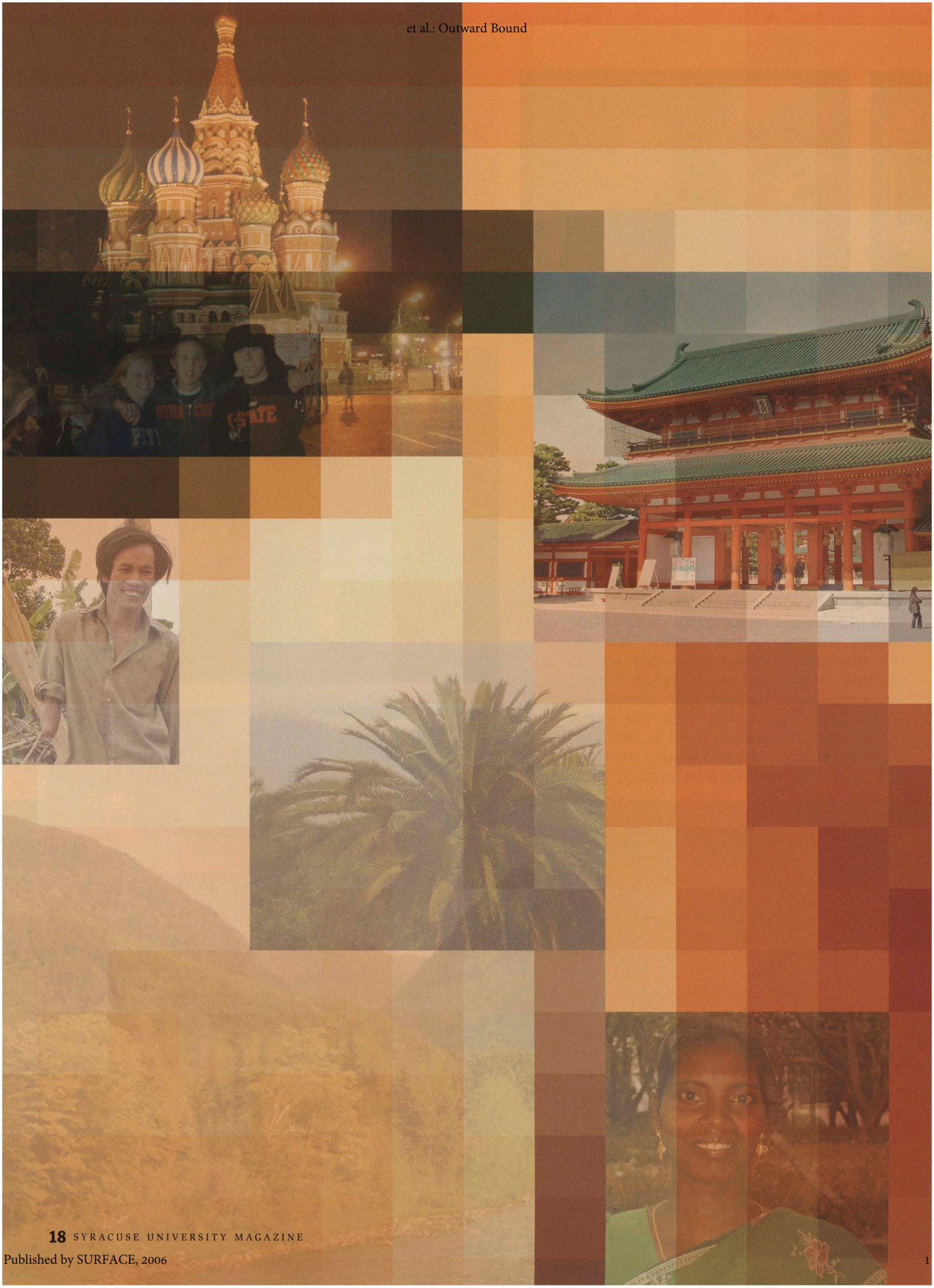
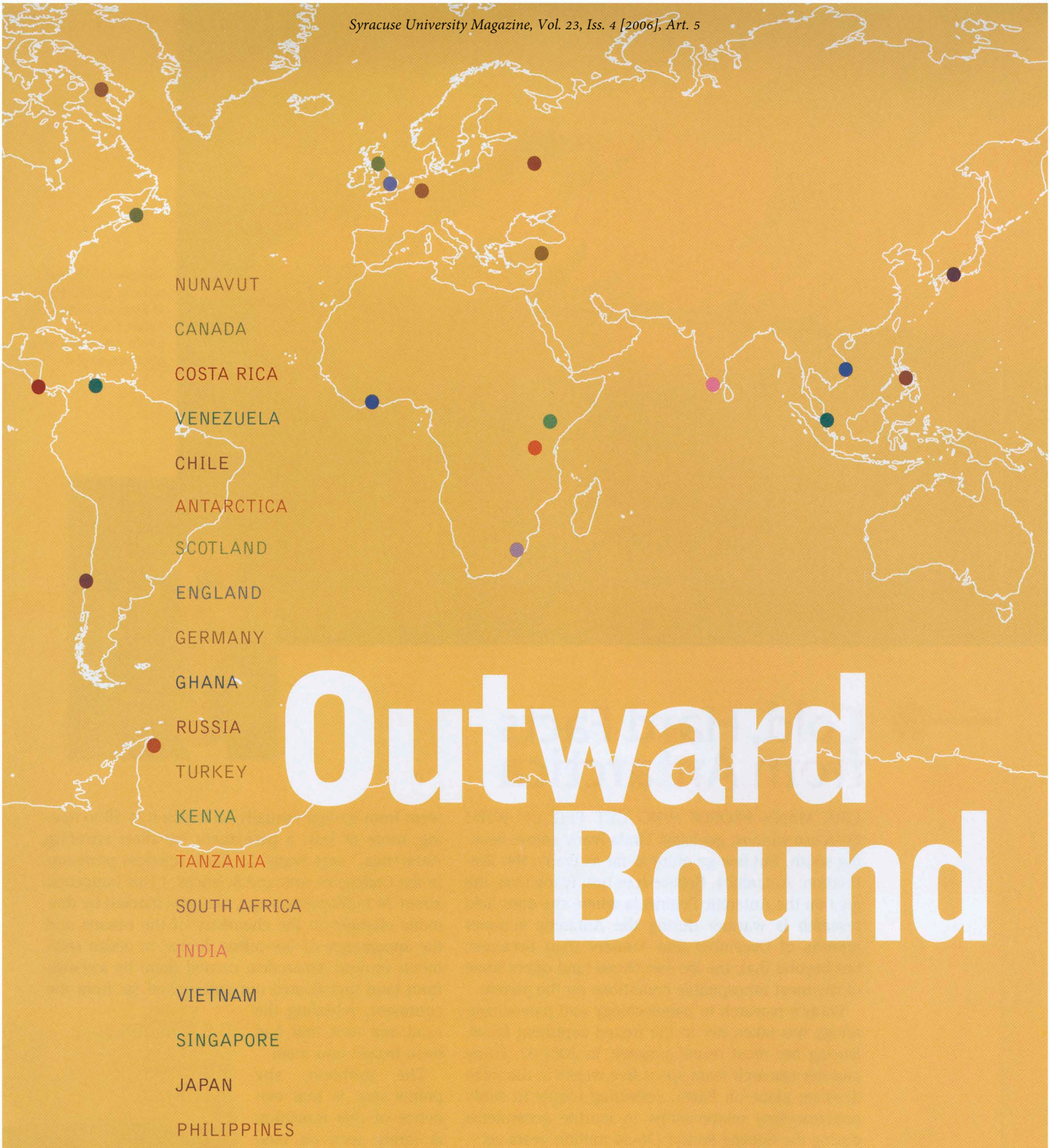
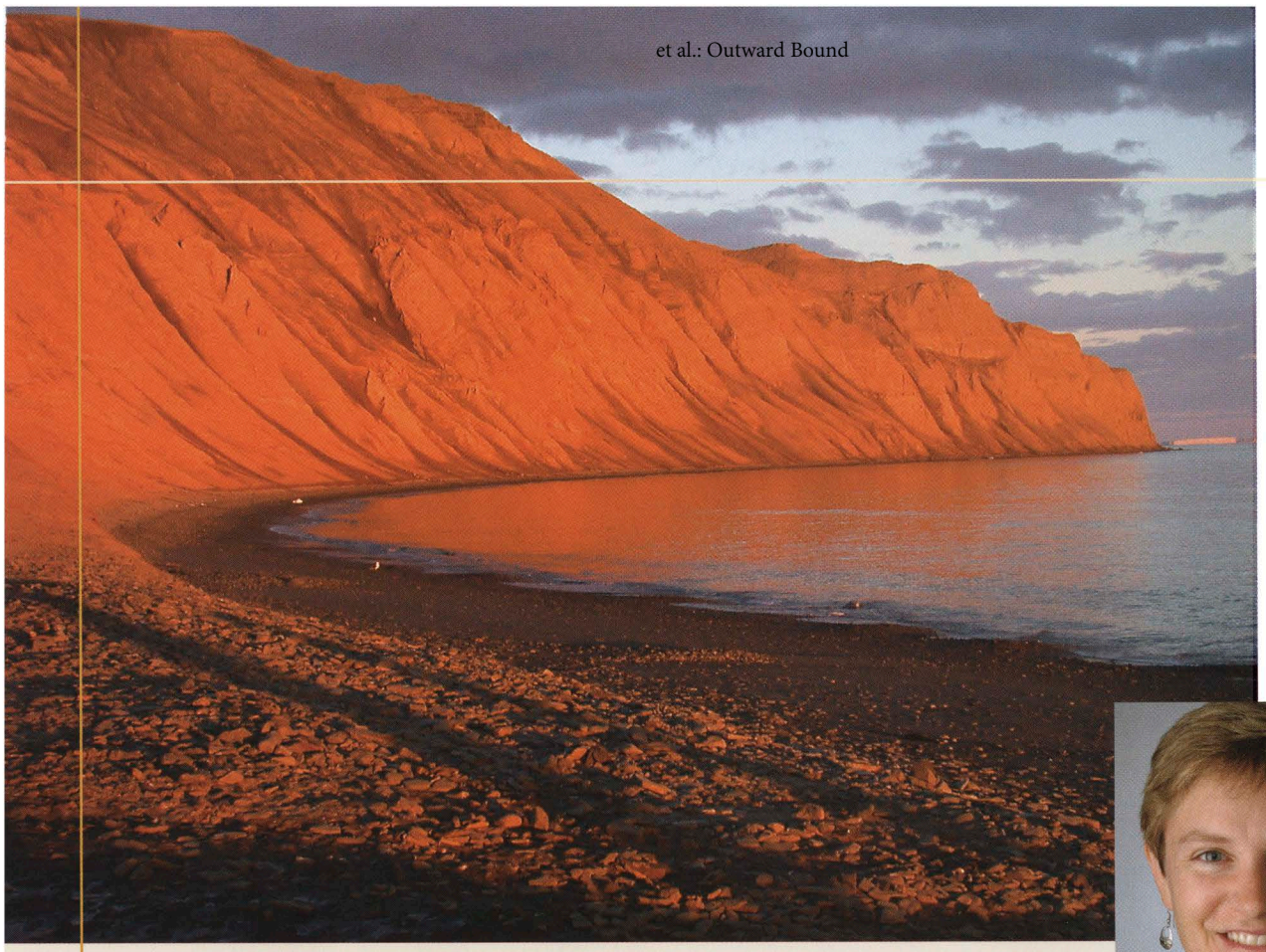




Outward Bound

From Antarctica to the Arctic, from Turkey to Venezuela, and from Singapore to Tanzania, SU researchers are engaging the world. They immerse themselves in diverse cultures with the hope of gaining new knowledge and improving the lives of the people they meet and the places they explore.



The glow of the sun reflects on the rocks of Seymour Island, Antarctica. This photo was taken at about 11:30 p.m.

Cold, Hard Facts from Antarctica

LIKE MANY PEOPLE WHO GET FED UP WITH Syracuse winters, geologist Linda Ivany enjoys heading south. But few go quite as far as Ivany. Her destination: Antarctica. Believe it or not, Ivany says, the area on the Antarctic Peninsula where she does field research is warmer during the Antarctic summer months of December and January than Syracuse; but beyond that, the ice-ensconced land offers some of the most inhospitable conditions on the planet.

Ivany's research in paleoecology and paleoclimatology has taken her to the frozen continent twice. During her most recent journey, in 2001-02, Ivany and her research team spent five weeks in the most desolate place on Earth, collecting fossils to study predator/prey relationships in marine ecosystems during the Eocene Period (56-34 million years ago), with a goal of understanding how they were affected by climate cooling. It was on that trip that she made an unexpected discovery on Seymour Island, off the northern tip of the Antarctic Peninsula, which connected her to an event from millions of years ago. "One of the most fundamental climate shifts since the extinction of the dinosaurs is the so-called 'greenhouse to icehouse transition'—when Earth went from having virtually no ice on it at all to having, more or less, a permanent ice sheet covering Antarctica," says Ivany, an Earth sciences professor in the College of Arts and Sciences. "This happened about 34 million years ago, and was marked by dramatic changes in the chemistry of the oceans and the appearance of 'ice-rafted debris' in ocean sediments around Antarctica, carried there by icebergs from land that floated out and melted far from the continent, releasing the sand and rock that had been frozen into them."

The problem, she points out, is that evidence of this transition is rarely seen on land because all the sediments are now covered by ice. "While in the field, though, I noticed deposits that might actually provide evidence for this 34-million-year-old cooling, which we

really didn't expect to see," says Ivany, principal investigator on the project, which was funded by the Office of Polar Programs at the National Science Foundation (NSF).

