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Service-learning in a synthetic world

“Small service is true service while it lasts. Of humblest friends, bright creature! scorn not one: The daisy, by the shadow that it casts, Protects the lingering dewdrop from the sun.”

— WILLIAM WORDSWORTH

In his recent book, *Synthetic Worlds: The Business and Culture of Online Games*, Professor Ted Castronova of our telecommunications department offers a provocative view of the online game culture and industry and its future. “Where teenagers now keep 27 instant messaging conversations going at once, in 20 years we will be seeing everyone age 40 and below constantly jumping in and out of synthetic environments, running multiple characters all over the place, and basically living a half-real, half-virtual existence all the time,” he predicts. While this may sound like dystopia to old-timers like me, such developments are only a natural extension of transitions we have ourselves witnessed, such as the disappearance of the bowling alley and movie theater as community commons. Even the possibility of such a future underscores the importance of inculcating a social conscience among our students as a part of the college experience in preparing future citizens and leaders.

A student at a residential campus like ours learns as much, if not more, from out-of-class experiences than in-class. Thus, to make the best use of the four-plus years that most of our students spend on campus, we must structure their academic experiences to spill outside the classroom. The College’s collaborative efforts with Residential Programs and Services, such as the Collins Living Learning Center and the Global Village, are one manifestation of such efforts. Internships and externships with nonprofit organizations are another example. Courses of study that integrate precept with practice in dealing with societal problems, termed “service-learning,” play an increasingly important role in the education of our students.

Creating meaningful service-learning opportunities (courses that count toward a degree) is by no means easy, especially in a small university town like Bloomington. First, the community service component must be well integrated with the classroom work. A rigorous process for evaluating the learning outcomes from the service must be devised. Next, the service partner organization has to assist in mentoring and evaluating the students. The course of study has to win the approval of the College’s Committee on Undergraduate Education — a peer group that ensures rigor. Setting up such courses requires extra creativity and commitment on the part of the instructor and logistical support from the university. The fact that such opportunities for our students are on the increase, as described in the lead article in this issue, is a reflection of the dedication of our faculty and staff.

I am amazed by the number of faculty and staff of my generation at IU whose world view was shaped by their participation in the Peace Corps. It is perhaps because of this that social activism and service are so manifest on our campus. The new generation of IU students is keeping up this tradition of volunteerism: We have one of the largest contingents of graduates in the Midwest accepted into the Teach For America program. College Distinguished Alumni Award winner Claire Gaudiani argues in her book *The Greater Good* that it is because of philanthropy, or more generally generosity, that capitalism and democracy thrive in the United States. Our students are being well prepared via service-learning to play a leadership role in propagating democracy and common good, even in a world where people might spend a fraction of their time in synthetic worlds!

College establishes award for young alumni

The College of Arts and Sciences has awarded a Distinguished Alumni Award since 1978. This award typically recognizes alumni who are at the peak of their careers or who have concluded a significant career. The College also wanted a way to honor young alumni, 35 years of age or younger, who had achieved significant recognition or accomplishment at the beginning of their careers. Accordingly, it established the Outstanding Young Alumni Award, which was given to its first recipient, Nicole Parker, in 2005 (see story on page 7).

Swamy to leave IU for Kentucky

Kumble R. Subbaswamy announced in January that he will leave his position as dean of the College to become provost, or chief academic officer, of the University of Kentucky in Lexington, beginning July 1. His return to Lexington is a “going home” of sorts. He spent 15 years there as a physics professor, department chair, and associate dean from 1982 to 1997. He became dean of the College in 2000. Swamy, PhD’76, said he is excited to go to Kentucky at a time of expansion. The university will add more than 600 faculty and 7,000 students in the next 15 years.

In a letter to faculty announcing his departure, Swamy said he believes change is healthy. “Yes, change can be uncomfortable, but it shakes up complacency — both for individuals and for institutions. In that spirit, both you and I can look forward to exciting times ahead.”

Joseph Steinmetz, executive associate dean of the College, will also leave July 1 to take up the post of dean of the University of Kansas College of Liberal Arts and Sciences.
Introducing your board …

Ann Waren joined the College of Arts and Sciences Alumni Board in 2000 and is currently serving her second term as secretary/treasurer. Waren is a native of Fort Wayne, Ind., but she decided she wanted to have a new experience and go to college out of state. After a year at Miami of Ohio, she realized IU offered a great resource and many wonderful opportunities — all with in-state tuition. Waren enjoyed the challenge of study in the College — the broad reading and writing assignments and the opportunity to develop analytical and critical thinking skills while dealing with a great deal of information. She combined her major in history with an outside field in business and received her degree in 1987. She started her career in trust and investment banking. She enjoys working with small-business owners and individuals, interpreting new tax laws, and analyzing each client’s situation to determine the best option for each. She believes the skills she learned in the College have had direct application to her career. Waren is currently vice president and trust officer for Salin Bank & Trust Co. Waren joined the board as a way to feel connected to IU and as an opportunity to give back to both the College and IU. She is married to Randy Waren, whom she is trying to convert to a true Hoosier, and she looks forward to the possibility that her daughter, Isabelle, and son, Jack, will become IU graduates sometime in the 2020s.

Dan Peterson is a native of Fort Wayne who found his way to Indiana University to study biology and medical sciences with the plan of going to medical school. As is often the case with students, his plans changed. After receiving his bachelor’s degree in biological sciences in 1984 and attending medical school for three years, Peterson decided he’d like to expand his biology and medical training with business. He returned to IU to earn an MBA in finance in 1989. He joined Bloomington-based Cook Inc. in 1989 and has served as operations manager and controller. He is now vice president for industry and government affairs. Peterson is involved in many external and community organizations, such as the BioCrossroads board of directors, the Bloomington Hospital board of directors, and the U.S. Department of Commerce Industry Trade Advisory Committee, to name just a few.

Peterson and his wife, Tina, a Texas A&M alumna, live in Bloomington with their children. When not spending time with his family and with his community work, Peterson is an avid golfer. He is serving his second term on the College alumni board.

Born and raised in the Chicago area, Janet Smith came to IU as an out-of-state student. She says her father was thrilled she’d chosen a large co-ed university over a small women’s college because he felt it was “much more like the real world.” Smith graduated with a BA in English and a minor in psychology in 1967. Her experiences at IU left an impression on her younger sister, who transferred from Drake to IU after Smith graduated. Smith says her studies in English and psychology gave her valuable training for her future careers. As a student, she had worked for Marshall Field’s & Co. during summer and Christmas breaks. She returned to the company after graduation, serving as a training coordinator and as head of a women’s apparel section. When Marshall Field’s began to use Univac computers and was looking for people with a strong retail background who could use the new technology, Smith switched gears and moved into information technology. She began using IBM equipment to broaden her skills and quickly moved to Trailer Train Co. (now TTX Co.) and then to the Association of American Railroads in Washington, D.C., using technology to support the delivery of freight throughout North America. Smith eventually started her own consulting business, concentrating on international freight transportation technology support, primarily in western Europe.

Smith recently relocated to Bloomington from North Carolina to be near the university she loves so much. Besides serving her second term on the College of Arts and Sciences Alumni Board, Smith serves on the International Studies External Advisory Council; is co-chair of her class campaign committee, which plans to endow a chair in the College; and works on the IU Foundation’s Colloquium for Women.

If you have any questions for the board, contact us at asalumni@indiana.edu.
Alan Gilman, BA’52, MBA’54, was in the stands for all but two of IU’s home football games this season. And one of those absences, he is quick to point out, was due to a family event out of state. Family comes first, but when three children, a brother, and an uncle have all attended IU, the difference can get blurry.

“I owe the university a lot in terms of helping me along my life trek,” says Gilman, now chair of the board at the Steak n Shake Co. in Indianapolis. “I try to be helpful where I can.” As it happens, that is a great many places, and Gilman is always up to the task.

Gilman grew up in Indiana and earned his BA in history from the College and his MBA from the School of Business (now the Kelley School of Business) during the height of Herman B Wells’s presidency. After graduation, Gilman started a 26-year career with Federated Department Stores, as well as a lifetime of service to his alma mater. “My connection with the university dates back to when I first joined Lazarus in Columbus, Ohio, when they had one store in downtown Columbus,” Gilman recalls. “I used to come back to Bloomington twice a year, largely to the business school, to recruit and to speak to classes.”

Gilman later moved to Dallas, eventually heading that division as chair-CEO, and in 1975 he was selected to head the New York division, then the corporation’s largest. In 1980 Gilman joined an international marketing and manufacturing firm and started the wildly popular Tommy Hilfiger business. After several years as a private investor, he then returned to Indiana in 1992 to head the Steak n Shake Co. as president and CEO. He has been chair of the board since 2004 and is happy to be back in the Hoosier Heartland. “We came full circle,” Gilman notes. “Having lived in Texas and New York and California was like living in three different countries.”

