TRULY PSYCHEDELIC 'SHROOMS

No, you're not hallucinating: Those mushrooms are glowing. While mushroom-hunting at night in a Brazilian forest, mycologist Dennis Desjardin of San Francisco State University and colleagues discovered *Mycena luxaeterna* growing on sticks. Luminescent chemicals similar to those in fireflies produce the fungus's constant glow—possibly to attract insects to spread spores or eat harmful bugs, Desjardin says. Mycologists have previously identified 64 luminous species from 16 different lineages, suggesting that either luminescence evolved multiple times or most species gradually lost the glow. The scientists describe the new fungus and six others online this month in *Mycologia*.

Andean Gold

During the Spanish conquest of the Andes, conquistadors seized enormous quantities of silver and gold objects. Because archaeologists long believed that Andean societies had almost no metallurgy, they have only recently begun to unravel how these precious metals were produced. Now a team of geologists argues that these indigenous people refined gold with mercury amalgamation, a sophisticated metallurgical technique.

By mixing liquid mercury with finely ground gold or silver ore, metalworkers create an amalgam (alloy). They then separate out the heavier amalgam and heat it to boil away the mercury, arriving at almost-pure silver or gold.

This process was widespread in Europe by the 12th century but was thought to be nonexistent in pre-Columbian America. Now William E. Brooks, a consulting geologist in Reston, Virginia, and colleagues have analyzed residual mercury levels in gold foil from the Sicán culture, which existed between 750 and 1375. The team found signs of amalgamation similar to those seen in contemporary gold foil in southeastern Peru, they reported this week at the Geological Society of America annual meeting in Portland, Oregon. "We think this technique was used throughout the Andes, probably centuries before it was commonly used in Europe," Brooks says. Archaeologist Izumi Shimada of Southern Illinois University in Carbondale cautions that more research is needed because many Sicán artifacts were coated with cinnabar, a mercury-based pigment, which could contaminate the measurements.

Run Away!

Marmots in Colorado haven't bumped into wolves for more than 70 years, but a new study reports that they still know what to do: Run.

Faced with a predator, prey animals might freeze, alert others, or dart, depending on the threat. But what if the predator disappears from their habitat? Behavioral ecologist Daniel Blumstein of the University of California, Los Angeles, hypothesized that responses to different predators evolve together. So if an animal still encounters some predators, it should retain the whole repertory even when one vanishes.

To find out, Blumstein and colleagues studied 24 wild yellow-bellied marmots. They set up piles of bait 20 meters away from hidden life-size cutouts of predators that marmots see often—red foxes and coyotes—and those they don't: mountain lions and wolves. When a marmot arrived, the researchers uncovered a cutout.

The rodents responded appropriately to each predator, the scientists report this month in *Animal Behaviour*. Mountain lions sneak up on prey, so the marmots made alarm calls to blow the lion's cover. They fled from 2D wolves. "I would too: They're group hunters!" Blumstein says. The results add to evidence that antipredator behaviors can persist after predators disappear, says evolutionary biologist David Lahti of the City University of New York.

Follow the Sea Lion

Tracking endangered Steller sea lions in Alaska just got easier. Researchers have devised a new long-lived transmitter that reports the moment, location, and even cause of the animal's death.

Satellite-linked transmitter tags usually last about a year. But the new device's 10-year battery life allows it to record the sea lion's body temperature until it dies, says Markus Horning, one of the device's developers. Because researchers surgically implant the transmitter into the sea lion's lower abdomen, a temperature change can suggest its fate: A sudden cooling may mean a shark or killer whale attack; gradual cooling suggests old age, disease, or starvation.

After testing the tags in nonendangered California sea lions, Horning, a pinniped ecologist at Oregon State University, Newport, and colleagues tracked 27 Steller sea lions released into the Gulf of Alaska in 2005. Four years later, five animals have died, four most likely by predators' jaws, the scientists reported this month at the Society for Marine Mammalogy meeting in Quebec City, Canada.

Since the 1970s, Steller sea lion numbers off Alaska have plummeted nearly 80% (*Science*, 4 April 2008, p. 44). The new device should help explain the decline, says research ecologist Lowell Fritz of the National Oceanic and Atmospheric Administration's Alaska Fisheries Science Center in Seattle, Washington.

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