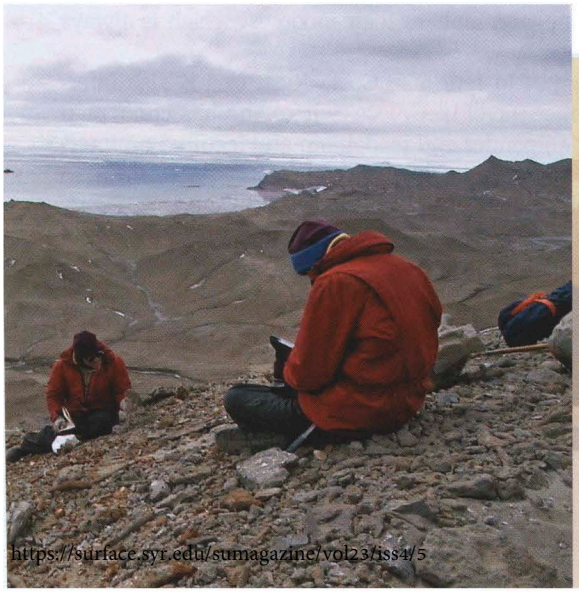
Ivany collected the deposits and, upon her return to Syracuse, enlisted the help of Earth sciences department chair Scott D. Samson and colleagues at Hamilton College and the University of Leuven in Belgium to determine the age of the samples. "Scott Samson's work on the strontium isotope ratios of fossils was instrumental in establishing their age," she says. Together they reported evidence that expands our understanding about the early history of the Antarctic ice sheet. The findings were published in the May 2006 issue of *Geology*.

Until now, it was believed that the continent's first glaciers were confined to eastern Antarctica, where the biggest ice sheet remains today. Ivany's team found evidence that glaciers may have covered a much larger area at the early stages of this transition. The sediments Ivany found on Seymour Island show features characteristic of deposition by glacial ice, and her colleagues helped to date those sediments to the precise time of that transition. Because the island is at the peninsula's far northern reaches, in western Antarctica, the samples suggest that the initial pulse of glaciation was far more extensive than originally suspected.

The road to this discovery was challenging. After a 14-hour journey to Punta Arenas, Chile, the team boarded the *Nathaniel B. Palmer*, the NSF's 94-meter ice-breaking research ship, to embark on a four-day voyage to Seymour Island, crossing some of the roughest waters in the world. Once there, the team endured cold temperatures, high winds, relentless snow, wind-propelled sand, and thick mud. Ivany's accommodations: a seven-square-foot teepee-style tent with a cot. In addition, the camp's location required the team to climb 700 feet to the collection site on the rare days when fieldwork was possible.

Ivany chronicled her daily adventures in e-mails to family, friends, and colleagues, detailing the extreme conditions, team camaraderie, amusing encounters with penguins, and the rare, wondrous moments of Seymour Island's wild and untouched beauty (*http://g3.tmsc.org/ivany/*). Of the approach to the Antarctic Sound, Ivany wrote, "We're in that perpetual sunset part of the day now, so the clouds are lit up in streaks of yellow and gold, with tinges of pink and purple against a pale blue sky. Craggy, ice-covered mountains are off the starboard side, dripping in what looks like thick, white cake frosting. Out in the sea, big slabs of ice are floating by, along with many smaller chunks that have broken off and are being churned to eventual destruction by the waves and wind. A fleet of five big ones, the size of city blocks and several stories tall, just slipped by in the distance."

Today, scientists believe the Antarctic ice sheet's growth was initiated by a drop in atmospheric greenhouse gas concentrations, in combination with a change in ocean circulation caused by South America pulling away from Antarctica. The climatic response to these gradual changes now appears to be even more significant than previously thought, showing that Earth cooled so fast that ice formed across the entire continent all at once. Because Earth's climate system is capable of shifting this rapidly and dramatically, the discovery by Ivany and her colleagues may provide insights into how conditions on Earth could change if humans continue to alter the environment. "By studying the natural range of climate variation in Earth's ancient past, we can get a better perspective on what's happening today and what our role might be in that change," Ivany says. "Over the next few hundred years, our planet's average temperature is expected to rise by 4-5°C [39-41° Fahrenheit] due to the burning of fossil fuels. The last time Earth was that warm was during this time interval I study. It has taken us 40 million years to cool off to the point where we are today, but we're talking about going back there in the space of a few hundred years. We have no idea how the climate system will respond to this sort of forcing, but we know from this and a wealth of other studies that the potential is there for abrupt, severe, and unexpected change." **—Carol Kim**



Linda Ivany's research colleagues examine fossil-bearing rocks on Seymour Island.

Photos courtesy of Linda Ivany

Nurturing Success in Costa Rica

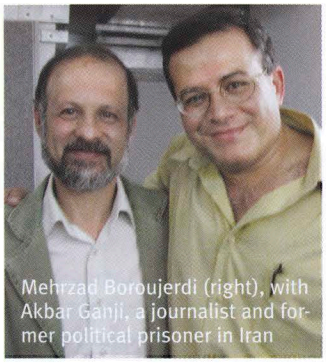
NORMA J. BOND BURGESS CARES about women and wants to help them be healthy and happy—both on the job and at home. Much of her work as a researcher, teacher, and leader in higher education is directed toward that goal—whether she is teaching a faculty workshop in Washington, D.C., speaking at a professional leadership conference in Greece, or chatting with the owner of an iguana farm in Latin America. She lectures and conducts workshops nationally and internationally on success, professional image, and methods for integrating and maintaining wholeness in life, family, and career. "I travel a lot internationally," says Burgess, a professor of child and family studies in the College of Human Services and Health Professions and co-chair of University College's bachelor of professional studies degree program. "I like to find out what's going on around the world in terms of professional development, women's health and social issues, and the ways women fit within a country's economic structure."

One frequent site of Burgess's research has been Costa Rica, where she first visited as a faculty member with a Syracuse University Abroad summer program. In collaboration with colleague Regina George-Bowden, a sociology professor at Healthy Start Academy in Durham, North Carolina, Burgess has traveled extensively throughout the country, examining women's roles in the tourism industry; exploring social problems, including domestic abuse and a teacher shortage; and studying how social-class variations determine the quality of such services as road repair and health care. She interviewed southern Costa Rican women who sold handmade ornaments and baskets made of straw and raffia through indigenous cooperatives or operated other small businesses, and learned how an iguana farm generates income through sale of the reptile's meat and skin. In the Monteverde rainforest area, she spoke with women who supported themselves by making and selling clothing. Generally, she discovered that women's businesses were underfunded, and their professional and personal lives were undersupported. "I think the situation in Costa Rica is fairly typical of how women survive in any type of society," Burgess says. "There is some lack of respect for women. They are not placed in positions that allow them to make significant improvements in their incomes, which is always a disadvantage."

Burgess hopes to return to Costa Rica, and is also interested in further travel in Greece, where she has conducted a workshop on gender and leadership and lectured on interdisciplinary perspectives in social science. "The world is so small," says Burgess, who received the 2002 Marie Peters Award from the National Council on Family Relations, recognizing her contributions to ethnic minority families. She also co-wrote, with Eurnestine Brown, *African American Women: An Ecological Perspective*. "No matter what we do, we run into people from all corners of the Earth," she says. "So it is important to learn as much as we can about others, develop relationships with them, and understand and respect different cultures." **—Amy Shires**

Revolution and Reform in Iran

POLITICAL SCIENCE PROFESSOR MEHRZAD BOROUJERDI, founding director of Syracuse's Middle Eastern Studies Program, is an articulate expert on a long list of vital subjects found on the front pages of newspapers around the world: the Israeli-Palestinian conflict; OPEC and world oil markets; the thinking of Middle East intellectuals regarding civil society, secularism, human rights, and modernity; and, the subject closest to this heart, the culture and politics of his native Iran. "It is now 27 years since the overthrow of the Shah, and I am focusing my work on the power elites of post-revolutionary Iran," he says. "Beyond a few leading figures, we know very little about the people who are ruling Iran and almost nothing about the middle and lower echelons of government. It's a black hole."



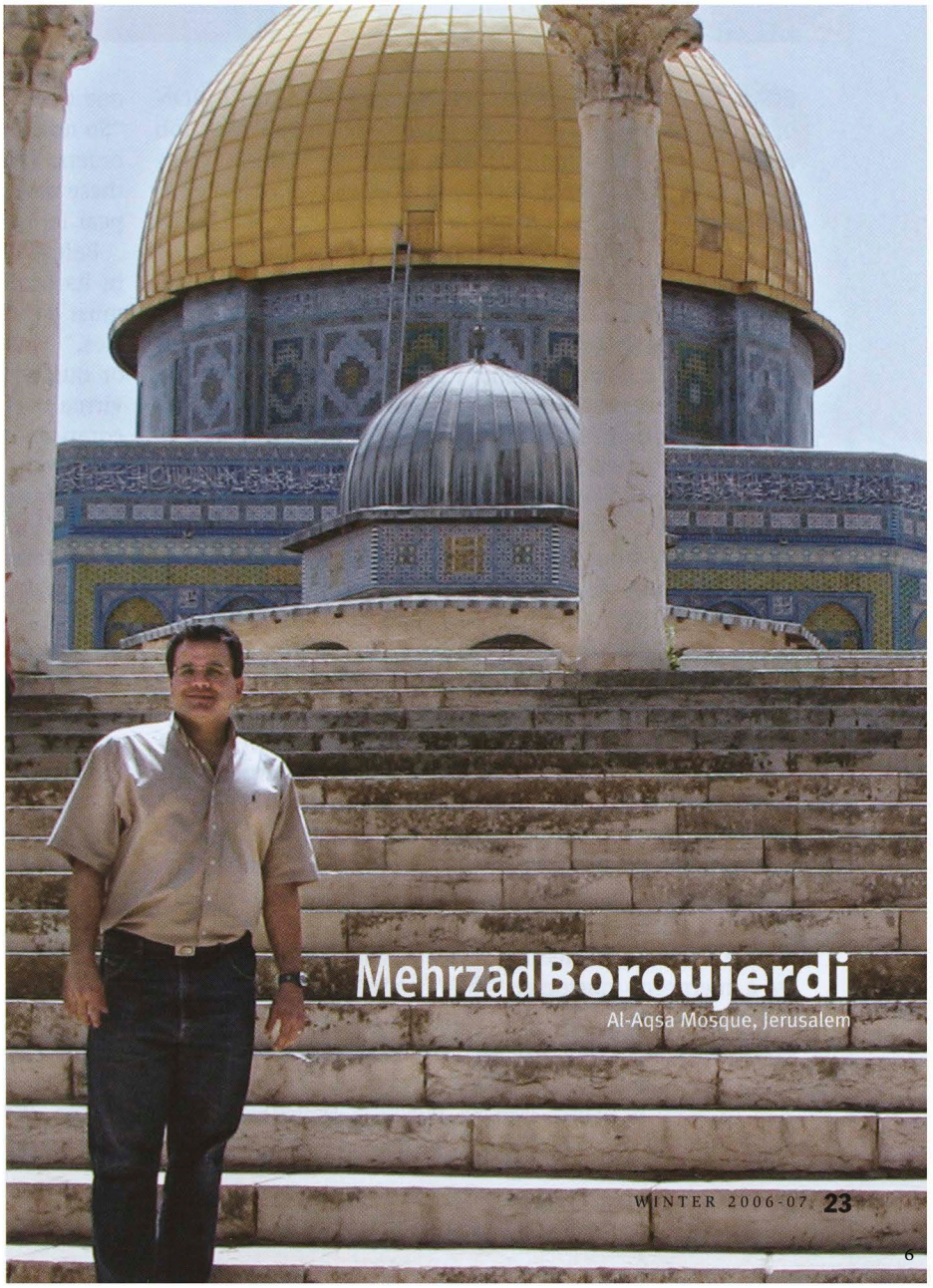
Mehrzad Boroujerdi (right), with Akbar Ganji, a journalist and former political prisoner in Iran

Boroujerdi spent last summer based in London, a European center for Middle Eastern scholarship, conducting interviews with Iranians and exchanging views with colleagues in England and Israel about the character of Iran's emerging leadership. He traveled to Istanbul as well, where he enhanced opportunities for Syracuse students by establishing exchange relationships with two Turkish universities. "Turkey is the historical bridge between East and West, and is presented as a democratic model to the Muslim world," he says. "If Turkey's application to the European Union is accepted, the demographics of Europe will be transformed in important ways."

Boroujerdi's 1996 book, *Iranian Intellectuals and the West: The Tormented Triumph of Nativism*, which has been translated into Farsi and Turkish, is widely read in the Middle East. The importance of his current project was underlined in 2005 by the election of Mahmoud Ahmadinejad as president of the Islamic Republic. Although Ahmadinejad was serving as mayor of Tehran, Iran's capital and largest city, little was known about him outside the country. Shortly after assuming the presidency, he shocked the international community with public statements denying the Holocaust of European Jewry had taken place and by setting a confrontational course with the West over Iran's development of nuclear capabilities. Boroujerdi was not surprised by Ahmadinejad's parochialism. "There has been a major changeover of the elite from the pre-revolutionary era," he says. "We are dealing with less educated people, many of them from the provinces, few of whom have been outside the country or know a second language. They seem to be creating new institutions rather than just taking over the old ones. For example, any legislation that passes in Parliament must be approved by the Guardian Council, a clerically dominated body." Despite the power currently held by the revolutionary Islamists, Boroujerdi sees evidence that they have not achieved national consensus. He points out that Ahmadinejad's election was made possible only after hundreds of secularist reform candidates were summarily barred from running by a clerical council.

With so much daily attention given to the violent and seemingly intractable conflicts of the Middle East, Boroujerdi believes that scholarly attention to the region's politics, history, and cultures is more important than ever. "Perhaps no part of the world can tell us as much about our past—or our future," he says.

—David Marc



Photos courtesy of Mehrzad Boroujerdi

Kevin**Crowston**

Networking through a European Virtual Factory

SOME FACTORY WORKERS IN THE BODENSEE REGION of Central Europe head to work with no idea of what job awaits them. A furniture maker shifts to making a letter-sorting machine; a mechanical engineer helps craft sun umbrellas; and a grain-mill construction machinist manufactures retractable steering wheels for cars. Like the region's Lake Constance, which unites Germany, Austria, and Switzerland, a shared resource connects these workers. The virtual factory—*Virtuelle Fabrik*—is an organized network of industrial manufacturers that draws on the resources of members to meet short-term market opportunities. "The virtual factory idea was to enable companies to balance out the cyclical nature of their production orders," says Professor Kevin Crowston of the School of Information Studies. "The network members can share work during busy times and take on work during the lean times."