Although his career took him away from Indiana for many years, Gilman’s participation in university life only continued to expand. In 1973, the business school named him to its Academy of Alumni Fellows, an elite group of business leaders including such luminaries as Sen. Evan Bayh, D-Ind., and the school’s namesake, Steak n Shake founder E.W. Kelley. Gilman was a founding member of the Dean’s Advisory Council for the business school and was chair of that group for 10 years. In 1976, he was named a director of the Indiana University Foundation, and he now holds a life membership to that body.

In 1989 Gilman became a founding member of the College of Arts and Sciences Dean’s Advisory Board. The College’s current dean, Kumble R. Subbaswamy, says Gilman is an outstanding example of how liberal arts training can provide the foundation for success in other fields, like business. “Alan Gilman is a great asset to the College and IU overall,” says Subbaswamy. “I particularly appreciate his unvarnished criticisms and advice in advancing the College.” The dean also notes that Gilman’s service in multiple capacities across the university is a further strength. “In this way he deftly cross-pollinates good ideas across their boundaries,” he says.

After more than 50 years of giving back to IU, Gilman is as committed now as the day he graduated. And whether “giving back where he can” means sitting on several of the university’s most influential committees or cheering along with thousands of other fans at a football game, he rarely misses an opportunity to support his alma mater.
John Cameron could have been the last director of the Indiana University Cyclotron Facility, the person who mothballed the 65-year-old physics research center. Instead, he broadened its mission, launching the Midwest Proton Radiotherapy Institute and the Low Energy Neutron Scattering program — and put it on solid footing for the future. “It will be there for a while,” he says.

For those accomplishments and others in 18 years at IU, the professor emeritus of physics was selected to receive the College of Arts and Sciences 2005 Distinguished Faculty Award.

Physics professor Jim Musser, who nominated him, said Cameron’s leadership not only kept the cyclotron facility open but helped establish it as a research leader.

“Ten years ago, it was not clear that there would be any future for the IUCF … let alone the expansion it has seen during this period,” Musser wrote. “The fact that the IUCF not only survives but thrives is due almost entirely to the vision and energy that John has provided as director.”

Cameron grew up in a rural area in the northeastern corner of Northern Ireland — “within sniffing distance,” he says, “of the Old Bushmills distillery.” In secondary school, he wanted to study forestry. But a forestry scholarship wasn’t available the year he finished school, so he pursued physics instead. He earned his bachelor’s degree from Queen’s University in Northern Ireland and worked at a nuclear facility in England. Then, because “the weather in Ireland is not the world’s best,” he and his wife decided to move somewhere sunny for graduate school. They chose California, and he received his PhD from UCLA in 1967.

Cameron joined the faculty at the University of Alberta, directed its Nuclear Research Centre, and did a stint with the French nuclear commission before being recruited to IU in 1987 to direct the cyclotron facility. At the time, the facility was beginning operation of its Cooler Synchrotron, which increased the power and velocity of its proton beams. But it soon became obvious that federal funding for nuclear physics would go to a few large, expensive facilities — and IUCF wasn’t one of them.

So Cameron began creating what Musser called “the new IUCF,” supported by expanded nuclear physics research, proton therapy, and the LENS project. He put on a suit and went to the Indiana Statehouse, button-holing cautious legislators and persuading them to spend $10 million on a promising but little-known approach to treating cancer. The Midwest Proton Radiotherapy Institute, which treated its first patient in February 2004, uses powerful, precise beams of protons to treat tumors without damaging surrounding tissues.

Also, working with Indiana physicists Mike Snow and David Baxter, he secured funding for IUCF’s Low Energy Neutron Source. With an approach called neutron scattering, it uses slow-moving neutrons to reveal the internal structure of objects ranging from molecules to large industrial products. LENS will link IU with industry and train scientists to work at the U.S. Energy Department’s $2 billion Spallation Neutron Source in Tennessee.

Cameron deflects credit for the changes at IUCF, insisting it should go to the smart and dedicated staff and that the Distinguished Faculty Award should be a team award. “I was the baton twirler at the front of the band,” he says. But he hasn’t stopped marching, although he stepped down as cyclotron director in 2004, retired from IU in July 2005, and turned 65 in August. “I’m now officially old, Medicare and all,” he says. He is president of two new companies: PartTec Ltd., which seeks to transform discoveries into commercial products and services; and ProCure, which is exploring the market for proton therapy.

Cameron and his wife, Cathleen — who recently received an IU PhD in comparative literature — like to travel, and he is an accomplished photographer. His framed photographs hang on his office walls near portraits of his son and daughter and his two young grandchildren.

“With these two businesses, I’m as busy now as I ever was,” Cameron said, before flying to New York for an investor meeting and to Brussels to confer with vendors. “I don’t think I’m really going to retire for another five years.”

Steve Hinnefeld, BA’71, is an education reporter for the Bloomington Herald-Times. For more information on the IU Cyclotron Facility, go to www.iucf.indiana.edu.
Hoosier Humanitarian Feeds the World

Head of the World Food Programme since 2002, Distinguished Alumni Award winner James Morris leads efforts to provide food to 852 million hungry and malnourished people.

by Keith Roach

In 2003, an army of 9,000 vehicles entered Iraq from bases in Kuwait, Saudi Arabia, Turkey, and other neighboring nations. The army had one mission: to feed Iraq’s entire population.

Jim Morris, BA’65, commanded this humanitarian army. As executive director of the United Nations’ World Food Programme, the world’s largest food aid organization and the leader in the fight against hunger, Morris guided WFP staff and volunteers in providing food to nearly 27 million Iraqis after the United States-led invasion of Iraq. It was the largest food aid operation in history.

Morris’s job is to make sure that operations like this one run smoothly, whether the WFP is responding to emergency situations, including wars and natural disasters, or ongoing crises in North Korea, sub-Saharan Africa, or elsewhere. In 2004, the World Food Programme operated in 80 countries and distributed food to 113 million of the estimated 852 million people worldwide who suffer from hunger and malnutrition.

“The issues and problems are overwhelming, but we do more every day,” says Morris, who, in addition to heading the WFP, serves as U.N. Secretary-General Kofi Annan’s Special Envoy for Humanitarian Needs in Southern Africa. “We work more places, we have more people helping us. We make things a little better. I don’t know how you fill up the bucket other than to do it a drop at a time.”

Partnership by partnership, drop by drop, Morris has worked with world leaders, private companies, and approximately 2,000 non-governmental organizations to gather additional resources for the war against hunger. Under his leadership, the WFP has targeted issues related to hunger, such as the HIV/AIDS pandemic and the overworking and underfeeding of women.

Morris’s top priority, however, is feeding the world’s children. Eliminating hunger among children, he believes, is a step toward addressing other world problems, from the spread of disease to the lack of universal education. One WFP program feeds bodies and young, growing minds by providing food to children who attend school. “For a very small investment early in a child’s life,” Morris explains, “everything changes for the better.”

Morris’s humanitarianism has its roots in his education and in a career that spans public service, philanthropy, and business. Beginning at IU, Morris has been influenced by a “who’s who” of Hoosiers and Indiana organizations.

A native of Terre Haute, Ind., Morris studied political science at IU Bloomington and was active in student government. Grateful for the quality and worldliness of his education, he admired former IU President and Chancellor Herman B Wells’s dedication to IU and commitment to young people — a commitment shared by U.S. Sen. Richard Lugar.

When Lugar was mayor of Indianapolis, Morris served the city from 1968 to 1973, primarily as Lugar’s chief of staff. He developed education and employment programs for the city’s youth and, under Lugar’s Unigov plan, lobbied for legislation that consolidated the city and county governments. In the evenings, he completed an MBA at Butler University.

From 1973 to 1989, Morris worked for the Lilly Endowment, one of the world’s largest charitable foundations. He served as the endowment’s president for six years, helping to revitalize downtown Indianapolis, strengthen IUPUI, and involve private companies in public initiatives. In 1989, he became chair and CEO of IWC Resources Corp. and Indianapolis Water Co. Throughout his career, he has lent his expertise to the American Red Cross, Butler University, the U.S. Olympic Committee, and several other not-for-profit and educational organizations.

After years of supporting IU as a professional, alumnus, and parent — Morris and his wife, Jacqueline (Harrell), BS’65, sent three children to IU — he was elected to two terms on the IU board of trustees, beginning in 1996. He served as president of the board in 2001–02 before joining the WFP.

Although he regretted leaving Indiana and IU, Morris eagerly accepted the responsibilities and challenges of the executive directorship, which he calls “the greatest gift of my life.”

“Your life takes on meaning only in terms of your relationships with other people,” Morris says. “I think you never feel so good about yourself as when you’re doing something for someone else. And when you help someone else, you always get more out of it than you put into it.”

