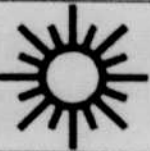


HIGH  
85°  
LOW  
50°



**Helmet.** The band tries to follow up their debut album *Meantime*.

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**Cosmic crash.** Jupiter and comet meet with a bang.

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**Rude homecoming.** Ems drop first game of home stand to Yakima.

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Oregon Daily

# Emerald

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## COMMUNITY

### Old artillery shell found under bridge

**Bomb:** Navy divers recover unexploded shell from under Ferry Street Bridge, traffic comes to a halt

By Edward Klopfenstein  
For the Oregon Daily Emerald

U.S. Navy divers removed a World War II era artillery shell from underneath the Ferry Street Bridge Wednesday, stopping rush-hour traffic for about an hour as crews transported the bomb to a area just outside of town.

By mid-morning, the five member Navy team from Whidbey Island, Washington, detonated a secondary charge to the outside shell and blew it up, said Eugene Public Safety Department spokesman Tim Birr.

The bomb was destroyed at a disposal site at the Dave Burks Regional Training Facility near Short Mountain.

If it had been a standard shell, it would have held 15 pounds of high explosives, enough to rain shrapnel across five football fields. "It's a surprise," Birr said. "How it got there, we don't know."

The years spent on the river bottom deactivated the detonator and could have affected the charge, which would have effectively deac-

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### Astronomers are watching for Jupiter-comet collision

**Crash:** Observatories around the globe trained on event

By David Thorn  
Oregon Daily Emerald

As they train their instruments on the planet Jupiter beginning July 16, astronomers at the University's Pine Mountain Observatory will be joining many of the world's other sky watchers.

Beginning that day, the 21 massive remnants of a broken comet will start crashing into Jupiter's gaseous surface, in what will be the largest such collision within our solar system to be recorded in human history.

"We have no idea what to expect," said Greg Bothun, director of Pine Mountain and an associate professor of physics at the University. "We're just hoping to monitor the planet for the next week and see what the data looks like."

The event is unique not only because of its scale, but also because it has been anticipated by astronomers.

"This is the first collision of a kilometer-sized object that we've known about in advance," Bothun said. "The technology for knowing (that an object is on a collision course) has only existed for about a hundred years."

The comet called Shoemaker-Levy 9 was first discovered in March, 1993, by California-based astronomers Eugene and Carolyn Shoemaker and David Levy.

It was already in pieces by then. Nine months earlier, in July 1992, it had passed too close to Jupiter and was torn apart by tidal forces caused by the massive gravitational pull of the planet.

Even in pieces, the comet has almost completed another orbit of Jupiter an orbit that will come to an abrupt end beginning this weekend.

The impacting comet fragments ranging in size from one-half to two-and-one-half miles in diameter will enter Jupiter's atmosphere at a speed of 37 miles a second.

Scientists are divided over what will happen to the pieces after that. Some expect them to break up almost immediately, possibly creating an awesome meteor shower.

Others think the fragments will plunge deep into Jupiter's dense atmosphere, until the gravitational pressure of the solar system's largest planet causes each piece to vaporize and explode in a massive fireball, similar to a nuclear explosion, only many thousands of times larger.

Some estimates have placed the power of that explosion at between 200 and 20,000 times the explosive energy of the world's entire nuclear arsenal.

The enormous blast will occur on the far side of Jupiter, out of sight from Earth. But the lack of optically visible effects isn't stopping Bothun and legions of other astronomers from directing their attention

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Lee Carpenter (above), one of the producers of *Worm Digest Magazine*, which helped organize Uday Bhawalker's speech Wednesday, mixes compost into her worm trough. These red worms (left), also called "red wigglers," can eat up to half of their body weight in compost every day.

photos by MICHAEL SHINDLER/Emerald

### Worms hold key to waste management

**Wigglers:** Naturally turn garbage into soil enhancing fertilizers

By Don Reynolds  
For the Oregon Daily Emerald

The key to a more sustainable future may be wriggling a few inches under our feet, said participants at a Eugene workshop last night.

"Welcome to a real awakening in the world of worms," Stephen White, one of the cosponsors of the workshop, told 40 or so gardening enthusiasts.

Earthworms can process tons of garbage every day, turning it into a humus-rich soil. Worm farmers can address two problems at once: waste management and soil depletion.

"Every square foot of soil is a recycling center," said featured speaker Uday Bhawalker. Bhawalker, founder of the Bhawalker Earthworm Research Institute, of Pune, India, said that earthworm biotechnology can be used to nourish home gardens and to dispose of

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