## Abstractions

**SECOND AUTHOR**

The burst of radio waves emitted by a pulsar — a rapidly rotating neutron star — is like the beam of a lighthouse, sweeping briefly over anyone standing in its path. Andrew Lyne of the University of Manchester and a team of fellow astronomers surveyed the sky for these regular, or periodic, pulses of radio waves and found more than 750. But when they stepped back, they noticed that, in some data, there were transient bursts that repeated but were not regular like those from normal pulsars. Lyne and his team decided to focus on this phenomenon and look for more cases of it; they report their results on page 817. Lyne spoke with *Nature* about the search for the objects he and his colleagues now call RRATs, for rotating radio transients.

**What made you focus on this rare type of event?**

We didn't know what we would find. We thought it would be a good idea to open our eyes wider and see what other astronomical beasts we could spot.

**How did you go about the search?**

Rather than look at periodicity, we looked for bright flashes that had the characteristic signature of passage through interstellar space. We went through 150 days of telescope data (30 million samples) and saw such flashes in 11 of the 3,000 regions we studied. But however hard we looked, we couldn't see any periodicity. When we went back to them with our telescope we saw more flashes. There were things in the sky that were giving these very rare bursts; lasting 10 milliseconds or less, at intervals of between 4 minutes and 4 hours. Because they are so ephemeral, it took an enormous amount of time to establish them and make measurements.

**How did you work out that these sources were different from 'normal' pulsars?**

It took us three years or so to sort out what we had got. We measured the occurrence times of these flashes and found that the intervals between them were always a multiple of a well-defined, much smaller time, like a pulsar — but that 999 out of a thousand of the pulses were missing.

**What's the significance of these gaps?**

We don't know why these RRATs radiate only intermittently. There is evidence that they are related to magnetars, neutron stars with huge magnetic fields that emit only X-rays.

**Any methodological lessons learned?**

We really must keep our eyes open and not rely too much on instruments and software, which only find the sort of things you design them to. ■

## MAKING THE PAPER

Christl Donnelly

**Badger behaviour complicates attempts to control TB in cattle.**

A study's mixed messages on the benefits of culling badgers to control tuberculosis (TB) infection among cattle prompted the British government to ask for public comment on the subject. In response to this open consultation, which ends 10 March, the Royal Society for the Prevention of Cruelty to Animals has campaigned to protect the badgers, whereas farmers' groups say a cull is critical.

Christl Donnelly, lead author of the study in question, which appears on page 843 of this issue, is not new to controversy. Since joining the infectious disease epidemiology group at the University of Oxford in 1995, which moved to Imperial College London five years later, the Harvard-trained statistician has analysed the spread of mad-cow and foot-and-mouth disease, and the SARS epidemic. "I enjoy giving scientific advice to policy-makers," she says. "But it is also very stressful."

Bovine TB is endemic in some parts of Britain and has been increasing by 18% a year. A control programme has been in place for some years, including trapping and killing badgers, which are the main reservoir of the disease in the wild. But it was never clear whether this practice was helpful.

Donnelly became involved in bovine TB in 1997, as a member of the Krebs committee charged with reviewing existing data on culling. After its review, the committee recommended a large randomized trial of badger-culling strategies on TB incidence, which began in 1998. The study found that widespread removal of badgers in an affected area cut TB in cattle by about 20%, a finding in line with two earlier studies. But, when the scientists decided to look at outlying regions, they found a different pattern altogether.

In a complementary study within trial areas, led by Rosie Woodroffe of the University of California, Davis, peanuts containing coloured beads were deposited outside the badgers' setts, and the researchers monitored where the beads reappeared. The method, known as bait marking, revealed that the badgers that were left after widespread culling wandered farther from their dens than before. The same was true for badgers at the outskirts of an area where the culling took place. "In the periphery there was little reduction in badger density, yet they still felt the effects of the culling," says Donnelly. "Because of this evidence of disruption in behaviour, we decided to see what happened to TB incidence in those areas."

This study — the first to look at areas next to those from which badgers were removed — found that in neighbouring areas 30% more herds became infected with TB, presumably as a result of the badgers' wider range of movement. "Each individual herd has the potential to come into contact with more badgers," explains Donnelly.

Because badgers are protected in Britain, the culling was done by government employees under crown immunity and with permission from the farmers. Donnelly went into the field to observe the trial implementation. "I thought I should be directly aware of what was going on, rather than giving pronouncements from far away," she says. But for the most part, she analysed data from her office. "When I tell people I work on SARS and TB they jump back thinking I must be infectious," she laughs. "But most of what I do is in front of a computer." ■

## QUANTIFIED **PORTUGAL**

**A numerical perspective on *Nature* authors.**

It is an exciting time to be a researcher in Portugal, says Luis Paulo Rebelo. Research funding has been rising for a decade, and there is freedom to explore new ideas and plenty of room to grow. At the Institute for Chemical and Biological Technology (ITQB), in the coastal city of Oieras, Rebelo's group investigates the molecular thermodynamics of liquids. This week, on page 831, they show that, contrary to general belief, liquid salts can be distilled without decomposition.

The team sets its priorities according to each day's results. Novelty is its major driving force, guided by the excitement of new challenges and competition with larger, better-funded groups across Europe. Once a new field is 'open', Rebelo says, they set it aside for larger groups to explore, and start looking for new opportunities elsewhere.

**51** modular research laboratories — in chemistry, biology, biological chemistry, plant sciences and technology — are run by the ITQB.

**3** is the number of countries where the authors of Rebelo *et al.*'s paper live and work.

**7,042** is the average number of weekly visitors, in 2006, to *Nature* online from Portugal.

**15** submissions have been made to *Nature* from Portugal in the past year.