

ON THE RECORD

"When a 4,700-pound pickup truck meets a 5,000-pound seal, they both lose."

Ken Cumings of the Friends of the Elephant Seal group in California describes the carnage when the huge beasts try to cross roads.

VALENTINE'S SPECIAL**A rose by any other hue**

Blue roses are in production and will go on sale next year. Developed by Japanese researchers, the genetically modified blooms are likely to be pricey, so start saving.

**Kiss and tell**

Not just an expression of affection: kissing is also used subconsciously by both sexes to assess the status of their relationship, say researchers, who say it might also be addictive.

ROBOT NEWS**Robopump**

Dutch inventors have developed a robot that can pump petrol, removing the tiresome need for drivers to exit their cars at a petrol station. The €75,000 (US\$109,000) automaton finds a match for the vehicle on a database, unscrews the fuel cap and fills the tank.

ZOO NEWS**Breath of life**

Germany's love of cute baby animals — nicely portrayed by the ongoing Knut shenanigans — has reached a new level. Noticing that a tiger cub had choked on a piece of meat, medical student Janine Bauer climbed into its cage and resuscitated it at Halle Zoo. In gratitude, the zoo has named the tiger after Bauer's son Johann.

Sources: Los Angeles Times, AFP, Scientific American, Spiegel, Reuters

PICTURE-ALLIANCE/DPA

SIDELINES

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From Russia with scintillation



A whopping 76,000 crystals are used in the CERN instrument (inset).

This week, one of the most ambitious and unusual bulk orders in science will finally be filled. At a former Soviet weapons plant in the Russian town of Bogoroditsk, workers will pull from one of their 159 ovens the last of thousands of highly specialized crystals being produced for the Compact Muon Solenoid (CMS). The CMS, a scientific instrument the size of a building, is being assembled at CERN, the European particle-physics laboratory outside Geneva in Switzerland.

"This indeed is the end of a chapter," says Tejinder Virdee, who leads the CMS group at CERN. It is a chapter that began 14 years ago and is ending in the nick of time — the electromagnetic calorimeter for which the crystals have been made must be completed before CERN's Large Hadron Collider (LHC) is switched on in June.

The CMS is one of three detectors that will study the particles given out when the extraordinarily powerful beams of protons provided to the experiment by the LHC smash into each other. The electromagnetic calorimeter's role is to measure the energies of particles coming off the collisions at the detector's centre.

High-energy particles passing through the calorimeter create showers of secondary particles as they interact with the crystals, and these showers in turn produce light in proportion to the energy of the original particle. "The whole point of the crystal is to convert energy into light," says Philippe Bloch, a physicist at CERN working on the project.

There are various different sorts of crystal that might serve, but in 1994 the CMS team decided that scintillating lead tungstate (PbWO_4) would best serve their needs. As transparent as glass but nearly four times as dense, it allows a compact, radiation-resistant detector that responds quickly to incoming particles. And the showers of secondary particles within it do not spread out too much, making it easier to discriminate between different events.

The problem was that the more energetic the particles produced in a collider, the bigger the detectors need to be. When it is turned on, the LHC will work at higher energies than any previous machine, and the CMS and its fellow

"When we started, energy in Russia was essentially free and salaries were low."