For the past seven summers, Crowston has studied *Virtuelle Fabrik* with Professor Bernhard Katzy at the University of the Federal Armed Forces in Munich. Together, they described a four-step process they call "competence rallying" to explain what's needed to create a successful virtual factory. The first step involves each network member identifying its production capabilities and the specific skills of its workforce. The second is to recognize market opportunities the virtual factory can handle. Sometimes that simply means an overloaded network member can direct some of its work to another member. Other times, members pool their resources to create new products, such as the retractable steering wheel, which was requested by a member's customer. That company couldn't create the device alone, but by calling on the virtual factory's resources and talents, the member was able to accept the order. "Although the original idea behind the virtual factory was to keep a steady flow of business year-round, they discovered the virtual factory could work beyond what any one company could do," Crowston says. "So now the virtual factory itself has begun to take and fill orders. The virtual factory allows firms to be responsive to these new market opportunities, which can arise and disappear in a short time."

Before the virtual factory reaches that level of innovation in its productivity, however, the participating companies must do what the researchers call "marshalling competencies." This third step requires network members to know or quickly learn the expertise and skills provided by the virtual factory's other companies. Information about each company and its machines and capabilities is entered into a shared database so all members can easily search for collaborators. The process would be as simple as looking at a computer screen, right? "It didn't work," Crowston says. "Managers weren't willing to make business decisions based solely on pixels." The information didn't give them any sense of the quality of work done at the factory, the training of the workers, the age and condition of the machines, or the company's record in meeting deadlines, he says. "The managers needed to build a social network as well. They needed to have that human connection for the electronic network to work."

To develop the network, participants held dinners, visited each other's facilities, swapped stories, and bonded over their similar educational backgrounds and memberships in professional clubs. They then felt more inclined to collaborate on routine projects as well as new, more creatively challenging products—the final ingredient for a successful virtual factory, the researchers say. These periodic short-term collaborations led to the "jogging effect," Crowston says. "The workers involved in a virtual factory project stretched their skills, which led to an increase in the firm's fitness. When they returned to their normal job routines, they performed better." **—Margaret Costello**

Building Up a Kenyan Community

NEW SCHOOL FIRST; SAFER DRINKING WATER, SECOND. These tough priorities emerged when residents of the Kenyan village of Kamanzi assessed their needs to determine ways a Syracuse partnership might improve living conditions there. The project began when mathematics and mathematics education professor Joanna Masingila was approached by Patrick Kimani, one of many Kenyan graduate students Masingila has helped bring to SU since she was a Fulbright Scholar at Kenyatta University in 1998. Kimani's desire to make a difference in his impoverished village inspired Masingila to establish a sister-relationship between her family's church—the First Baptist Church of Syracuse—and the Iia-Itune African Brotherhood Church in Kamanzi. Through the partnership, Masingila coordinated activities that raised more than $30,000 for the construction of a new school and library for the village's 460 children, solicited donations for educational and medical supplies, and recruited educators in the United States and Kenya to provide teacher training in Kamanzi. She also organized five 10-day trips to Kamanzi, where participants lived with host families and offered workshops for local teachers at three schools. Current endeavors include raising funds for drilling to improve the quality of the village's water supply. "The project is really a grassroots effort based on meeting the community's most pressing needs," says Masingila, a Meredith Professor for Teaching Excellence. "Over time, the level of trust and collaboration has been built, so they know we're not just giving them things. It's not that kind of relationship. They say, 'These are the things we are interested in.' We say, 'Here's what we can bring to the table.' And then we work together."

Masingila is also expanding links she helped establish between SU and Kenyatta University, including opportunities for faculty exchanges and collaborative research and conference presentations. In addition, she is consulting with Syracuse University Abroad to develop summer programs that introduce graduate students to Kenya's educational system, including teacher preparation. "The idea would be to attend lectures at the university, visit with people from the Ministry of Education, and travel to schools in urban and rural areas," says Masingila, who was recognized for her efforts in Kamanzi with an Unsung Hero Award at SU's 2005 Martin Luther King Jr. Celebration Dinner. "I have lived a couple of different places for an extended time, and I believe you can better understand your own educational system when you learn about educational issues in another culture."

Along with its professional significance, Masingila finds her work in Africa to be extremely meaningful on a personal level because her husband is Kenyan. "We met as undergraduates and married in 1981, so I always want to learn more about Kenya and get involved in work there," she says. "In Kenya, when you marry, you become part of that community. So I am also a Kenyan. It is really very difficult for me to express the depth of the meaning this work has for me. I'm very committed to it." **—Amy Shires**

Joanna Masingila (center) works with children in the Kenyan village of Kamanzi.

Storyteller Among the Inuit

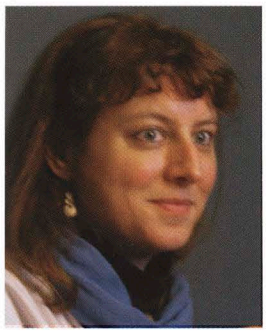
HOLLY DOBBINS HAD BEEN CONDUCTING research on the Inuit people in the Canadian Arctic for nearly three years when Jonah Kelly, a Keeper of Inuit Knowledge, honored her with the name *Unikaaq*, or storyteller. For Dobbins, the name signified she had earned the trust and friendship of those who generously shared their life stories with her. It also strengthened her commitment to weave those stories into an authentic history of a groundbreaking indigenous peoples' social movement and land claims agreement—the 30-year negotiation process that resulted in the creation of the Territory of Nunavut in 1999. "The project that began as my dissertation became a moral obligation to gather the stories of individuals who are part of this history—before they are lost," says Dobbins, a doctoral student in social science at the Maxwell School.

Dobbins first became interested in the Inuit while teaching in an Aboriginal village in the Australian outback in 1999. On April 1, a truckload of ice was dumped in the village to acknowledge and celebrate the creation of Nunavut. "For two days, indigenous peoples from opposite sides of the globe were emotionally and spiritually made one when the Inuit of Canada changed the map of their nation through peaceful means," Dobbins says. "This was the spark that led me to study how indigenous peoples are gaining a greater voice, locally and internationally."

Beyond capturing the history of an important social movement, Dobbins hopes her research will help other indigenous people learn from the Inuit experience. "I wanted to find out how the Inuit stuck together for more than 30 years, staying focused on their goals, when so many indigenous communities, including many in the United States, cannot come together and work cooperatively for

Pangnirtung Bay, Qikiqtaaluk region, Nunavut, just south of the Arctic Circle

HollyDobbins

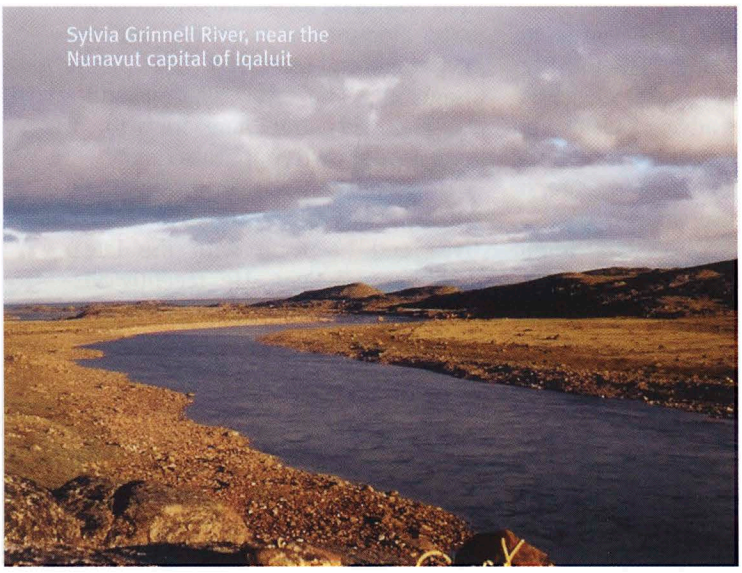


even much shorter periods," she says. Dobbins discovered that, for the Inuit, the goal of preserving their identity, culture, and tradition was as important as maintaining oversight and ownership of their lands and waters. "It is much more than a story about unity," she says. "It is much more, even, than a story of cultural preservation. It is about how an environment shapes the worldview of a people. And that worldview contains a set of values that are fluid, dynamic, and transferable to different eras, ages, and technologies."

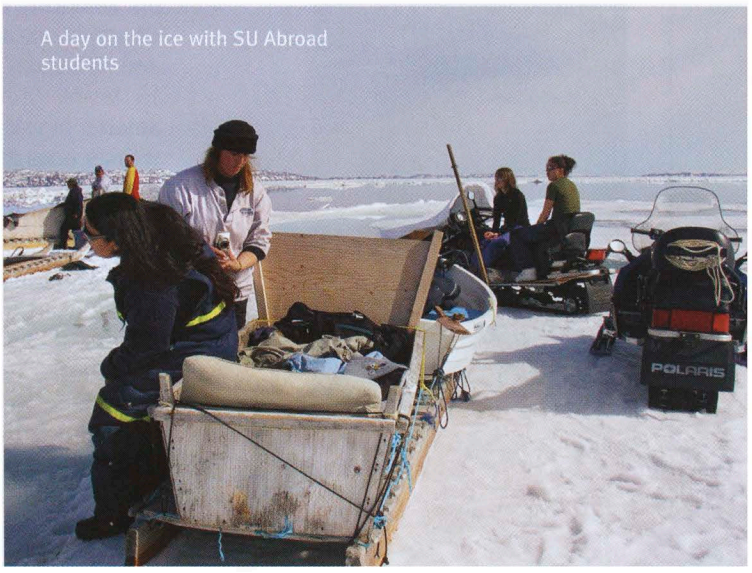
Dobbins first set foot in the Canadian Arctic in summer 2002 after receiving a Goekjian Summer Research Grant (see related story, page 51), and returned the following year on a Roscoe Martin Research Grant. A 2004 Fulbright Fellowship allowed her to spend most of that year in Nunavut, collecting the life stories of more than 140 people who were involved in the Inuit movement. Also in 2004, Dobbins was hired by Nunavut Tunngavik Inc., an organization formed to represent the Inuit under the Nunavut Land Claims Agreement, to assist with an oral history project. This allowed her access to the territory's more remote communities and many of the movement's leaders. Throughout her work, she has received ongoing support from the government and people of Nunavut. "In addition to my faculty advisors at Syracuse, I have an Inuit community of mentors, guides, and philosophers," Dobbins says. "I hold them in as high regard as my professors, and am equally answerable to them."

No stranger to travel—having spent 12 years living among indigenous populations in such diverse locations as Mexico, Norway, and New Zealand—Dobbins is nevertheless awestruck by the Arctic's unique landscape. "The greatest challenge has been adjusting to my physical environment," she wrote from Nunavut in February 2004. "Not the cold or the snow, since I come from Syracuse—but the light. Every hour brings a new kind of light, magnificent to behold, but exhausting to adjust to....I marvel too, just walking down the streets here [which have only recently been given names]. As I shuffle my well-insulated feet, I kick up yet another kind of snow. It is so fine that it rises in dust-like clouds, diffusing the light and creating tiny rainbows."

For three weeks this past May, Dobbins shared her appreciation for the region with seven students who enrolled in Arctic Journey: The Inuit and Their Land. The six-credit interdisciplinary program, offered through Syracuse University Abroad, introduced participants to Inuit culture through interactive courses, school and government visits, and a camping trip led by Inuit elders. The idea for the program grew from the discovery of a strong connection between the Inuit and the Onondaga Nation, whose members once helped negotiate peace during an uprising in Oka, Canada, that influenced federal decisions regarding Nunavut. Dobbins agreed to lead the expedition under three conditions: money spent during the journey would support Inuit-owned businesses; two Native American students would receive financial support to participate; and two Inuit students would receive the opportunity to attend SU. "This was a very meaningful program that brought me full circle," Dobbins says. "It was a way to give something back for all I've been given. I've been very fortunate to travel the world, experience wonderful educational opportunities, and meet people and talk with them in personal ways. And it was a way for those of us in the program to become part of the Inuit story. Now, we have a responsibility to the people of Nunavut. It is not only about what we experienced for ourselves. It is about taking that experience and using it to benefit others." **—Amy Shires**

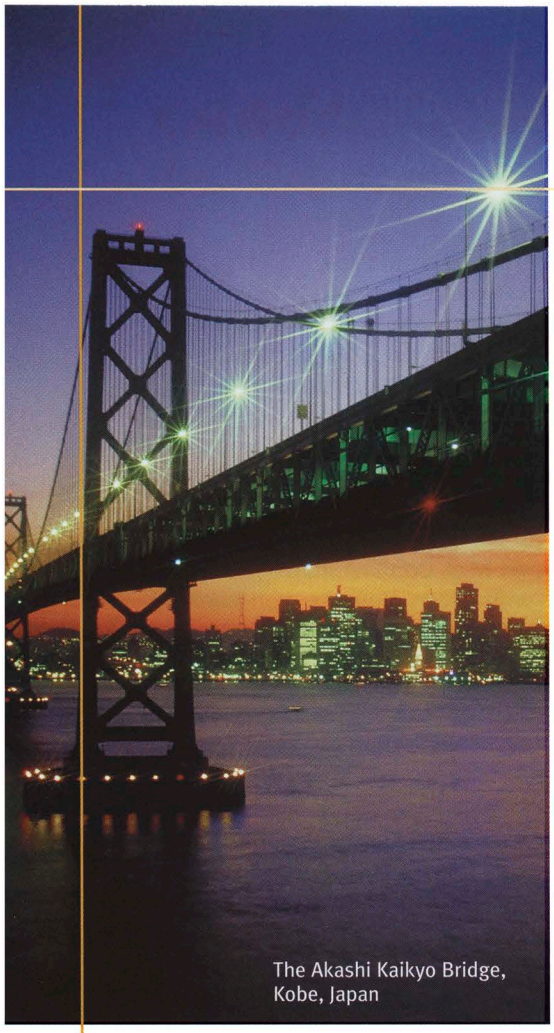


Sylvia Grinnell River, near the Nunavut capital of Iqaluit



A day on the ice with SU Abroad students

Photos courtesy of Holly Dobbins



The Akashi Kaikyo Bridge, Kobe, Japan

RaviDharwadkar

Understanding the International Workforce

WHITMAN SCHOOL OF MANAGEMENT professor Ravi Dharwadkar was just a youngster when the first data were collected for his research on the careers of Japanese white-collar workers. The 25-year study tracked 65 employees at a large multinational company to find a pattern that would accurately predict employee success. His mentor at the University of Cincinnati, Professor George Graen, began the study in the 1970s while living in Japan. Three decades later, Dharwadkar completed the study. "When I was a doctoral student at Cincinnati, another colleague and I were interested in taking a new look at the data from the research that had ended in the 1980s," he says. "We wanted to see what predicted the careers of the Japanese employees over the long term."

