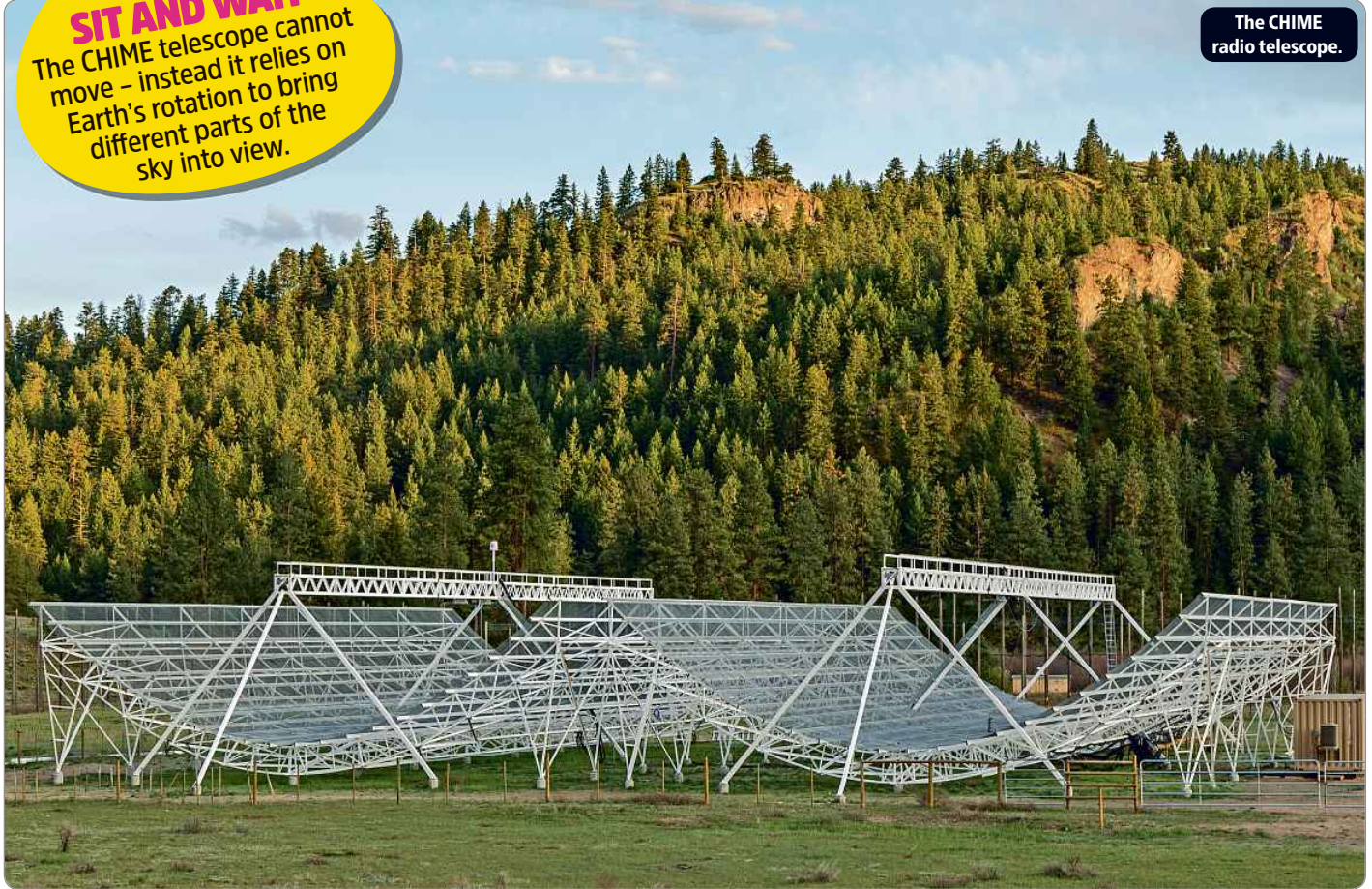




## SIT AND WAIT

The CHIME telescope cannot move – instead it relies on Earth’s rotation to bring different parts of the sky into view.

The CHIME radio telescope.



# Mysterious signals from outer space

Astronomers say they have detected a strange signal in deep space. The signal is called a fast radio burst, or FRB, and has a regular 16-day cycle. FRBs are powerful radio emissions coming from outside our galaxy that have baffled scientists since they were discovered in 2001. So far, more than 100 FRBs have been observed, but they’ve been hard to study because they mostly come and go in less than a second. This newly detected signal is the first to show such a regular repeating pattern.

