, divers installed ROMEO on the floor of the harbor for a successful weeklong trial.

Next summer, the team plans to leave the camera submerged for six months; if all goes well, the following year it will begin year-round duty, giving Bowser a chance to make unprecedented observations of foraminifera behavior. Before that can happen, the National Science Foundation will have to install a conduit for power and data lines through the permanent sea ice, something that has never been tried before.

Now that ROMEO is proving its value as a scientific tool, Blair is thinking about how to market the technology—and the concept of “telescience” (doing science remotely)—to other scientists. He’s already captured the interest of a group of penguin researchers he visited in Antarctica. “I haven’t seen any other underwater cameras with the capabilities of ROMEO,” he says. “I think it can play a role in a lot of different kinds of science.”
Brandon Light is poised for battle. Dressed in full armor—60 pounds of engraved metal that shields most of his body—the WPI junior looks every bit the 16th-century medieval knight he’s pretending to be. When he moves, though, it’s slow going. He clangs across the basement floor of the Higgins Armory Museum in Worcester, his body moving with the flexibility of stone pillars.


This dress-up session is a long way from the world of computer science (Light’s major) and he is as surprised at how heavy and unwieldy the suit is as he is at having it on at all. “I certainly didn’t expect to be playing with armor when I came to WPI,” Light says. But, in a manner of speaking, that’s exactly what he, Custodio, Wilson So, and Orion Samson are doing for their Interactive Project, a degree requirement for WPI undergraduates that challenges them to explore the intersection between technology and society.

Unlike an ancient fight to the death, all sides win from this experience. Students go beyond the classroom and step knee-deep into an interdisciplinary challenge, featuring research and writing, photography, and Web design, as they study and document specific portions of the museum’s artifacts in their historical and social contexts.

For the museum, the work enhances the body of knowledge on its collection and makes the information accessible to a wider public—in particular, outside experts, who may study the artifacts via the Web and offer additional details about the relics.

For Light’s group, it means looking at more than 800 16th-century pieces, from weaponry to tools to medical devices. On this night, the team’s attention is on a halberd, a fearsome looking 8-foot-long poleax designed to penetrate armor, shred flesh, and pierce bone. Wearing white gloves, the students examine the wooden shaft and run their fingers along the intricately designed steel ax head—a testament to man’s creative nature and his destructive past.

Their work is part of a larger program between WPI and the Higgins, the only museum in the western hemisphere devoted to the study and display of arms and armor. Through their projects, students get hands-on access to the institution’s more than 8,000 artifacts, a collection that stretches across 2,500 years of human history. The program is directed by WPI humanities professor Jeffrey Forgeng, who also heads the Higgins curatorial department.
"The program allows students to look at technology in its human context through the vehicle of a historical setting," says Forgeng, an expert on medieval northwestern Europe. "They're looking at the construction of the artifact so they can begin to formulate questions and theories about it. What was the method of manufacture? Was it repaired? How was it used, based on its form?"

Forgeng also pushes students to explore such things as what an artifact reveals about the person who used it and the artistic style of those who produced it. The outcome for students, he says, is more than a history project; it's a lesson that work in their chosen fields is a product of their own society. "The students see how the technological system is part of the cultural system," he explains. For example, some of society's most advanced technologies have grown out of weapons production. As the Higgins Web site notes, "Armormers and weapon makers have long been technological innovators, and many inventions resulted from military advances."

Forgeng opened the collection to WPI students three years ago; during a typical year, four to six teams at a time examine the artifacts. In addition to Light's group, which focused on Europe, teams this year also studied arms and armor from the Islamic world and Africa.

The projects take a year, beginning with a term of background research on the history and culture of the region of study, as well as on its arms and armor. From there, teams delve into the collection. They conclude by producing a report, often as long as 200 pages, detailing the culture of the region, its military history, and their research findings on the artifacts. The reports are accompanied by photographs of the relics and a Web site presenting their documentation. (Visit higgins.org/Research/virtualexhibitions.shtml to see the reports.)

It's an up-close look at history, to be sure. But, says Samson, an aerospace engineering major, the project has shed some light on his own course of study, too. "This was the modern technology of the 1500s and we're learning about the modern technology of the 21st century," he says. "It makes you realize that technology is going to change."

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**Not Your Average Ax**

Armory collection inspires new institute on metals conservation

What goes into the conservation of metal arms and armor? Quite a lot, actually.

"It's half humanities, half science," says Kent dur Russell, executive director of the Higgins Armory Museum. "You've got to understand what you're looking at, what its context is, and what the purpose of it was. You can't just repair it as you would a car."

And that's one of the driving forces behind a new collaboration between the Higgins and WPI's Metal Processing Institute; the Metals Conservation Summer Institute. Created to provide conservators and students from around the world with in-depth expertise on metal conservation and hands-on access to the Higgins' extensive collection, the institute kicked off this summer with a two-week session, the first of a series of meetings to be held over three summers.

Funded with a $314,000 grant from the Institute of Museum and Library Services, the summer institute is the first of its kind in the nation and features experts from many institutions, among them WPI, Harvard, UCLA, and the Metropolitan Museum of Art, as well as participants from some of the world's most prestigious museums.

Russell says the goal is for the institute to evolve eventually into a degree program at WPI, complete with conservation laboratories in which the Higgins can work on its collection.
Worcester Community Project Center

Mission: To bring WPI's scientifically minded students and faculty together with Worcester organizations to address policy issues that are important to the city's future.

Focus: Needs and concerns of the Worcester community, such as public education, youth services, neighborhood development, downtown revitalization, environmental protection, affordable housing, transportation and parking, and marketing the city.

Gifts: Over $1.8 million ($1 million from the Stoddard Charitable Trust, $500,000 from the Fletcher Foundation, $250,000 from the Ruth H. and Warren A. Ellsworth Foundation, $60,000 from the Mildred H. McEvoy Foundation, and $40,000 from the Hoche-Scofield Foundation).

Annual Value to the City: $319,200 (includes the estimated value of the nearly 12,000 hours of student work and nearly 900 hours of faculty work during each of the two academic terms the project center operates each year).
"Welcome to the only WPI project center that allows you to give back something to the community where you live."

With these words, Rob Krueger, director of WPI's Worcester Community Project Center (WCPC), welcomes students to the university's least exotic project destination— their own backyard. Like their peers who've flown to Bangkok, Venice, or Washington, D.C., these young men and women are about to embark on a seven-week adventure. They may not travel in gondolas or explore English castles, but that doesn't mean they won't immerse themselves in the history and culture of their project location.

The immersion process begins with a walking tour, led by Krueger. In the blocks that surround WPI, students discover landmarks that reveal Worcester's unique story. Krueger, an Oklahoma transplant and a geographer by training, wants his students to see New England's third-largest metropolis as a case study in the growth of America's major cities. "I try to show them how technological innovation and economic development go hand in hand," he says, "how they create different social relationships that have implications for how cities develop and change."

It's an abstract concept, but just across Salisbury Street is a concrete example: Institute Park. Created when WPI was still young, the small park is a reminder that the city and the university share a common history. The park was donated to the city by Stephen Salisbury III to be preserved as a place of retreat and recreation for WPI's weary students and Worcester's citizens.

Today, it is a symbol of how WPI and municipal leaders are working together to help shape a brighter future for Worcester. The university is partnering with the city to restore the now rundown park to its former glory. WPI's contributions include a $50,000 gift to help fund a master plan for the park's rebirth and the hard work and good ideas of a number of student project teams, whose historical research and recommendations will help get the restoration off to a running start.

Taking Community Service to a New Level

The benefits of the economic, intellectual, and human capital that flow from universities to their home communities are widely known, but difficult to quantify. A report published by the Colleges of Worcester Consortium in 2000 estimated the economic impact of Worcester colleges on the city at $1.3 billion. In addition, WPI students, like their peers at colleges across the country, organize fund-raisers, food drives, and cleanup projects, participate in programs that support the public schools, and perform community service for the city's needy populations.

But what sets WPI apart from virtually every other university is the power of its project-based education to accomplish far-reaching, long-lasting structural change that impacts a city as a whole. WPI stands alone in requiring its students to use their technical education to address societal issues through a unique project experience called the Interactive Project, which uses intensive problem solving so students can see how science, technology, and social needs and concerns intersect in ways that impact individuals and society as a whole.

Through WPI's Global Perspective Program, student teams complete Interactive Projects that have helped address the local needs and concerns of cities and towns around the world. With the WCPC, that time-tested model has come home.

The result is a new dimension in town-gown relations in Worcester, Krueger says. While other colleges work to improve their surrounding neighborhoods, the projects completed at WCPC take "a comprehensive, city-wide approach to planning," he notes. "We're focusing on neighborhoods, but not just our own neighborhood. We try to develop models for community development that can then be generalized citywide or even transported to other cities or other countries."

The Worcester Community Project Center is harnessing the energy and ideas of WPI students and faculty to help build a brighter and more sustainable future for WPI's home city.
Bringing Best Practices Back Home

WPI established a formal project center in Worcester in 2000 not only to strengthen its commitment to the local community, but also to provide a more robust project experience for students who choose not to leave campus to pursue one of their required projects. For several years, those who monitor academic quality at WPI saw that student projects completed at residential project centers tended to be stronger and more valuable to students than projects completed on campus.

The freedom to focus on their projects and nothing else for seven intensive weeks, and the presence of sponsors clearly interested in and anxious to benefit from their work, seem to motivate students to excel, notes Lance Schachterle, associate provost for academic affairs. "In the early 1990s," he says, "we came to the conclusion that we could do a better job with projects in Worcester if we learned from the best practices we had developed at the residential project centers and created the same kind of focused environment here."

Those best practices included making the Interactive Project the sole focus of a single academic term, and spelling out more rigorous academic standards for project topics and reports. To help build the academic foundation for the new center, and to build bridges to the city agencies and organizations whose support would be crucial to its success, WPI turned to a native son, former Worcester mayor and city council member John B. Anderson (above, outside City Hall). "His name worked wonders at meetings with municipal officials," Schachterle recalls. As an academician (professor emeritus of history at the College of the Holy Cross) and a politician, Anderson embraced the WCPC concept from the start. "It's something that the other schools in Worcester haven't approached with the same determination," he says. "Given the nature of WPI, a lot of its students have skills that are particularly suited to the public works field."

"Word has gotten around," he adds, "that if you have an issue that needs to be addressed, there's this program at WPI that can lend you a team of three or four people, and they're good, and they're skilled, and they'll give a full-time commitment to you for seven weeks."

Building Worcester's Future, One Project at a Time

When returning Mayor Timothy P. Murray (below, on Lancaster Street) delivered his inaugural address in WPI's Alden Memorial in January 2004, he had much praise for the good works done by the university's faculty, staff, and students. He used the occasion to announce the formation of a task force to study best practices across the country where colleges are working in partnerships with cities. "We can identify one right now: what WPI is doing on Gateway Park," he says. "Certainly, through this initiative, WPI reasserted itself to the role it has historically played as an innovator and incubator of jobs to sustain the community. Gateway Park will be the foundation to sustain Worcester for the next 100 years."

The involvement of WPI and its students in Gateway Park (see sidebar) has garnered positive news coverage for WPI. Several WCPC projects have laid the groundwork for another of the city's prime visions: creating an arts district to help revitalize the downtown.

Other recent projects have assessed municipal needs, such as transportation, parking, urban planning and marketing, and provided local schools with data that will help them meet the state's requirement that public schools offer K-12 pre-engineering curricula. Some WCPC projects have combined WPI's expertise and the needs of city residents in unexpected ways:

■ Friendly House (2003) At other schools, students might serve at soup kitchens or devote a weekend to painting a shelter for the homeless. WPI students used their design skills to provide Friendly
House, a community center that serves low- to moderate-income residents, with plans for a much-needed "green" building that will be good for the environment—and for the organization's already strained budget. The project received a $19,800 grant from the Massachusetts Technology Collaborative.

- **Santiago's Plaza (2002)** The fate of an inner-city grocery might seem inconsequential, but its demise could've jeopardized the economic stability of Worcester's Main South neighborhood. A WPI project team helped the store's owner, fledgling entrepreneur Ediberto Santiago, bolster his business by studying the needs of his clientele and crafting a marketing plan to best meet them.

- **The Digital Divide (2001)** Students developed a plan for bringing Internet access to the region's underserved populations. Anderson notes that WPI's cyber-savvy students understand the importance of these resources to succeed in today's information-based economy. "Their lives are built around keyboards and laptops and that kind of technology," he says. "Although these aren't traditional city issues, these kinds of projects help the community by providing a more stable society—a more equitable society. I think that's important."

The same data-gathering methodology that student teams at other project centers have used to map the canals of Venice and help mitigate the disruption caused by Boston's Big Dig holds great promise for Worcester, where WCPC teams have used it to develop a system for minimizing injuries on Worcester's public playgrounds, to help assess the factors that will affect the revitalization of the Chandler Street neighborhood, and to map recreational benefits of the city's "green" and "blue" conservation areas. "Those are the kinds of things the city finds difficult to do, because it's short staffed," says Anderson, who adds that in the struggle of municipalities to keep up with immediate issues, "what gets short shrift is the planning for the future."

"In academia," Krueger explains, "we have the luxury of engaging in bigger ideas. As collaborators, in partnership with the city, we can identify the key needs and then go out and find best practices. I see the role of the WCPC—or any of the project centers in WPI's global network—as being a way to lower the cost of entry into doing something good or right."

Krueger's work is informed by principles of "sustainable development," which promote urban growth that is economically, socially, and environmentally viable in order to meet present needs without compromising the needs of the future. To share these ideas with local planners and officials, he gathered experts for "Envisioning Worcester's Future," a workshop in 2002. And, with funding from the state and the city, he is currently working on a Community Development Plan to further the city's goal of being the most livable city in the Northeast.

