The Oregonian

Research Notebook

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suggest eruption cause The movement of gases and vapor to the top of the magma chamber beneath Mount St. Helens may have caused rapid increases in pressure that triggered the volcano's eruptions 1980 and 2004.

Researchers from Oregon State University, the U.S. Geological Survey and five other universities analyzed the trace element lithium. They found that crystals in the erupting lava were highly enriched with lithium in the first few weeks after each eruption, but then levels dropped back to a normal range. They said this suggests that lithium diffused into rising bubbles and added to a gas-rich pocket that formed before the eruption.

"An explosive volcano may be a little like a shaken-up pop bottle," said Adam Kent, an OSU geologist. "This research suggests that gases move to the top of magma chambers under volcanoes, where they can help break through the overlying crust and cause an eruption."

The study is in the current issue of the journal Geology.

Hungry scrub jays

show food storage skills Western scrub jays save for the future, stashing food where it will be needed most.

Scientists at the University of Cambridge in England studied the birds' behavior under different feeding conditions. The birds first were placed in two compartments on alternate mornings for six days. In one they were always given breakfast and in the other they were not. After training, the birds were unexpectedly given food in the evening.

The birds stored more of this evening food when in the compartment in which they had not been given breakfast. The birds also stored a particular food in the compartment in which that type of food would not be available the next morning, demonstrating planning and ensuring a choice of food the following breakfast.

The researchers say their findings -- in the current issue of the journal Nature -- "suggest that the jays can spontaneously plan for tomorrow . . . challenging the idea that this is a uniquely human ability."

New vaccine may shield

fetuses against virus A new vaccine may protect pregnant women and their babies from cytomegalovirus infections, which can cause birth defects or kill newborns.

Cytomegalovirus, or CMV, is spread through close contact and infects most U.S. adults without causing harm. But the virus can cause pregnancy problems including miscarriages and mental retardation in babies. Such serious problems affect about 10 percent of the estimated 40,000 U.S. children born each year with CMV infections.

Scientists blocked infection by injecting guinea pig mothers with a modified virus containing CMV proteins. Vaccinated rodents bore 28 live pups and four dead ones, while a control group delivered nine live and 12 dead pups. The federally funded study was led by Oregon City native Dr. Mark Schleiss, now a University of Minnesota professor, and will be published March 15 in the Journal of Infectious Diseases.

Genetic test can show

esophageal cancer risk A genetic test can predict who is at greatest risk for cancer of the esophagus, a deadly illness that can sometimes be prevented with over-the-counter painkillers.

An estimated 2 million U.S. residents have Barrett's esophagus, a growth of abnormal cells in the gullet linked to frequent heartburn. Each year, about 1 percent of those cases turn into esophageal cancer, which kills almost 90 percent of people who have it.

By tracking 243 people with Barrett's esophagus, scientists at Seattle's Fred Hutchinson Cancer Research Center and elsewhere found three genetic changes that predict cancer. Almost 80 percent of people who had all three markers formed cancer over a decade, compared with 12 percent of those without the markers.

Treating the high-risk group with inflammation-fighting drugs such as aspirin and ibuprofen cut their cancer risk to 30 percent over 10 years. The study was published Tuesday by the online journal PLoS Medicine.

-- Compiled by Richard L. Hill

and Andy Dworkin