Dharwadkar, Graen, Rajdeep Grewal of Pennsylvania State University, and Mitsuru Wakabayashi of Aichi Gakuin University in Japan figured that long-term career progress could be predicted during the first three years of employment, despite a system that espouses a level playing field. "If you ask a Japanese economist or manager, he says for the first 15 years everyone is treated the same, and promotions are based on seniority every few years," says Dharwadkar, a management professor and Whitman Teaching Fellow. "After 15 years, promotions are staggered. Smarter employees advance faster, and weaker ones move more slowly up the corporate ladder, are made to retire, or move to smaller companies."

The researchers, however, found that, even after 15 years, promotions were linked to early employee experiences. They looked at employees' educations, job performances in the first three years, and relationships with supervisors. "We showed that what happens in the first three years predicts where they will be 25 years later," Dharwadkar says. "We believe company executives know from the beginning who the smarter employees are, but don't disclose that because if they do, others will lose their motivation to perform." The findings were published in the prestigious *Journal of International Business Studies*. The key point, Dharwadkar says, is that the beginning of a person's career is very important. "This notion that someone can be molded over time doesn't work—at least for this one large company," he says.

Beyond that research, Dharwadkar is focusing on the implications of globalization for workforces in developing Asian nations. In his latest project, he and doctoral student Diya Das are collaborating on a study of how Indian workers assume American personas at call-support centers for U.S. companies in India. The employees take cultural neutralization courses and adopt American names to use on the telephone. "We're trying to see how this affects their work, and their regional and national identities," he says. "It's probably difficult for Americans to imagine taking on an Indian name and acting like an Indian for the next eight hours."

Dharwadkar, who teaches the core undergraduate course in international business, emphasizes the importance of international research, encouraging students to study such burgeoning Asian nations as China and India. "For example, in Mumbai, there are huge amounts of economic activity, construction, increased cell phone usage, etc.," he says. "There is still a lot of poverty, but there are a lot of long-term growth opportunities."

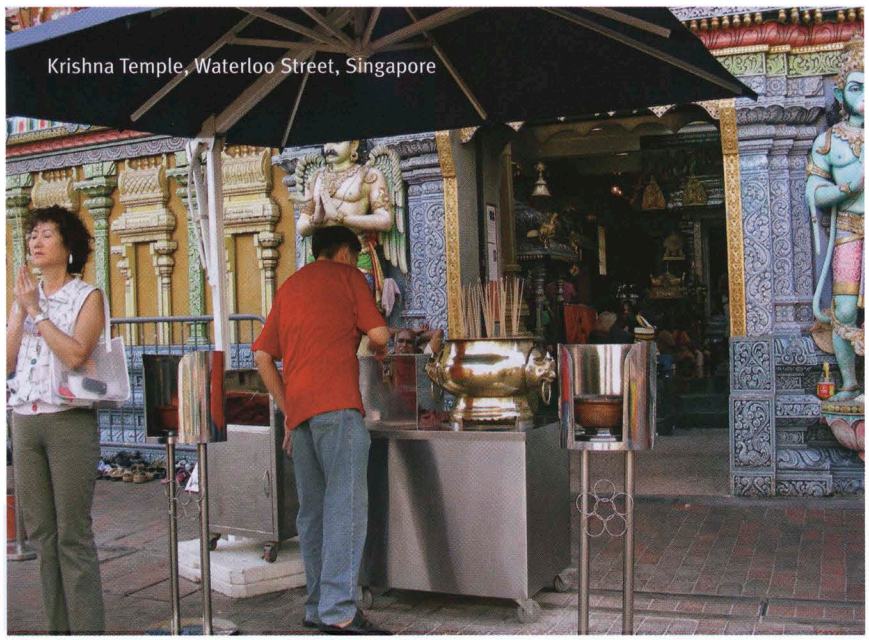
Dharwadkar plans an international trip every year to talk to executives and keep up with the latest business practices. He recently visited corporate and government officials in Brazil, Argentina, and Chile. "Businesses are becoming much more global," he says. "More and more people worldwide have aspirations to make it big and have the ability to do so. I want to make students aware that competition is heating up."

—Kathleen Haley

Singapore: Crossroads of Religions

PERHAPS NO PLACE ON EARTH HAS COME TO SYMbolize globalization as much as Singapore, an old trading city on an island off the Malay Peninsula of Southeast Asia that was developed into a major port by the British East India Company during the 19th century. Its gleaming skyline speaks to its position as a citadel of worldwide economic power and the teeming streets below are alive with the synergies of multiple cultural traditions. "I love walking down Waterloo Street," religion professor Joanne Waghorne says. "The street name, of course, is a legacy of Singapore's years in the British Empire. You find a Chinese Kwan-Yin temple and, just two doors down, a temple devoted to Krishna. You can see the blending of people and cultures right on this street."

Waghorne, whose *Diaspora of the Gods: Modern Hindu Temples in an Urban Middle-Class World* (Oxford University Press, 2004) won an American Academy of Religion excellence award, conducted research in Singapore this year for a study concerning Hindu-derived, guru-centered movements. "Gurus—teachers—who once traveled by foot are becoming globetrotters who make Indian ideas available all over the world," she says. "In Singapore, for example, so many Chinese have become devotees of Satya Sai Baba that two nights a week are set aside at the Baba center for *bhajans* [hymns] sung in Chinese." Internationally popular gurus, such as Baba and Mata Amritanandamayi Devi (known as "the hugging guru"), speak to religiously diverse audiences without attempting to win formal converts to Hinduism.



Krishna Temple, Waterloo Street, Singapore

Singapore's dynamic economic ascendancy makes it an exciting and fruitful place to study contemporary religion and culture, according to Waghorne. Since breaking away from the Malay Federation in 1965 to become one of the modern world's only city-states, the tiny nation (about a third the area of Onondaga County) has developed entrepreneurial and employment opportunities that draw immigrants from across Southeast Asia and around the world. "About 4 million people live in Singapore, but you will not find a slum anywhere," Waghorne says. "As amazing as that is, to those of us interested in contemporary religion, Singapore is *the* multicultural global city." Religions abound in close quarters and relative harmony. About 40 percent of the population, including most of those who are of ethnic Chinese descent, count themselves as Buddhist (and they can be further divided into followers of Taoism, Confucianism, and other denominations), and about 14 percent are Christians (mostly Anglicans and Roman Catholics). The indigenous Malays tend to be Muslims. Among Indian ethnic groups, one finds Hindus, Sikhs, and followers of the Baha'i Faith. The tiny republic contains Shinto temples and Jewish synagogues as well.

People leaving their homelands for economic reasons often believe they can carry their religious traditions with them. But as Waghorne points out, making accommodations to a new environment inevitably brings change. "In Singapore, much like in the United States, second-generation Indian immigrants often view the temple as more of a social and educational institution than a spiritual one," she says. "As a result, they reject religious ritual as 'mumbo-jumbo' and are attracted to practices and principles they can understand." Waghorne finds this unfortunate because performing rituals, especially in the home, has always been central to Hindu practice, but she embraces the bright side: the yearning for religious understanding among mobile populations. "People look to religious organizations to find others who share their values," she says. "In Singapore, about 15 percent of the population consider themselves 'free-thinkers,' and they are doing just that: searching for the best ideas and values that religions have to offer, and incorporating what they find into their lives." Asked if Singapore provides a vision of the future of religion, Waghorne says, "Yes—and it is thriving." **—David Marc**

Photos courtesy of Joanne Waghorne

Data from South African Dung Patches Provide Insights on Coexistence

DAY AFTER DAY, BIOLOGY PROFESSOR MARK RITCHIE trekked across the sun-baked savannahs of the 370-square-mile Hluhluwe-Umfolozi Game Reserve, located in the heart of South Africa's Zululand, searching for evidence of fractal geometry in nature. But it was not the regional acacia, velvet bushwillow, or buffalo thorn that attracted his attention, nor did the native zebras, giraffes, leopards, lions, reedbuck, or bushpigs earn more than a passing glance.

Ritchie's quest was a bit more basic. He was looking for animal droppings and the insects that inhabit them. Specifically, Ritchie was hunting for dung beetle communities—insect groups that rely on fresh herbivore dung to feed and reproduce. "One of my areas of interest is determining how species of different body sizes coexist when they use the same resources," Ritchie says. "Because the beetles' resource—dung—occurs in patches of measurable size and quality, this represented an ideal system for testing the predictions of theoretical models."

To that end, Ritchie applied the principles of fractal geometry, which suggest that spatial patterns of such objects as trees, soil, coastlines, and rivers, are the same across several scale sizes. Through fractal geometry, Ritchie says, scientists can incorporate information about the distribution of food and nutrients across a landscape, along with the size of the organism studied, into mathematical models of how species coexist.

For his research at Hluhluwe-Umfolozi, Ritchie selected 52 dung patches of varying sizes, based on the animals that produced them. "The largest patches were from white rhinos, and were about the size of a kitchen table," he says. "The smallest, which were no larger than a marble, were from impala." Other animals produced dung somewhere within the rhino-impala range, including wildebeests, whose bagel-sized patches had the highest nutrient content of all.

The dung beetle communities living in these patches are composed of many species, in sizes ranging from the head of a pin to a small mouse. "By studying dung beetles in different patches, I found that the species coexisted through 'sorting'—selecting different types of dung based on nutrient content," Ritchie says. The larger, mouse-sized beetles were fewer in number and were mostly found on the larger dung patches, which had lower nutrient content. The pinhead-sized beetles, meanwhile, had the greatest numbers, and tended to populate the smaller, higher nutrient dung. Virtually no beetles were attracted to the smallest, marble-sized dung patches of the impala.

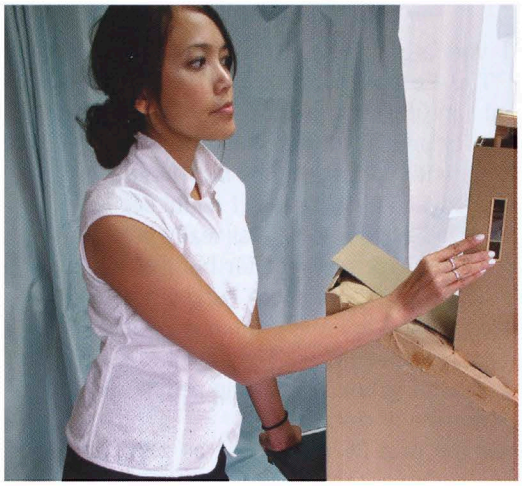
By applying fractal geometry to these observations, Ritchie explored theories of species richness that attempt to account for competition for resources and habitats that exhibit spatial similarity across scales of observation. "This approach has yielded models of how organisms select food and nutrients, how this selection determines the number of species or groups of species that use the same resources, and how habitat destruction and fragmentation by humans affects the growth of populations and the number of species living in the environment," he says.

The research also opens the door for future studies into ways competition for food might influence how and whether organisms disperse to particular environments and colonize them, and how this might change with the body size of organisms. "This work has broad implications for the conservation of biodiversity," Ritchie says. "It is especially relevant to the calculation of acceptable levels of the amount and arrangement of habitat fragmentation to conserve species. The proportion of the Earth's land and ocean affected directly by humans now exceeds 50 percent, so such calculations may be critical for saving the majority of species on a human-dominated planet."

—Jeffrey Charboneau

Photos courtesy of Mark Ritchie

Navigating the Architecture of Manila



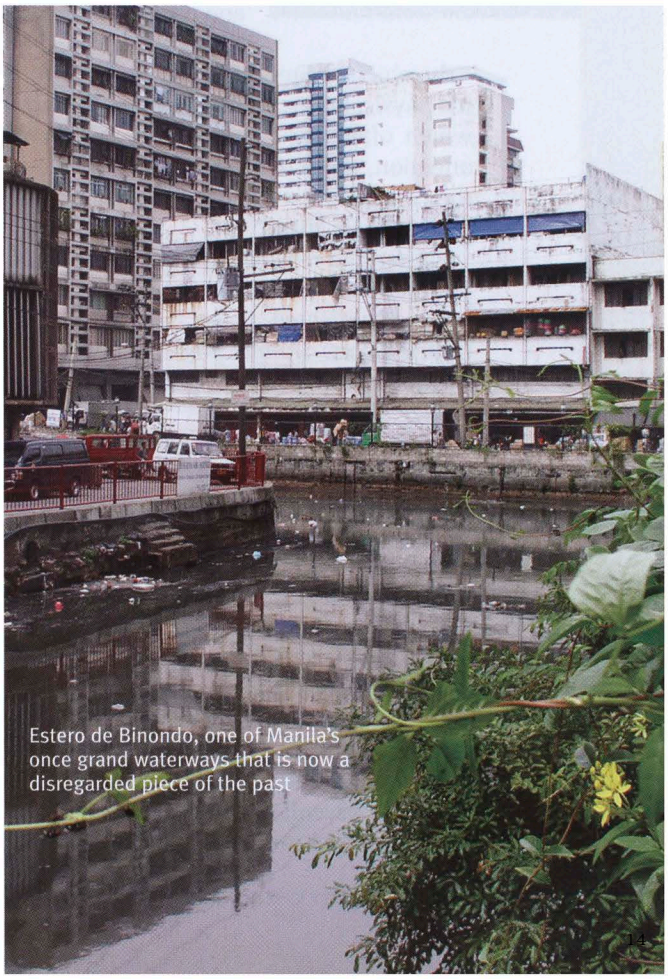
ACCORDING TO LEGEND, the sea created the 7,107 islands of the Philippines as a shield to protect herself during a fight with the sky. Since then, the nation has had a unique relationship with water—a history as winding as the *esteros*, the network of small rivers that flow through its capital, Manila. Architecture professor Mary Anne Ocampo focuses much of her attention on the relationship between urbanism and architecture in this water-based city. "Water has been the most important facilitator of growth and development in Manila's history," Ocampo says. "Although it was known as the 'Venice of the Orient' during Spanish colonial rule, today Manila has a system of waterways that is buried, plugged, or polluted. It is lost under the metropolis."

