However, the new discovery offers hope that many new antibiotics could be found to fight bacterial infections. [Source: *The New Zealand Herald*]

Febuary's Café Scientifique Meeting

Sunday 22nd Feb: Why Did the Pigeon Cross the Road?

Many animals can perform amazing feats of intelligence and ingenuity. Rats can navigate complicated mazes, whales communicate with song over thousands of kilometres and the bar-tailed godwit migrates non-stop from Alaska to New Zealand: a direct flight of over 11,000 km.

In this talk Dr Clare Postlethwaite from Auckland University will show how mathematics can help us understand many aspects of animal behaviour, using examples from homing pigeons, possums, bees and electric fish.

Claire Postlethwaite completed her PhD at the University of Cambridge and spent two years in the USA before moving to the University of Auckland. Her interests range from theoretical studies of differential equations to using applications of mathematics to understand animal behaviour. If she could use mathematics to figure out how to get a seven-month-old baby to sleep for longer, then she would.

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Kaikohe Café Scientifique

January 2015 Newsletter

"We've got no money, so we have to think"

Quotation of Ernest Rutherford, the New Zealand Nobel Prize winning scientist who showed by experiment that the atom had a nucleus. He devised the model of an atom where the electrons rotated around the nucleus like planets around the sun.

His portrait is on the New Zealand $100 note

This is the first Kaikohe Café Scientifique Newsletter. The reason for the Newsletter is to inform those who are interested in attending Café Scientific meetings of the topic for the next meeting, as well as including scientific and engineering items of interest.

The meetings are held in the Pioneer Village café commencing at 3pm. Tea and Coffee is available along with some finger food. A small charge is made for the refreshments—the proceeds of which are donated to the Pioneer Village Administration.

The Café Scientific idea originated in England and France around 1998, and since then the number of "Café Scientifiques" - or Science cafes—has grown to over 1,100 worldwide. Any interested person can attend informal, grassroots talks or video presentations in relaxed coffeehouse type settings.

It is a place where, for the price of a cup of coffee, anyone can come to hear and ask questions about the latest ideas in science and technology.

Traditionally the format of the meetings is a 15 to 20 minute talk by a scientist or engineer on their specialty; a 10 minute break to refill coffee cups, and a gathering of thoughts about the topic; then a question and answer session which is limited to 1 hour or less.

In Kaikohe we will generally present lectures in the form of a video; but when available we will have a local or visiting scientist or engineer to make the presen-

tation (followed by questions). Locally there are a number of science and engineering activities taking place which can provide interesting topics material for our meetings

These meetings are for everyone. The topics, although of a science or technical nature, are not 'high-brow', and will relate to anyone who has an interest in science and engineering.

25 January Meeting

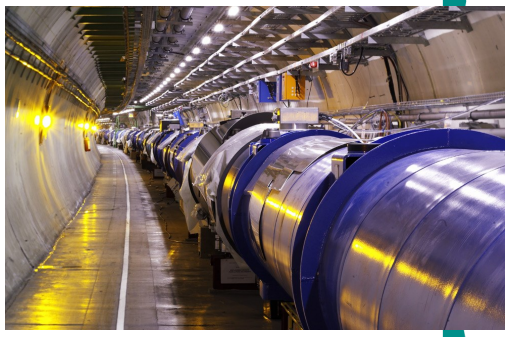
3pm at Pioneer Village Café, Kaikohe

Topic: The Higgs Boson Discovery.

The speaker, Joseph Lykken, is a theoretical physicist and Deputy Director and Chief Research Officer of Fermilab.USA. His talk gives an overview of the LHC in Switzerland and describes the processes that discovered the Higgs Boson.

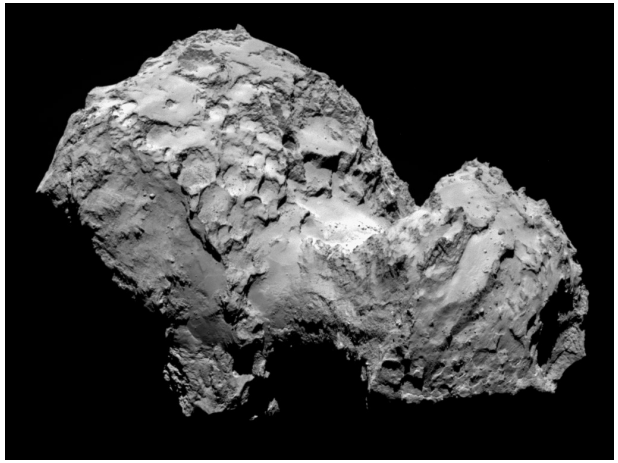
What does all this mean? LHC stands for 'Large Hadron Collider' which is the world's largest and most powerful atomic particle accelerator. A hadron is the name given to a group of atomic particles (such as the proton and neutron). The accelerator consists of a 27-kilometre ring of superconducting magnets used to boost the energy of the particles. Two protons rotate in different directions and are made to collide releasing much energy and other atomic bits and pieces. An equivalent task would be to fire two needles 10km apart at nearly the speed of light and get them to meet halfway.

50 years ago Peter Higgs proposed a new sub-atomic particle that would help to explain why things have mass and weight. Last year the 'Higgs Boson' was detected. This lecture describes in a clear and simple fashion how this came about.



Recent Science News Items.

Lander touches down on a comet - A spacecraft named *Rosetta* was launched by the European Space Agency in March 2004 to reach a comet named 67P (for short) about 10 years later. This occurred on 6 August last year and, after being woken up from hibernation, Rosetta was slowly moved closer to the comet and successfully put into orbit around it. The comet is shaped a bit like a rubber duck, and is about 6km long from 'head' to 'tail'.



Rosetta had on board a lander named *Philae*, and last month (Dec 2014), was released and sent to land on the comet. Philae was unable to make a soft landing, and after bouncing twice ended up near a cliff which partially shielded *Philae's* solar panels from the sun. The lander had enough battery charge to run experiments for two days before it was shut down. Hopefully, as the comet gets closer to the Sun, the sunlight will be strong enough to charge Philae's batteries so that it can complete the experiments it was designed to do. In the meantime, Rosetta is orbiting 67P and collecting much data which is being relayed back to Earth.

Go to

www.youtube.com/watch?v=3lptDXWyxj0

to see an entertaining animation about Rosetta and Philae reaching the comet.

New antibiotic offers great hope against resistant bugs—The first new antibiotic to be discovered in nearly 30 years has been hailed as a "paradigm shift" in the fight against the growing resistance to such drugs.

Called Teixobactin, it has been found to be effective against many common bacterial infections such as tuberculosis, septicaemia and Clostridium difficile, and could be available to patients within five years.

The lack of new drugs, coupled with overprescribing, has led to bacteria becoming increasingly resistant to modern medicines.

The World Health Organisation has also classified antimicrobial resistance as a "serious threat' to every region of the world that "has the potential to affect anyone, of any age, in any country".