



PHOTO: ERIC SAUDER

Soils Unlock Mysteries of Ancient Civilization

What does Indiana Jones have in common with students in the College of Agricultural Sciences? Turns out, more than you might think.

At the end of the last two spring semesters, groups of Penn State undergraduate students from the Soils, Civilizations, and Societies honors class embarked on a three-week journey to regions within the Middle East's Fertile Crescent to conduct hands-on research and learn how soils influence the rise and fall of civilizations. They trekked through narrow courtyards and wandered around open deserts using dune buggies, mopeds, and even camels in search of their Holy Grail: dirt.

The trips through Turkey and Jordan were led by Kate Butler, senior lecturer in soil science, who teaches the course. "The premise



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Students from the Soils, Civilizations, and Societies honors class ham it up in front of Qasr Kharana, one of Jordan's desert castles (above), and review soil samples with local officials (left). Trip leader Kate Butler, senior lecturer in soil science, is shown at far left.

of the course is that the cradle of civilization is in the Fertile Crescent," Butler says. "We're looking at what role soils played in these ancient civilizations."

During the 2007 trip, Butler and her students traveled through the Cappadocia and Gaziantep regions of Turkey, where they met with local farmers in small villages, tunneled through ancient underground cities, and mingled with the locals in an attempt to

understand the cultural beauty of the Middle East.

Soil samples were taken along the way and tests performed to gain an understanding of what kind of soil each region produced. "We would take a core sample of the soil and test its acidity, color, and texture—basic tests," says Butler. "Not to provide hard data but to give the students a feel for what soil scientists do."

As the group snaked through

these ancient lands, they took note of the different agricultural practices each area employed, such as the use of pigeon guano to fertilize crops. In addition to visiting small farming villages, the group also went to famous archaeological sites such as Ephesus and Troy, where the soil practices of the ancient peoples eventually led to their demise. By cutting down all the lumber and vegetation in the area to use as fuel and for structural purposes, the soils in these areas began to erode significantly.

"No matter where you're going and what you're doing in life, the soil is going to be very impor-

tant to you,” says Butler. “We have to learn how to conserve the soil, or we could face the problems of Ephesus and Troy, which did not conserve and, as a result, lost their cities.”

The group next entered Jordan, starting in the capital city of Amman and then traveling north to Jerash, a Decapolis city. In the northeast, the group headed for Jawa. There, they explored the Paleolithic ruins of this ancient site, where the first human-made dam system was built. To get to Jawa, Butler, her students, and their guide had to follow a pick-up truck full of Bedouin herdsman through the barren, rocky, basalt desert.

After Jawa, the students and their instructor headed for the Dead Sea, then to Petra, an ancient city in Jordan whose name means “rock” in Arabic. The group visited a large farm overlooking the Dead Sea where the owners, members of Jordan’s Ministry of Agriculture, showed them different and successful agricultural practices being implemented throughout Jordan.

They also camped out for one night in Jordan’s majestic Wadi Rum region. “Sleeping in the desert was absolutely amazing,” says Sandra Howland, then a senior in Agricultural Science. “We watched the sunset and ate a fantastic meal cooked over a fire. There are no lights, so you can see the entire night sky—all the stars are visible.” The next morning, the group took a safari on camels back to the city.

“The purpose of the class was to grasp how the physical aspect of soil relates to how a society developed,” says Amy Stauffer, who was a sophomore majoring in Agricultural Science when she made the trek in 2007. “We looked at how parts of the society either thrived or died. Middle Eastern culture is amazing, and applying the course objectives to the trip was an awesome learning experience.”

—Vincent Rome

Faculty, Flowers, and Food Science Help Launch a Career

Talk to Catherine Adams about her days at Penn State and you won’t hear much about late-night cramming and early morning classes. For her, the best of Penn State’s College of Agricultural Sciences can be distilled into family, faculty, and flowers.

Adams is a recipient of the 2008 Penn State Alumni Fellow Award, given by the University’s alumni association to graduates who, as leaders in their professions, are nominated by an academic college and accept an invitation to return to campus to share their expertise with students, faculty, and administrators. She’s also a member of the college’s advisory committee and a charter member of the Armsby Honor Society. She was selected as an Outstanding Alumna of the college in 1995.

Adams was a vice president for worldwide quality, food safety, and nutrition with McDonald’s Corporation before recently establishing a food safety and health policy consulting firm, RdR Solutions, which counts McDonald’s among its clients. She’s held food safety and quality positions with Coors Brewing Company, H. J. Heinz, YUM Brands (Pizza Hut, Taco Bell, and KFC restaurants), and the Campbell Soup Company. Previously, she managed scientific affairs for the Grocery Manufacturers of America and at the International Life Sciences Institute. She also was an assistant administrator for the U.S. Department of Agriculture’s Food Safety and Inspection Service, where she engineered the development of the hazard analysis of critical control points, or HACCP, process.

She graduated with honors from the University in 1979 with a bachelor’s degree in food science before earning a master’s degree from Michigan State Univer-

sity and doctorate from the University of Illinois. Adams credits the encouragement and education she received in Happy Valley for many of her accomplishments, and she can point to the specific Penn State course that inspired her outstanding career.

“I was a pre-vet student until I took a course in food science taught by (former department head) David Lineback,” Adams remembers. “I became smitten with the topic because it seemed to take a broad-based approach that interfaced with nutrition. I was interested in applying science to policy, using it to drive decisions consumers make in the real world. Food science seemed to focus on those application-based aspects of science.”

While she was drawn to the practical nature of food science, it was the faculty who nurtured her abilities. People such as Lineback, professor emeritus Gerald Kuhn, and former department head Philip Keeney invested time and personal interest in a promising student, welcoming her into the department with challenging assignments and family dinners.

“Elsie Keeney gathered violets from Mt. Nittany for the scented salads she served to the students they invited to dinner,” Adams recalls. “Collecting flowers on Mt. Nittany with Mrs. Keeney changed what could have been a lonely period into a very rich time for me, and I have warm memories of my days there. I worked a summer in extension with Dr. Kuhn; he let me do interesting things and he treated me with respect. As an undergrad, that made a tremendous difference.”

In Paul Dimick’s analytical chemistry class, Adams earned an “A” and a chance to test herself.



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“He said, ‘You did well, but let’s see what you have in the lab,’” she says. “He challenged me. I worked hard, but the faculty created a supportive environment that made me want to be the best I could be. That’s why I feel strongly about Penn State and what it did for me. I’ve learned a lot in my career—some through the school of hard knocks—which I’d love to impart to students. When I have the opportunity to give back the lessons I learned, I want to do it more than financially.”

Her career has taken Adams many places, and she now lives in Washington, D.C., and in Texas, where she owns and operates a working ranch, breeding and raising competitive cutting horses and an Angus cattle herd begun with Penn State stock. But, she notes, wherever she lives, she remains an active Penn Stater.

“I’ve been living in three places for several years, and I never felt distance was an issue,” she says. “The issue is loyalty to the institution first and foremost. Penn State stands head and shoulders above others as a university that engenders a sense of community and a passion about institution and people.”

—Gary Abdullah