He says he believes Worcester is poised to move forward and learn from the wrong turns taken by other cities over the past 50 years. "We're doing some things that will help the community with basic needs," he says, "but we also have the potential to push Worcester forward into being something better."
High summer, July 1997. Heat rises in waves off the pavement at Loudon Racetrack (now the New Hampshire International Speedway) in Loudon, N.H. The smell of exhaust fills Ed Sandoz' helmet; his leather racing suit squeaks against his seat. High-octane adrenaline pumps through his veins. The engine of his brand new Suzuki GSXR 600 had blown up on the track the day before, so he pulled an all-nighter, installing a borrowed one. Now the machine purrs beneath him. Racing is the perfect blend of Sandoz' talents—technical acumen to tune a bike to perfection, physical agility to push through turns, and mental dexterity to navigate the pack at high speed.

He and his brother, Jesse, had formed a team: Lost Boys Racing. The group they run with: pure camaraderie. The wives and girlfriends come up to Loudon from Massachusetts for the whole weekend, bringing dogs and kids and kiddie pools. They keep the drinks cold and the grill hot while the guys race.

When a motorcycle racing accident left him paralyzed, Ed Sandoz '03 shifted gears but never slowed down.

The checkered flag flies and Sandoz hits the throttle. Turn one is behind him, then turn two; turn three is a blur. He's leading the pack and that's fast for him, faster than he's ridden in his two years of racing. There's no time to look back and see who's on his tail. At a track in New York the previous weekend he had placed third, his best finish ever. There he'd had a breakthrough: he discovered that if he shifted his weight more subtly through turns he could shave crucial seconds off his laps.

Sandoz accelerates and leans into turn four. He feels his back tire start to slip. Then the rubber suddenly re-grabs the track, catapulting him from his seat. He is thrown from the bike at 80 miles per hour, his 180-pound body launching 75 feet—a length equal to a quarter of a football field. He finally comes to a stop after hitting a concrete Jersey barrier. In the ambulance speeding toward Concord Hospital he is coherent enough to know he has no feeling below his nipples.

Arriving at the hospital, Jesse Sandoz, who studies exercise physiology, realizes right away that Ed's injuries are bad enough to be permanent, but holds off calling their parents until he knows for sure.
A New Vantage Point

The instant when speed and tar and rubber met, Ed Sandoz' life made a U-turn. Before the crash, the handsome, upbeat 27-year-old from Millis, Mass., lived in the moment. He fixed cars by day and spent every spare minute working on and racing motorcycles. “Everything I did was physical,” says Sandoz. “I was definitely not an intellectual. I always fought that side of my personality.” He had grown up working on a farm and was used to hard labor, loved going to the gym and working out to stay in shape.

The crash had injured his spinal cord between the C5 and C6 vertebrae. Some nerves were still exchanging impulses with his brain, leaving him with partial use of his arms. The doctors at Concord Hospital fused his vertebrae to stabilize his spine and reduce the chance of further injury while his neck healed.

Eleven days later, Sandoz rolled his new set of wheels into a waist-high view of the world. That's when he did what he knew was used to hard labor, loved going to the gym and working out to stay in shape.

A yearlong intensive therapy program through Healthsouth New England Rehabilitation Hospital in Woburn taught Sandoz the basics of getting along in the world. But he wanted more. He found out about the Shake-A-Leg program, a non-profit rehabilitation organization in Newport, R.I., that treats quadriplegics with Sandoz' type of injury are given electric chairs. But Ed would have none of it. “He wasn't going to take the easy road,” says Jesse. Ed got a manual chair and specially designed gloves to protect his hands while he spun the wheels. A yearlong intensive therapy program through Healthsouth New England Rehabilitation Hospital in Woburn taught Sandoz the basics of getting along in the world. But he wanted more. He found out about the Shake-A-Leg program, a non-profit rehabilitation organization in Newport, R.I., that treats the whole person—mind, body, and spirit.

Shake-A-Leg's five-week summer residential Body Awareness Therapy program serves people with spinal cord injuries. Sandoz, in the company of other quadriplegics, worked on physical and occupational therapy, swimming, strength training, yoga, meditation, and massage. But it was the recreational therapy that Sandoz loved best: scuba diving, rock climbing, sailing, sea kayaking, and even kite flying.

“At Shake-A-Leg I made huge leaps in my rehab,” he remembers. “I like being challenged, and I liked learning from other quads.” But the best part, he says, was feeling useful again. “I had a chance to teach other quads some of the tricks I'd learned along the way.”

“Both Ed and I are very independent people,” says Jesse. Before the accident the brothers were roommates near Boston. They could count on each other if they needed to. After the accident they continued to live together, but the balance had shifted. Ed had to have Jesse's help. “I was frustrated that my life was changing, too,” remembers Jesse. “But what I was going through was small in comparison to what Ed was going through.”

Not long after his accident, two high school students asked Sandoz if they could interview him about his life as a quad. Using keyboard skills he'd learned, Sandoz wrote to them, "I had very strong and agile hands before, now my fingers stay curled under. Like the rest of my body, they have shrunk in size from lack of use. It's hard for me to watch someone fiddle with something mechanical knowing I could breeze through it if only my hands worked. Having your life change so quickly is hard, but you need to move on. I'd take my old life back in a second, but I try to look on the brighter side. I'm the same strong person inside.”

Ed Sandoz is still the same guy with a taste for speed; he's tested his chair's mettle. “One night at Shake-A-Leg I was out with a bunch of people,” he says. “On the way home I let it rip down this long hill in Newport. I had the brakes on and I was still flying. All you could smell was burning rubber.”

An Engineer Is Born

Sandoz had a few more turns to navigate on his new course. He'd often talked about going back to school, but it had been easy to put off with his life so full of everything he loved. With a year of rehab behind him, he enrolled at Worcester's Quinsigamond Community College, beginning his transformation from auto mechanic to mechanical engineer. After adjusting to academic life and excelling at Quinsig, he transferred to WPI and continued his studies at a more intense level.

"He was a good student, more mature than most, very dedicated and hard working," says WPI mechanical engineering professor Robert Norton. "He became the natural leader of the team in my advanced engineering design class, in which the students designed a piece of equipment for Gillette. The students really respected and looked up to him. Older students bring valuable gifts to any class—motivation and a more serious attitude."

At WPI, Sandoz found a project that fit him like a racing glove: the construction of a Formula SAE car. He worked hard at his studies, but it was the SAE car that kept him up at night. Each year a small group of WPI students build a race car as part of the Formula SAE Collegiate Design Series sponsored by the Society of Automotive Engineers, General Motors, Ford, and Daimler Chrysler. The event pits student teams from the United States, Canada, and the United Kingdom against each other in a competition to design and build an open-wheeled, formula-type race car that is put through a battery of tests. The final showdown is at the Pontiac Silverdome in Pontiac, Mich.

"The first year, Ed just kind of hung around," says Jim Johnston, a lab machinist at WPI and one of the chief advisors on the car. "The second year, he was running the show. We even had a mechanic's apron made up for him that read, 'The Boss.'"

"I spent more time on the car than in all of my classes combined," says Sandoz. For nearly four straight months he worked on the car every day, often leaving campus close to midnight. His project was the power train; he designed the intake and exhaust system.
“Ed is meticulous. He’s also one of the most diplomatic people I know,” says Johnston. “He knew how to get people to do what he wanted—by not cutting himself any slack. He’d say, ‘If they see a cripple doing it, then they’ll have to do it, too.’” Johnston says Sandoz’ maturity and experience was the soul of the team. “He wouldn’t accept anything but perfection.”

En route to Michigan, Sandoz drove his specially equipped van as part of a convoy from WPI. “You know, there’s not a sign on his van that tells you he’s handicapped,” says Johnston. “We’re at this gas station and I ask Ed how he’s doing, if he wants to switch drivers. He says, ‘I’ve been sitting for six years now, a few more hours won’t kill me.’”

At the competition, the car’s rod end broke in the endurance event. “But we won first place for highest naturally aspirated horsepower, out of 118 schools entered,” says Sandoz with pride. It was his design that took the prize.

**One of the Crowd**

Last summer, while Sandoz was interviewing for jobs and finishing up his humanities and arts project on Mexican muralist Diego Rivera, he became a television star. After submitting an essay and audition tape to the Discovery Channel’s “Monster Garage” program, Sandoz was chosen to appear on an episode. Led by the infamous motorcycle mechanic Jesse James, participants perform extreme vehicle modifications. Sandoz was invited to join a team that would rehab a Mercedes SUV to be equipped for use with hand controls. Three able-bodied men, Sandoz and a paraplegic (also in a wheelchair)—all with mechanical experience—made the team.

Sandoz traveled to Long Beach, Calif., to film the show; the team had five days to convert the SUV—a job that normally takes several months. “We recorded 90 hours of tape to produce a 40-minute program,” he says. “The first couple of days were hard because I couldn’t do too much; a lot of the early work involved climbing around inside the car.” The team had to remove and lower the floor to accommodate a driver in a wheelchair, install a folding ramp out the back, and retrofit the car with hand controls. “We had to move everything—the rear differential, the transfer case,” says Sandoz. But by the third day, his talents were crucial as the team designed and built the electric ramp. “It was very cool to see it come together,” says Sandoz, who got to drive the rig before James donated it to a young paraplegic injured in a car accident. The show aired in September 2003 and there was Sandoz, sporting a WPI T-shirt in a few shots.

Just as the show aired, Sandoz moved to Raymond, Ohio, to accept a position as design engineer with Honda Research and Development. “It’s my first white-collar cubicle job,” he says. The car mechanic had now officially become a mechanical engineer. He is part of a team at Honda that drafts the structural designs for new models. “These aren’t traditional car frames; they’re one piece, or unibody,” explains Sandoz. “The California office dreams up new cars and our job is to find out if we can actually build them.”

“Having your life change so quickly is hard, but you need to move on. I’d take my old life back in a second, but I try to look on the brighter side. I’m the same strong person inside.”

One of Sandoz’ favorite aspects of the job is that every employee at Honda—from engineers to vice presidents—wears a white jumpsuit with a small patch bearing just their first name. “It keeps the focus on teamwork and efficiency,” he says. “For me it’s refreshing to be just one of the crowd.”

It’s hard to imagine Sandoz will ever be just one of the crowd. He certainly wasn’t on Labor Day weekend last year. He’d just purchased a new racing go-cart equipped with hand controls and was taking it up to Loudon, hoping to run it for a lap.

Track officials let him test drive three laps in his new rig. Sandoz had finally closed the circle on that fateful day six years earlier. Best of all, he’d done it at his own pace. 

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*Transformations | Summer 2004*
Ed Parrish sits in the WPI president’s house on Drury Lane, sipping water and discussing his impending retirement. It’s a bitterly cold January day, and as talk turns to attachments Parrish formed during nine years in the heart of New England (the weather isn’t one of them for this lifelong southerner), he’s asked offhandedly how he’d react should the Boston Red Sox ever manage to win the World Series.

“Frankly, my dear, …” he responds without hesitation in his deep, measured drawl. He chuckles to himself and explains that while he cares not a whit, it’s largely because he doesn’t follow baseball. (Football and the Super Bowl-champion Patriots are another matter, he makes clear.)

The easy answer would have been to say that, of course, he’d be happy for Red Sox Nation, but Parrish isn’t wired that way. On matters far more serious than sports, he says what he thinks—says the hard things, the things that need to be said regardless of whether others want to hear them. That trait, combined with his ability to build community and consensus, served him well during his tenure at WPI—a time marked by significant challenges and important successes.

Perfect Match
Edward Alton Parrish arrived at WPI in 1995, fresh from eight years as dean of engineering at Vanderbilt University. Though
he'd had success expanding the faculty and the research program there, he found himself "pretty frustrated" trying to get faculty at a major research university to take a greater interest in teaching undergraduates. "I was ready to go back to the faculty, do research and, especially, teach freshmen again," he says. "I had planned to step down in another year anyway."

So when WPI came calling, Parrish was ready to listen. There was only one problem. "I knew very little about WPI," he says. "I had no clue where Worcester was, and I certainly couldn't pronounce it."

Parrish's lack of familiarity with WPI was both surprising and predictable. Surprising, because he was a veteran of the Accreditation Board for Engineering and Technology (ABET, the organization that accredits engineering programs nationwide) and a key proponent and contributor to the development of Engineering Criteria 2000, its new outcomes-based approach to accreditation. Predictable, because while WPI's innovative, project-focused curriculum was in many ways a working model of what ABET hoped to promote for all engineering programs, the school had long struggled to gain wider recognition for its program.

"I learned that 25 years earlier a group of faculty at this small institution, which few people had heard of, had come to the same conclusions that many national studies by the engineering education groups had come to," says Parrish, betraying some residual surprise and admiration. After all, WPI's academic revolution prefigured the national move to base an engineer's education on learning to solve real problems rather than just memorizing facts and formulas. "And more than simply writing a report and putting it on a shelf, they had actually done something. That's why I came; I was blown away. And the longer I was here, the more impressed I became.

"WPI is still so far ahead of most other technological institutions," Parrish says. "There's a huge flywheel that's been in motion here for 30 years, and all it takes is an occasional swat to keep it going. A lot of places are still trying to get the thing to start moving. It requires a cultural change, not a legislative or executive change."

In WPI, Parrish discovered a school already deeply committed to the principles and goals of EC 2000. In Parrish, WPI found a champion: an experienced educator and administrator who had the ear of influential people throughout the engineering education community. "I made it my mission in life to make WPI better known," Parrish says, "and fortunately I had a national pulpit to work from...a network I could use to try to make people better aware of WPI's efforts."

**Advocate and Ambassador**

That mission, of course, wasn't without its complications. Parrish came to WPI at a difficult time in the school's history. Succeeding John Lott Brown '46, who had filled in admirably for nine months as interim president, Parrish faced a skeptical faculty and significant budget problems—the result of spiraling financial aid costs in the mid- to late-1990s.

