

**IT'S A THURSDAY NIGHT AND THE RED JEEP CHEROKEE SLOWLY MAKES ITS WAY DOWN A WINDING, LEAF-COVERED PATH HARDLY VISIBLE IN THE DARK WOODS RIGHT OUTSIDE MAMMOTH CAVE NATIONAL PARK, SITE OF THE LONGEST CAVE NETWORK IN THE WORLD AND ABOUT 30 MILES NORTH OF WESTERN'S CAMPUS. THE JEEP'S HEADLIGHTS SEARCH THEIR WAY DOWN TO WHAT LOOKS LIKE A SMALL CONCRETE SHED IN THE MIDDLE OF NOWHERE, CLOSE TO KENTUCKY'S LARGEST TOURIST ATTRACTION BUT IN A SPOT WHERE NO TOURISTS ARE ALLOWED TO GO.**

and who almost seems to talk enthusiastically about the aching back and legs one gets after a 13-hour caving trip, what better job is there?

"It's hard to tell when I'm working and when I'm playing," he said. "At Western, you're at the Mecca of karst science." Karst is the term for landscapes where underground streams create caves and sinkholes.

But Glennon's research is serious business and could bring invaluable help to countless Kentuckians. Glennon is currently working on a master's thesis mapping the locations and properties of underground rivers and streams in the Mammoth Cave area. Through his research, Glennon hopes to be able to better explain how underground

# UNDERWORLD explorer

BY MATTIAS KARÉN

Alan Glennon gets out of the Jeep, along with Gary Berdeaux, general manager of the nearby Diamond Caverns. In a few minutes, the two will strap on headgear and their caving outfits and rappel down a 60-foot deep, 24-inch wide manmade hole that sticks up like a well inside the shed. The hole leads to a small cave, from which Glennon and Berdeaux will trek across muddy rocks, slide down slippery slopes, and jump across small underground streams on their way to a small waterfall. There, Glennon is to take water samples to analyze for water quality research.

It may seem like a lot to go through for some water, but for the 30-year-old Glennon, it's just another day at the office; because it is here, in the largest cave system in the world, that the Western graduate student and research hydrologist does a lot of his work. And for a man who loves every part of the mud and the darkness and the rappelling,

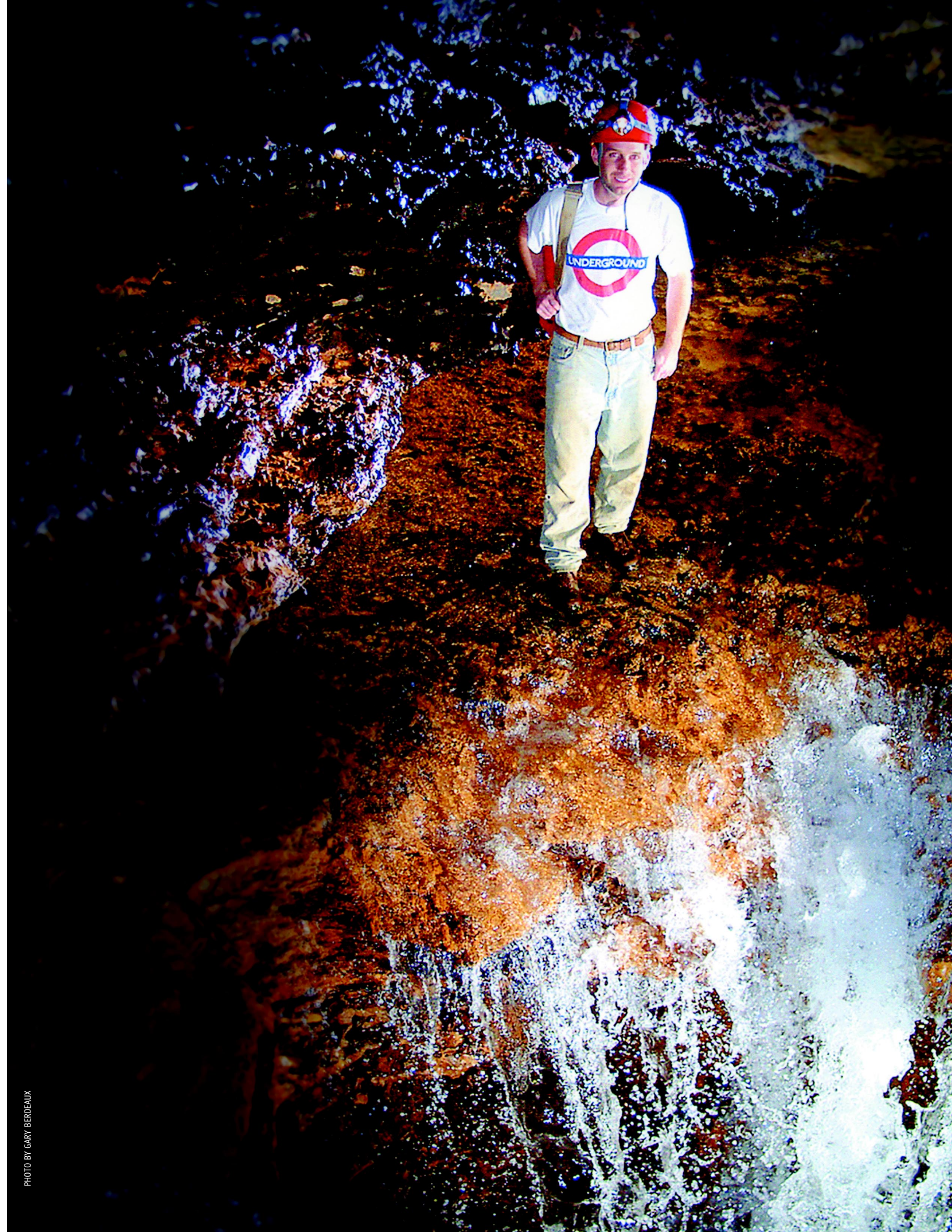
streams, which are in many ways mysteries to scientists, react to different situations and environments, which could help predict floods and produce cleaner drinking water — among other things.