Keith Roach, BA’02, is a writer/editor for IU’s Office of Creative Services. For more information about the World Food Programme, visit www.wfp.org.
From Kirkwood to Hollywood

by Emily Williams

Improvisation, both on stage and off, has taken Nicole Parker a long way. And either place, the College’s first Outstanding Young Alumni Award winner is just as funny as you’d think.

These days, Nicole Parker, BA’00, is a bona fide celebrity. With roles on a popular television show and in an upcoming New York City play with Martin Short, she’s nearing the top of Hollywood’s ladder of success. But before she joined Mad TV, before she co-founded Waterwell Productions, before she performed with Boom Chicago … there was Ben and Jerry’s.

That small, cow-covered ice cream shop on Kirkwood Avenue was a regular venue for some of Parker’s first improv comedy performances with the IU group Full Frontal Comedy. “Those were so much fun. We always packed that little place,” she remembers. “The only bad thing was the backstage area was the ice cream freezer. So that’s pretty much all we ate for the whole entire evening, once a week. Which is not the best thing in the world. I mean it is … but it isn’t.”

Aside from the Cherry Garcia, Parker was initially attracted to IU for its strong reputation in theater and voice — both imperative for the acting career she had been planning “since about age 7.” But raised in a suburb of Los Angeles, she also wanted to experience life outside of the city that most aspiring actors flock toward. That’s why it was Bloomington’s small-town flavor that ultimately won her over. “I loved it the second I got there,” she says. “Even going to the admissions office was like going to your grandma’s house. I expected them to bring out cookies for me!” When she was offered a small scholarship, no other school could compare.

Parker joined Full Frontal Comedy her freshman year, but not as a career move. “I’d been doing a lot of musical theater and thought I’d just go straight to New York,” she explains. “The Full Frontal Comedy improv thing had always been a hobby. I never thought it would really be my job.” While cleaning out her apartment the summer after graduation, though, Parker learned that a well-respected Amsterdam improv group, Boom Chicago, was holding auditions in Chicago two days later. Convincing a friend to drive her there, she skipped her flight home and phoned every acquaintance in town to find a place to stay. “I’m glad I didn’t know much about the theater or the job when I was auditioning,” she admits, “because I would have been so much more nervous.” The impulsive trip paid off, and by October Parker was living in Amsterdam.

After two-and-a-half years with Boom Chicago, Parker moved to New York in 2003. She planned to finally start that career in musical theater, and she co-founded Waterwell Productions along with several friends from IU. These plans were soon trumped once again, though, when just three years out of college Parker was offered the holy grail of improv comedy — a place on the Fox network’s popular sketch comedy show Mad TV.

Now in her third season on the show, Parker has played a variety of characters, frequently employing her voice training to do impressions of celebrities like Ellen DeGeneres, Jessica Simpson, and Alanis Morissette. While fans rarely recognize her because of all the costumes, wigs, and make-up she wears on the show, Parker has encountered other side effects of celebrity. Her first season on Mad TV, someone found the silly and obviously fictitious biographies posted on the Full Frontal Comedy Web site when she was in college. This caused what she calls “a scandal” in an online chat room devoted to Mad TV — and apparently populated by overly credulous people with too much time on their hands. Parker laughs, “It almost makes you want to type in, ‘Guys, guys, calm down!’ But you don’t even want to admit that you’re looking. … They were also convinced that I was the voice on some animated Teenage Mutant Ninja Turtle movie.”

Although she hasn’t actually debuted on the silver screen yet, Parker hints she is auditioning for roles, as well as planning future collaborations with her friends back at Waterwell Productions. In the meantime, she is a very visible role model for IU students pondering a career in the daunting world of acting. All they need to do is turn on the TV Saturday nights to see for themselves just how quickly a career can vault from Kirkwood to Hollywood.
When Carlos Miller isolated the plant hormone kinetin more than 50 years ago, the media went wild.

“Eternal Growth Hormone Discovered!” “Native Discovers Cure for Cancer!” Miller doesn’t remember the exact wording of the newspaper headlines, but he won’t soon forget their impact.

“None of it was true, but people got very excited about it,” Miller said from his office at Indiana University’s Myers Hall.

Carlos Miller came to IU as a professor of botany in 1957 and taught until 1987, when he became a professor emeritus. The switch didn’t make a dent in his research efforts. “I still come in seven days a week,” he says. “Once you make a discovery, it’s obvious there are certain things you have to look at additionally. Then you look at those and you find out there are a dozen more you have to look at. … As you understand more, it becomes more complex.”

The truth about Carlos Miller’s isolation of the plant hormone kinetin goes something like this: It was Dec. 16, 1954, and Miller was at work in the laboratory at the University of Wisconsin in Madison. At the time, he was a postdoctoral student working under Professor Folke Skoog, whose laboratory had spent years trying to isolate a substance to permit and promote plant cell division. This particular evening, Miller looked through his microscope and saw something that made him gasp.

“I’d been trying in various ways to isolate kinetin. When you’re identifying small amounts of unknown chemicals, one of the things you try to do is to get it into crystalline form because it’s pure,” he explains. “I got it that night.”

The next morning, Miller told Skoog of his discovery. “He said ‘Yeah, yeah, yeah,’” says Miller, demonstrating a dismissive hand wave. “Then, about four hours later, he came over to me and said ‘Carlos, did you really mean that?’ I said, ‘This has got to be it. It has all the chemical and physical properties that I’ve associated with biological activity over the past three years.’”

So confident was he in his discovery, Miller set up another experiment and returned to Jackson, Ohio, for Christmas. When he shared the big news with his parents, “They didn’t understand it. They thought I was working on curing cancer,” he says, explaining that his studies were being funded by the American Cancer Society (a contributing factor to the media’s confusion over the meaning of his discovery).

Botany wasn’t Miller’s initial career choice. After serving in the army during World War II, Miller entered Ohio State University as an electrical engineering student. “I didn’t really like the impersonal attitudes of the professors,” he says. “Of course, they were so busy. Suddenly the school population [exploded after the war] and a lot of students wanted to be in engineering. One day I just decided, ‘I’m not going to do this.’”

Some agriculture books Miller had read during his army service made an indelible impression that altered the course of his career. One was by Luther Burbank, who created several new varieties of flowers and vegetables. Later, he was attracted by Louis Bromfield’s writings about Malabar Farm and how to make farms more efficient in food production. Miller eventually earned his PhD in plant physiology at Ohio State; his thesis topic dealt with how light controlled the growth and development of plants, especially in leaf growth and flowering.

After his postdoctoral work at Wisconsin, Miller chose to teach at IU, partly because the climate and foliage in Indiana were similar to what he grew up with. In his highly visible greenhouse on Third Street, Miller continues his experiments.

The plant he’s currently researching, Lindenbergia muraria, looked like a weed when it appeared in his greenhouse. Miller let it grow to see what would happen — and the plant has been the focus of his research for the past eight years. “I found out a lot about it, but still not enough to say that I’ve made any real...
breakthrough with it,” he says. “I have discovered a compound which promotes its flowering in a rather unusual way. What I’m trying to figure out right now is how that compound interacts with the environmental factors and promotes flowering.”

For the majority of his 48 years at IU, Miller has worked on cytokinin-related substances. Cytokinesis refers to the process that causes cells to partition into new cells, allowing plant growth in vitro; kinetin, which may promote this process, was the first highly active member of the cytokinin class of plant hormones to be discovered.

Three times, Miller grew an entire field of corn and extracted the grains using gallons of alcohol to get one or two milligrams of zeatin, the first example of a naturally occurring adenine-based cytokinin. (Zeatin and other cytokinins promote plant regeneration and cell division, delay senescence, promote outgrowth of lateral branches, influence various chemical reactions in plants, and have helped to make genetic engineering of plants more feasible.) Twice, his tiny samples were accidentally destroyed. David Letham, who was aware of Miller’s work, finished establishing the chemical structure of zeatin. Miller has no hard feelings about any of it. “We published an article about it together,” he says. “That’s just the way it happens sometimes.”

Recently, Miller worked on a project with Charles Heiser, an emeritus professor of biology at IU. Heiser had created a hybrid naranjilla, or “little orange,” using two species that natives in Ecuador collect in the wild and use for breakfast juice. In the process, Heiser turned the green flesh of the fruit to orange. Miller’s role was to figure out how to make the plant fertile enough to produce a viable seed. “At first, natives rejected it because they didn’t want orange juice for breakfast!” says Miller. “They were used to green.” Now, the hybrid is accepted and very appreciated.

Miller had planned to leave money in his will to establish a chair for the botany department, but then decided he wanted to see the gift in action. In 1999, he established the Carlos O. Miller Chair in Plant Growth and Development to help strengthen the university’s efforts to build a group with research emphasis on the biochemistry of plant growth and development. The chair is currently held by Mark Estelle.

In his spare time, Miller tends to a small garden at his home in Bell Trace Retirement Community and sometimes reads science fiction books. The author of a biology textbook that’s being updated online has asked permission to include a recent article about Miller’s kinetin discovery.

