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Pop! Goes the Weasel!

June 2016

The Large Hadron Collider (LHC) is a multimillion-dollar project near Geneva, Switzerland, designed to smash subatomic particles together at close to the speed of light. On April 29, 2016, the LHC lost power despite a series of sophisticated safeguards. A weasel had chewed through the cable connecting a 66-kilovolt electrical transformer. The fried remains of the weasel were found next to the gnawed cables.



It took two weeks to get the facility back to working order.

The Large Hadron Collider

The Large Hadron Collider is located at CERN, the European Organization for Nuclear Research, in Geneva. It is a superconducting circular tunnel seventeen miles in circumference designed to smash protons together at nearly the speed of light. It is the largest machine in the world.

Constructed between 1983 and 1988, the tunnel straddles the French/Swiss border. It is twelve feet wide, and its depth ranges between 164 feet to 574 feet underground.

Beams of protons shoot through the massive collider in opposite directions at nearly the speed of light. Four laboratories around the track have batteries of sensors to monitor the collisions. Subatomic rubble is scrutinized for novel particles and the forces that hold them together.



The LHC generates tens of petabytes of data each year. This mass of data is processed by the Worldwide LHC Computing Grid comprising 170 computing facilities in 36 countries.

Doubling the Energy of the LHC

The LHC has just gone through more than two years of upgrades to double its power. This allows for collisions at twice the energy than that previously possible.

Last June, after the upgrades, the collider began the hunt for dark matter. It is scheduled to be running nonstop for the next few years. Scientists are hoping to discover 'super-symmetry,' currently the best candidate for dark matter. The Collider has already discovered anomalies that hint at the existence of a mysterious new particle.

The LHC Taken Down by a Weasel

In April, 2016, scientists were just getting ready to resume experiments after a winter shutdown. Suddenly, on April 29, the Collider lost power.

Repair personnel found that a cable feeding a 66-kilovolt transformer had failed. Upon further investigation, they found the fried remains of a weasel next to the cable. Evidently, the unfortunate weasel had gnawed through the cable, causing the power outage.



It took until mid-May to make the repairs and to get the Collider back online.

Researchers Finding New Evidence

The shutdown came as scientists were preparing to use the LHC to collect new data on the Higgs boson. The Higgs boson is a fundamental particle that had been hypothesized first in the 1960s and finally had been discovered with the LHC in 2012. The Higgs boson is considered to be a cornerstone of the modern theory of particle physics.

Researchers also have seen hints in recent data that other, yet undiscovered particles might also be generated inside the LHC. If those particles exist, they could revolutionize researchers' understanding of everything from the laws of gravity to quantum mechanics.

Not the First Time

This is not the first time that the LHC has been 'attacked.' In 2009, a bird dropped a piece of bread onto the electrical system, causing a short circuit and interrupting the power feeding an LHC cooling unit. In this case, the system was restored after several hours.

Unlike the unfortunate weasel, the bird survived.

Such problems are not exclusive to the LHC. In 2006, raccoons conducted a 'coordinated attack' against a particle accelerator in Illinois, U.S.A. They decided to nest in the accelerator. Accelerator staff managed to encourage the raccoons to move on without hurting any of them.

Lessons Learned

Facilities such as colliders that span miles of territory are bound to interfere with nature. Nature will have its way. The staff of machines such as these must expect occasional interference from nature's critters and be prepared to handle the outages.

Acknowledgements

Information for this article was taken from the following sources:

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[A weasel just shut down the Large Hadron Collider, according to reports](#), *Science Alert*; April 29, 2016.

[Pop goes the weasel as Hadron Collider shuts down](#), *Phys.org*; April 30, 2016.

[Large Hadron Collider](#), *Wikipedia*.