Ocampo is investigating the city's history to better understand what she calls its current state of "amnesia." During 300 years of Spanish rule ending at the turn of the 20th century, the city developed along the *esteros*. But the arrival of railroads and paved roads in the 20th century turned the city inside out. "The backs of buildings suddenly became the front facades as people turned toward the paved roadways," she says. "What once were celebrated tributaries are now just sewers or forgotten voids. People just look past them, and water—as both a physical and virtual presence—is not regarded in a way that contributes to the city. That's the notion of amnesia."

Ocampo, who is half Filipino, spent summer 2004 living in and studying the city. In her research, which is driven by a personal quest to connect with her roots in Manila, Ocampo is uncovering remnants of the former grandeur of Manila's water system. "These pockets of the past offer insight into the city's rich history, and you start to piece together the traces of what was and the erasures that are occurring within the city," she says. "These changes are tied directly to whoever has colonized the area, and the city responds to those economic, political, social, and cultural forces."

The memory of Spanish colonialism is being literally and figuratively washed away. To fully investigate its influence on the city's evolution, Ocampo will travel to Madrid this spring on a Faculty Works Grant from the School of Architecture to review old maps and documents relating to the former Philippines colony. She will also compare such distinctive architectural features as the *Intramuros*, the walled city within Manila, and Manila's street grid with its counterparts in Spain. Once she establishes a foundation for its urban history, Ocampo plans to construct a new model of urbanism that includes Manila's history and contemporary condition as well as its relationship to nature. Now in the initial stages of mapping the city, she strings together photographs from various points in time, noting name changes and other bits of historical information. "This gives me a representational technique or methodology for studying the city by visually linking yesterday to the future," she says.

Ocampo hopes to develop a methodology she can then apply to other "floating cities," such as Venice and Hanoi. "I'm creating a theoretical framework on how we can 'read' cities that are subject to the ephemeral nature of water," she says. "I am not trying to find a solution to 'fix' these cities, but trying to find multiple ways of looking at them so I can turn those observations into architectural proposals and speculative visions of urbanism." **—Margaret Costello**



Estero de Binondo, one of Manila's once grand waterways that is now a disregarded piece of the past

Photos courtesy of Mary Anne Ocampo

Reforming Turkey's Mental Health System

WALKING THROUGH TURKISH MENTAL INSTITUtions, College of Law professor Arlene Kanter felt her heart sink. In the courtyard of Turkey's largest mental hospital, barely clothed male patients languished on the ground surrounded by crumbling cement walls. Other patients—children and adults—are routinely bound in straightjackets to receive electroconvulsive therapy (ECT)—shock treatment—against their will, and without anesthesia. At another institution, she heard stories of children tied to their cribs who lay in their own excrement, becoming disfigured from atrophy and malnutrition. "Families deposit their loved ones in these institutions because they believe they have no choice," says the Meredith Professor for Teaching Excellence, who is co-director of SU's Center on Human Policy, Law, and Disability Studies and director of the College of Law's Disability Law and Policy Program. "The children literally live in cribs, with no opportunity for physical exercise or affection. To prevent self-abuse, which often occurs when one is deprived of physical attention, the staff tape plastic bottles over the hands of the children, and this is how they live—and sometimes die—in their cribs."

Kanter and representatives of Mental Disability Rights International (MDRI), a nonprofit advocacy organization, documented these disturbing scenes in *Behind Closed Doors: Human Rights Abuses in the Psychiatric Facilities, Orphanages and Rehabilitation Centers of Turkey*. Kanter, who has worked with MDRI on the Turkish project for the past four years, says the report seeks to generate international pressure on the Turkish government to reform its current mental health system by correcting wrongdoings and developing alternatives to institutionalization.

Last summer, during a lecture at the World Psychiatric Association (WPA) International Congress in Istanbul, Kanter discussed the report as a case study of why the proposed United Nations Treaty on the Rights of People with Disabilities, which she is working on, is so important to ensure human rights protections for people with mental disabilities. "At the end of a WPA presentation, a Turkish psychiatrist stood up and said, 'I work at the institution you mentioned and I'm looking you straight in the eyes, and you are calling me a torturer,'" she says. "I replied, 'The European Union has recognized that ECT without anesthesia violates the European Convention Against Torture. When psychiatrists in Turkey start using anesthesia with ECT, then they may no longer be considered to be engaging in torture.' I could see the pain in his face because he believed he was really helping his patients. It was a difficult moment for both of us. I don't believe that all the psychiatrists in Turkey are acting maliciously. Many just don't know there are alternatives to institution-based 'treatments.' They need to learn about other ways of helping and supporting people with mental disabilities outside of institutions."

Kanter has spent the past 25 years, first as a lawyer and then as a law professor, advocating for the rights of people with disabilities through litigation, legislation, and education. The subject first stirred her to action when she witnessed similar abuses occurring in American mental institutions in the late 1970s and early '80s. "I saw people tied down and living in these horrible conditions in the United States," she says. "That was a huge turning point for me, and I knew I had to do something. No one should have to live like this." She also has worked in Israel, where she helped draft the country's first disability discrimination law. "I have seen enormous changes in the United States and in Israel during this past decade," Kanter says. "That's why I can remain optimistic that change will occur in Turkey. I have no doubt these institutions will eventually be closed and a new system of community-based mental health services will be created. But change is slow—and unfortunately too slow for the many children and adults who continue to die in institutions throughout the world today."

The immediate goal of her MDRI work in Turkey was to stop abuse in the mental hospitals. Coverage of MDRI's report in such newspapers as *The New York Times*, *The Washington Post*, and the *International Herald Tribune*, as well as a letter from the European Union requiring Turkey to meet certain human rights criteria before consideration for admission into the organization, prompted a response. Currently, Turkey has no mental health law whatsoever. Since the report, Turkish government institutions have ended the practice of administering shock therapy without anesthesia and begun the process of developing new legislation to protect the rights of people with mental disabilities. In the report appendix, Kanter outlines what should be included in a new Turkish mental health law to ensure human rights protections

Law professor Arlene Kanter seeks reform in the Turkish mental health system and hopes the country develops alternatives to institutionalization.

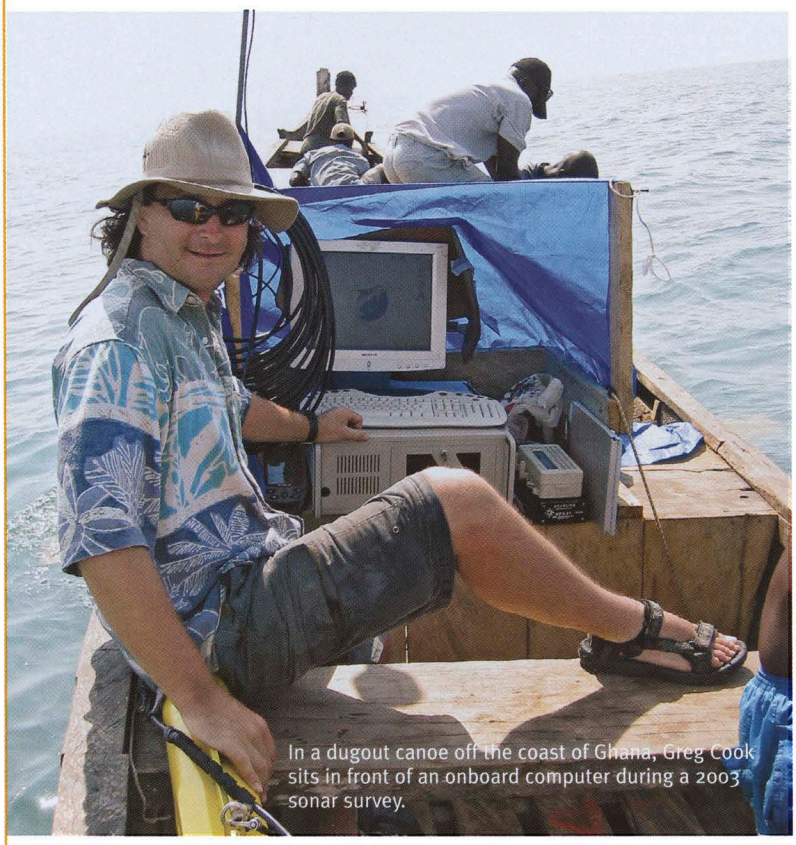
for people with mental disabilities in and out of institutions. "We don't want to just say what's wrong," she says. "We want to work with people in Turkey to develop solutions and provide support to enact the necessary changes."

This fall, Kanter presented her work on Turkey as a case study for law students in a new course she has developed, based on a new casebook she has co-authored, *International Human Rights and Comparative Mental Disability Law*. "I'm basically throwing real-life problems from Turkey, Israel, and other countries at the students and challenging them to develop legal and policy strategies to ensure the protection against human rights abuses of people with disabilities," she says. Kanter is also forging new partnerships with Turkish universities, lawyers, and self-advocacy groups to help change that society's perceptions and treatment of people with disabilities by developing new curricula in the training of such professionals as physicians, psychiatrists, lawyers, and teachers. For example, she is working with the law faculty at Istanbul Bigli University on creating the country's first disability rights law clinic, modeled after the clinics she directed at the College of Law from 1988 to 2006.

Kanter also hopes to encourage a self-empowerment movement among people with disabilities and their families by connecting them with disability rights activists around the world. "Litigation and legislation are important in initiating change, but in the long term, change also has to occur on the personal level," she says. "We have to change people's attitudes so there is no shame in having a disability or having a family member with a disability. We have model community-based, self-advocacy programs right here in Syracuse that we would love to show to our colleagues from Turkey. One of the most useful things we've done in Turkey is connect people with disabilities and their family members with others worldwide. All people, with or without disabilities, benefit enormously through personal connections. I know I have."

—Margaret Costello

Ocean Exploration Reveals Relics of European-African Trade



In a dugout canoe off the coast of Ghana, Greg Cook sits in front of an onboard computer during a 2003 sonar survey.

THIRTY-FIVE FEET UNDERWATER AND OUTFITted in diving gear, Greg Cook shuffled across the murky depths of the ocean floor one-and-a-half miles off the coast of Elmina, Ghana, looking for sunken history. He made the first discovery with his head, ramming into a centuries-old ship's cannon. The painful encounter was just a vague memory within moments. "I backed up and began feeling around," says Cook, an anthropology doctoral student at the Maxwell School. "I could feel hundreds and hundreds of brass bowls and trade goods that were stacked up on the sea floor." Securing a couple of basins, Cook rose to the surface and handed the objects to the Ghanaian fishing crew who had ferried him to the site. "They said these objects were very old and they hadn't seen anything like them since their grandmothers' time," says Cook, a nautical archaeologist. "Then I knew we had something interesting."

The 2003 find and follow-up investigations mark the first time archaeologists surveyed and excavated a shipwreck in West Africa. Two years later, Cook, who teaches at the University of West Florida (UWF), returned with a group of SU and UWF students to excavate the site, based on the survey. Their recovery efforts netted glass beads, brass and pewter basins, and manilas (brass bracelets), which were melted down by African coppersmiths for toolmaking. "The manilas are not frequently found, and we located hundreds of them, still stacked in a circular formation, probably packed in a wooden cask that had eroded," Cook says.

He and his colleagues figure the find is a Dutch trading ship dating back to sometime in the 18th or early 19th century. "To find a preserved shipwreck, just before it reached the coast, is like finding a goldmine—not treasure-wise, but in knowledge," he says. "I'm interested in how material culture—or goods—were used, comparatively between people of different cultures, and how they were used to interact." In West Africa, Europeans traded goods for gold and other African commodities, and even for slaves. "If this ship had reached shore," he says, "the goods on board would have been dispersed into the hinterlands through internal trade networks, used until there was nothing left, and would have never entered the archaeological record."

Cook developed his interest in preserving these European and African trade artifacts while he was an Indiana University undergraduate exchange student at the University of Malawi in Southeastern Africa. After earning a bachelor's degree, he studied underwater archaeology at Texas A&M. While working on his master's thesis concerning a colonial sloop found off Jamaica's north coast, Cook met SU anthropology professor Doug Armstrong, who does research in the Caribbean. Armstrong encouraged Cook to enter Maxwell's doctoral program and work with anthropology professor and department chair Christopher DeCorse, whose work focuses on the settlement at Elmina, the site of the first and largest European trading post in sub-Saharan Africa. "Chris was interested in underwater archaeology in Ghana and secured funding from the National Geographic Society," Cook says.

Photos courtesy of Greg Cook

The research team on a dive investigating the Elmina shipwreck


A sample of pewter basins after treatment in the University of West Florida conservation lab

Cook and another colleague embarked on the survey in 2003. They used side scan sonar to search the ocean floor and detected 70 anomalies—sonar aberrations that might be other ships. On his first dive, Cook discovered the Dutch ship. The follow-up excavation two years later yielded more than 1,000 artifacts, which are undergoing preservation and analysis at UWF. "I'm hoping to display them here for a while, but they will all go back to Ghana," Cook says. "That was a stipulation of our government permit. Ghana has a well-developed tourism industry, and many people go there to visit the castles where slaves were kept and traded, and examine the history. These items will make a unique exhibit."

Along with government regulations, there were social traditions to follow, and they worked with Elmina's fishermen chief to ensure they were being respectful to the culture, Cook says. In one instance, the researchers drank ceremonial libations with the local people before the work began, in honor of any human remains they might find. "Chris helped us prepare for those types of traditions and made sure everyone was happy with what we were doing," he says. But he didn't have to worry. "Ghanaians are known for being hospitable," Cook says. "One of the chief's advisors loaned us his canoe, and they were excited about the research."


University of West Florida graduate student Nickie Hamann measures pewter basins, recovered from the shipwreck, in the university's conservation lab.