“When I was younger, I was struck by how many ‘old people’ we had hanging around the department,” he says. Now that he has become one of those people, Miller understands the importance of keeping one’s mind active. His passion for discovery hasn’t diminished with age, and he plans to continue working until his last breath.

“I’ll be handy if I die right here,” he says, gesturing to his lab. “Not right now,” he adds with a laugh. “Not yet.”

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**Life Under a Microscope**

*by Jennifer Piurek*

**John Preer** came to Indiana University for graduate studies in zoology in 1939 with a mentor in mind. He planned to work with Alfred Kinsey, who was still known as a taxonomist studying gall wasps.

“When I got here, I found out he wasn’t interested in taxonomy anymore, he was doing sex,” chuckles Preer, now a Distinguished Professor Emeritus of biology. Preer enjoyed Kinsey’s classes — especially the evolution class in which he met his wife and future research partner, Louise — but it was during a course with the dynamic geneticist Tracy Sonneborn that Preer found his calling.

“He was an excellent teacher,” Preer says of Sonneborn. “He was working on symbions that live within paramecium, and I began working on them too.” (A symbion is a genus of certain animals with a single species known as S. Pandora; a paramecium is a free-living, unicellular animal.)

During his graduate studies, Preer was called away to serve in World War II. He returned to IU to complete his PhD in 1947, after which he taught at the University of Pennsylvania for 20 years. While he was on sabbatical in Scotland, IU lured him back to work with Sonneborn in 1968.

Through Preer’s work with Sonneborn, IU became acknowledged as a center for work on the genetics of protozoa. Sonneborn’s work with paramecium aurelia first allowed crossbreeding to be done in a unicellular organism. The two expanded that research to include numerous species, and Preer was able to isolate and study a large number of genetic mutants, opening the door for study of a variety of other genetic processes.

Preer said his work provides a greater understanding of organelles (small structures that live within cells) and how they became entangled in the genetic machinery of the cell. “There were attempts to explain cancer in that way,” Preer says of the real-world applications of his studies. “In fact, there may be some cancers caused by viruses that live within the cell, so it has a sort of indirect application.”

In 1976, Preer was elected to membership in the National Academy of Sciences and was named a Distinguished Professor of biology. In 1985, he developed a method of introducing genes into paramecium that has accelerated the rate at which molecular questions can be studied. Preer was recently asked to take over revisions on a classic book on paramecium by Geoffrey Beale, who wrote the original book in the 1940s. Currently, John and Louise Preer spend five mornings a week at their office on campus looking for new symbions, a process he describes as “looking for a flea within a flea on a flea.”

When he retired in 1987, Preer opted to continue his research, “right up until this summer, when I really retired,” he says. Really? “Well, I’m still working.” I’ll always work.”
The more Diego Merino read, the more frustrated he became. Many of Merino’s courses at Indiana University dealt with social inequalities in the United States, and as he learned more — particularly about the educational advantages systematically denied to children in low-income communities — he felt an increasing sense of responsibility to do something about it.

“I had an epiphany at the beginning of my senior year,” says Merino, BA’02, BM’02. “I was taking a class about the ethics of giving and philanthropy, and I realized I felt a moral obligation to work toward a society I believed in.”

He found the perfect opportunity through Teach For America, a national corps of recent college graduates who spend two years teaching in a low-income community after an intensive summer training session. Now heading toward its 16th year of existence, the organization has seen some major ups and downs. After more than 10 successful years of steady progress, it briefly lost government funding in 2002 before being reinstated as part of the AmeriCorps national volunteer service program. Today, Teach For America boasts an alumni corps of 10,000 who have affected the lives of more than 2 million students. From an initial teaching pool of 500 teachers at six schools, there are now more than 3,500 corps members teaching in more than 1,000 schools in 22 regions across the country.

Teach For America at IU

A large number of students from the College of Arts and Sciences gain entry into Teach For America each year. The program has become increasingly competitive: More than 17,000 students apply annually, many of them from prestigious universities, including Yale, Spelman College, Dartmouth, Amherst College, Princeton, and Harvard.

In 2005, 36 of the 147 IU students — about 25 percent — who applied to Teach For America were accepted, a rate much higher than the national average of 15 percent. Of the 36 accepted, 32 were students in the College of Arts and Sciences, from disciplines including criminal justice, Spanish, gender studies, and chemistry. Three of the students were also participants in the Liberal Arts and Management Program, an interdisciplinary program offered by the College in cooperation with the Kelley School of Business.

“What I find so energizing is the excitement these students have. They have a wonderful sense of purpose,” says Caroline Dowd-Higgins, senior assistant director of the Career Development Center at the College. “One thing I took on as a personal goal was to help support IU alums [who are participating in Teach For America].” Dowd-Higgins helps facilitate the organization’s on-campus recruitment efforts — and with campus recruiters and student volunteers, she organizes book and materials drives for Teach For America participants from IU who are stationed at schools with limited budgets and supplies. “It makes people feel like they have resources back at their alma mater. There is a support network for them here in Bloomington.”

College graduates choose their destiny through Teach For America.

by Jennifer Piurek
'Destiny is not a matter of chance'

Like Diego Merino, Princeton senior Wendy Kopp was frustrated by educational inequities in the United States when, in 1989, she typed up the senior thesis that became the framework for Teach For America. With a seed grant from Mobil Corp., her thesis project became a reality, and Kopp started a grassroots recruitment campaign on university campuses across the nation. In 1990, the unorthodox campaign paid off. Of the 2,500 students who had applied to the program, a charter group of 500 were selected. The group underwent a five-week training session and then fanned out to the program’s first six participating communities: rural Georgia, Los Angeles, New Orleans, New York City, eastern North Carolina, and South Louisiana.

Jason Kloth, Teach For America’s north-central recruitment director, visits Bloomington monthly to promote the program on campus. (He also organizes recruitment efforts at Carleton College and the University of Minnesota.) During his term of service in Teach For America, Kloth taught sixth-grade language arts at Edcouch-Elsa Sixth-Grade Middle School in the Rio Grande Valley, which spans much of the border between Texas and Mexico. The ethnic makeup of the school at which he taught was 95 percent Hispanic.

Despite his youthful appearance and lack of formal education training, the other teachers at his school were welcoming and helpful to Kloth and the other three Teach For America teachers at the school. “I showed up earlier and I left later. I volunteered to be a part of every single thing that happened at the school. It was very clear that I was committed to doing a good job,” says Kloth, who calls Teach For America “our generation’s civil rights movement.”

At an October informational meeting at Ballantine Hall in Bloomington, Kloth showed a video about Teach For America, shared the story of his own experience with the program, and fielded questions from the packed room. The majority of questions were general: When is the application deadline? (There are two: Oct. 30 and Feb. 17.) How long is the summer training session? (Six weeks.) Can you choose the grade level you teach? (Sort of — if you want to teach first grade, you’re not going to get ninth, but you may get third or fourth.) Is there any point or advantage to applying early, during junior year? (No. You must receive your degree before becoming a Teach For America teacher, so applications are accepted during your senior year of college.) What’s the goal of this program?

“In the short run, we’re asking corps members to go into the classroom and throw themselves into being the best teachers they can be,” Kloth told the mostly female class of about 70 students. “Then we release them into the world and they take the experience with them into whatever field they choose, wherever they go.”

A dark-haired girl piped up from the back of the room. “So, the Teach For America teachers do this and then you ‘release them into the world’ or whatever — what else do they do? Is that it?” Kloth didn’t miss a beat. He reeled off a list of high-achieving alumni: Jason Kamras, who was named the National Teacher of the Year this year; Dave Levin and Mike Feinberg, who began the Knowledge Is Power Program, a nationally successful charter school movement that employs TFA alumni; and Michael Wang, the former education policy adviser to the Louisiana lieutenant governor.

After the presentation — only the third such presentation Kloth has given since he became a recruiter — he laughed about the skeptical questioner. “Yeah, what was with that?” he said. “But I lived this, and it’s what I know is true. Actually having a short-term impact — doing something about the things you’re frustrated or ‘comfortably outraged’ by — it was just life-altering for me.”

Though he was assigned to teach sixth grade, many of Kloth’s students entered his class reading at a third- or fourth-grade level. Bringing his class up to required reading levels was tough — some of his students were migrant workers who were pulled out of school for days at a time to work in the fields with their families. Kloth says that when he asked one young woman why she hadn’t turned in her homework, she said it was because she’d gotten home from school late and when it got dark, there was no light in her house by which to study.

So Kloth created an oasis in his classroom, a place where students could be comfortable and enjoy the learning process. When it was time for writing exercises, he closed the blinds, shut off the neon overhead lights, and clicked on the Christmas lights and floor lamps that dotted the room. Then he cued up the Miles Davis music on his computer. “I wanted them to feel like they were writers, because they were writers.” To illustrate the purpose of their education, Kloth had his class fill out applications to the University of Texas at Austin and determined whether they would get in based on their essays and their GPA in his class.

