

World's first radio astronomer operates in Tasmania

Once a week a rather battered old car trundles into the courtyard at the back of 'Stowell', CSIRO'S Hobart laboratory.

One might expect something different from the inventor of an electric car but as far as Dr Grote Reber is concerned,

the vehicle is good enough to get him from his home at Bothwell, 80 km from Hobart, to the office.

Dr. Grote Reber, the world's first radio astronomer, is the holder of a CSIRO honorary research fellowship. His quiet mid-western American drawl has become, over a long period, a familiar sound around 'Stowell' although there are intervals when he may be back home in the United States for two or three years at a time.

he had detected unsuspected radio emission from the Milky Way Galaxy.

Dr Jansky was not able to take the subject further, but when Dr Reber heard about the discovery, he became intensely curious. He corresponded with Dr Jansky and offered to work for him, but it became obvious that nothing more was going to be done.

Further consultation with other astronomers only brought a similar response.

'I felt this was fertile field of endeavour and decided to



staff have become used to Dr Reber doing quite unusual things.

To start with, he's the only person known to be working in the field of radio astronomy in 150m and 300m wavelengths. And far from having an elaborate set-up such as the Parkes radio telescope, he operates a one-man establishment on the Bothwell property he rents.

He's an electrical engineer of some note and when he is not involved with his search of the skies he works on his electrical cars.

He believes there's a future for a vehicle that is powered from nickel cadmium batteries that can be plugged into a power point and recharged for about 15 cents while the owner is at work or goes shopping.

When he wants to get away from the future, Dr Reber turns the clock back to study historical origins of the Australian Aborigines and has discovered camp sites thousands of years old.

And as a passing interest, he's carried out a few odd experiments like growing beans to see if there's any difference in the way they twist in the southern hemisphere to the way they grow in the north. (The answer, he says, is none.)

First love

But radio astronomy is Dr Reber's first love and it is for this that he is best known.

With a degree in electrical engineering behind him, he first became involved in the subject when Dr Karl Jansky, who had built a rotating radio antenna at the Bell Telephone Laboratories in 1931, revealed

build my own radio telescope at my home in Wheaton, Illinois,' Dr Reber said.

Apart from the general state of ignorance about the new subject, he was hampered by the suspicions of his neighbours who were none too sure of what he was up to, and by their children who thought the new telescope was a playing area.

Nevertheless Dr Reber was able not only to detect radio waves from the Milky Way with the 10m diameter instrument he built, but was able to map their distribution on the sky at a wavelength of 1.9m.

By the 1950s radioastronomy was accepted as an exciting new area for research. While most people were concentrating on the short wavelengths, Dr Reber decided to be different — he would work in long wavelengths above 10m.

'I first had to find the right place to set up an instrument,' he said. 'I was working in Hawaii and had access to ionosphere data and by the process of elimination I reckoned that Tasmania was the best place in the world to come to.'

'I consulted several people, got a lot of discouraging advice about all the pitfalls, but decided to come here anyway.'

Achievement

Dr Reber arrived in Tasmania in 1954, set up his equipment and on the first night he began his observations, demonstrated that the phenomena did exist and that the technology for their observation was available.

'That's really all I intended to do . . . just to prove that it could be done.'

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First radio astronomer

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Back in the United States, however, Dr Reber found it was a 'habit that couldn't be kicked' and by 1961 he was making plans to return to Australia, this time armed with much better equipment.

He obtained, under agreement with a local farmer, the right to use an area of land beyond Bothwell and set out to work in the 150m wavelength region of spectrum.

In 1967 he ceased his operations and returned to the United States but in 1972 came back to remodel his equipment and work in the 300 metre wavelength region. He is believed to be the only person in the world doing this.

Dr Reber's Bothwell installation at 150 metre wavelength comprises 192 dipoles supported on 128 stringybark poles each 21 metres above the ground and three metres below it.

The antenna system is about 1170 metres in diameter. The acceptance pattern of beam is 7.10 in diameter.

Unknown

The main energy source of the wavelengths Dr Reber is observing are still a matter of

speculation.

'That's one of the reasons I'm involved in the work,' he said. 'The theory I like is that the radio energy comes from loss of energy of light photons as they travel through intergalactic space from distant galaxies. Maybe if that's right we have a whole new picture of the structure of the universe.'

That doesn't conform with the orthodox view, as he points out, but then as Grote Reber might politely remind the sceptics, what he did back in the 1930s didn't conform with orthodox astronomy either.

To secure good results the ionosphere must be transparent.

'There's a school of thought that says, if that's the case, put the equipment above the ionosphere. In other words into space by satellite,' he said.

'But satellite experiences in radioastronomy have already shown that scientists working in that school pick up man-made interference from earth.'

'In spite of all their connections with multi-million dollar programs I'm still getting better results from my earth-bound installation. I have been told that the NASA people use my results to interpret their satellite data.'

November 28, 1974.

Dr Grote Reber,
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Dear Dr Reber,

I'm sending a copy of the story I've written about you for 'Coresearch.' There's a chance that it will be going to the January issue so if there are any changes I wonder if you could give me a ring. My direct number is 484478.

If there are substantial changes you'd like made could you send me a telex message and then post them up as soon as possible.

My reason for the indecision on its publication date is that we're planning an eight page edition for January to take in the material that will come out of a staff seminar being held here next week.

If that doesn't produce as much copy as we expect, Coresearch will get cut back to a four-page edition as usual, but this does mean that a lot of copy that would normally have gone in will be held over and used during the next few issues. In that way we'll keep Tasmania in the news for some time to come.

I enjoyed meeting you and hope some time I'll get an opportunity to talk with you again.

Kind regards,

Dorothy (Braxton)

Dorothy Braxton

Returned with corrections on 3/12/79