

More Than Just A ... Mole Hill



Photos by Nikki Fox / DN-R



ABOVE: James Madison University junior Theresa Dalmot holds a rock sample found atop Mole Hill, an extinct, 48-million-year-old volcano, during a field trip on Thursday as junior Kritika Vayur (right) looks on. The expedition was led by geology and environmental science professor Elizabeth Johnson.

LEFT: JMU junior Zach Kiracofe breaks open rock samples to find the minerals hidden inside.

JMU Digs Into A Volcano

Students, Professors Examine Once-Volatile Local Landmark

By **NATE DELESLINE III**
Daily News-Record

DALE ENTERPRISE — James Madison University students and their professors are digging into the Valley's volcanic history one rock at a time.

About 20 students spent Thursday morning getting a firsthand look at Mole Hill, a former volcano turned innocuous landmark, located west of the city.

Elizabeth Johnson, a professor of geology

and environmental science at JMU, led the trek up the hill. Asked if Harrisonburg-area residents should be worried about another volcanic eruption soon, Johnson said no.

"This is beyond dormant," she said. "It's extinct."

At the top of the hill, sheltered from the midday sun by lush vegetation, Johnson also said any eruptions — the last one about 48 million years ago — were probably more like a melting ice cream cone than a violent explosion.

One student asked where the mouth of the volcano was.

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Perfect Specimen Hunted

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“We imagine that it was above us,” Johnson said, adding that eons of erosion have significantly reduced Mole Hill’s height.

Students Leading Research

Midway up the hill, the students turned over rocks looking for the perfect specimen. One handed a gray, softball-sized rock to Zach Kiracofe, a junior geology major, who knelt down and carefully aimed his hammer, splitting the rock in two.

They gazed at the rock’s pale red interior and smiled. Kiracofe and two other JMU geology majors, Brittany Sacco, a junior, and Tori Stempniewicz, a senior, discussed their in-depth research on Mole Hill with the group.

Sacco said she’s using chemistry to analyze crystals found within the rocks in the hill. She said her research indicates that the rocks and crystals formed inside the Earth at 1,200 degrees Celsius — about 2,200 degrees Fahrenheit — and a depth of about 22 miles.

Stempniewicz is studying the water content of

the crystals to better understand the origin and formation of the volcano and Kiracofe is studying xenoliths, small rock fragments enveloped by larger rocks.

Johnson hopes to share the results of the students’ Mole Hill studies at the Geological Society of America’s national convention in Minneapolis this fall.

Thursday’s trip began at the bottom of the hill, where Johnson explained that Trimble Knob in Highland County and hills throughout the region share geological similarities to Mole Hill. She said all those sites are intriguing to scientists, because there are no direct measurements of the Earth’s mantle underneath the Shenandoah Valley.

“Why would you have things erupting here when there’s no [tectonic] plate boundary, which is how volcanoes usually erupt?” Johnson asked. “The answer is, ‘We don’t know.’ That’s one of the interesting things [we’re trying] to figure out.”

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