Then there was the classroom mantra, Kloth’s favorite quote, from the late U.S. congressman William Jennings Bryan: “Destiny is not a matter of chance, it is a matter of choice. It is not a thing to be waited for, it is a thing to be achieved.”

“We recited it, we took ownership of it, we picked it apart,” Kloth says of the quote. “I wanted my students to know they were in charge of their own destinies in life. I felt an incredible amount of personal responsibility for all aspects of their learning.”

Until he saw a Teach For America presentation as an undergraduate at the University of Illinois at Urbana-Champaign, Kloth had never considered becoming a teacher. In fact, less than 1 percent of Teach For America teachers are education majors; the program seeks students from all disciplines with excellent critical thinking skills and the ability to motivate others.

Brittany Terwilliger, an IU senior majoring in communication and culture, is one of three Bloomington campus coordinators for Teach For America. Terwilliger works closely with Kloth and two other campus coordinators, Zach Cassady and Sarah Lackman, to recruit IU students for the program. The first time she heard of Teach For America, Terwilliger says, is when she saw the campus coordinator job posted and went to the

“Destiny is not a matter of chance, it is a matter of choice. It is not a thing to be waited for, it is a thing to be achieved.”

– William Jennings Bryan
The College/Winter 2006

Web to learn more. “It’s such a big campus, [Teach For America] hasn’t been as visible here at certain times. My job is to make sure everyone at least knows what it is.” Terwilliger plans to create a campus group that meets monthly to help with fliers, planning presentations, and fund drives for Teach For America participants in need of supplies. “People are out there teaching, and their school doesn’t have a library or they don’t have pencils.” When she graduates from IU in August, Terwilliger is considering applying to become a Teach For America teacher herself.

‘The benefits definitely outweigh the struggles’

While she worked toward an undergraduate history degree at the University of Austin, IU graduate student Erin Snell also served as an AmeriCorps volunteer, tutoring kindergarteners who were learning to read. Snell was so inspired by the experience, she applied for Teach For America. After graduating from college in 2000, she moved to a rural North Carolina town with a population of about 3,000 to teach at Terrell Lane Middle School.

Though Snell says the five-week training left her as prepared as — or more prepared than — other new teachers at her school, the adjustment period was rough. “Although teaching is extremely rewarding, it is definitely the hardest thing I have ever done in my entire life. It’s so frustrating to work so hard at something and still feel like you are not very good at it,” she says of her first-semester difficulties.

Snell struggled to find her style of teaching, ultimately realizing that she didn’t have to slam doors to gain respect. “I learned that I could be my normal self — a little different version of my normal self — but you can still be kind, and you can still do all the things you’re used to doing, and still be firm and consistent and have your rules and procedures that the kids know to follow.”

Another challenge for Snell: Some of her classes contained both students labeled as having “learning disabilities” and students labeled as “gifted and talented.” Most days, she was at the school from 7 a.m. until 8 p.m. “I was teaching sixth-grade [science and social studies], and some of the students were at a second-grade reading level. Thinking about lesson planning and a curriculum for a class at so many different reading levels is complicated.”

Snell found support from Joyce Hartsfield, the “wonderful, amazing woman” who taught next door to her, and she called her program director frequently for advice and support. “We don’t just put people at their schools and say ‘goodbye,’” says Kloth. “There’s ongoing support. Everyone is assigned a program director who will come into your classroom and give you comments. You’re assigned a mentor, and there are other resources, like learning teams and professional learning communities.”

Despite some of the community’s economic disadvantages, Snell was able to remain humble and keep her contribution in perspective. “It’s important to go into it knowing that you’re going to learn more than you’re going to give. Some people have that attitude ‘I’ll go be a savior for the community.’ These communities don’t need to be ‘saved.’ The systems need to be changed, but the communities have their own gifts and strengths.”

Seeing her students learn and watching their work steadily improve was incredibly motivating for Snell. While some students were vocal in telling her what a great teacher they thought she was, others left her wondering if she’d done her job.

Snell tells the story of a student she felt she’d let down, a Vietnamese refugee who spoke very little English. “After teaching her, I felt like I hadn’t served her well enough. I was struggling with effectively meeting the needs of students who were learning to speak English.” Recently, Snell was talking in one of her education classes at IU about how she felt she hadn’t done a good enough job for that student. “Literally the next day, I got an e-mail from her from in North Carolina, thanking me for the impact I had on her life.”

When her two years were up, Snell opted to remain at the school for a third year of teaching and to act as site coordinator for an after-school tutoring and mentoring program. She also became a mentor for a new crop of Teach For America participants. For the past three years, Snell has worked at the summer training institute in Houston to help train new
recruits. “Every year, the organization continues to develop and gets better and better. The benefits of teaching definitely outweigh the struggles.”

Snell is currently a graduate student at IU, simultaneously pursuing a master’s degree in SPEA and working toward a PhD in education policy. She hopes to one day find in SPEA and working toward a PhD in education policy. She hopes to one day find in SPEA and working toward a PhD in education policy. She hopes to one day find

“Making a difference

At Pickard Elementary in Chicago, Diego Merino didn’t suffer some of the difficulties other Teach For America participants encounter — his school had enough money for supplies, and student fights didn’t break out as frequently as at some other schools — but his first year was tough. Quitting was never an option. He knew he was at the school because no one else could be. If he failed, he would work through it.

Merino had a self-contained classroom, where he taught math, reading, social studies, and writing. “I’d never really felt like I’d had a challenge before, something that would direct my capabilities. In the second year I did feel really successful and had several measures that said I was.”

Merino’s classroom became a frontier for social awareness and community involvement. He and his students won the “Best Research” award for their efforts in Project Citizen, a civics and public-policy project sponsored by the Constitutional Rights Foundation of Chicago. For their chosen issue, teen pregnancy, the students conducted an anonymous poll at their school to evaluate their sex-education program; researched the health and economic risks associated with teen pregnancy; analyzed sex-education programs throughout the country; and created their own sex education policy before presenting their findings to a panel of judges at the federal courthouse.

Merino also helped run the Mini Recycling Museum, at which students showcased their knowledge of the consequences of littering and the benefits of reusing, reducing, and recycling waste. In addition to what they learned about topics including landfills, waste disposal, paper, plastic, glass, metal, yard waste, decomposition, and the creative reuse of various materials, the students practiced their interpersonal skills at the museum’s unveiling, working on confident eye contact, firm handshakes, and clear speaking voices.

After Teach For America, Merino worked for a nonprofit organization in Mexico before moving to New York to serve as dean of students at the charter school Harlem Village Academy, which has a 100 percent black and Latino population. Merino works with parents and children to gently enforce “preventative discipline.” For the first time, the school this year welcomed two new Teach For America corps members.

“The feeling I had when I went into Teach For America of having an obligation to do something has only grown,” says Merino. “I always know I’m going to be working for social justice in one way or another.”

Jennifer Piurek, MA’01, is a freelance writer based in Bloomington. She served with AmeriCorps Volunteers in Service to America.

ABOUT TEACH FOR AMERICA

- Students taught by corps members perform better in math than is typically expected and about the same in reading as those taught by other teachers. (Source: Mathematica Policy Research, June 2005.)

- The vast majority of principals rate corps members as good or excellent in areas that are critical to teaching success, such as assuming responsibility for student achievement (92 percent) and achievement orientation and drive to succeed (94 percent). (Source: Kane, Parsons & Associates, June 2005.)

- Nearly one-third of all Teach For America corps members secured grants or other resources to compensate for the financial limitations of the schools in which they teach. (Source: Teach For America 2003–2004 Corps Member Year-End Report)

- Dedicated to making an impact beyond their classrooms, more than 40 percent of corps members sit on department or school leadership committees or lead extracurricular activities at their school. (Source: Teach For America 2003–2004 Corps Member Year-End Report)

- After two years in the classroom, more than 60 percent of Teach For America alumni remain in education as teachers, principals, school founders, and policy advisers. Others have gone on to work in a variety of fields, such as law, medicine, business, and social work.

- Businesses actively seek out corps members — more than 50 graduate programs offer two-year deferrals to those committed to the corps.

For more information, see www.teachforamerica.org.
Ludwig van Beethoven wrote what every schoolchild recognizes as the theme song for fate knocking at the door — the ominous da-da-da-dum that opens his fifth symphony, as anxious and anticipatory a four-note sequence as has ever been played.

The number of schoolchildren (or adults, for that matter) these days who recognize anything else Beethoven wrote is so small as to add up to, if not fate knocking at the door, at least very serious trouble for classical music.

The problems that bedevil the industry are grave: Major symphony orchestras are hogtied by debt; costs are rising; the audiences are aging and thinning out. Record stores aren’t selling classical music; music magazines aren’t covering it; and kids sure aren’t illegally downloading it onto their MP3s.