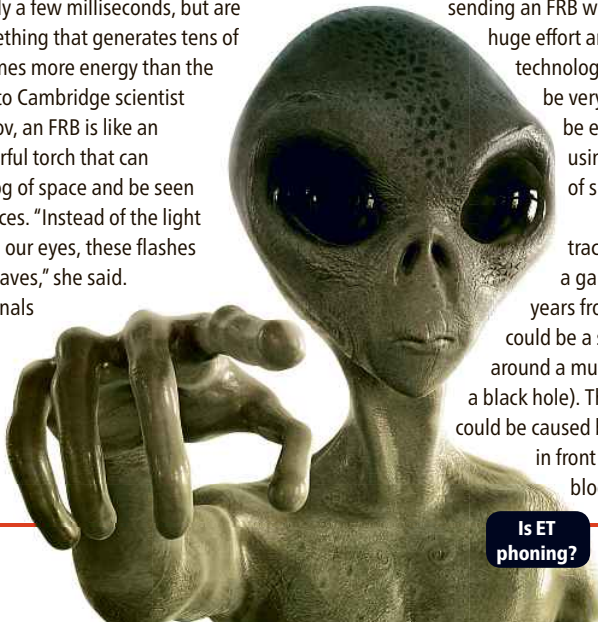
FRBs last only a few milliseconds, but are created by something that generates tens of thousands of times more energy than the Sun. According to Cambridge scientist Anastasia Fialkov, an FRB is like an incredibly powerful torch that can penetrate the fog of space and be seen over vast distances. “Instead of the light we can see with our eyes, these flashes come in radio waves,” she said.

Studying signals collected by the CHIME radio telescope in British Columbia, Canada,

a team led by Dongzi Li at the University of Toronto found a regular pattern of bursts over four days followed by about 12 days of silence. “The discovery of a 16.35-day [cycle] in a repeating FRB source is an important clue to the nature of this object,” they said.

Scientists are not sure what creates the bursts, but think they may come from giant stars that have collapsed and died. Other people have suggested that they could be deliberate signals from aliens, but astronomers think this is unlikely. Making and sending an FRB would not only take huge effort and extremely advanced technology, but it would also be very inefficient – it would be easier to communicate using less wasteful types of signal.

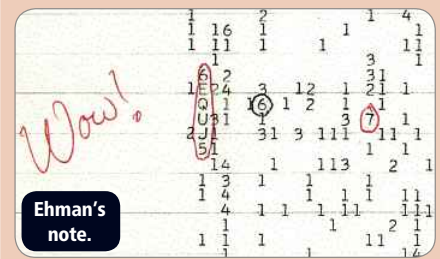
Li and her team have tracked the FRB’s source to a galaxy 500 million light years from Earth, and think it could be a small object orbiting around a much larger one (such as a black hole). The 12-day silent period could be caused by this object passing in front of the FRB source and blocking out its bursts.



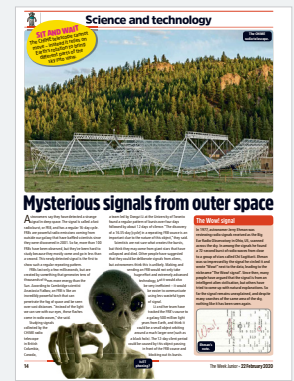
Is ET phoning?

## The Wow! signal

In 1977, astronomer Jerry Ehman was reviewing radio signals received as the Big Ear Radio Observatory in Ohio, US, scanned across the sky. In among the signals he found a 72-second burst of radio waves from close to a group of stars called Chi Sagittarii. Ehman was so impressed by the signal he circled it and wrote “Wow!” next to the data, leading to the nickname “The Wow! signal”. Since then, many people have argued that the signal is from an intelligent alien civilisation, but others have tried to come up with natural explanations. So far the signal remains unexplained, and despite many searches of the same area of the sky, nothing like it has been seen again.



# Mysterious signals from outer space



## Hold a debate

*Read the article and then try the following activities...*

So, we have detected some signals from a galaxy far, far away. Or not. Why do we even bother? It can't be cheap to set up these special telescopes and monitor what they pick up. Isn't there a better way to spend money? What's the point when many of us can't even read distress signals being sent out by our own over-heating planet? Or do you think that it is very important to listen for messages from beyond our solar system? Humans have thrived by being social animals so it makes perfect sense for us to listen out for contact from other beings. What do you think?

## Writing challenge!

Choose one of the following writing warm-ups.

**1** Imagine the radio burst is actually a coded message from another life-form and you have managed to crack the code. In 200 words, write a suggestion for what you think they might be trying to tell us.

or

**2** Create an advertisement, like those you find for holiday companies, promoting Earth as a great place for aliens to visit for their vacation. What persuasive language would you use to 'sell' the benefits of coming here? Remember to provide a memorable headline to grab their attention.

## Investigate

What is the closest star system to our own? Create a fact file including how far away it is, how long it might take to get there and what we know it includes.