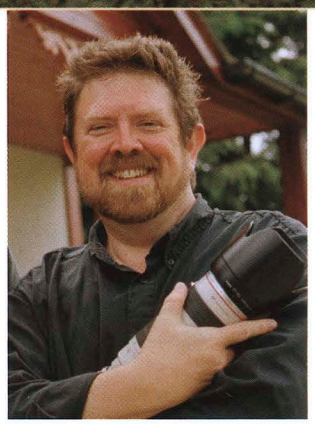
The research continues as part of an effort by DeCorse, the principal investigator, who is coordinating the land and sea finds for a long-term study on European and African trade. The sites are gems for researchers, because the wrecks most likely remain untouched by treasure hunters. The government forbids looting, and the rough, dark waters deter diving. "When we laid our hands on that first cannon, we knew the last person who touched it probably went down with the ship 200 years ago," says Cook, who has written about the findings in an African archaeology journal. "The research in Ghana is so unique. If you're an anthropological archaeologist and interested in cultural changes and historical forces, it's a perfect place to work." **—Kathleen Haley**

LawrenceMasonJr.

In Search of Lockerbie

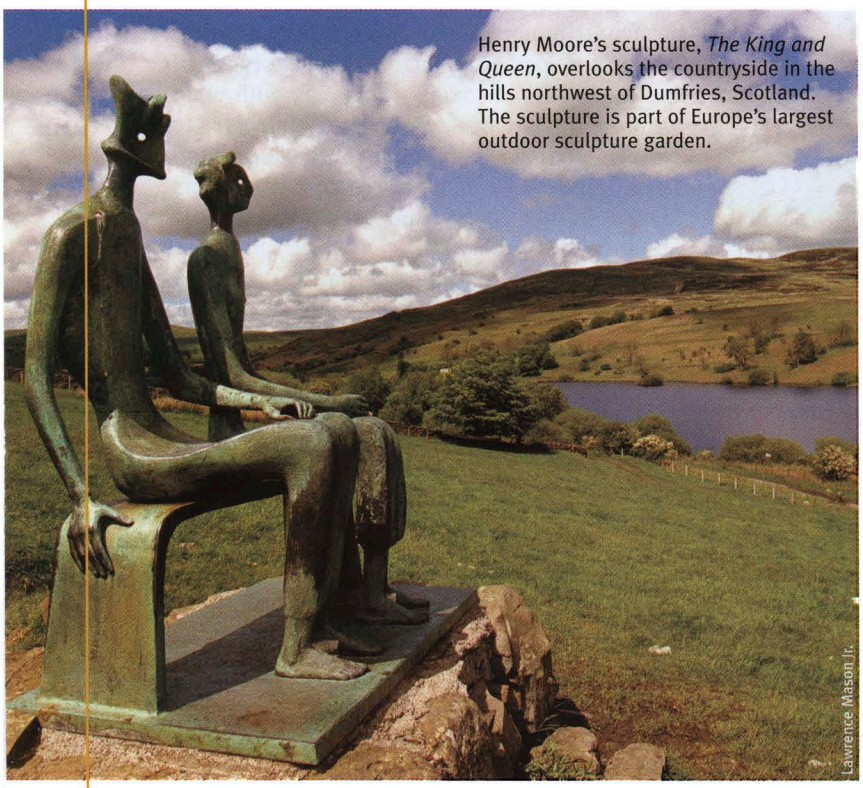
LARRY MASON'S FIRST TRIP TO LOCKERBIE, IN 1996, was a long time coming. "I taught eight students who died on Pan Am 103 in 1988, and I felt compelled to go to the place where it happened," says the Newhouse photography professor. "The opportunity came when I was teaching in London. I took my class on a field trip to Scotland." Mason and his students were greeted warmly by their hosts and dutifully taken to see grim legacies of the terrorist bombing: Tundergarth Mains, where the nose of the Boeing 747 fell to Earth; Sherwood Crescent, where the flaming fuel tank crashed, killing Lockerbie residents and leaving a crater at the side of the roadway; and Dryfesdale Cemetery, where a wall of remembrance bears the names of the passengers and those on the ground who died. During the decade since, Mason has returned to Lockerbie a dozen times, often accompanied by student photographers and writers, to attempt to capture the town and its people. He is currently collaborating with magazine professor Melissa Chessher to edit those efforts into a book tentatively titled, "Our Lockerbie."

"I thought that by visiting those places, I had seen Lockerbie," Mason says. "But it wasn't true. All I had seen was 'the Lockerbie disaster.'" The point was brought home to Mason as he prepared his photographs for an exhibition at Newhouse commemorating the 10th anniversary of the event. "Alison Younger, a Lockerbie Scholar who was my student, wrote for the show, and as I read her work, I realized we had to do something that would take people beyond the image of catastrophe," he says. With the help of a University Vision Fund grant in 1999, he began regularly taking groups of student photographers and writers to search for the real Lockerbie—a place affected by the fate of Pan Am 103, but not defined by it. Lockerbie, they discovered, has a long history that includes events in the accession to the throne of Robert the Bruce, Scotland's first king, and that the ruins of his castle are in the area, as is the birthplace of the poet Robert Burns. "Did you know that curling is the big sport in Lockerbie, and that the captain of the British Olympic curling team is from there?" Mason asks. "In fact, one of the founders of the SU Curling Club was Andrew McClune, a Lockerbie Scholar. The team took the silver medal in its division at the U.S. championships in 2003, its first year in existence. We discovered so many rich things that people don't know about the place and its people, and the relationship they have developed with us."



Although born of tragedy, the bond between Syracuse and Lockerbie has taken on a multidimensional life of its own. "With all the Lockerbie Scholars who have come to SU over the years and all the friends and relatives who have come to visit them, you'll meet quite a few people in Lockerbie who have had direct contact with Syracuse," Mason says. "They have new memories and personal histories to share. There is more between us than just the negativity of the disaster."

The Lockerbie Scholars Program, which brings two recent Lockerbie Academy graduates to study at the University each year, reached a milestone in 2006, when Joanna Graham, the first scholar not yet born when the Pan Am 103 attack took place, arrived on campus. "This a very interesting point in our shared history," Mason says. "From now on, none of the Lockerbie Scholars will come with personal experience of the event. All they will know is that there are historical links between Lockerbie and Syracuse. It is our responsibility to make sure that they—and all the members of both communities—know the full story." **—David Marc**



Henry Moore's sculpture, *The King and Queen*, overlooks the countryside in the hills northwest of Dumfries, Scotland. The sculpture is part of Europe's largest outdoor sculpture garden.

Lawrence Mason Jr.

Top photo courtesy of Lawrence Mason Jr.

Serengeti Burning

IT'S A WARM, STILL SUMMER'S EVENING, AND STEPHANIE Eby G'09 is enjoying it as any other student might—by relaxing on the porch in a comfortable chair, taking in the natural beauty of her surroundings. But there is a difference. Instead of a playful kitten scampering at her feet, Eby is being pestered by a pair of dwarf mongooses attempting to climb the back of her chair. Instead of watching a cow grazing in a nearby pasture, she looks up the hill to see a giraffe nibbling on the leaves of an acacia tree. And instead of listening to the incessant bark of a neighbor's dog, Eby hears the distant calls of a clan of hyenas.

Needless to say, Eby was not sitting outside her family home in Burlington, Massachusetts. She was in Serengeti National Park in Tanzania, where she spent the summer studying the effects of a fire management plan on the park's ecosystem as part of her doctoral research in biology at the College of Arts and Sciences. "I remember first wanting to visit Africa when I was in middle school and saw a special on the wildebeest migration in the Serengeti," Eby says. "I finally got the chance to go when I studied abroad my junior year at Bates College, with the School for Field Studies in Kenya. Being in Kenya changed my whole view of the world, I feel for the better."

According to Eby, the Serengeti fire management plan calls for controlled burning of grassy areas at the beginning of Tanzania's dry season to create firebreaks. These firebreaks protect the park later in the dry season by limiting how far fires can spread. Controlled burning also creates firebreaks around sensitive habitat. "I'm studying the effect of controlled burning on how animals use the landscape, especially which animals are attracted to burned areas and why," Eby says.

The park recently began formulating a new fire management plan to accomplish several goals: preserving sensitive vegetation communities and associated habitats; protecting rare and sensitive species; minimizing the impact of wildfires; protecting facilities and park infrastructure; and creating suitable conditions for patrols. "I hope to give park management new information to help it create and implement the best possible fire plan," she says. "My study will address three of the new plan's goals: to create suitable conditions for tourism, to maintain adequate foraging resources for animals, and to control disease vectors."

This was Eby's third field season in the park. "The project was my idea," she says. "When I was in the Serengeti during 2004 for a biocomplexity meeting and preliminary field season, it became clear that the effects of the fire management plan on the ecosystem were not being studied—and definitely needed to be." Eby also worked with researchers to create fire history maps of the Serengeti, information that will assist park ecologists in planning where to burn in the future.

Another facet of Eby's research, which is primarily funded by the National Science Foundation, was the discovery that the seemingly lifeless burnt areas of the park actually attracted animals, and scientists had yet to determine why. "That is what I'm trying to find out," she says. "I have four theories: They are eating the ash as a nutrient supplement; the areas are safer from predators; there are fewer parasites; or they are eating the fresh green grasses that appear a week or so after a burn."

Performing this research was no small task. Eby and her fellow scientists were up at the crack of dawn every day, motoring in Land Rovers over many miles of rough terrain. Occasionally they spotted a hungry predator—a cheetah, jackal, or lion—and kept a sharp eye on its movements as they worked. "Truthfully," she says, "my biggest worry in the field is snakes."

Throughout the day, the researchers conducted "transects"—following designated paths as they recorded information on the animals that were present—a technique that allows scientists to estimate the density of animal life in the study area. "We have been conducting transects in burned and unburned areas, where we count the animals, classify them by species, sex, and age, and record their activity," Eby says. "Then we collect multiple samples of vegetation, soil, and ash."

For Eby, living and working in the Serengeti is an amazing experience. "There is a strong research center, and normally there are several Ph.D. students around, creating a nice research community," she says. "It's unbelievable to drive around; it really does look like a National Geographic TV special."

Beyond her research, Eby says her time in Tanzania has provided important life lessons. "Our project has several full-time Tanzanian employees, and I interact with many Tanzanians who work at the park," she says. "Spending time with them and getting to know the culture, traditions, and language has been an added benefit to the experience." **—Jeffrey Charboneau**

Photo courtesy of Stephanie Eby

Engineering a Russian Experience

AEROSPACE ENGINEERING STUDENT JUSTIN RUBAL '07 expected to be challenged intellectually working with a Russian professor on fluid dynamics during a summer internship at Moscow State University's Institute of Mechanics. But imagine his surprise when he was questioned about something he learned in kindergarten. "The professor drew a circle, pointed to it, and asked what it was," Rubal says. "I said, 'A circle.' He said, 'No, the inside part.' I said, 'Ummm, a circle.'" After a quick discussion they realized that the Russian language has two distinct words for circle, while English has only one. "We had a good laugh," Rubal says. "We had a really good dictionary on the computer for engineering and math terms, but sometimes the concepts just didn't translate perfectly."

Other language and cultural differences surfaced occasionally during Rubal's internship that might have slowed his learning of fluid dynamics, but enhanced his overall experience abroad. For example, Professor Ilias Sibgatullin referred several times to common engineering concepts and theories by names that differ from what American education teaches. "The problem was American textbooks credit Western scientists with the same discoveries that Russian textbooks credit to Russian scientists," Rubal says. "So we'd discover that we were talking about the same phenomenon using different names."

Rubal says these moments—when he and Sibgatullin bonded despite, and sometimes because of, language and cultural differences—are what stand out from his research experience abroad. He sought out this opportunity in Russia through the Knowledge Exchange Institute (KEI), an American program. "I've studied Russian for two years and have always had an interest in Russian history, music, literature, and culture," Rubal says. "Russia has resisted 'Western culture' as much as any country I know. I wanted to see how this affects everything from everyday social interactions to methods of problem solving in engineering." He spent 15 hours a week for five weeks working with Sibgatullin, took a course on Russian culture, and visited museums, cultural and historic sites, and local markets and restaurants.

In addition to a richer appreciation for Russia and its people, Rubal returned to SU with a much deeper understanding of engineering concepts because of the work he did with Sibgatullin. The pair examined the diffusion of heat and salt in a fluid by creating a mathematical model to describe the process. This fundamental research could be applied to predict airflow in many scenarios, such as air circulation inside a plane. "Where does the hot air people exhale in the cabin of an airplane go?" Rubal asks. "How does that air circulate when it comes out of the vents? The solutions we worked on could help computers calculate that flow."

Rubal says the internship involved more analysis and theoretical understanding than the hands-on research he completed in the United States. Rather than conducting experiments or running tests in lab settings and then recording data, he worked in an office with Sibgatullin, tackling fundamental equations with only pencil and paper. In Russia, scientists are expected to begin on fundamental equations and perform a series of derivations until they reach the point where they hope to create new equations. "They can't just pick up their research where the last guy left off," Rubal says. "It was very interesting to see how engineering is done halfway across the world—in a country that has had such an impact on mathematics and engineering. It was an all-around great experience." **—Margaret Costello**

Justin Rubal (center) with Professor Ilias Sibgatullin (left) and a friend at the Institute of Mechanics, Moscow State University

Photos courtesy of Justin Rubal

Women's Rights Beyond the Velvet Revolution

FOR 45 YEARS, THE SOVIET UNION'S COMMUNIST regime held power over most of Eastern Europe. In 1989, the entire face of the region changed. First, the Berlin Wall fell and Czechoslovakia underwent its bloodless "Velvet Revolution." Then, the Cold War officially ended in 1991, with the U.S.S.R. splitting into 15 separate nations. Two years later, Czechoslovakia peacefully split into two democratic nations, the Czech Republic and Slovakia.

Petra Hejnova G'08, a native of the Czech Republic, experienced the everyday reality of living under a totalitarian regime until her early teens. Her parents instilled an interest in politics in her, teaching her lessons and giving her books missing from schools, where history classes stopped at World War II. "I was lucky because my parents realized what a big deal the fall of communism was," she says. "They took me and my brother to the demonstrations in Prague. It was a very exciting time, and I think I was the only 14-year-old in the entire world following every bit of political news."