It’s hard anymore to imagine a time when the composer and pianist Franz Liszt was a sex god on the order of Mick Jagger, when a performance of the newest work by Stravinsky, like a soccer match in Manchester, could lead to a donnybrook.

Hertz chats with students before class, and his teaching style is so informal it’s a little hard to tell exactly when his lecture begins as he shifts from answering a student’s question about the upcoming midterm to musing on the value of Maynard Solomon’s biography of Beethoven, one of the required texts for the class, then heads to the piano, talking all the while, to play a few bars to illustrate a point.

Hertz, a professor of comparative literature, took his inspiration for the class from the music festival Leon Botstein founded in 1990 at Bard College. At the Bard Festival, two summer weekends are devoted to concerts and lectures, symposia, and panels on the life and work of a single
Samira Naderpoor saw those opening bars.

fifth symphony in art class. Here’s how fourth-grader Da-da-da— in Bloomington created their impressions of Beethoven’s “I hope we’ll get people to really deeply of Beethoven sonatas or string quartets assign attendance at a live performance guest performances, Hertz can routinely the faculty , and even more visiting to give pus each year, world-class musicians on Council on the Humanities in 2003.

student at Indiana he took chamber music Juilliard while in high school, and as a composer Bernhard Heiden. He attended Abbey Simon, and Marion Hall, and the ers, among them pianists Sydney Foster, — and with the music school at hand, working it into the curriculum is like shooting fish in a barrel.

Although he completed his doctorate in comparative literature, Hertz also studied with a number of legendary music teachers, among them pianists Sydney Foster, Abbey Simon, and Marion Hall, and the composer Bernhard Heiden. He attended Juilliard while in high school, and as a student at Indiana he took chamber music classes with Menachem Pressler. Largely because of his interdisciplinary background, Hertz was appointed to the NEH Council on the Humanities in 2003.

With hundreds of musical events on campus each year, world-class musicians on the faculty, and even more visiting to give guest performances, Hertz can routinely assign attendance at a live performance of Beethoven sonatas or string quartets as homework, extending the festival spirit through an entire semester.

“I hope we’ll get people to really deeply

love concert-going,” he says, adding that it will never be easier to get in the habit than “here in Bloomington, Indiana, where it’s free and they can just walk to a concert.”

Hertz also wanted the class to have time to explore the “mystery about one great personality. Just getting close to the story of his life — using the best available life — is important.”

Beethoven, he says, is a natural for this sort of treatment. His life was rich in drama, from the political upheavals associated with the Napoleonic wars to his personal struggle with deafness — the most grievous affliction imaginable for a great musician. Shock-headed, demon-ridden, irascible, he has become the archetype of musical genius, so emulated and caricatured it is hard to recover the sense of how revolutionary he was, if you just hear snippets of his symphonies on public radio or on commercials.

Paradoxically, by devoting so much time to history, the class is able to hear that radicalism more directly, cutting through the interference of centuries. In a remarkable riff on the Sonata No. 23 in F Minor (the Appassionata), Hertz weaves together an analysis of its musical structure, the history of his own changing responses to the piece, reflections on Beethoven’s political sympathies, and illustrations of all the experiments and innovations Beethoven is trying out in the “laboratory,” as Hertz calls it, of the sonata.

As he sits at the piano, playing and talking, it is possible to hear, out of very familiar strains, something new and previously unheard emerge. Class member Aaron Wältke, a senior majoring in telecommunications, responds strongly to this element in Beethoven’s work. “I tend to be drawn toward the avant-garde, or experimental and historical significance, be it in the 15th century or the 21st,” he says.

Since he’s been in the class, Wältke says, “I’ve been able to pick up on and admire nuances of form and style of other composers — baroque, classical, romantic, or modern (or post-modern), even pop and rock — that I might never have been aware of otherwise.”

“The barrier between classical and popular culture is not as rigid as people think,” says Hertz.

If the Bard Festival was Hertz’s inspiration, his motivation for developing the course was what he sees as a crisis facing the arts and humanities — a crisis that runs deeper even than the troubles facing classical music, affecting literature and all the arts.

Ultimately, Hertz’s project is much bigger than this class, or classes like it (he has also taught Debussy and His Era and would like to tackle one of the Italians next). He hopes that other people like him, humanities professors at universities around the country, will look around them to see what special resources they have access to — and then use them, while they can, to help open up the arts to the young.

Universities — especially places like IU, with its renowned music school — have already become good at training artists. Hertz notes that to that end, IU was one of the first places to give tenured professorships to virtuosi — great musicians, such as the cellist Janos Starker, who became great teachers.

“But universities have to do more,” Hertz says. To truly support music, literature, and the other arts, universities need to produce not only the artists of the future, but also their audiences and supporters.

They also need to take care not to alienate. Hertz is sharply critical of excesses of academic jargon and turgid writing. Abstruse language, he says, can scare people away from the great things in the humanities. “If someone writes a difficult thing, it should be because it’s the only way you can say that thing,” he reasons.

His own varied background has encouraged him to think in cross-disciplinary and extra-academic terms. “I can maybe see some of the big problems in the humanities and the arts because of the varieties of my experience,” he says.

In a talk he gave last year at the Reinvention Center in Washington, D.C., Hertz described what he was trying to do, and how. And then he gave some consideration to why it matters: “Have I given my students weeks of cultural conditioning so they can better enter the world of la grande bourgeoisie? Pierre Bourdieu might be right about the cultural capital of art. If so, why should only rich people with privilege enjoy it? If cultural conditioning is necessary, let’s give it to our young people and find a way to usher them into this culturally rich world, a world that offers lifelong pleasure, solace, and the best of company.”

Leora Baude, BA’04, former managing editor of this magazine, is a copy editor at The Herald-Times in Bloomington.
For Neuroscientist, ‘No Pain’ Is the Ultimate Gain

by Ryan Piurek

For J. Michael Walker, it’s the ultimate goal. The magic bullet. The Holy Grail.

How do you stop pain? How do you keep people from suffering horrible, continual, debilitating pain that, in the worst of all instances, causes them to think life isn’t worth living anymore?

“People suffer in ways that we can barely imagine, and the treatments that are available to them are too many times lacking efficacy,” says Walker, a professor of psychological and brain sciences and the Linda and Jack Gill Chair of Neuroscience at Indiana University Bloomington. “People kill themselves and you don’t even blame them. There’s a way to solve this.”

Since his undergraduate days as a psychology student at IU in the late 1960s, Walker, BA’73, has worked toward stopping pain. He authored a doctoral thesis at Ohio State University on pain modulation, and he currently researches the neural circuits and chemical messengers that control pain sensitivity. Walker, who returned to Bloomington last year after 20 years of teaching at Brown University, continues to assemble knowledge of the components involved in producing or relieving pain, particularly those of the nervous system and the spinal cord.

In his office on the third floor of the psychology building, surrounded by shelves of scientific textbooks, Walker displays a boyish sense of humor and lightheartedness that belies his life’s passion. He describes his experience in the field of pain research as a “roller coaster” ride (“there’s always frustration and ups and downs”) and jokes about how scientists should study football players and their “abnormal” pain sensitivity. He also talks openly about how academic researchers, even those who study pain, share a common bond with artists or musical performers in that they are often expected to be showmen. “What have you done lately?” he says with a chuckle.

In the case of Walker’s research, the question isn’t “What have you done?” It’s “Where do you begin?” Walker suggests starting with a seemingly simple question, one that he says dates back to ancient China: “What is pain?” From psychological and neural points of view, the question is actually quite complex. While pain is a sensation, it is much different than other sensations produced by stimulation of the skin or body organs, Walker says. Integral to the perception of pain is the desire for it to end. In this regard, pain is a motivational state. And because pain is an unpleasant feeling, it is also considered an emotional state, he says.

Simply put, pain varies in ways that other senses, such as sight or sound, don’t. While a light or tone usually looks or sounds the same, a prick of a needle can cause varying degrees of pain. In times of stress, pain can be “shut off,” Walker says. Conversely, pain might also feel more intense, instead of weaker, with sustained application of a strong injurious stimulus. This “amplification” of pain by the nervous system, Walker says, is important for understanding chronic pain.

Walker hopes this understanding will lead to better therapies for people with chronic pain. “People who have seen chronic
Walker demonstrated that cannabinoids, which were typically studied as drugs and lipids, suppress cells in important neurons that transmit pain messages to the brain. His research suggests that the natural function of cannabinoids is to suppress pain. In this way, cannabinoids are much like opiates, he says.

And, yes, Walker does have an opinion about medicinal marijuana, though he prefers to talk about the efficacy of the drug in the treatment of pain. He was involved in a study of the scientific evidence in relation to the potential usefulness of medical marijuana by the National Academy of Sciences and has been asked to testify on the subject numerous times.

Today, Walker’s laboratory is applying the same techniques used in the field of cannabinoid research to identify molecules that produce or relieve pain. He is encouraged by striking advances in analytical chemistry and molecular biology that permit rapid identification of molecules that have remained elusive to date. One such molecule is a combination of two well-known molecules, arachidonic acid and the amino acid glycine. The combination of the two molecules has been found to inhibit pain, he says.