"Jack Brown did a lot to smooth over things," Parrish says. "And we came in and added to what he had done. Within three or four years, people's suspicions and skepticism eventually began to die out."

As a successful administrator who believed passionately in the importance of teaching (he developed and taught a freshman engineering course while serving as dean at Vanderbilt to set an example for faculty who seemed allergic to such a task), Parrish understood the faculty's central importance to the school's success. "Ed's being a former faculty member was critically important," says Jack Carney, provost and vice president for academic affairs at WPI, who had worked with Parrish at Vanderbilt. "It took several years to develop a new strategic plan for WPI, and his collegial attitude toward the faculty helped make it a consensus, rather than something handed down from on high."

That approach played a large part in putting the school back on an even keel.

Also important to Parrish's success was his ability to face facts and his willingness to make the hard decisions. Nothing inspires trust like honesty; one of the best examples of this aspect of Parrish's leadership style: convincing the Board of Trustees of the need for significant tuition increases in the late 1990s to bring WPI's price more in line with the true cost of providing a WPI education.

"A lot of attention was being paid nationally to tuition costs outpacing inflation," Parrish recalls. "But WPI's tuition was lagging behind its peers and new resources were needed. What helped persuade the board was the fact that even students who paid full tuition were not covering the cost of their education—everyone was getting about a $6,000 annual subsidy."

The five-year plan (two years of large increases—9 percent in 1996 and 6.75 percent in 1997—followed by three years of more modest increases) enabled WPI to add 20 new faculty positions (a 10 percent increase in the size of faculty without a commensurate increase in the student body) and make many improvements to teaching and laboratory facilities.
Despite the obvious need, "there was concern about the reaction of parents," Parrish says. So he did what seemed to him the most logical course of action: he gave it to 'em straight. "We laid out in a letter to parents why we did it and how we were going to use the money, and promised to report back on the impact."

The President's Office had grown accustomed to receiving at least a dozen angry letters from parents each year when the new tuition was announced. "The year we raised tuition 9 percent, we received just six letters; only one began negatively, and it ended positively," Parrish notes with satisfaction. "The following year, there was not a single letter complaining about tuition."

The influx of new faculty members made possible by the tuition increase did more than lower the student-faculty ratio: it gave Parrish reinforcements to help raise WPI's profile. "I tried to encourage the faculty to 'get out of town' and talk about what they were doing," he says. "They hadn't felt the need to blow their own horn...but that's important."

Parrish's prodding and additional travel funds resulted in greater faculty participation in conferences, symposiums, and other forums. Combined with the president's own indefatigable efforts—he logged more than 120,000 miles in the air some years—WPI became an increasingly visible presence on the national stage. Examples include the selection of WPI as one of two universities to pilot-test the EC 2000 criteria and the Association of American Colleges & Universities' designation of WPI as a leadership institution to help define the future of liberal education in the United States.

**Southern Comfort**

By any standard, Ed Parrish adapted extremely well to what was a major change in his professional environment. Educated at the University of Virginia, he had served on the faculty of his alma mater before becoming chair of the electrical engineering department; he then proceeded to Vanderbilt in 1987. "Having always been at major research universities, WPI was quite a change for me personally," he says.

So, too, was adapting to life above the Mason-Dixon Line. "We are not winter people," Parrish says of himself and his wife, Shirley, a mathematician and computer scientist. "Summer and fall can be delightful here...and so can the day or two of spring, if you can identify them."

Possessed of a dry, subtle wit, Parrish is every bit the courtly southern gentleman, unfolding his sentences as carefully and gracefully as he folds his tall, lanky frame into a chair. He clearly enjoys telling fish-out-of-water stories about his misadventures with the state's idiosyncratic road system, noting that Carney, a Massachusetts native, had warned him of two things when he headed north: don't get emotionally involved with the Red Sox, and don't try to drive in Boston. He batted .500. "Eventually, I gave up and bought a GPS," he says.
The closeness of everything in Worcester was also no small matter for a man who prizes his space, who had always lived in secluded areas with "plenty of woods and quiet." "He is not an extrovert," Carney says. "He can surprise you, but he's generally a private man." So while Parrish admits that he and Shirley will miss some of the convenience of a more densely populated area, they are enjoying the relative privacy and quiet—he says each word several times—of their new home on Skidaway Island in Savannah, Georgia.

Parrish has plenty of plans for his retirement. He'll put his computer engineering skills back to work for his youngest son's computer company, "working in the back room taking care of hardware and software problems. Just because I like doing it." He'll also remain active with ABET, where he is a fellow, a member of the board of directors, and chair of the International Activities Committee, and with the IEEE, which elected him a fellow in 1986 for his work on pattern recognition and image processing and recently elected him to the board of directors of the IEEE Foundation.

He'll also have time to more fully indulge two other passions: music and woodworking. An accomplished musician who played in a jazz band and once had a repertoire of many instruments, Parrish limits himself these days to piano and guitar. He says he looks forward to reestablishing in earnest what is clearly a long-standing rivalry with his oldest son. "He's a better pianist than me. Or he was. He needs to practice," Parrish says with undisguised glee. "I'm back now. I'm ahead."

Parrish does his woodworking in an extensive workshop that includes many hand- and power tools. "I've been adding to it ever since I was 10 years old," he says, and points out several examples of his craftsmanship, which include mantel clocks and footstools.

Fly Away Home

Parrish's handiwork is even more evident in the strides WPI has made in recent years. While he is more comfortable sharing than accepting credit, he is clearly proud of what was accomplished during his presidency (see sidebar on facing page). For example, he notes that funds raised through the $150 million Campaign for WPI (triple the goal of the previous capital campaign) funded, among other projects, the long-awaited Campus Center. He also has fond memories of a number of alumni events, including the celebration of the 25th anniversary of the London Project Center. On the downside, "one big regret is being unable to get a new academic building built and occupied," he says. "The economy killed us and forced a delay."

Parrish worked hard to leave things in good shape for his successor, Dennis Berkey. That includes having made the difficult decision, in the face of what he terms "the hardest budget year I've ever had to deal with in 25 years and probably the worst budget year in WPI history," to eliminate 42 staff positions in January and make other cuts in various areas. The reduction in force, though painful, was part of a financial restructuring that will enable WPI to make new investments in the years ahead and relieved the incoming president from having to immediately confront a budget crisis. And it was perfectly in character for Parrish to make the hard call himself.

"One of the nice things about being in a position like this is that you're able to make decisions that have a broad effect on the institution, not just short-term but long-term. You're also in a position to affect the quality of education of thousands of students during your tenure, the professional careers of hundreds of faculty members, and the quality of life for the staff," he says. "There are a lot of things that you can feel good about."

So, then, why leave? "I have always felt that eight to ten years in a position like this—whether president, or dean, or department head—is the maximum," Parrish says. "A change is healthy at that point."

Parrish, 67, is clearly at peace with having made his way back south, and for a moment you can see him skipping ahead in his mind, envisioning more time with his family, his piano, and his woodworking tools, and less time in the frigid cold. Sure, he'll miss the WPI family and the university environment, but the straight truth is that when he looks around his Georgia homestead he likes what he sees. "In Worcester, there are a lot of gray days in the winter," he ruminates. "In Savannah, there are blue skies, you're in shirtsleeves...."

—Ray Bert is a frequent contributor to this magazine.
Walk through an all-male, or mostly male, residence hall. It’s loud, of course. You hear young men shouting, playing games, letting off steam, having fun. “Take that!” one yells. Another curses his defeat even more loudly. A third laughs heartily.

But if you’re a resident advisor, like Richard Vaz, professor of electrical and computer engineering, you’ll notice one other thing: most of the interaction is virtual. Few of the students making the commotion are in the same room with each other. “A culture can form where videogames become not a diversion but the primary means of interaction,” Vaz says. “I’ve gone down the hall and seen room after room of guys playing games with guys in other rooms.”

Like it or not, you’re looking at the future. Got Game, an upcoming book from Harvard Business School Press, maintains that for corporations to succeed in the coming decades, they’ll have to understand the mindset of a generation of young adults who see videogames as their preferred entertainment medium. Depending on which recent survey you believe, 60 to 80 percent of college-age men and 40 to 50 percent of college-age women play videogames more than 12 hours a week. And a residence hall full of personal computers connected to a high-speed network is fertile ground for energetic multiplayer gaming.
But videogames are important for another reason. They represent a burgeoning science-based industry offering students a chance to work where many of them already play. According to the latest figures from investment bank Wedbush Morgan Securities, the videogame industry took in $27 billion worldwide last year (half of that in the United States) and is expected to grow 19 percent per year for the next three years. As some areas of technical development—such as building and running Web sites—have grown less glamorous, game development has become an even more attractive career opportunity.

Which is one reason WPI is fast becoming more than a bit player in the videogame world. With its diverse, project-based curriculum, the university is already an incubator with a strong track record for placing graduates into interesting positions in the industry. It is home to the three-year-old, 60-member Game Development Club, the fastest growing new student society on campus. And this fall, the faculty is expected to vote on a proposal by five professors from both computer science and humanities and arts to develop an interdisciplinary major program in Interactive Media and Game Development (IMGD).
Being an industry incubator means WPI can accomplish other goals as well. A reputation as a game-savvy school makes it attractive to a whole new constituency of young people. And as a university committed to making science work for the greater social good, it can address critics' concerns about videogame violence and isolationism (some detractors say, for instance, that time spent pressing buttons in virtual-sport games would be better spent playing real sports) and be a positive influence on the field and those who enter it.

There are games that teach new skills, help persons with disabilities, and empower people in numerous ways. These are not "take your medicine" games—they teach without losing a bit of their fun. The most popular PC game ever is "The Sims," in which success is measured not by body count but how well a player does at initiating and sustaining relationships. Last year, WPI's Game Development Club picked up on this spirit of useful fun and built "MassBalance," a game that helps citizens contemplate the trade-offs necessary to balance Massachusetts' budget [see Transformations, "Inside WPI," Summer 2003].

Nicholas Baker '03 exemplifies the kind of conscientious, humanistic scientist that WPI produces. As an undergraduate, Baker's nontechnology double-major subject was philosophy, which is what he says got him interested in developing games with more social value. He is now attending Liverpool John Moores University as a Marshall Scholar, creating games that let players make moral choices about contemporary social problems. One of his games simulates a street protest. "You're the leader of the demonstration," he explains by phone from Liverpool. "During the game, the protesters go from happy to frustrated to angry. You can get public-support points if you lead the demonstration without incident. Police are involved, too. You can talk to the police to stop them from arresting protesters, but there's potential to be physically attacked by them. Or you can choose the violent option."

There's No "I" in Team
Michael A. Gennert, head of WPI's Computer Science Department and associate professor of both computer science and electrical and computer engineering, helped put together the proposal for the new major. "We're looking for something new and exciting to bring in new students. A major like Interactive Media and Game Development certainly meets that requirement," he says. "Think about it: videogame development requires the mastery of many areas. It's not quite computer science, but it involves computer science. It's not quite humanities and arts, but it surely involves humanities and arts. We want something that will have an impact."

The interest in a major started with the faculty but grew when they started discussing it with students. "The students had many helpful comments and insights," Gennert says. "They suggested we go out and get corporate sponsorship of our lab for this program. They had ideas on how we might cover the philosophy and psychology of games. And they made clear how important portfolios were to students."

WPI's move toward establishing the game major is a natural extension of the school's existing strengths. "There are plenty of ways for students to get involved with game development right now at WPI," says Mark Claypool, a computer science faculty member behind the proposal for the major program. "Also, as part of their senior projects, undergraduates have a chance to get involved in some cutting-edge research. The major is very much in the WPI tradition, very much a project-based curriculum."

Jamie Carlson '99 of Connecticut-based Sonalysts, which makes military-simulation games, concurs. "The most helpful thing at WPI for someone entering the videogame industry is the way the curriculum works," he says. "The project plan is team-based and emphasizes collaboration. Teams and collaboration—that's what making a videogame is all about."

Carlson, an associate producer, is currently working on "Dangerous Waters," the company's fourth game. (Producers are the crucial utility infielders at game companies. They have to bring strong programming, design, and project management
skills to projects and often serve as the glue between specialist teams.) "The hardest thing to do when you're making a game and the most rewarding thing to do if you've pulled it off is create something that lets people suspend disbelief and enjoy themselves," he says. "It's great working with a team to do that."

Still, a decade ago an interest in games meant having to carve out one's own niche in the curriculum, says Christopher Dyl, who attended WPI from 1990 to 1995. "I went for physics at WPI. I also studied mechanical engineering and computer science, but a lot of what I learned about game development I learned on my own as a kid." The vice president of technology for Turbine Entertainment Software of Westwood, Mass., a leading purveyor of games that thousands of people can play online simultaneously, remembers being part of a team at WPI that wrote a 3-D modeling program.

"It was extremely primitive, but it taught me what I was interested in and let me discover how much I enjoyed computer programming," Dyl says. "And all those physics simulations I did at WPI—all that visualization work was applicable to games. I started working for Turbine while I was still at WPI, and I'm here going on 10 years now." The company's biggest current hit is "Asheron's Call," although its "Middle-Earth Online," built around J.R.R. Tolkien's Lord of the Rings saga, is due out next year and is expected to be a smash.

**Work for Fun**

WPI's broad curriculum has been another springboard into the videogame business. Chris Bentley, who received a master's in computer science in 1996, came to WPI having studied philosophy and English and having taught junior high. Today he is the Macintosh 3-D project team leader in the Marlborough office of ATI Technologies, a top producer of graphics products for personal computers. As such, Bentley is in the vanguard of hardware developers building the foundation for today's high-end games. It's a tug-of-war between the game-makers and the makers of computer graphics cards, like ATI; each forces the other to increase capabilities. Bentley's job is to ensure that the company's Mac products can handle anything thrown at them. "The broad curriculum at WPI definitely helped me get to ATI and succeed here," says Bentley, who is part of a large WPI contingent at the company.