Scientists have for a long time studied rivers and streams above ground, mapping certain relationships that are true for all those rivers and streams, Glennon said. But for water running under ground, few such relationships have been found — yet.

"If you look at a map of the Mississippi or the Nile, there's a certain order to it," Glennon said. "I'm trying to describe the order of karst."

Glennon's research is receiving international attention. Some of the world's premier cave scientists have asked him about his research when they've visited the area, and last year Glennon traveled to China, along with geography associate professor Chris Groves, his graduate advisor.







During their two weeks there, they taught the Chinese different techniques for mapping underground rivers.

Glennon's three-day workshop demonstrated a computer mapping technique that he has developed himself. That knowledge is crucial because about 250 million people depend on the water that runs through the country's karst area, which is also one of the largest in the world.

But the trip was beneficial for both parties, Glennon said.

"They're developing things based on what I taught them, and I'm developing things based on what they taught me," he said.

They were most interested in how to integrate their cave maps and underground stream data into computer mapping software. After all, once the caves are in the computer, the data can be examined in increasingly powerful ways.

The Chinese scientists showed Glennon and Groves their computer techniques for analyzing and modeling sinkhole collapse and flooding. These are problems both Kentuckians and the Chinese share. The Chinese have developed sophisticated capabilities in analyzing surface karst features, such as sinkholes. By combining their surface expertise with our subsurface techniques, opportunities for future cooperation are very exciting.

And the thought of someone else using what he has discovered is one of the biggest rewards of his research, Glennon said.

No matter how successful his research will be, Glennon has already made a discovery that will leave a legacy for coming generations. In April 1996, he discovered what has now been mapped out to be the third longest cave system in Kentucky.

The discovery was something straight out of an adventure movie. Glennon and a fellow grad student, Jon Jasper,

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PHOTO BY SHERYL HAGAN-BOOTH

were searching the area just south of Mammoth Cave, looking for new caves. This was a common practice for the two, but they had never made any major discoveries until Glennon one day fell into a sinkhole.

Together they started exploring the hole and found a small crawlway leading to a larger cave, and on further. Today, the Martin Ridge Cave System stretches over 32 miles and is still being explored. Glennon said the cave, like many others in the area, was named after the ridge where it was found.

"We just followed the tradition instead of calling it Alan Glennon cave," he said.

Walking through a cave where no one has set foot for over thousands of years, if ever, is a thrill to say the least. Since everything above ground in America has already been explored, finding caves is a person's chance to "be an explorer like Christopher Columbus, kind of," Glennon remarked.

"It's kind of like exploring a continent or something."

Glennon came to Kentucky after graduating from Texas A&M with an agriculture degree, and got a job as a park ranger at Mammoth Cave. But with one of the nation's top karst research programs just a short drive away, he couldn't resist coming to Western for graduate studies. Which is something Groves is thankful for.

"He's an excellent student," Groves said. "His energy, his self-motivation set him apart."

In fact, Groves liked Glennon so much he hired the student to work with him at Western's Hoffman Environmental Research Institute. At the institute, Glennon has made contributions that "really transcend what most graduate students are doing," Groves said.

"Here's this guy who did well in school and all, but because of his self-motivation went out and made discoveries," he said. "I just really feel lucky to have run into him."

And Glennon is feeling lucky being at Western. After all, here he has the chance to conduct research and help people by doing what he's loved ever since he was a kid. Glennon's father always went caving and often brought the family along.

"I have no idea when I visited my first cave," Glennon said. "I've been going to caves as long as I can remember. I remember one family vacation when we spent all of spring break going into cave after cave after cave."

For his 10th birthday, Glennon's mother bought him a 102-foot rope to practice going down the steep cliffs and pits within caves. Today, climbing down a steep cliff on a rope is "almost second nature" to him.

And while most serious cavers can brag if they've been in more than 50 caves, Glennon is "highly entertained by the fact that I don't know how many I've been in."

Whatever that number is, it's sure to keep growing.



PHOTO BY GARY BERDEAUX