Walker is currently studying a related structure, called NADA, which is similar to capsaicin, the ingredient in a hot chili pepper that causes burning pain when a person bites into it. (Capsaicin is also the active ingredient in pepper spray.) Walker has learned that there are antagonists that block the burning effect caused by NADA. Now, he is seeking to answer the question of whether this compound or a similar substance produces the burning pain of inflammation.

“What we’re looking to do — not just me but everyone in the field — is find an approach that would allow pain sensitivity to go back to normal.”

“Ultimately, the goal is to restore “normal thresholds of pain,” he says. “Chronic pain patients typically have spontaneous pain. Some have lower thresholds of pain. Somebody with a nerve injury, you so much as touch them it causes searing, horrible pain that reverberates and won’t stop. Something that normally hurts, hurts 20 times more.

“What we’re looking to do — not just me but everyone in the field — is find an approach that would allow pain sensitivity to go back to normal.”

Walker has long been concerned with abnormal brain activity. As a student at IU Bloomington, he was interested in clinical psychology, particularly schizophrenia. He assisted with studies of schizophrenics at Central State Hospital in Indianapolis, which served Indiana’s mentally ill until its closure in 1994. It was during his time at the hospital that Walker became “obsessed” with the inner workings of the brain. His interest in the brain grew when a close family friend became afflicted with chronic pain.

Over time, Walker’s personal interest in pain research would be complemented with stories from the field. Through his research, Walker was introduced to Henry Beecher, an anesthesiologist who cared for severely wounded soldiers during World War II. Beecher was one of the first doctors to study the disconnect between an injurious stimulus and a person’s perception of pain. He noted that certain soldiers sustained terrible injuries on the battlefield and felt no pain. Those same soldiers, however, would complain when given a shot in the hospital. “In a laboratory, you can plot these functions that relate to the strength of a stimulus and the perception of pain, but in real life there are conditions that will vastly change that equation in a way that isn’t true for other senses,” Walker says.

Walker also encountered the phenomenon known as “phantom limb” pain. Patients who have undergone the amputation of a limb may report feeling chronic pain in the body part that has been removed. Some have even described the sensation of feeling that the limb is still there. “It’s ghastly, but it’s the sum process that goes on in these nerves that somehow leads to some amount of spontaneous activity. The biochemistry behind this, we don’t understand really well,” Walker says.

Walker envisions himself and others in his field helping drug companies develop powerful new treatments for those who suffer from pain and chronic pain. Ideally, the medical community will move beyond morphine (“the mother of all pain killers”), which produces many undesirable side effects and is addictive, he says. Walker’s recent findings involving the body’s natural pain modulators, such as endocannabinoids, give him hope that physicians will have access to better treatments for pain sufferers. So, too, does current research concerning stress and its effect on blocking pain.

He’s not just hopeful. Walker is genuinely excited, which he partly attributes to returning to the university that launched him on this quest to stop pain. He’s amazed at the resources available to him at IU and grateful for several major grants recently awarded to the institution — including the Lilly Endowment’s $53 million gift to boost life sciences research. All of this has caused him to “think bigger.”

“We’re thinking more expansively,” Walker says. “We have tools now that will allow us to zero in on some potent compounds that lead very rapidly into hypotheses for drug development. We certainly have the opportunity here. It’s just a matter of imagination and hard work because what we need is here.

“We just want to do something wonderful,” he adds. “Somehow I’m hoping someone will crack this thing. It’s just a matter of when.”

Ryan Piurek, MA’02, is a media relations specialist for IU’s Office of Media Relations and a freelance writer living in Bloomington.
The recent establishment of the Outstanding Young Alumni Award prompted The College to recall alumni in years past who made an indelible mark on their career field at an early age. We also take a look forward at “up-and-coming” young alumni who are on their own path to success.

One of the more famous alumni who established themselves at an early age is James Dewey Watson, PhD’50. Watson, who came to IU on a graduate fellowship to study zoology, was profoundly influenced by IU faculty members and geneticists Hermann Muller (also a Nobel Prize winner in medicine and physiology) and Tracy Sonneborn, and by Italian-born microbiologist Salvador Luria. After graduating from IU, Watson crossed the pond and began collaborating with fellow researcher Francis Crick, and in 1953 the pair transformed the way the world studied genetics when they formulated the double-helix model of DNA. Watson was only 25 at the time, and he was only 34 when he shared the Nobel Prize in medicine and physiology with Crick in 1962. A battle was waged — and won — in the war on cancer with the help of chemistry graduate Dr. Lawrence Einhorn, BS’65. Einhorn, along with IU urologist John Donohue, designed a chemotherapy concoction and surgical procedure to combat testicular cancer. They made history when their regimen overturned the survival rate from testicular cancer from a dismal 10 percent in 1973 to 95 percent in 2005. The chemotherapy cocktail BEP (bleomycin, etoposide, and cisplatin) was first used on a patient in 1974. Einhorn was only 32 when the chemotherapy regime was successfully used on the Indianapolis man, who is still alive today. He also successfully treated Tour de France champion Lance Armstrong for testicular cancer.

Not yet 40, Meg Cabot, BA’91, has garnered more literary success then most authors receive in a lifetime. In 2003, Cabot had more than 30 novels in print, many more in the works, and movie and television studios wanting to purchase film rights. Today, Cabot, who has been publishing for a little less than eight years, is seen as a literary sensation, has been on the New York Times best seller list too many times to count, and is adored by her numerous fans. Cabot’s books, cherished by both young and old, include Boy Meets Girl and The Boy Next Door for adults and The Princess Diaries series, All-American Girl, and Nicola and the Viscount for her younger audience. Before reaching the age of 36, Cabot had sold the film rights to Disney for The Princess Diaries, which was subsequently made into a feature film starring Julie Andrews and Anne Hathaway, and All-American Girl. On her Web site Cabot credits famed film director George Lucas as one of her greatest influences because when she first saw Star Wars as a child, she realized that you can actually make money from making stuff up.

Phillip Abbosh, BS’99, is on his way to making a difference in the field of cancer treatment and research. Abbosh, who just finished his PhD in cellular and integrative physiology and will be spending the next two years in Indianapolis completing his MD, is working diligently to find out how to treat radiation and chemotherapy-resistant thyroid cancer. Abbott Laboratories funded one of his two PhD projects. “In ‘Project #1’, I took a virus that gives people a cold, among other diseases, and retooled it so that instead of replicating in (and damaging) people’s nasal passages, it replicates in (and damages) therapy-resistant thyroid cancer,” Abbosh says. His second project dealt with “pretreating” thyroid cancer with reverse resistant drugs used in other cancers to help sensitize those treatment-resistant cells to traditional thyroid cancer therapies. Outside of his work on thyroid cancer, Abbosh also has taken on a side project involving ovarian cancer. He and his mentor, Kenneth Nephew, are trying to predict which patients will respond to conventional chemotherapy and to reverse the disease in patients who don’t respond. “The dream would be to design a drug that could be given before or alongside the chemotherapy to make sure that the chemotherapy kills the cancer cells in the patient,” he says. Although he is quite happy with his work, Abbosh would like to eventually focus on cancer prevention.

“I firmly believe that cancer will be ‘cured’ only when patients don’t ever get it,” he says. During his studies Abbosh has been named a Walther Cancer Institute Ruddell Scholar and has received the Thyroid Society Clinical Research Fellowship and Indiana University PhD/MD Fellowship in addition to other local and national awards. Mentor Kenneth Nephew puts it simply: “Phillip is someone who’s going to make a difference and accomplish great things.”

Melissa Federoff, BA’98, MS’02, is making games more satisfying to play through her work with the Games User Research group at Microsoft in Seattle. Federoff uses psychological research methods to collect feedback that improves the fun and ease of use of games developed and published by Microsoft. She began working with the group in 2003 and has personally contributed to Rise of Nations: Thrones and Patriots, Top Spin, and Zoo Tycoon 2. Federoff interned at LucasArts for a summer before finishing up her master of science degree in telecommunications. She later landed a position at LucasArts before signing on at Microsoft. Federoff was a keynote speaker at the Women in Games Conference in Dundee, Scotland, this past August.