Game Development Club member Steve Gargolinski '05 is interning as a programmer for Blue Fang Games in Waltham, maker of "Zoo Tycoon," published by Microsoft, which has sold more than 1.4 million copies. "At WPI, I picked up a lot of the skills I need to be a good games programmer. Because producing good animation is dependent on knowing matrices, my classes in linear algebra and [the programming language] C++ were essential," Gargolinski says. "They teach you how to solve problems, which is what being a videogame programmer is all about, whether I do it for fun or for work." He expects to work full time at Blue Fang upon graduation.

Gennert says supporting students like Gargolinski with a bona fide major is but one of Interactive Media and Game Development's virtues. "We also want to be seen as a school that is doing interesting things for those students who are not currently choosing WPI," he says. Namely, women. "There's a national trend of women moving away from enrolling in science, engineering, and computer science in the same ratio as in other disciplines, with the exception of biology," he explains. "We think this program will be more attractive to them and bring them in. The major would have two tracks, technical and artistic, so students can emphasize the area that's more important to them. But what's crucial is that whichever track they're on, there are common core courses, including critical game studies, the game development process, and social issues."

"My favorite thing about the major is that it answers one of the big questions: How do you make videogame development presentable to parents?" says Darius Kazemi '05, a founder of the Game Development Club. "I attended the academic summit at GDC 2003 [Game Developers Conference, the leading annual meeting of videogame developers], so I was familiar with what was happening in different schools around the country. I've had a lot of contact with local companies, so I know what they want to see in someone who's graduating from college: what sort of math skills, what classical subjects, and so on. This major will be great for that."
Notes from Higgins House

The 2003-04 academic year was a historic one for the WPI family of students, faculty, administrators, trustees, and alumni. First, we completed a successful search for a new president. In Dennis Berkey we found an outstanding individual with the necessary qualities and experience to lead WPI into the next decade (see page 4). Second, the Board of Trustees endorsed a campus master plan designed to serve the university today while maintaining the flexibility to respond to the unanticipated needs of the future. Ground was recently broken for the first phase of that plan, a new admissions building (see facing page). All of this happened at a time when WPI, like many other universities, found it necessary to make some tough decisions as it sought to restructure itself financially.

From an alumni perspective, the Association Cabinet is updating its five-year plan and reviewing its constitution and bylaws to be sure they adequately frame our role in support of WPI in the months and years ahead. It is more important than ever that we, as alumni, give our full support to the university. Be as generous as you can in volunteering your time. Be as generous as you can in supporting the Annual Fund. Working together, we can do much to ensure WPI’s place as The University of Science and Technology. And Life.

Fred Costello ’59, President, WPI Alumni Association

24 Honored at Reunion

Each year at Reunion, several members of the returning classes are honored for their professional accomplishments and service to their alma mater. This year, 23 alumni were selected by the Alumni Association’s Citations Committee to receive awards.

In addition, David A. Lucht, founding director of WPI’s Center for Firesafety Studies and its pioneering graduate program in fire protection engineering, received the William R. Grogan Award, which recognizes outstanding contributions in support of the mission WPI or the welfare of its students. In July, Lucht was appointed associate vice president in the Office of Development and University Relations. Kathy A. Notarianni ’86, former project leader and research engineer at the National Institute of Standards and Technology, succeeds Lucht as the Center’s director.

“The Citations Committee worked hard at identifying potential candidates for these awards, culminating in a list of very deserving award recipients,” notes Peter Horstmann ’55, a WPI trustee and chair of the committee. “These awards hold great meaning and prestige for the Alumni Association as well as for the recipients.”


Herbert F. Taylor Alumni Award for Distinguished Service to WPI: Kimball R. Woodbury ’44, James S. Adams ’49, Gordon E. Walters ’54, Paul J. Keating II ’64, Brian D. Chace ’69, James L. Carr Jr. ’74, Joan B. Szkatuk ’79

Ichabod Washburn Young Alumni Award for Professional Achievement: Michael A. Briere ’84, David S. Brin ’84, James M. Melvin ’84, Jean-Pierre P. Trevisani ’89

John Boynton Young Alumni Award for Service to WPI: Kevin D. Beaulieu ’89, Karen Daly Cohen ’94, Jennifer Shiel Wyse ’94

William R. Grogan Award for Support of the Mission of WPI: David A. Lucht, professor/head, Fire Protection Engineering

Albert J. Schwieger School of Industrial Management Award: Arthur M. Quitadamo ’74 SIM (presented in February 2004)

Full text of the citations may be found at alumni.wpi.edu/News/Awards/.
Jim and Shirley Bartlett Honored at Groundbreaking

In a ceremony on June 10, WPI honored James L. Bartlett Jr. '39 and his wife, Shirley, whose generosity will enable the university to implement the first element of its new campus master plan by building a two-story, 15,000-square-foot home for the Admissions and Financial Aid offices. The Bartletts joined retiring WPI President Edward Alton Parrish, William Marshall, chairman of the WPI Board of Trustees, and Judith Nitsch '75, chair of the trustees' Physical Facilities Committee, in turning over the first shovelfuls of earth at the location of the new building, a site that is now a parking area between the Quadrangle and Beech Tree Circle.

To be known as the Bartlett Center, the building will include a spacious reception area, interview rooms, a 42-seat multimedia presentation room, and offices for staff. "This new building will dramatically change the campus visit experience for prospective students and their families," notes Kevin Kelly, associate vice president of enrollment management.

The building will also serve as a catalyst for the campus master plan vision of making the Quadrangle a more open and greener pedestrian space. The goal is to eventually remove parking from the central campus, except for spaces dedicated for handicapped access to the Quad and for visitors to the new building. The master plan, completed last winter after two years of design and discussion, will guide the development of the WPI campus over the next two decades.

Jim Bartlett holds a bachelor's degree in mechanical engineering and received an honorary doctorate in engineering from WPI in 1998. He is an accomplished entrepreneur who has founded six companies in a wide range of technical fields. With an abiding affection for WPI, the Bartletts have generously supported the university and its students for many years.

"The Bartletts are leaving a profound and lasting legacy on the WPI campus," Parrish said. "Their generosity will touch countless thousands of future WPI students and families, whose first introduction to campus will be through the building that bears their name. We are extremely grateful for their far-reaching contribution."

Who's Got the Goat?

By Katrina Hildebrand '05

He is WPI's most popular alumnus—and its most enduring and endearing. Over a century old, he's long been the center of student and alumni attention. And now he's missing!

Last seen at the Rope Pull at Homecoming 2001, the university's beloved mascot—in the form of an ungainly bronze sculpture known as the Goat's Head—is the focus of an intense goathunt. A caprine co-op (aptly called the Goat's Head Committee) has been formed of students, staff, and alumni who have been working diligently to locate the metal ruminant.

The Goat's Head tradition began when the Class of 1893 gave charge of its block goat mascot to Gompei Kuwada, a student from Japan, whose initials designed him goatkeeper. After the goat died, its head was stuffed and mounted. Decades later, students in the Class of 1928 made the head the object of a class rivalry to increase school spirit. They replaced the original with a disproportionately large head cast in bronze.

The competition focused on the freshman and sophomore classes. Points were given to the winners of such events as the Tech Carnival, Paddle Rush, and Rope Pull; the class with the most points got the Goat. The winning class was obligated to display the Goat once a year, giving the other class a chance to capture it for themselves. Over the years, the Goat has made some memorable appearances: suspended from a helicopter that buzzed a home football game, dropped from Earle Bridge into a moving convertible, and hung in Alumni Gym during a basketball game before being tossed out a window to waiting students.

At times the rivalry became too violent, and in 1995 a set of rules was designed to make the events safer and the Goat's location easier to monitor. But these rules could not prevent the latest goathnapping.

To keep the rivalry alive, the committee is considering what it will do should the Goat's Head not turn up anytime soon. One possibility is to cast a new goat, but for now committee members are continuing the search, putting their own heads together in hope of finding the missing one.

For more information about the search, or to provide details that you think might help in the recovery of the Goat's Head, visit users.wpi.edu/~goat, or e-mail goat@wpi.edu.
36 Ham Gurnham celebrated his 90th birthday at a gathering in Madison, Conn., organized by his four sons (two live in Pennsylvania, one in South Carolina, and one in Nova Scotia). They held the big party on June 4, 2004, although Ham actually turned 90 on May 16, 2004.

Phil Wild was named Person of the Year by the Friends of Saint Patrick in Walpole, Maine. He was honored for 30 years of service on the town’s Permanent Building Committee, and for his work with community organizations. Phil and his wife, Carla, have lived in Walpole since 1957 and have raised four children. Phil told the Walpole Times that it was Professor Frederick Sanger at WPI who inspired him to go into the newly emerging field of geotechnical engineering.

Dave Kujala worked for 15 months to launch the new Delaware Sports Museum. As director, he was responsible for installing exhibits, recruiting and training volunteers and staff, developing operating procedures and coming up with lesson plans for visiting schoolchildren that would satisfy state educational standards. He hired a successor in March 2002, but has stayed on as education director and curator. “It’s more like a 5/3 job now,” he writes, “down from 16/7.” Dave and his family have also been building their third log home, this one in the Catskills.

Milton Meckler delivered a plenary address at the Worldwide CIBSE/ASHRAE (Chartered Institution of Building Services Engineers) Gathering of the Building Services Industry in Edinburgh, Scotland, where he shared the dais with the UK minister of energy. His topic was “Achieving Building Sustainability Through Innovation—An American Perspective.” He and his wife, Marlys, also traveled to Peru last fall.

Milton writes, “Although most of my classmates have chosen to retire, I continue to enjoy my work in the building construction industry. In 2003 I decided to depart from a consulting firm with more than 80 employees, to continue my work in telecommunications and cogeneration systems development as president of Design Build Systems. I was also appointed an adjunct associate professor of information science at Claremont Graduate University in California.”

Jack Derby is director of the Connecticut Small Business Development Subcenter at Quinebaug Valley Community Center in Danielson. He has taught management courses at Becker and Nichols colleges. He also continues as president of Kean Management Group, which he founded in 1985.

A reminder to the world-famous Class of 1957: Mark your calendars for our Golden Reunion in June 2007. Be there, or else we’ll talk about you! Al Papianou is still looking for news items for the next class newsletter. Climbed Mount Everest? Volunteered with Big Brothers/Big Sisters or Habitat for Humanity? Write him at alpappy@juno.com.

Where in the world? Morton Fine ’37 brought his WPI cap on an archeological expedition in Israel last year, but found he needed his thinking cap to instruct the dig director in the full capability of the plane table he was using to map the excavation. “I recalled my education of 69 years ago, gave him a summary of the process from memory, and later sent him the tables from my old civil engineering textbook,” he says. “From that point on, I was involved in the mapping and not the digging.” Archeologists at Bethsaida, on the northeast shore of the Sea of Galilee, are uncovering an area occupied during the time of King David, which was later buried by an earthquake.

Send us a picture and tell us where you’ve worn your WPI letters lately.
Bob Beckett received the Order of the Tower Award from The Pennington School Alumni Association. A 1952 graduate, he was honored for his devotion to his high school alma mater as a trustee, class agent and 50th reunion chair.

Robert Galligan is teaching business courses at National University in San Diego.

John Smith has been retired from General Electric since 1997. He and his wife, Janice, moved to South Yarmouth on Cape Cod a year later. Their travels have included Scotland, Australia and New Zealand, Mexico, and a Hawaiian Islands cruise. "We are now proud grandparents of five—four boys and a girl," he writes. "I keep busy golfing and tutoring math in the middle school."

Bernard Lally lives in West Springfield, Mass., where his quest to discover the past owners of his home led to a consuming hobby and the title of town historian. His career included 30 years as a science teacher.

Veikko (Vic) Uotinen was tapped to chair the American Nuclear Society's Special Committee on Ethics. He will lead a special session on "Professional Ethics in the Application of Nuclear Technology" at the annual meeting in June 2004. Vic retired from Framatome-ANP in 1997 to become director of ministries for his church, Rivermont Evangelical Presbyterian. "I have maintained my ANS membership since 1966 and into retirement, and I find this blend of my faith and my scientific career to be very rewarding indeed," he writes. Vic invites classmates to contact him at vic@rivermont.org.

William Museler (M.S. ME) is president and CEO of the New York Independent System Operator, a not-for-profit organization that administers the city's bulk electricity transmission system. He testified before the House Committee on Commerce on events that preceded the August 2003 blackouts.

Tom Newman recently celebrated 30 years with Teradyne Inc. in Boston. "Wow! Where does the time go?" he writes, noting that he came to Teradyne on the recommendation of Wayne Ponik '65 (a.k.a., Pobzeznik). "Am enjoying my career so far—lots of interesting jobs and worldwide travel. I am currently serving as vice president of corporate relations. I'm also enjoying working on the 40th Reunion Class Gift campaign and the Reunion itself. Hope to see many of you there in June."

Frank (Czybulka) Rainer writes, "I retired from Lawrence Livermore National Lab in July, after 36 years as a laser physicist, having worked on each of the nine large-scale laser systems dedicated to laser-fusion research. I still consult as a certified laser safety officer, do research on laser-induced optical damage; I'm active on four ANS committees for laser safety. In between I have traveled with my wife, Sigrid, to almost 200 countries and foreign territories." Frank notes that his daughter, Amanda, is a sophomore engineering major at Harvey Mudd College, where former WPI president Jon Strauss is currently president.

Dennis Simanaitis is engineering editor of Road & Track magazine. In a recent "Tech Tidbits" column, he reflected on the decline of America's steel industry, noting that as a steelworker's son, he came to WPI on a scholarship from American Steel & Wire Corp., back when it was a division of U.S. Steel Corp.