Metropolitan Park, Santiago, Chile

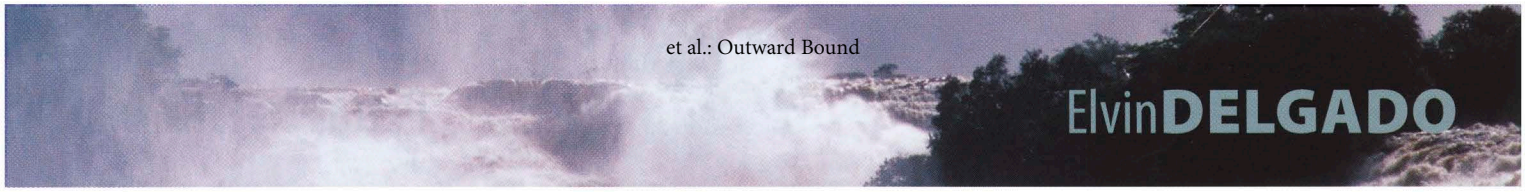
Seaside town of Valparaiso, Chile

Since then, Hejnova has maintained her interest in politics; but now, when she looks back at the collapse of communism, she is baffled. In the early '90s, women in the new Czech Republic faced gross inequalities in employment, political representation, and division of labor in the home, but seemed to largely accept their subordinate position in society. Czech women were unlike women in other regions of the world undergoing comparable revolutions. In the 1980s and early '90s, for instance, women in Latin America responded to inequalities by mobilizing and working to ensure their rights were advanced. "To me, it is surprising to have all of these countries in Latin America, where women acted and worked to protect and advance their rights during the political and economic transformation," Hejnova says, "while women in pretty much all of the Central and Eastern European countries stayed quiet and even rejected the notion of emancipation."

As a political science doctoral student at the Maxwell School, Hejnova has been researching this puzzling and personal topic. For her dissertation, she is focusing on what caused differences in women's mobilization efforts during democratization in the Czech Republic and Chile, where women faced political and employment inequalities and also shouldered the burden of household labor. Hejnova's initial research included multiple trips to the Czech Republic. "Women in Eastern Europe seem to associate women's rights and emancipation with the rhetoric and policies of the authoritarian regimes under which they lived for significant parts of their lives," she says. Communism, after all, promoted strict equality for everyone in its rhetoric. "For example, many think that women's rights were strongly protected," she says. "But few know about the lack of child care facilities and other problems women faced during those times."

With the support of research grants from the Maxwell School, the Tinker Foundation, and a Woodrow Wilson Women's Studies Dissertation Fellowship, Hejnova traveled to Chile last summer to research her dissertation. She succeeded in gathering preliminary evidence and building contacts with women's issues experts and the leaders of women's organizations. Hejnova hopes her dissertation will contribute to the existing knowledge on women's movements and the effects of public policies on these societies. But perhaps most importantly, she hopes women will take notice. "Once women come to understand some of the unconscious processes affecting their views of their roles and positions in the societies they live in, it will help them in their decisions about how to proceed in the future when their rights are endangered," she says. **—Christine Mattheis**

Photos courtesy of Petra Hejnova



Monitoring Lake Maracaibo and its Toxic History

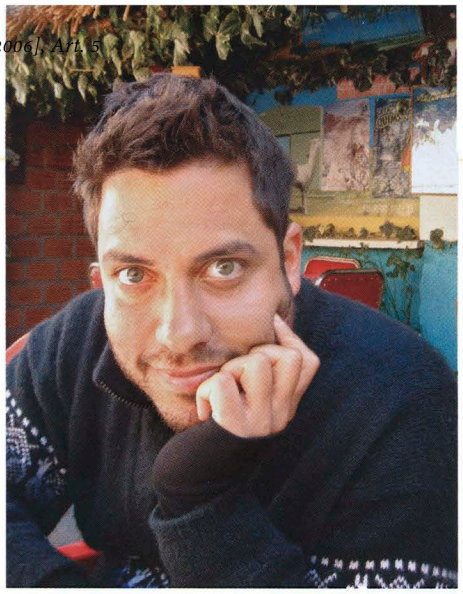
LAKE MARACAIBO IN NORTHWESTern Venezuela, one of Earth's 17 ancient lakes and the largest lake in South America, has provided a way of life for thousands of years. Its deep waters have sustained fish for eating and selling and fresh water for drinking, while salt deposits along its shores have offered another resource for development. In 1920, another precious natural resource was unearthed in the lake basin: oil. For decades, companies have extracted oil and salt in large quantities through expansive facilities. They widened and deepened a straight that connects the lake to the Gulf of Venezuela on the Caribbean Sea, so large tankers can pass. As a result, saltwater has seeped into the lake, altering its ecosystem. Today, Venezuela is the world's fifth largest exporter of oil—and the lake is among the world's most polluted. "Lake Maracaibo has been polluted by oil spills on a regular basis; slaughterhouse waste; lead, arsenic, vanadium, mercury, and other toxic byproducts of the salt and oil industries; and sewage from the seven million people who live there, which flows into the water at a rate of 2,500 liters per second," says Elvin Delgado, a geography doctoral candidate at the Maxwell School who has researched the area for the past three years. "The environmental degradation of the Lake Maracaibo Basin is affecting the future and livelihood of the communities there."

Supported by the Maxwell School's Goekjian Summer Research Grant (see related story, page 51) and Program on Latin America and the Caribbean summer research grant, Delgado began his studies of the indigenous communities of Lake Maracaibo in 2003, and made some startling discoveries. Fishermen who routinely dive into the water to net shrimp and octopuses suffered from a painful red rash, and aquatic life died in the areas where the companies discharged their byproducts, he says. Also, a statistically significant number of women in the village of Lagunillas carried babies full term, only to learn, at birth, the babies had no brains or fatally underdeveloped ones—a rare condition known as anencephaly, according to Delgado. "This community had the second highest rate of anencephaly in the world because of the pollution," says Delgado, who planned to return to the area in December to begin a yearlong Fulbright study. "The Venezuelan oil has high levels of the carcinogenic chemical, vanadium, which has to be removed before it can be sold on the international market. So I look at these issues from a political ecology perspective, and recognize that the relationships between economics, politics, and ecology create environmental injustice. This community is literally stuck between a wealthy oil-producing company and a dying lake."

Initially, Delgado hoped to employ such tools as geographic information systems and medical geography methods to link illnesses in Lagunillas to the toxic dumping, and collect data on the vectors of contamination. However, he encountered a major obstacle that required him to revise his project. The Venezuelan government, led by President Hugo Chavez, assumed ownership of many oil and salt companies and made the records of their waste disposal confidential. As a result, Delgado's focus has shifted from quantitative data collection

Salt production facility, Los Olivitos, northwest coast of Lake Maracaibo, province of Ancón de Iturre

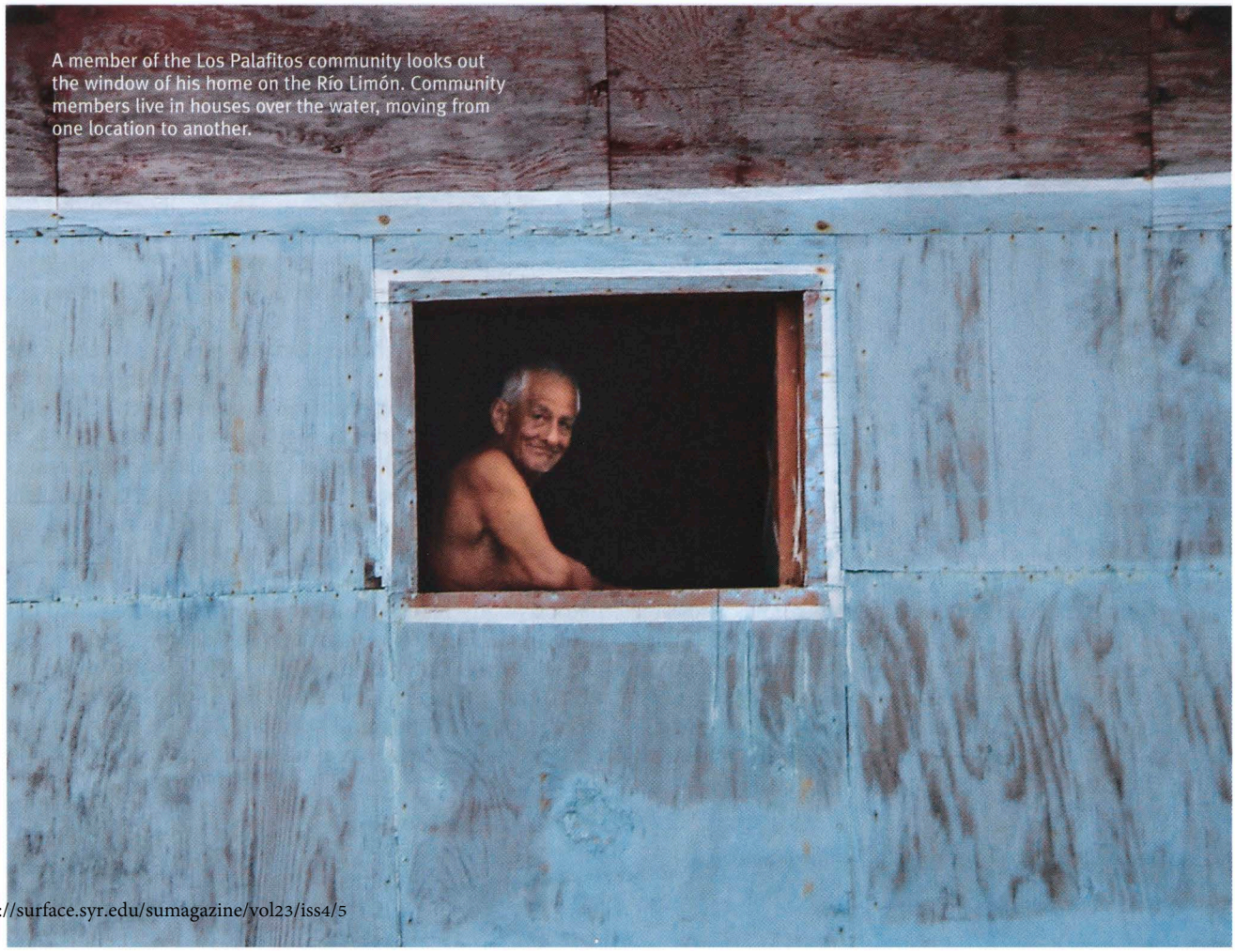
Photos courtesy of Elvin Delgado



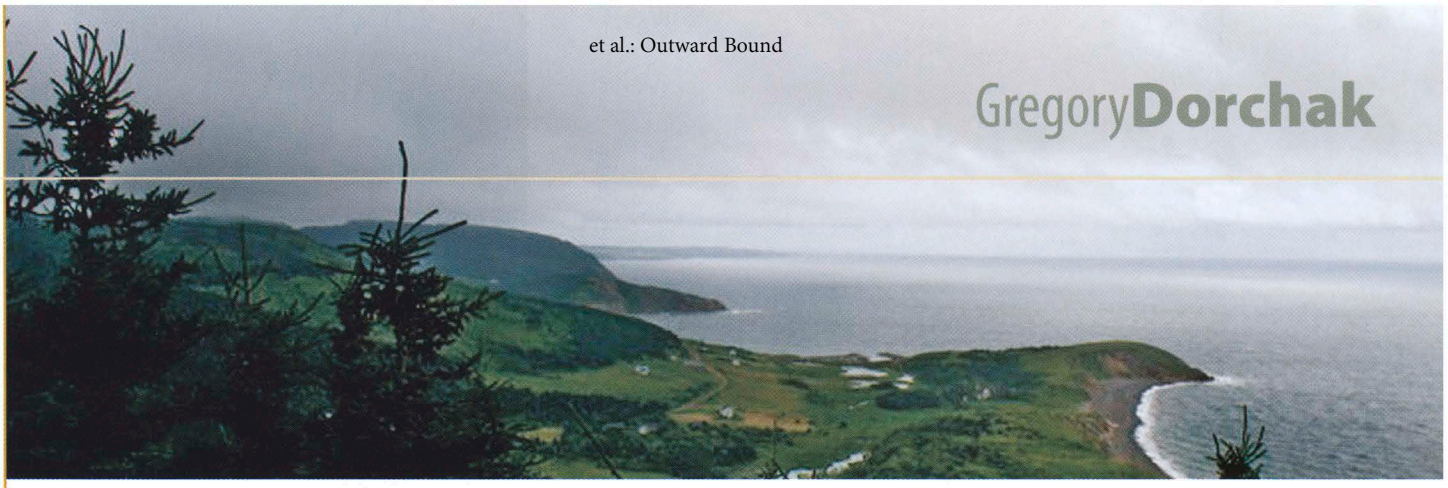
to more qualitative studies of Los Olivitos, a fishing community of 1,700 indigenous people, exploring how the community is being affected by the lake's changes. "I hope my research will bring these issues to the attention of the international community of scholars and activists," he says. "I expect to write my dissertation in both English and Spanish, so that I can share my findings with the people of Los Olivitos. Then they will have the data and information they need to organize and find a better way to dispose of the materials being dumped in the lake. It would be amazing if my research could have that kind of an impact."

Delgado, however, still has some major hurdles to overcome. For example, he is forbidden from talking directly to the village's women. "In their culture, I am considered a foreign white man, even though I'm Puerto Rican and speak the same language," says Delgado, who has recruited a female anthropologist from the area to interview the women. "I spent nine weeks there in 2003, 10 weeks there in 2005, and will be living there for a year. Hopefully, they will begin to trust me not as a member of their community, but as a person who is working with them." Experience has taught him that earning trust will require him to participate in daily community activities—catching and cleaning fish with the men, teaching students basic math skills, helping villagers get vaccinated against diseases, and sometimes just playing with the children. "You cannot go there and be a scientist observing everything from the outside," he says. "You need to get involved."

—Margaret Costello



A member of the Los Palafitos community looks out the window of his home on the Río Limón. Community members live in houses over the water, moving from one location to another.