Also: 
* Howard Ashman, MA’74 – Oscar-winning lyricist
Paul Caine, BA’86 – Publisher, People magazine
Scott A. Jones, BA’84 – “Father of Voicemail”
Angelo Pizzo, BA’71 – Writer, producer, director
Jane Pauley, BA’72 – TV news broadcaster
* Joseph Muller, BS’47, DDS’48, PhD’52 – Co-inventor of the formula for Crest toothpaste
Isaiah Thomas, BA’87 – NBA star
Harvey Feigenbaum, BA’55, MD’58 – “Father of Echocardiography”
* Deceased
Mental health and stigma
Bernice Pescosolido, Chancellor’s Professor of Sociology, received a National Institutes of Health grant for $3.5 million to study one of the most perplexing issues in mental health. Over and over, the World Health Organization and other groups have confirmed that recovery rates for mental illness in developed nations are significantly worse than in developing ones. “In each study verifying that mentally ill people in developing countries recover better,” says Pescosolido, “at the end the researchers said, ‘It must be because of social stigma.’ Our project is the first study of the effect of social stigma in mental illness.” With the NIH grant, Pescosolido is leading a five-year, 15-nation study on how ordinary people perceive mental illness — and how these attitudes affect their countrymen recovering from mental illness. Results could improve how mental illnesses are treated in the United States and other developed nations.

Collages of art and science
Artists frequently produce images of nature, but scientists don’t routinely produce works of art. IUB biologist Roger Hangarter may be changing that, and he’s gaining praise from scientific and artistic communities alike.

For example, it’s easy to describe the Midwest’s 17-year cicadas as fascinating, but attractive is a harder sell. Nonetheless, in September the National Science Foundation and Science magazine awarded the short film “Return of the 17-Year Cicadas” first prize in a contest to make science more “visually appealing.” Created by Hangarter and documentarian Samuel Orr, the film uses a mixture of live and time-lapse footage to examine the cicadas’ unique lifecycle. Web-goers can view the movie at: www.bio.indiana.edu/~hangarterlab/broodx/.

Last October, Hangarter also helped launch “sLowlife,” a mixed-media art exhibit incorporating concepts of plant biology; on a seven-year national tour. Hangarter created the current incarnation of the exhibit, which first debuted at the IU School of Fine Arts in 2003, in collaboration with Buffalo State University artist Dennis Dehart, IU School of Music composer John Gibson, the U.S. Botanic Garden, and the Chicago Botanic Garden.

“I hope people will go away from the exhibit with a greater awareness of plants as living organisms after seeing how they are capable of sensing and responding to their surroundings,” Hangarter says. “Our goal was to provide an experience that would be aesthetically interesting and enjoyable while being scientifically accurate and educational.”

To view the film, go to www.slowlife-exhibit.org.

European Union Center
The Delegation of the European Commission in Washington, D.C., has chosen Indiana University Bloomington as one of 10 sites in the United States where it will establish European Union Centers of Excellence. The centers will promote the study of the 25-nation EU, its institutions and policies, and EU relations with the United States through teaching programs, scholarly research, and outreach activities. IU was awarded 299,000 Euros ($351,055) to establish the center, which will be directed by Fritz Breithaupt, associate professor of Germanic studies and director of West European studies, and David Ransel, the Robert E. Byrnes Professor of History and director of the Russian and East European Institute.

“IU Bloomington has already recognized the growing global importance of the EU with a series of initiatives, ranging from new degree programs such as an undergraduate major and minor in EU studies to research initiatives and conferences,” Breithaupt says. Ransel adds, “Our extraordinary faculty resources and record of national leadership since the 1940s in the study of the peoples and politics of East Central Europe was a key factor in winning this European Commission grant for IU! No university in America matches IU’s coverage of the languages, history, and politics of the new and candidate countries of the EU.”

White House honors chemist
In June, IUB chemist Daniel Mindiola received a Presidential Early Career Award for Scientists and Engineers. Mindiola is one of 58 awardees, and this year he is the only winner from the state of Indiana. He was one of 20 scientists nominated by the National Science Foundation from a pool of approximately 375 researchers who had previously received NSF Faculty Early Career Program grants.

“These presidential awardees are the young people who will lead our nation’s progress in science and engineering as they leap the fences, cross the boundaries, and build the blocks of new and exciting areas of science,” said NSF director Arden L. Bement Jr.

Among his many projects, Mindiola is examining metal-based systems that can transform greenhouse gases in our atmosphere into useful products. Mindiola is the second IU Bloomington chemist to receive top White House honors in recent years. Theoretical chemist Ernest Davidson won the President’s National Medal of Science in 2002.
A feast for the (gardener’s) eyes

It is late in February, with the afternoon sun falling lower in the sky, and my window in Kirkwood Hall offers a bird’s eye view of the progress being made on the construction of Simon Hall, our new multidisciplinary science building in the College. After 20 months of dusty, sometimes noisy construction, it is exciting to see the new building take shape. The limestone cladding on the exterior of the building provides even more definition and reflects a character that will blend in well with the surrounding architecture of Jordan, Myers, Rawles, and Lindley halls, and the Chemistry Building.

When this building site was selected, great care was devoted to preserving as many trees and as much of the green space as possible. The landscape architectural plans for this site have preliminarily been developed, and they offer exciting potential opportunities for donors in four areas that will essentially surround the building.

The East Plaza will provide separation between Simon and Jordan halls. The south side of the site, Myers Courtyard, will offer a buffer of trees and green space between Simon and Myers halls.

The Science Quadrangle provides beautiful green space, including courtyards interspersed with raised gardens on the west side of the building. The northwest side of the site has plans for the Sunken Garden, hidden from view until you come upon it and traverse steps to the lower elevation of Simon Hall.

Already several alumni have generously made gift commitments to the Simon Hall building fund that will provide tasteful landscaping in the East Plaza and the Science Quadrangle area plans. However, the College Development Office would be delighted to speak with others who may wish to assist in funding the building construction with gifts to support the landscaping plans for Simon Hall.

~ David Ellies, Executive Director
The Indiana University Psychological Laboratory, organized in 1888 by William Lowe Bryan, was the first research and teaching laboratory devoted to experimental psychology in the Midwest and the second such facility established in the United States. Originally part of the Department of Philosophy, it has become the oldest continuous psychological laboratory in America. Over the years, the department has grown in size and expanded its scope, adapting and adjusting along with the evolution of the field of psychology.

After its founding by Bryan, the program grew slowly until the late 1910s, at which time tremendous changes in faculty, organization, and research orientation took place as a reflection of the changes occurring field-wide. In 1919, under the leadership of chairman William F. Book, the department’s name was changed, becoming the Department of Philosophy and Psychology.

With Book at the reigns, the department grew from four to eight faculty members, including J.R. Kantor in 1920, who later established Principia Press and The Psychological Record, and Herman H. Young in 1922, who directed the newly formed Indiana University Psychological Clinic. It was also during this time that the first PhD program in psychology was created, with 14 doctorates in four different areas (clinical, education and testing, learning, and comparative) being granted by the end of the 1920s. Due to this continued growth and the prominence of the program as one of the leading institutions for the study of psychology, the Department of Philosophy and Psychology separated into two distinct entities in 1929.

The arrival of World War II created a lull in activity as many faculty members left to assist in the war effort. The lull was compounded by the absence of a department chair. New president Herman B Wells, however, was working diligently to plan for a resurgence of activity following the war, and he urged the department to seek out a prominent research psychologist to fill the role. Acting chair Kantor was able to persuade B.F. Skinner to take on the leadership position.

The end of the war created tremendous changes within the department, as it did in most departments in universities across the country. Clinical psychology flourished with the arrival of student veterans, and the department grew to include 16 faculty members to accommodate the sudden rise in student enrollment that resulted from the overall mood of the nation.

Skinner left the university in 1948 and was replaced by Douglas G. Ellson. Under Ellson’s leadership, the department faculty doubled once again, with research focusing largely on animal learning and mathematical modeling. In 1959 Roger W. Russell was hired as professor and chair. Research in the biochemical basis of behavior and physiological/sensory psychology took hold, and foundations were laid for the development of social and developmental psychology. The department, which had been located within Lindley Hall, finally found its own home in 1962 with the completion of the $2 million Psychology Building. In less than three years, it would fill the building to capacity, with the faculty growing to include 40 faculty members.

In the early ‘70s, changes were made to the graduate education program, allowing further specialization. Students were able to focus their studies in one of seven areas: clinical, animal, cognitive, developmental, physiological, sensory, and social. In the late ‘70s and early ‘80s, new links were developed tying the department with the Program in Neural Science, which had been established in 1965.

By 1980, it became clear that the department had grown too large for the existing building, and talk of either constructing a new building or adding on to the existing one began. In the early ‘90s, the situation required several psychology labs to relocate to the Hillcrest Psychology Annex located four blocks away, with formal planning for the expansion of the building beginning soon after.

With the support of the administration and under the leadership of department chair Joseph Steinmetz, construction of the new addition was completed in August 2002. The project took approximately 21 months to complete and brought the total square footage of the building from 106,000 square feet to more than 130,000 square feet. Soon after, and with the assistance of new university Life Science Initiative funding, a portion of the clinic was converted, becoming home to the IU Imaging Research Facility and the latest in brain imaging technology, a Siemens 3T fMRI scanner. Because of these expanding interests in the study of the physical brain, the department has once again changed names — effective November 2005, it became the Department of Psychological and Brain Sciences.
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