Don Peterson '71, chairman and CEO of Avaya, was profiled in Financial Times ... Bausch & Lomb CEO Ron Zarrella '71 was one of Rochester Business Journal's "Fifty over 50" for 2003 ... the Boston Globe business section ran a front-page story on developer Dean Stratouly '74's vision for 33 Arch St., a blue-glass office tower in Boston's financial district ... the New York Times published Domenico Grasso '77's response to an article on women and minorities earning Ph.D.s in engineering. Grasso, director of Smith College's Picker Engineering Program, pointed out that a lack of diversity at the design table has negative consequences for society ... Jim Melvin '84 of Mazu Networks was named Venture Reporter's CEO of the Week Jan. 30, 2004 ... Gregory Vail '87's company, Data Innovation, was featured on Health Journal Television ... Business is booming at ECI Biotech, according to a Telegram & Gazette story on founder Mitch Sanders '88 ... Network World used Sean O'Connor '94 as an example of the benefits of real-time collaboration tools, which allowed him to work at home when his wife's due date was near ... Pianist Sergio Salvatore '02 was one of the child prodigies described in a JazzTimes article called "The Gifts of Youth" ... the New York Times reported on the efforts of Michelle Isabelle-Stark '03 (MBA) to lure more moviemakers to use her Long Island community as a film setting. She is director of the Suffolk County Office of Cultural Affairs ... Chris O'Malley '03 was interviewed by the Boston Globe for an article on white-collar job migration.

Joseph Acker is president of the Synthetic Organic Chemical Manufacturers Association. Prior to that, he was president and CEO of DanChem Technologies and president of Hickson DanChem Corp.
Rene LaPierre retired from Mobil in 2000, and now serves as vice president, research and engineering, at Precision Combustion Inc. in North Haven, Conn. "The transition from a large company to a small enterprise has been fun," he writes.

Michael Paige was named managing director of technology strategy at White Label. He also serves as a full professor and chair of the information and computer technology department of Endicott College.

James Rossi joined Kema, an energy-industry consulting firm based in the Netherlands. As president of the Power Generation and Sustainable Group, he will lead the firm's business operations in the North American energy market.

Gerry Robbins is vice president of planning for The Howard Hughes Corp. in Las Vegas. He directs planning, engineering and landscape architecture for Summerlin, a 23,500-acre master-planned community.


Marc Schweig is vice president, business development, for Raritan Computer in Somerset, N.J.

U.S. Magistrate Judge Paul Cleary was elected president of the Hudson-Hall-Wheaton Chapter of American Inns of Court.

Dan Donahue holds the post of town engineer for Canton, Mass.

Trent Germano, executive vice president of Carter & Associates, topped the list of Atlanta's top commercial developers in a recent edition of the Atlanta Business Chronicle.

Francis Scricco was appointed group vice president of Avaya Global Services in Basking Ridge, N.J.

Philip Piqueira continues as the standards integration manager for General Electric in Plainfield, Conn. He also offers presentations and private consulting on the financial aid process to prospective college students and their parents.

Roger Heinen, managing director of Flagship Ventures, was recently appointed to the board of Trusted Network Technologies. He is also a member of the WPI Board of Trustees.

Wallace McKenzie joined Elytics Inc. in Somerville, Mass., as vice president of professional services. He was previously employed by Answerthink.

Alden Bianchi joined the Boston office of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, PC, to head up the firm's employee benefits and executive compensation practice.

Jim Bowen was appointed regional director for customer support at International Aero Engines in East Hartford, Conn. He is responsible for the Asia/Pacific region. Jim is also proud to announce the birth of his first grandchild, Olivia Ann Feher, on Jan. 28, 2003.

Robert Lindberg is president of the National Institute of Aerospace in Hampton, Va. He had served as vice president of research and program development at NIA since it started in 2002.

After 30 years in electrical engineering, Bill Tanguay has a new career teaching 7th- and 8th-grade mathematics at Our Lady of Peace School in Darien, Ill. He was inspired by the volunteer work he did in his own children's classrooms to seek certification through an 8-week alternative program at Benedictine University.

Jonathan Wood is director of applications, R&D, for USFilter in Lowell, Mass.

Gordon Woodfall is president and general manager of ThermoKeyTek in Lowell, Mass., and cofounder of SENG.
Douglas Sargent was named public works director for Laconia, N.H. A retired Air Force officer, he brings 25 years of international construction management experience, including his previous post as director of public works for the town of Ossipee.

Beth (Pennington) Sigety and her husband, Charles, run Bison Investments Inc., based in Tampa, Fla. She holds an MBA from Emory University.

Kazem Sohraby (M.S. EE) was named head of the computer science and computer engineering department at the University of Arkansas. He holds a doctorate from Brooklyn Polytechnic University and an MBA from the University of Pennsylvania.

Joseph Dzialo was appointed senior vice president and general manager of the U.S. business of Timberland Co., based in Stratham, N.H.

Fran McConville’s mandolin may be heard on the new CD “Rotmans Café Fantastique Live: Volume 1,” which features his work with local favorites Valerie and Walter Crockett, The Hole in the Dam Band, and Chuck and Mud.

Bill Cunningham took on a unique marketing challenge with his students at Northern Kentucky University, where he is an adjunct professor in the Fifth Third Bank Entrepreneurship Institute. They are looking at ways to get colleges interested in the Segway Human Transporter invented by Dean Kamen ’74. Inspired by Kamen’s commencement address, the students began work on a marketing plan to target technology-friendly campuses.

John Osowski continues as director of planning and construction at Brockport State College. He recently became certified as a code compliant technician for New York State building codes. He is also certified as a U.S.A. Hockey Level 2 referee.

John Woodhull is manager of process engineering for ENSR International.

Tom Fleming was named director of sales for Visible Inventory in Salem, N.H.

Tom Lewis co-founded Two Toms LCC in Peterborough, N.H., to market BlisterShield, a powder that eliminates friction for hikers and runners.

Kenneth Mandile is president of Swissturn/USA, a highly automated maker of Swiss-type screw machine parts. The firm moved into its new 19,000-square-foot factory in Oxford, Mass., in December 2003.

Bruce Richmond was elected director of programs for Project Management Institute, Syracuse (N.Y.) Chapter.

George Awiszus and his wife, Lucy, coordinated the First Annual Craig Abraham Golf Outing and Family Celebration in memory of the friend and classmate he lost to leukemia in 2002. Proceeds from the Sept. 27, 2003, event will help Craig’s widow, Louise, finance the education of their sons, Andrew, Tim and Chris. Photos of the event and information on making donations are posted at craigabraham.com.

Joseph Celentano was appointed senior managing director at Bear Stearns in San Francisco.

Steven Oxman (M.S. CS) lives in the Annapolis, Md., area with his wife, Judi, and sons Philip and Warren (oldest son, Charlie, is married and living in Tennessee). His company, OXKO, is doing well with its data mining and data forensics work. Clients include the Executive Residence (a.k.a. the White House) and the Criminal Investigation Division of the IRS.

John Capurso joined Visioneer in Pleasanton, Calif., as vice president of corporate sales.

Toma Duhanj is the new DPW chief in Tewksbury, Mass. His previous employers include the City of Worcester and the Massachusetts Highway Dept.

Michael Donati ’82 (holding daughter, Michaela) hosted a mini-reunion of ’81 and ’82 WPI alumni in honor of Ingrid Slembek (center), who was visiting from Australia, where she is completing her Ph.D. Attending the party were Jim Cahill (holding son, Brian) and (from left) Bob Noel, Tom Malin, Peter Tiziani ’81, Tom Soohoo, Gary Brown ’81 and Tom Cotton ’81. Family obligations prevented Phil Kull from making the party; bad flying weather in Rochester, N.Y., prevented Matt Metzger from making the trip in his private plane. (Mike and his wife, Michelle, live in Newfields, N.H. He is VP of sales, marketing and application engineering at Beswick Engineering, founded by Paul Beswick ’57.)
Breakthrough Management for Not-for-Profit Organizations: Beyond Survival in the 21st Century
by Howard H. Brown '56 and Donald L. Ruhl
Praeger Publishers

Not-for-profit (NFP) organizations require a unique orientation to support successful completion of their missions. After retiring as Symington Professor of Management, Howard Brown collaborated with a colleague from the former Bradford College to expand their lecture notes into a much-needed textbook. Each chapter begins with a case study of the inner workings and operations of an NFP organization, including volunteer efforts. The book, which includes an annotated index, addresses the unique challenges of leadership posed by tight budgets and difficult economic times. In addition to his teaching career, Brown has extensive experience on the boards of directors of community health and civic organizations. He holds an MBA from Northeastern University and earned a doctorate from Boston University in the administration of higher education and adult education.

A Creative Odyssey: The Story of Floyd and Richie
by Richard Rotelli '56
Infinity

The Richie of the title is Dick Rotelli’s father, a self-taught engineer who used his talents to help his neighbor, Floyd Walser. In 1901, Floyd, an aspiring Texas cowboy, was crippled in a fall. While recovering from the riding accident, he developed polio and became paralyzed. Rotelli describes his father’s homespun inventions, which allowed Floyd to function in the world using only his right arm. His innovations included a flat-bottomed boat for fishing, a flotation device for swimming, and a motorized wheelchair. In an era before handicapped rights and accessible facilities, Richie’s ingenuity allowed Floyd to live an active life and develop his artistic talents as a painter.

Nicholas Johnson received the Muscular Dystrophy Association’s 2004 National Personal Achievement Award. He was featured on the organization’s annual Jerry Lewis Telethon and made a guest appearance at WCVB-TV studios in Boston. He is an HVA engineer with Bard, Rao and Athanas Consulting Engineers and an active volunteer in the MDA. A Boston Globe article lauded his achievements in overcoming obstacles and serving as a role model for others.

Karla (Twedt) Szkutak began teaching mathematics at Ipswich (Mass.) High School this year, after a career as a product manager and senior marketing manager for AT&T.

Robert Gibbons was named a partner at Mirick O’Connell, where he specializes in commercial litigation. A graduate of Suffolk University Law School, he joined the firm in 1997.

Elizabeth BenDaniel Schwartz lives in Englewood, N.J., with her husband, Peter, and three kids, Alexandra, 5, Brooke, 3, and Andrew, 2. She works part time with Oracle ERP systems. “I would love to hear from other alumni at eschwart@verizon.net.”

Tom Cappelletti and his wife, Janeen, left the sunny Phoenix desert and moved to the Denver area. He continues to fly as a 757/767 first officer for UPS, as well as serve as an Air Force Reserve major. Their twins, Charlie and Caroline, celebrated their second birthday in November.

Lori Duncan married John Wright on May 11, 2003. She is an adjunct professor at Quinsigamond Community College. They live in Lexington, Mass.

Jim Goodell and his wife, Patti, welcomed their third child, Abigail Grace, on Sept. 19, 2003. She joins her brothers, Benjamin, 4, and Aaron, 2. Jim is director for product/services development at CELT Corp. in Marlborough, Mass.

Mark Neumann is a mechanical engineer at Hamilton Sundstrand Space Systems International. He lives in Granby, Conn.

Keith Noe joined Lowrie, Lando and Anastasi in Boston. He will continue to support his former employer, Cookson Electronics, where he served as vice president of intellectual property. He is a graduate of Franklin Pierce Law Center.

Joe Musmanno was named director of information exploitation at Titan Corp. In addition, he continues to serve as chairman of the Board of Selectmen of his current hometown of Medway, Mass.

Roderick Shaffert (M.S. CE) was appointed account executive for the scholastic group of Worcester-based Cutler Associates. He has been with the firm for 17 years.

Angela (Iatrou) Simon passed the Massachusetts Board of Building Regulations Construction Supervisor licensing examination. She is now qualified to manage the construction of industrial, commercial and residential buildings of up to 35,000 cubic feet. She also had a baby boy, Nathan Jonathan, on Jan. 19, 2004. He joins his sister Korinna, 4, and his brothers, Xander, 2, Angela and her husband of seven years, Erik, are thrilled with Nathan's arrival.

Karen (Frasca) Connolly (M.S. CM) and her husband, Scott, announce the birth of their son, Adam Scott, born March 31, 2003. He joins his siblings, Emily, 5½; and Patrick, 3.

Cara Escobar married Michael Turnbull on April 26, 2003. They live in Middleton, R.I., where Cara is a lead software engineer at Anteon Corp.

Vince Matrisciano is lead project manager for all fire control software development projects at the U.S. Army's Armament Research, Development & Engineering Center in Picatinny, N.J. An article about his work appeared in the August 2003 issue of National Defense Magazine. He notes that Ralph Tillinghast '99 recently joined his development team.

Christopher Pater and his wife, Julie, announce the birth of their son, William Edward, on Jan. 31, 2004. He joins his brother, Matthew, who celebrated his first birthday in January. They live in Manchester, Conn. Chris marks 15 years with United Technologies this year, where he currently leads manufacturing resource planning system design at Pratt & Whitney.

Smyth Turner joined John Guest USA as territory sales manager for Mid-Atlantic Sales.

David LeBlanc was promoted to engineering manager at Rolf Jensen & Assoc.

Army Reserve Sgt. Joao “John” Salomao of Hudson, Mass., is home from an eight-month tour of duty. He spent four months in Baghdad, where his unit was assigned to install lights and power lines at the Abu Ghraib prison.

Chip Brown has completed two tours of duty in the Persian Gulf as a lieutenant commander and Navy pilot. He now flies for FedEx.

David Stce is vice president of The Center for Lean Business Management of New Britain, Conn. He has written several papers on online "reverse auctions," which he believes are contrary to the principles of lean management.

Nathan Crowell joined Sherry Laboratories in Muncie, Ind., as a metallurgical engineer. He and his wife, Patti-Anne, have two daughters.

Greg Frizzle and his wife, Nancy, had a daughter, Rachel Amber, born Aug. 13, 2003. Greg is a software engineer at 1-many Inc. in Portland, Maine.