Fiddling with Tradition in Nova Scotia

TRADITIONS FOR MOST CULTURES ARE A GLIMPSE of history. They preserve memories and allow people to reflect on what once was. And, as College of Visual and Performing Arts graduate student Gregory Dorchak '03 learned, sometimes looking at the past can lead to a new future. A descendant of Scottish and Irish heritage, Dorchak has always been interested in different facets of his ancestry, including the unique musical stylings of the fiddle distinct to both countries. Because of his family ties, he began playing fiddle at a young age, although he did not get the chance to expand his interest. "I never really had the people to draw from because there are not many active fiddling musicians in the states," says Dorchak, who is originally from Detroit and studied broadcast journalism, history, and speech communication as an SU undergraduate. "I wasn't going to play the fiddle in my residence hall room, so I had to reach out to other places, listen to CDs, and read up on the newest trends."

In Syracuse, Dorchak discovered a downtown pub that featured live Celtic music and joined the Causeway Giants, a Celtic rock band that he still plays with. While pursuing his undergraduate studies and later a master's degree in communication and rhetorical studies (CRS), he turned his hobby into an academic pursuit. He was reading a magazine about new styles of fiddling when he happened upon an article in which one expert claimed that the youth of Celtic fiddling were ruining the tradition's purity. Dorchak turned that notion into the focus of his graduate thesis. "I was confused by the harsh criticism, so I started to look at traditions and music and how people construct ideas of authenticity," he says. "It was a great way to make graduate school really interesting to me because I brought my hobby and passion into the work."

With support from the CRS department, Dorchak began exploring the Celtic fiddling tradition of Cape Breton, Nova Scotia. He looked at the area's deep musical tradition, how it has evolved, and what aspects of the music remained traditional. With a grant from VPA, he traveled to the island in summer 2005 and learned that music is an essential part of life there. "You couldn't walk two feet without meeting a musician," he says. "There are only a few radio stations, so you have no other option than to make music yourself."

Experiencing music in pubs, house parties, and *ceilidhs*—all-night dance parties with non-stop fiddling—Dorchak further developed his craft and a research focus. He completed his thesis on the island's fiddling tradition and presented it this year at the North Atlantic Fiddle Convention in Aberdeen, Scotland. "VPA funded my presentation in Scotland and without that I wouldn't have been able to go," Dorchak says. "This really expanded my academic focus, and being immersed in the culture added to my research so much."

Getting a well-rounded view of Celtic culture wasn't all Dorchak gained while in Cape Breton. The island, which *National Geographic Traveler* ranked as one of the top tourist destinations in the world, provided an eclectic mix of scenery from mountains to sandy beaches. He also befriended community members and began dating a local fiddler. "I have found a second home, and my girlfriend is a Cape Breton fiddler, so I can't really escape it," Dorchak jokes. "But basically I learned that music is really an art form and, first and foremost, there are no rules."

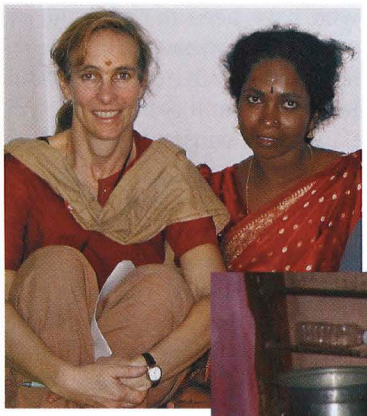
Dorchak's research led him to believe that the article he had originally read was incorrect. For him, the Celtic fiddling tradition was not stagnate, but continually growing and evolving, touching new lives. "If a tradition wants to survive, it needs to actively welcome the youth and embrace new additions," Dorchak says. "Change is the only constant, but within a folk tradition, it is more about the participation of everyone rather than purity."

—Kayleigh Minicozzi

Photos courtesy of Gregory Dorchak

A Voice for South Asian Women

WHEN CULTURAL ANTHROPOLOGIST CECILIA VAN HOLLEN returned to South Asia as an undergraduate on a year-in-India program, she encountered "a wonderful kind of homecoming." She had lived in Sri Lanka between the ages of 8 and 12 while her father was in the U.S. Foreign Service, and attended boarding school in Tamil Nadu, a state in south India. "The whole experience was very positive for my family and me," says Van Hollen, a Maxwell School professor whose research focuses on medical anthropology, gender, development, and nationalism in South Asia. But when she returned home, she was unable to effectively communicate her experience in the face of stereotypes of India as a mystical land where everyone lives in extreme poverty or as a guru. "From that young age, I wanted to gain a better understanding of South Asia's rich and diverse culture, society, and history, and to share that understanding," she says.



Van Hollen returned to India as a graduate student at the University of California, Berkeley, studying women's reproductive health and analyzing the impact of modernity on the lives of lower-class women. Supported by the Fulbright and Woodrow Wilson foundations, she interviewed more than 100 women, met with maternal and child health care policy professionals, and witnessed traditional pregnancy ceremonies and other childbirth rituals. "I was interested in looking at what we call the 'biomedicalization' of reproductive health as one element of globalization, and understanding how it takes on a different form and practice in a specific place," she says. Her research explored how childbearing is influenced by ideas about gender, by cultural concepts about how the body works and about illness and healing, and by state and international development projects centered on family planning and maternal health care. "Much of my work focused on women's complaints about the different kinds of discrimination they faced in hospitals," says Van Hollen, who earned the Association for Asian Studies 2005 A.K. Coomaraswamy Book Prize for *Birth on the Threshold: Childbirth and Modernity in South India* (University of California Press, 2003). "In the interest of social justice, I tried to listen to what women felt needed to be changed, and to give voice to that."

In 2002, Van Hollen traveled to Tamil Nadu to begin researching the HIV/AIDS epidemic in India, returning as a Fulbright Scholar and SU faculty member in 2004. This project, she says, explores HIV/AIDS and its relationship to medicine, gender, class, and stigma, and studies responses to the increasing availability of drugs to prevent mother-to-child transmission of HIV during pregnancy and birth.

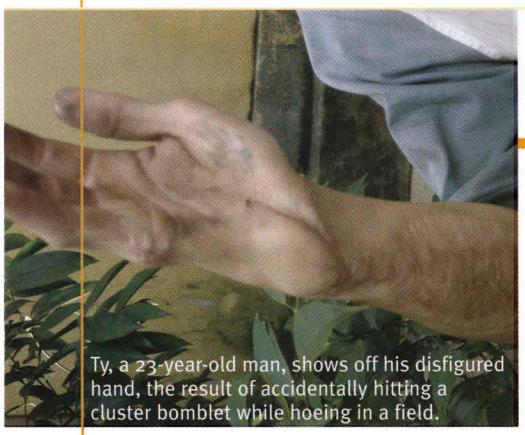
Of the 50 HIV-positive women Van Hollen interviewed for the project, 12 knew they were HIV positive while pregnant and decided to have their babies. Van Hollen believes that in addition to the new medical advances to prevent HIV transmission, several social and cultural factors contributed to that decision, including a lack of early prenatal care, the powerful cultural value placed on motherhood, and the complex political and religious implications related to providing and receiving treatment and counseling from government programs supported by international funds and Christian relief organizations. "Another factor was the development of the Positive Women's Network and similar organizations, which promote the idea that women who tested positive can be mothers of children who have fulfilling lives—even if those children ended up HIV positive," she says.

Van Hollen has written articles on this research and anticipates continuing the project for three years, while she writes a book to share her findings. She is also involved in supporting the development of an education fund for children affected by HIV/AIDS in Chennai, the capital of Tamil Nadu. In the future, she hopes to return to Sri Lanka to study the impact of the country's civil war, again focusing on women's health—work she values because it speaks to the specific needs of individuals. "There's real social value to giving a voice to women's experiences, particularly for issues relating to reproduction," Van Hollen says. "These issues are often ignored by those interested in international affairs, yet they are central to people's lives and matter so much on a day-by-day basis."

—Amy Shires

Mother and child, Tamil Nadu, India

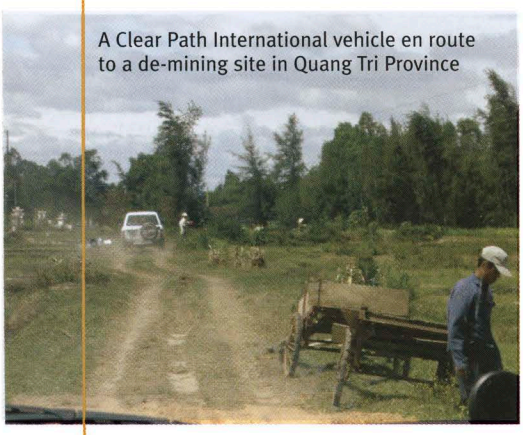
Photos courtesy of Cecilia Van Hollen



Ty, a 23-year-old man, shows off his disfigured hand, the result of accidentally hitting a cluster bomblet while hoeing in a field.

Roped-off munitions

Billboard warning people to stay clear of munitions they find



A Clear Path International vehicle en route to a de-mining site in Quang Tri Province

Remnants of War

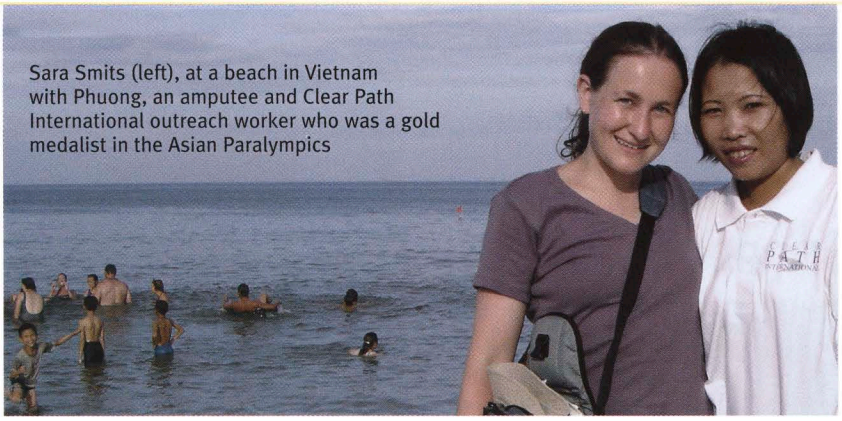
IN A CROWDED HOSPITAL IN DONG HA, VIETNAM, A 5-YEAR-OLD BOY IS among the latest victims of a war that ended more than 30 years ago. A phosphorus mine he innocently picked up and placed in his pocket burns a hole through his thigh. Once exposed to air, the chemical burns until it is completely consumed. Sociology doctoral student Sara Smits G'02 saw the tragedy unfold at the hospital and heard the boy's story, as well as the stories of many other victims in the Quang Tri Province who have been maimed and scarred by weapons left over from the Vietnam War. In her dissertation, Smits seeks to tell their stories and raise awareness about the ongoing suffering. "I'm examining the boundary between the end of war and the war that still continues for people in that area," she says. "I want to show there are social consequences of war beyond combat casualties and environmental concerns."

Her research into the effects of landmines and other unexploded ordnances (UXOs), such as cluster bombs and grenades, stems from her interest in social movements and war and peace. In 1997, Smits, who earned a bachelor's degree in sociology and psychology at St. Norbert College in De Pere, Wisconsin, and a master's degree in sociology from the Maxwell School, attended a conference about UXOs in Washington, D.C. During that same time, the International Campaign to Ban Landmines (ICBL) won the Nobel Peace Prize, and Princess Diana adopted the cause. Since Princess Diana's death, the issue's prominence decreased, Smits says. "I wanted to revive awareness that this is still a problem and people are still working on these issues."

UXOs are in more than 80 countries and cause more than 15,000 casualties a year, according to ICBL. "In Quang Tri Province, you can guarantee that every day or every other day someone is a victim of these munitions," Smits says. Situated along the demilitarized zone during the war, the province sustained the heaviest bombing, and, consequently, has the most unexploded devices. To gather personal stories of victims and see what is being done to combat the problem, Smits ventured to Vietnam for several weeks in 2005 through a Goekjian Summer Research Grant (see related story, page 51), and in March with funding assistance from the sociology department. She worked with Clear Path International (*www.cpi.org*), a Vermont-based nonprofit organization that assists UXO victims with medical costs and programs to sustain them for the future. Smits visited hospitals with Clear Path workers and saw victims who suffered such injuries as loss of limbs and shrapnel wounds. She encountered the 5-year-old burn victim on one of her final visits. "He'll be able to walk again," Smits says. "But seeing his pain and the difficult conditions of the hospital, where there are three to four people to a bed, was one of the harder parts of being there."

After receiving approval from the local Vietnamese government, Smits made home visits to interview UXO victims about their lives before and after their accidents. Ty, a 23-year-old man, told her of the injuries he sustained at age 16 when a metal object he tapped while hoeing exploded. He has shrapnel in his eye, scarring on his face, and a disfigured hand. He spoke of the difficulties of participating in activities with friends and his low expectations for getting married. However, assistance from Clear Path enabled him to get trained in repairing motorbikes, ensuring opportunities for his future. Smits also met a woman named Phuong, who lost a leg, but achieved her dream of having a child and won gold medals in the Asian Paralympics. "The most important thing that stood out to me is that they are moving on," says Smits, who is also impressed by the support victims receive

Photos courtesy of Sara Smits



Sara Smits (left), at a beach in Vietnam with Phuong, an amputee and Clear Path International outreach worker who was a gold medalist in the Asian Paralympics

from family and community members. "This is what they have been given, and they are trying their best to persevere."

Smits is also researching other groups working on the issue, including ones raising awareness to stop the use of landmines. "I'm trying to understand the social movement with its number of different networks," says Smits, who spent time watching the Mines Advisory Group, a British organization, clear mines. She also met many U.S. veterans revisiting Vietnam. "I'd like to do some research with veterans and examine their connection to Vietnam," she says.

Reflecting on her international experiences reinvigorates Smits as she works on her dissertation. "The best way to learn is to live among the people and create connections," she says. "I'm fueled by the memories and knowing there are people who are struggling with the issues surrounding landmines." She finds purpose in her research and does speaking engagements to raise funds for Clear Path. "They do amazing work," Smits says. "I want to somehow give back to the people who gave me so much information and so much inspiration."

—Kathleen Haley

Display of Vietnam War bombs, outside the office of the Mines Advisory Group, Dong Ha Town