Daniel Meldrum joined Electro Abrasives Corp. in Buffalo, N.Y., as vice president of sales.

Christopher Walton is a senior engineer with EBI Consulting. He lives in Amherst, N.H.

Douglas Campbell is director of business development at ECI Biotech in Worcester.

Tracy Coffman and his wife, Agnes, are happy to announce the birth of their twin sons, Diego Alexander and Myles Sebastian, on Jan. 4, 2004. They live in San Juan, Puerto Rico.

Anthony Girard joined Venture Tape Corp. of Providence, R.I., as a process engineer.

Jeff Rembold and his wife, Cristine, announce the birth of their fourth child (third daughter), Mary Teresa, on Oct. 19, 2003. They live in Webster, N.Y., where Jeff continues as an applications engineer for PTC.

Capt. David Willis married Lori Garofano recently. He is serving with the Army in Staten Island, N.Y.
Capt. Don Cournoyer and his wife, Kim, have a new son, Aaron Joseph. They and their older children, Courtney, Rachel, Austin and Emily, can now be found in the Fort Bragg, N.C., area, after three years stationed at Ramstein AB in Germany.

Joseph Gifford is a senior development engineer in the Applications R&D Dept. at USFilter.

Scott Kalish and his wife, Alison, had their first baby, Nathan Charles, on Dec. 13, 2002. Scott was promoted to senior program manager at InterDigital Communications Corp. in Royersford, Pa.

Senya (Hiscox) Miles was promoted to technology leader for GE General Eastern, an acquisition of GE Industrial Systems, where she is responsible for humidity sensor and transmitter systems. Senya and her husband, Andy, have relocated to the Wilmington, Mass., area.

Sean O’Connor and his wife, Kerrie, have a new son, Collin Michael, born Nov. 1, 2003. He joins his siblings, Gabrielle and Jared.

Jonathan Pearson and his wife, Laura, had a son, David, on April 17, 2003.

Tony Sacchetti and his wife, Meg, announce the birth of their son, Anthony, Tony Sr. is an engineer in the New Product Marketing Group at Tyco/Healthcare/Kendall.

Chuck Scholpp received MBA and MEM degrees from the Kellogg School of Management last year, and now works as a marketing manager for Hach Co., a division of Danaher Corp. He and his wife, Elaine, had a son, Alexander Henry, on Jan. 10, 2004. They live in Fort Collins, Colo.

Todd Sullivan, his wife, Alexa, and their 3-year-old son, Ethan, recently welcomed another son, Garrett, into the world. More recently, Todd changed law firms and now practices patent law at Hayes Soloway in Manchester, N.H.

Rebecca (Mason) Yang received a Pharm. D. from the University of Southern California in May 2003. A few months later, she and her husband, Roger, welcomed their first child, Zackary, born on their sixth wedding anniversary, Aug. 6. They are all healthy and happy in Los Angeles, where Becca is a pharmacist and Roger is an emergency room physician.

Kim (Quigley) and Justin Caserta welcomed a son, John Patrick, on Dec. 11, 2003. He joins his big sister, Kaleigh, in their Billerica, Mass., home.

Craig Dubrule and his wife, Jennifer, are proud to announce the birth of their son, Jack Warren, on July 22, 2003. Craig recently graduated from Stanford University with a master’s in mechanical engineering and is working at Cisco Systems in San Jose, Calif.

Glen Gaede received his M.D. from UMass Medical School in June 2003. He is currently a surgical resident in the UMass-Memorial hospitals.

John Grossi recently became engaged to Kyle Sarena Montuori, a Regis College alumna. A November wedding is planned.

Shannon (Bielitz) Johnson's children, Camden, 3, and Alden, 1, trick-or-treated as a Phillips head screw and screwdriver set on Halloween. Shannon writes, “I married Christopher Johnson in 1999. After five years at Becton Dickinson, I left my position as engineering project leader to become a ‘domestic engineer,’ putting my degree to use designing Halloween costumes.” The kids won costume contests in Somerville and Raritan, N.J.

Ken and Tanya (Macek) Mongeon ’96 are the proud parents of Connor Dean, born Aug. 4, 2003. Ken serves as senior premium services consultant director at Fidelity Investments Institutional Operations Company Inc. in Smithfield, R.I.

Elizabeth (Allenbrook) Simon joined EBI Consulting in Burlington, Mass., as a program manager. She is a graduate of Boston College Law School.
Kylie (Schoenrock) Williams had a baby boy, Joseph Patrick, on May 7, 2003.

Alex Cardenas earned his Ph.D. at Purdue University in 2002. He is employed as a medical physicist at the M.D. Anderson Cancer Center in Houston.

Tim Dean was promoted to senior engineer at ExxonMobil Chemical in Baton Rouge, La. He and his wife, Caroline, have a daughter, Natalie, and a son, Jonah Patrick, born March 26, 2003.

Christian Kuiawa and Amy Vandall were married Oct. 25, 2003, at Saints Peter and Paul Cathedral in Providence, R.I. They live in Warwick.

Karen (Goodell) and Isaiah Plante '97 welcomed a son, Hunter Steven, on March 3, 2003. They and big brother Isaiah, 3, live in Scarborough, Maine.

Rich Santoro married Michelle Mach recently. He works for Incom Inc. in Charlton, and Worcester Emergency Medical Services.

Matthew Weidle and his wife, Andrea, welcomed their son, Joseph Sean, into the world on Nov. 26, 2003. "Mom and baby are doing great after a natural childbirth," he writes. They live in Warwick, R.I.

Chinmay Chatterjee (Ph.D.) is president and CEO of Integrated Pharmaceuticals in Boston.

Daryl Hart and his wife, Kathy, are happy to announce the birth of their second daughter, Natalie Marie, on Jan. 20, 2004. Their older daughter, Marisa, is 4. Daryl, an Air Force captain, expects to be reassigned in June to the National Air and Space Intelligence Center at Wright-Patterson AFB. He recently earned an MBA at Auburn University.

Ben Higgins and Katherine Drainville were recently married on the beautiful island of Oahu, Hawaii. Kathy is completing her Ph.D. at the University of Rhode Island, while Ben has returned to WPI to manage computer operations for the Mechanical Engineering Dept. They live in North Grafton, Mass.

Former Ladycats basketball star Kim Landry was inducted into the Gardner (Mass.) High School Athletic Hall of Fame.

Joseph Plunkett is a senior project engineer at Mercury Computer Systems in Chelmsford, Mass.

John Powell married Michelle Barclay. He works for Cytce Corp. in Boxborough, Mass.

Steven Siegmund starred in a local production of Noel Coward's Hay Fever, which was directed by WPI's Paula Moravek.

Jeffrey Feigin (M.S. EE) is principal applications engineer at Skyworks Solutions Inc., headquartered in Woburn, Mass.


Michael Lafond and Joseph Raab were married Sept. 27, 2003. She works at ENSR International, and he works at GE Power Systems. They live in Lawrenceville, Ga.

Darryl Pollica married Laura Sales on July 3, 2003. He works as a chemical engineer and lives in Medford, Mass.

Jennifer Sapochetti (M.S. FPE) is a consultant with the Boston-area office of RJA. Her article on the International Building Code approach to smoke control systems design appeared in the November 2003 issue of Engineered Systems.

Edward Cameron transferred to a new position with Knolls Atomic Power Laboratory in Schenectady, N.Y. He is now an engineer in the reactor servicing group, supporting the Navy's Los Angeles class of submarines. He also serves as a firefighter and EMT with the Round Lake Fire Dept.


Paul Graves and his wife, Jane, welcomed their second daughter, Maretta, in December. They and 3-year-old Elise live in Lawrence, Kan., where Paul is an environmental engineer with the state Department of Health and Environment.

Mohan and Neeta Jain Jayaraman celebrated the first birthday of their son, Viraj, who was born on Jan. 30, 2003. They live in Nashua, N.H.

After four years at Tinker AFB in Oklahoma, Pat and Vicky (Dulac) O'Sullivan and their son, Mack, 3, have returned to the Northeast. Pat, an Air Force captain, is now assigned to the Electronic Systems Center at Hanscom AFB.

Deborah Marcroft Pasho graduated from Tufts University School of Veterinary Medicine recently.

Lisa (Angle) and Garren Walters '98 had their first child, Justin James, on Nov. 1, 2003. They have been married since August 2001 and are currently living in Nashua, N.H.

Eric Wilhelm's wedding to Alison Yanka on Oct. 26, 2003, included Nate Gronda, Phil Tongue and Carl Messina '00 as ushers. Eric is pursing a master's degree in transportation engineering at UMass Lowell.

Bhairavi Parikh (Ph.D.) and her husband, Rajiv, are co-founders of Aperon Biosystems. The Santa Clara, Calif., startup is developing a device to monitor airway inflammation in asthma patients.
Army 1st Lt. Michael DiCaprio is serving in Iraq. Contact him at michael.dicaprio@us.army.mil.

Jason Ferschke married Jillian Broumage recently. He continues at the Auburn, Mass., fire department.

Diane Kavanagh and Bruce Skarin '02 were married on Sept. 20, 2003, with many recent WPI grads there to help make their day special. After a 10-day honeymoon in Aruba, they settled down in Bridgeport, Conn.

Amanda Kight and Paul Muller are engaged. The wedding was planned for June 19, 2004, at Wright-Patterson AFB, where Paul, a first lieutenant, is stationed in the Air Force Research Laboratory's Sensors Directorate. Amanda is working toward a Ph.D. at Wright State University; she expects to finish in 2005. Wedding details and photos are posted on the couple's Web site, paulandamanda.com.

Matthew Lewis and Nikole Howard '02 were married Aug. 2, 2004. They live in Malden, Mass.

David Philips and Erica Lafont were married Oct. 4, 2004, and spent a beautiful honeymoon in Hawaii. They live in Ayer, Mass.

Robert Tuttle married Jennie Heger on July 19, 2003. He is a graduate student and teaching assistant at the University of Missouri in Rolla.

Amy Bliven and Dennis Stewert became engaged over Valentine's Day weekend. He surprised her with a ring in front of Cinderella's Castle in the Magic Kingdom. A July 2005 wedding is planned. They both work for the Florida Dept. of Law Enforcement Crime Lab in Orlando.

Jeff Brown was named Teacher of the Year for 2003 at Joel Barlow High School, in Redding, Conn., where he is a special education teacher and football coach. Jeff started in 1994 as a paraprofessional, became certified in 1996, then earned a master's degree in therapeutic recreation in 2001.

Liz Cash and Jeremy Hitchcock '04 are engaged. They have moved to Manchester, N.H., where Jeremy is chief financial officer for Dynamic Network Services. Liz has started her own consulting business at lizesc.com and is making a niche for herself in the Manchester community.

The heat of the Persian Gulf didn't stop Marine Cpl. Justin Lutz from training for his goal—the 2008 Summer Olympics. After a six-month deployment in Kuwait and Iraq, he returned home to Walpole, Maine, in September.

Audrey Coats (MME) teaches mathematics at Lynnfield (Mass.) High School. Navy Ensign Matthew Leland received his commission after completing Officer Candidate School at Naval Aviation Schools Command in Pensacola, Fla.

Robert Desmarais proposed to Cindy Forbes, a physical therapist, while vacationing in Playa del Carmen, Mexico. They live in Wallingford, Conn., and are planning a June 2005 wedding.

Graduate Management Programs

Brian Schuster '03 (MBA) works for National Grid. He and his wife, Melissa, live in Millbury, Mass.

Master of Natural Science

Larry George '78 was appointed headmaster of Bradford Christian Academy, which will open in September 2004. He lives in Danville, N.H.

School of Industrial Management

George Walker '58 was appointed to his third term on the Mississippi State Board for Community and Junior Colleges by former Gov. Ronnie Musgrove. He is founder of Delta Wire Corp.

Don Zerkeski '74 was named president and CEO of Silicon Dimensions Inc. in Marlborough, Mass.

Thomas Kanaan '85 is facilities manager for the Wells & Ogunquit Community School District in Maine.

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Col. Gordon MacKenzie (M.S. CE) sends word from Iraq, where he is leading an Army Combat Engineers brigade in reconstruction efforts. He took time out for this photo opportunity during the grueling 3-day convoy through Baghdad to Tikrit. "How many times will I be in the middle of Iraq, and have the chance to ride a camel?" he writes. Contact Gordie at gordon.mackenzie@us.army.mil.

Bill Penrod (M.S.) holds the post of Maine operations site manager at Cooper Wiring Devices.

2nd Lt. Natalie Woodworth is enrolled in the Doctor of Osteopathic Medicine Program at the University of New England, under a full four-year scholarship from the U.S. Army. She received her commission in August 2003.

NOTE: Zero-Year Reunion for the Class of 2004 at Homecoming, October 8–9

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Alumni who wish to make contributions in memory of classmates and friends may contact the office of Development and University Relations at WPI.

Carl H. Carlson '29 of Asheville, N.C., died Jan. 21, 2004. His wife, Alice (Johnson) died in December 2003. He leaves a son, a daughter, four granddaughters and three great-grandchildren. Carlson retired from Bay State Abrasives as plant engineer at age 65. He continued consulting as a professional engineer into his 80s and contributed his skills to various town municipal projects. He belonged to Theta Chi.

Robert Bumstead '31 of North Conway, N.H., died Sept. 15, 2003. Predeceased by his wife, Gertrude "Fostie" Bumstead, his survivors include a son, a daughter and two grandchildren. Bumstead joined Allendale Insurance Co. (now FM Global) in 1938 and retired as a senior vice president. He belonged to Phi Gamma Delta.

William F. Reardon '32 of Asheville, N.C., died Dec. 30, 2003. He leaves his wife of 66 years, Virginia, a son, a daughter, four grandchildren and four great-grandchildren. Reardon earned a master's degree at the University of Tennessee in Knoxville, where he worked for the TVA. He served in the Navy Construction Battalion during World War II and later worked for General Electric Real Estate and Construction until he retired in 1973.


Merrell retired from the Cyclone Fence Division of US Steel in 1975, after 42 years of service. He belonged to Phi Sigma Kappa.

Frederick M. Potter '33 of Canandaigua, N.Y., died Nov. 30, 2003. Predeceased by his wife, Isabel (Hibbard), he leaves two daughters and several grandchildren. Potter was retired from Bendix Corp. as chief engineer. He belonged to Sigma Phi Epsilon, Sigma Xi and Tau Beta Pi.

Maurice E. Day '35 died Sept. 14, 2003, in Honolulu. A longtime resident of Denver, he and his wife, Dorothea, moved to Hawaii in 2000, where they were cared for by their son. Also surviving are a daughter, two grandsons and a great-grandson. Day was a civil engineer for the U.S. Dept. of the Interior, Bureau of Reclamation, at the Denver Federal Center from 1946 until he retired in 1970. He continued as a consulting engineer on projects ranging from Colorado and abroad. He also taught piano lessons and played organ, flute and piccolo.

George R. Creswell '37 of Leicester, Mass., died Dec. 9, 2003. Survivors include his wife, Marion (Hill), two sons, a daughter, three grandchildren, four stepchildren, four step-grandchildren and a step-great-grandchild. Creswell was predeceased by his first wife, Stella (Soucy). He retired from New England Telephone and Telegraph in 1978, after 43 years of service. He belonged to Sigma Phi Epsilon.

Ralph H. Holmes '37 of Worcester died Dec. 15, 2003. He leaves his wife, M. Eleanor (Cullen), four daughters and 10 grandchildren. His wife's obituary noted that Holmes was the owner and president of the former M.D. Holmes and Sons Co. He belonged to Sigma Xi and Tau Beta Pi.

Howard W. Haynes '38 of Litchfield, Conn., died Nov. 25, 2003. Predeceased by his wife, Ruth (Miller), he leaves two sons, two grandchildren and a great-grandson. Haynes earned a master's degree in electrical engineering at WPI in 1939. He worked for the Torrington Company for more than 40 years. He belonged to Phi Gamma Delta.

Trustee Emeritus Raymond J. Perreault '38 of Vero Beach, Fla., died Dec. 25, 2003. He leaves his wife, Cecilia "Sue" Perreault, three stepsons, a stepdaughter and six step-grandchildren. His first wife, Ina (Wendela) died in 1992. Perreault was the retired founder, president and treasurer of Falls Machine Screw Co. A Presidential Founder and lifetime member of the President's Advisory Council, he received the Herbert F. Taylor Alumni Award for Distinguished Service in 1988. He belonged to Sigma Alpha Epsilon.

Walter L. Abel '39, a 1982 honorary degree recipient and a winner of the Robert H. Goddard and Herbert F. Taylor awards, died Nov. 1, 2003, at his home in Avon, Conn. He leaves his wife, Eleanor (Pope), four sons, two daughters, 13 grandchildren and five great-grandchildren. His first wife, Alice (Raymond), predeceased him. Able began his career with United Shoe Machinery Corp., which later became Emhart Corp., and soon rose to leadership positions in industrial research and computer-aided manufacturing. He retired in 1982 as vice president of research and development. A highlight of his career was the formation of WPI's Manufacturing and Engineering Applications Center (MEAC), in collaboration with Emhart.

Robert P. Zickell '39 of West Boylston, Mass., died Aug. 15, 2003. Predeceased by his wife, Gloria (Gillis), he leaves five sons, two daughters and eight grandchildren. He belonged to Phi Kappa Theta, Zickell was a retired self-employed general contractor.

Willard T. Gove '40 of Minneapolis died Nov. 30, 2003. He was predeceased by his wife of 52 years, Denise (Larsen), and by his second wife, Nancy (Snyder). Survivors include two sons, two daughters and eight grandchildren. Gove retired in 1983 from Honeywell Inc. as vice president of corporate field administration. An active and committed volunteer, Gove was named a Daily Point of Light by President Clinton and...
received a visit from President George W. Bush as the first volunteer inducted into the USA Freedom Corps. He belonged to Lambda Chi Alpha.

William L. Bowne ’41 of Schenectady, N.Y., died May 25, 2003. He leaves his wife, Phyllis (Tolman), two daughters, two grandchildren and two great-grandchildren. Bowne was retired from a career as a manufacturer’s representative.

Col. Leslie B. Harding ’41 (Ret.) of Atlanta died Dec. 23, 2003. He leaves his wife, Mabel (Griffiths), two daughters, three grandchildren, two great-grandchildren. Harding retired from the U.S. Postal Service until 1988. He belonged to Phi Sigma Kappa.

Donald F. Palmer Jr. ’41 of Princeton, N.J., died March 23, 2003. Survivors include his wife, Muriel (Leonard), three sons and two daughters. Palmer was a metal manufacturing executive and former chairman of Wicarco Machine Corp. He belonged to Phi Gamma Delta.

Joseph E. Filipek ’42 of New Bedford, Mass., died Jan. 20, 2004. He was a retired processing engineer for Continental Screw. Survivors include his wife, Mabel (Griffiths), two daughters and two grandchildren.

James F. Robjent ’42 of Waterville, Maine, died Aug. 28, 2003. He is survived by his wife, Margaret (Brick), two sons, a daughter and four grandchildren. Robjent was retired as purchasing manager for Scott Paper Co., a position he held for almost 30 years. He belonged to Theta Chi.

Wallace R. Lindsay ’43 of Fort Johnson, N.Y., died Nov. 23, 2003. He was retired as co-owner of Inman Manufacturing Co., where he served as a mechanical engineer. He was the husband of Harriette Reamer, who survives, along with a son, two daughters, four grandchildren and three great-grandchildren. He belonged to Phi Sigma Kappa.

Edward C. White ’43 of Walthamsville, Mass., died Oct. 10, 2003. He leaves his wife, Jennie (Targonski), a son, a daughter, two grandsons and a great-granddaughter. White was retired from American Steel and Wire, where he served as an engineer for many years.

Trustee Emeritus Irving James “Jim” Donahue Jr. ’44, a lifetime resident of Shrewsbury, Mass., died Dec. 1, 2003. A graduate of Harvard Business School, he was the founder and chairman of Donahue Industries and founder of Donahue International and I.J.D. Inc. Along with his wife, Barbara (“Babs”), he was known locally for philanthropy and community involvement. Their support of WPI has included giving five racing shells to the university’s crew program, providing new offices in Alumni Gym for the men’s and women’s head coaches, and establishing an endowed fund to support crew.

They also established an endowed scholarship fund to support undergraduate students. Donahue’s honors included the Herbert F. Taylor Alumni Award for Outstanding Service to WPI, the Robert H. Goddard Alumni Award for Professional Achievement, and an honorary degree from the School of Industrial Management. A Presidential Founder and a lifetime member of the President’s Advisory Council, he belonged to Phi Sigma Kappa.

Edward C. White ’43 of Walthamsville, Mass., died Oct. 10, 2003. He leaves his wife, Jennie (Targonski), a son, a daughter, two grandsons and a great-granddaughter. White was retired from American Steel and Wire, where he served as an engineer for many years.

Survivors include his wife, Elaine (Erickson), two sons and five grandchildren. Johnson belonged to Sigma Phi Epsilon.

Retired Navy Lt. Cmdr. Stuart D. Kearney II ’44 of Bethesda, Md., died Sept. 30, 2003. A graduate of the U.S. Naval Academy in Annapolis, he held a master’s degree in management engineering from RPI and a doctorate in management sciences from George Washington University. After retiring from active naval duty in 1966, Kearney worked in the Naval Space Project Office in Washington, where he received three patents. He belonged to Phi Kappa Theta. Surviving are his wife, Lee, a son and a sister.


William C. Howard Jr. ’45 of Brimfield, Mass., died Jan. 16, 2004. He leaves his wife, Jane (Gullberg), a son, four daughters and six grandchildren. Howard was a retired executive vice president for Norton Co. He belonged to Sigma Alpha Epsilon.


Andrew D. Costa Jr. ’46 of West Dennis, Mass., died Oct. 12, 2003. His wife, Barbara (Ertel), died in 1996. Five daughters, 14 grandchildren and a great-grandson survive, along with a close friend, Barbara Teixeira. Costa graduated from Purdue University and spent his career with Dennison Manufacturing as a manufacturing representative.

Jackson L. Hayman ’46 of Idaho Falls, Idaho, died Dec. 6, 2003. His wife, Marjorie, predeceased him. He was a retired technical marketing specialist for DuPont. He belonged to Sigma Xi.
Joseph H. Johnson '46 of South Wellfleet, Mass., died Nov. 17, 2003. He leaves his wife, Pearl (Ethier), a son, two daughters, three stepsons, three stepdaughters and 14 grandchildren. Johnson joined Pratt & Whitney in 1946 and retired in 1983 as supervisor of support equipment design. He belonged to Alpha Tau Omega and Sigma Xi.

Wilbur C. Jones '46 of Gaithersburg, Md., died Aug. 31, 2003. He is survived by his sister, Audra Jones Hansen. Jones was a retired public utilities specialist with the Federal Energy Regulatory Commission. He belonged to Phi Gamma Delta.

Arthur N. Lagadinos '46 of Northborough, Mass., died Jan. 15, 2004. He leaves his wife, Helen (Stefanson), a son, two daughters and six grandchildren. Lagadinos was the retired manager of field representatives for Insurance Services Office. He belonged to Theta Chi.

Norman W. Padden '46 of Williamsburg, Va., died Jan. 20, 2004. His wife, Theresa (Gavin), a son and a grandson survive. Padden was an electrical engineer and product manager who worked for defense contractors on the East Coast and in California before he retired. He belonged to Phi Kappa Theta.

Carl F. Simon Jr. '46 of Cape Coral, Fla., died Jan. 28, 2004. He was the husband of Margaret "Bunny" Simon and the father of Robert Simon '75. Other survivors include another son, two daughters and seven grandchildren. Simon was an engineer at Erie General Electric for 45 years and later worked for Morrison Knudsen. He belonged to Phi Sigma Kappa.

Paul H. Mugford '47 of Essex, Mass., died Sept. 8, 2003. He leaves his wife, Florence (Dillon), two sons, three daughters, three grandchildren, and eight great-grandchildren. Mugford was a chemist in the leather industry and served as foreman for the A.C. Lawrence Leather Co. He later became a professional real estate appraiser and a selectman for the town of Essex.


Paul H. Beaudry '49 died July 18, 2003, at his home in Millbrook, N.Y. Predeceased by his wife, Barbara (Brown), in 2002, and by a daughter, he is survived by two sons and seven grandchildren. He also leaves his close friend, Dorothy Evslin. Beaudry was retired from IBM after 25 years in the Facility Design Construction Division. He belonged to Sigma Alpha Epsilon.

Richard J. Coughlin '49 of Tyngsboro, Mass., died July 20, 2003. His wife, Sylvia (Calabro), survives. Coughlin was the retired vice president of Boston Edison Co. He belonged to Phi Kappa Theta.

George M. Dewire '49 of Falls Church, Va., died July 7, 2003. He leaves his wife, Janice, a son, two daughters and five grandchildren. Dewire was retired from Convair Federal Systems as chief engineer. He belonged to Theta Chi.

William J. Ploran '49 of Holyoke, Mass., died Dec. 16, 2003. A mechanical engineer, he was the retired founder of Rock Valley Tool. Survivors include his wife, Cecile (Benoit), three sons, a daughter, seven grandchildren and four great-grandchildren.

Joseph E. Skidmore '49 died Sept. 19, 2003, at his home in Tacoma, Wash. He leaves his wife of 53 years, Lorraine (Dupuis), a son, a daughter and three great-grandchildren. After a 30-year career with Armco Steel Corp., Skidmore retired as a sales engineer and continued consulting for the firm. He belonged to Sigma Phi Epsilon.

Carl D. Ahlstrom '50 died Dec. 5, 2003, at his home in South Newbury, N.H. A longtime employee of General Electric Co., he was retired as manager of government sales. Survivors include his wife, Ruth (Fosdick), a son, a daughter, five grandchildren and one great-grandson. He belonged to Alpha Tau Omega.

Harvey W. Carrier '50 of Westfield, Mass., died Aug. 22, 2003. His first wife, Marjorie (Logee), died in 1997. He is survived by his wife of 25 years, Violet (Henrichon Symonds), a son, two daughters and six grandchildren. He also leaves two stepdaughters, four step-grandchildren and five great-grandchildren. Carrier was retired from a career with Hamilton Standard and Pratt & Whitney. After retirement he served as a consultant for Cessna Air Craft.

Sumner W. Herman '50 of Worcester died Jan. 4, 2004. He leaves his wife, Lois (Fielding), a son, a daughter and two grandchildren. Herman owned and operated Insurance Marketing Agencies. He belonged to Alpha Epsilon Pi.

Kenneth W. Parsons '50 of Paxton, Mass., died Nov. 23, 2003. A member of Theta Chi, he was retired from a 40-year career with Norton Co. Survivors include his wife, Ellen (Secondino), a son, a daughter, five grandchildren and three great-grandchildren. His first wife, Helen (Couiry), died in 1987.

Wallace M. Preston '51 of West Springfield, Mass., died Sept. 30, 2003. He is survived by his wife, Dorothy (Marotte), two sons, two daughters and two grandchildren. Preston earned a master's degree at RPI. He worked for several Western Massachusetts manufacturing companies before joining Toolcraft, where he served as a vice president. He belonged to Theta Chi.

Warren W. Root '52 of York, Pa., died Dec. 22, 2003. He was a retired design engineer with 30 years of service at Borg Warner Corp. Root leaves his wife of 51 years, Dorothy (Thompson), three sons, two...
grandchildren and a step-granddaughter. He was predeceased by two daughters. He belonged to Sigma Xi.

George Idlis '54 of Cranston, R.I., died Jan. 13, 2004. Husband of Carol (Siegal), he also leaves a son, two daughters and four grandsons. Idlis began his career as a mechanical engineer and later retired from Storci Associates as a personnel consultant. He belonged to Alpha Epsilon Pi.

Malcolm E. Keeler '54 of Pittsfield, Mass., died July 18, 2003. He leaves his wife, Barbara (Fosser), three daughters, a son and six grandchildren. Keeler worked for Crane & Co. as a controller for almost 40 years before he retired in 1993. He belonged to Alpha Tau Omega.

Charles E. Adams '55 (SIM) of Worcester died Oct. 14, 2003, at the age of 77. He was the retired director of purchasing at Wright Line Inc. He is survived by his wife, Helen (Dube), three sons, a daughter and eight grandchildren.

Kenneth H. Russell '55 of Succasunna, N.J., died Aug. 30, 2003. He leaves his wife, Mary (Castrucci), two sons, six daughters and 23 grandchildren. Russell worked as a civilian project leader at the Picatinny Arsenal. He belonged to Phi Sigma Kappa.

Transformations recently learned of the death of John H. Lillibridge III '56, in 2000. A Navy veteran and electrical engineer, he lived in California for many years and worked for Acme Electric Corp. and Taylor Instrument Corp. as a sales engineer.

John L. Buzzi '57 of Metuchen, N.J., died Sept. 2, 2003. He leaves his wife, Betty Anne (Laird), two sons, two daughters, and six grandchildren. Buzzi was owner and president of Kupper Associates until he retired in 1997. He also served on the faculty of Ocean County College and Rutgers University, where he earned a master's degree and a doctorate. Buzzi was known regionally for promoting investment in the region's infrastructure and for supporting engineering education in the community college system.

Wesley W. Pinney '58 died Jan. 3, 2004, at his home in Millstone, N.J. He is survived by his wife, Mary (Damiano), four sons, a daughter and eight grandchildren. Pinney was retired from the Worldwide Absorbent Products Materials Division of Johnson & Johnson.

Frederick H. Lutze '59, a former professor at Virginia Polytechnic Institute, died Dec. 2, 2003. A graduate of the doctoral program at the University of Arizona, he joined the Aerospace and Ocean Engineering Dept. at Virginia Tech in 1966 and taught until his retirement in August 2003.

Arthur Olsen Jr. '59 of Haverhill, Mass., died Nov. 19, 2003. A retired engineering manager at Bell Labs, he later worked at OK Engineering. Survivors include three sons, a daughter, three grandchildren and his former wife, Ethel (Helgensen) Olsen.

Myron "Mike" H. Smith '60 of Atlantic Highlands, N.J., died Jan. 15, 2004. Surviving family members include his wife, Ann (Sheehy), five sons, three daughters, and 12 grandchildren.

Gordon L. Benson '70 (SIM) of Paxton, Mass., died Sept. 2, 2003. He was 83. Predeceased by his first wife, Dorothy (Ahearn), and a son, he leaves his wife of seven years, Irene (Hines), a daughter and four grandchildren. Benson worked for Norton Co. for 43 years and retired as a maintenance supervisor.

Transformations recently learned of the death of Joseph E. Flynn '70 (SIM), of Tucson, Ariz., in 2001, at the age of 77. He was a retired account manager for Norton Co. His wife, Nancy, survives.

John M. Galvin '70 of Holden, Mass., died Nov. 11, 2003. Husband of Constance (Brusco), he also leaves a son. Galvin earned an MBA from Clark University and pursued actuarial studies at Northeastern University. He was a senior systems consultant at Allmerica Financial, formerly State Mutual Life Assurance Co. He belonged to Sigma Alpha Epsilon.

Daniel J. Dunleavy '71 died Oct. 7, 2003, at his home in Duxbury, Mass. He leaves his wife, Ann (Robinson), and two sons. Dunleavy earned an MBA at the Boston University Graduate School of Management and belonged to Phi Kappa Theta. He was the owner and president of Able Air Equipment & Services Corp. and the owner of Eddy Square and Centreville Mill.

John F. "Red" Flynn '73 (SIM) of Sudbury, Mass., died Oct. 23, 2003, at age 70. He lost his wife, Eleanor, in March 2003. Survivors include two sons, three daughters and 14 grandchildren. Flynn was a graduate of Clark University and Worcester State College. He was retired as vice president of Heffernan Press.
Donald G. Woodward '73 (SIM) died Aug. 16, 2003, at his home in Holden, Mass. He was 74. Survivors include his wife, Jacqueline (Brennan), a son, three daughters and nine grandchildren. Woodward was a retired project manager for Riley Stoker Co. with 40 years of service.

Roger A. Spongberg '74 (SIM) of Holden, Mass., died Aug. 27, 2003. He was 71. He is survived by his wife, Norma (Hill), and a son. A graduate of Becker Junior College, Spongberg was a supervisor in the abrasives business office of Norton Co., where he worked for 31 years.

Michael B. Malanca '75 of Billerica, Mass., died Nov. 8, 2003. He leaves his wife, Elena (Isaaca), a son, a daughter, a stepdaughter and a grandson. A telecommunications engineer, he worked for EG&G Dynatrend and Fujitsu Corp.

David M. Mann '79 of Morris Plains, N.J., died April 8, 2003, in an automobile accident. He was the husband of Robin Carroll-Mann. Mann was a senior software engineer for Marconi Aerospace Systems, now part of BAE Systems.

Nicolas M. Reitzel Sr. '79 (M.S. CE) died Jan. 17, 2004, at the age of 77. A 1951 graduate of Lehigh University, he was an instructor at WPI in the 1970s and earned a master's degree in civil engineering in 1979. Reitzel began his career in the papermaking industry, where he earned patents for machines used to produce toilet paper and disposable diapers. In 1967 he founded Reitzel Associates, an environmental engineering firm, which he ran with his wife, Joanne "Josie" Reitzel, until they retired in 1992. He was predeceased by an infant son, Nicolas Reitzel Jr. Other survivors include his son, Nicolas Reitzel III '88, another son, three daughters, and eight grandchildren.

Robert L. Burghoff '80 of The Woodlands, Texas, died Nov. 20, 2003. He is survived by his wife, Bethany, a son and two daughters. Burghoff, who held a Ph.D. from the University of Rhode Island, was a research scientist for Protein Engineering Corp. A founding member of the Fellowship of the Woodlands, he shared his talents as a Christian songwriter, a football coach, and a volunteer at the Woodlands Children's Museum.

Fred E. Learned Jr. '82 (SIM) of West Yarmouth, Mass., and St. Augustine, Fla., died Nov. 26, 2003, at the age of 69. A graduate of Northeastern University, he worked for Norton Co., later Saint Gobain, for 40 years. He leaves his wife, Frances (Levesque), three sons and four grandchildren.


Timothy R. Sabol '88 of Dunbarton, N.H., died Oct. 18, 2003, while traveling. He was the husband of Sharon (Othot) Sabol, and the brother of Ronald M. Sabol '84, who survive. Sabol earned an MBA at Plymouth State University and worked as a sales manager at Roadway Express.

Robert W. Piehl '90 (SIM), of Charlton, Mass., died Nov. 29, 2003. A graduate of Clark University, he was the retired vice president of Specialized Software International. He also spent 25 years with American Optical Co. His wife, Virginia, and two daughters survive.

Joe Gale, Human Timeline of WPI History

John J. B. "Joe" Gale, who retired in 2000 after 54 years as a member of the WPI staff, died on May 24, 2004, after a long illness. He was hired by WPI (where his grandfather, father and two uncles had also worked) in 1946, just after he returned from four years in the Army during World War II. • At WPI, Gale started as a groundskeeper, but quickly moved over to become a laboratory technician in the Mechanical Engineering Department, where he learned to weld from the late professor Carl G. Johnson. Over the years, Gale returned the favor by teaching hundreds of WPI students to weld with a gentle, patient style that made him one of the most beloved members of the university staff. Gale also taught general machine shop operations and casting. • Outside of the classroom, Gale was a constant presence at WPI athletic events. He managed the press box for all home football games and was the facility coordinator for Harrington Auditorium and Alumni Gym during home basketball and wrestling contests. Over his long WPI career, he worked for nine WPI presidents and saw the student body grow from about 300 to over 2,700. • "To call Joe Gale a fixture at WPI, while accurate, doesn't do the man justice," noted Ray Bert '93 in a 1996 tribute published in the WPI Journal. "He is a living, breathing part of the fabric of the institution—a human timeline of WPI's recent history." • In lieu of flowers, Gale's family has asked that donations be made to the American Cancer Society, 30 Speen Street, Framingham, Mass. 01701.
Making a Dream Come True
Karen Kosinski pursues her goal to help the disadvantaged

For as far back as she can remember, Karen Kosinski '02 has been motivated by the desire to serve others. As a younger growing up in Rhode Island, she dreamed of becoming a veterinarian and helping subsistence farmers in developing countries. But a chance comment made in her junior year by WPI biochemistry professor José Argüello changed her mind. After hearing Kosinski describe her goals to him after class one day, Argüello, an Argentinean, remarked, "In my country, when our animals get sick, we don't call the vet. We kill them and eat them."

From that moment, Kosinski's ambition was to become a primary care physician in the developing world. "I had always refused to consider the idea of practicing medicine because I found the responsibility for human life overwhelming. But once I faced my fear, I realized that I had the potential to become a doctor," she says. "Moreover, I saw that people everywhere live in hardship, and that medical care for them is exponentially more important than it is for their animals."

Reasoning that a public health degree would help her get into a medical school of her choice, Kosinski decided that after WPI she'd pursue an M.S. at the Tulane University School of Public Health and Tropical Medicine in New Orleans. She completed her studies there this spring and continues to compile an impressive record of humanitarian service.

As a biotechnology major with a minor in international studies at WPI, Kosinski earned wide recognition for her intellect, leadership, tenacity, and selflessness. Her volunteer work at a local animal hospital involved a round-trip walk of 10 miles. She helped out at the Rutland, Mass., office of Heifer Project International, a nonprofit organization dedicated to sustainable farming and animal husbandry, mentored disadvantaged youths, and was involved in neighborhood reading and recreation programs.

She also volunteered in the emergency room at Worcester's St. Vincent Hospital, a job that only hardened her newfound resolve to be a physician. After waitressing shifts, she would head to the hospital at one or two in the morning and stay for several hours, transporting patients, stocking supplies, and running errands. "I saw many disquieting cases," she recalls, "and sometimes could not sleep at night for thinking about the situation in which those poor people found themselves. The more I witnessed, the more I wanted to help."

She earned numerous honors, including the President's Interactive Qualifying Project Award (which she shared with project partner Abel Alvarez-Calderon) for creating a how-to manual for subsistence fish farmers in Costa Rica. "The experience dovetailed beautifully with my interest in nutrition and efficient protein production," she says.

Kosinski's understanding of developing countries' nutritional concerns will soon be broadened. She embarks soon on a year of study in the subject on a Rotary International Ambassadorial Scholarship to Ecuador. "This is the chance of a lifetime," she says. "I taught high school science in Venezuela for three months last year and I loved it. There's something about South American culture that's very warm and sincere. I feel comfortable there."

So comfortable that once she gets her medical degree she plans to set up a practice to serve the poor in Latin America. "I can't think of a more fulfilling way to live my life," Kosinski says. "If I can help ease the suffering of those around me, I will die happy."
On July 12, the WPI community was saddened to learn that Bernie Brown had died following a brief illness. Bernie spent 38 years at WPI, first as assistant dean of students and most recently as vice president for student affairs.

But he was much more than any job he ever held. “To most of us at WPI, he was not a man with a title, but a man with a big heart,” says Terrie Coolberth, administrative assistant in the Student Life Office. “He always made people feel important; he had a genuine concern for the people he knew, and he knew everyone well.”

Bernie Brown touched the lives of hundreds of members of the worldwide WPI family. Shortly after word went out about his passing, alumni, faculty, and staff began sharing their own stories about the well-loved student advocate. Janet Begin Richardson, acting vice president for student affairs, heard from international students who said Bernie was their first contact and friend when they arrived in the United States. Some of the first women to attend WPI (women were admitted in 1968) said that had it not been for Bernie’s support and encouragement, they would probably not have succeeded at the university. Members of the fraternity system recounted how instrumental Bernie had been in the development of their chapter. Crew team alumni spoke of his undying support for their sport—a close partnership that will continue through the Brown Family Fund for the Endowment of Crew.

“Bernie exerted a positive force on everything he touched,” says Anne McPartland Dodd ’75. “He made success at WPI possible for hundreds of students. He searched beyond race, gender, religion, and nationality into the hearts of students to discover their unique potential. Then he cajoled, teased, supported, and challenged them to live up to those visions.”

“WPI’s position as a great university is due in large part to the countless contributions Bernie made, the infectious spirit he brought to all he came in contact with, and the profound impact he had on students and campus life.”

—Dennis Berkey, WPI president

“About 12 years ago, I was giving a first-year student a ride to his home in Hanover, N.H., for Thanksgiving break. He mentioned that the custodians started cleaning the dorms too early—while many students were still asleep—and that it caused a number of inconveniences for them. I decided to see if this could be changed. No one I could find to talk to seemed inclined to do anything; everyone had what they thought were good reasons for things to stay the same. Eventually I presented my arguments to Bernie. At the end of C-Term on my way back north, that same student riding with me noted that the custodians were starting later and that everyone was happy—students and custodians. When the students in the dorms can sleep in past 8 a.m. without vacuum cleaners in the hall, and can take their morning shower without bumping into a custodian cleaning it, it’s Bernie they should thank. I’ll be missing him and his smile for a long time.”

—Christopher Brown, professor of mechanical engineering