

# Reaching for the stars

technology

by Rod Boucher



TONY PALMER

*The father of radio-astronomy, Grote Reber.*

Scientific research today reaches beyond the bounds of the universe. It is as extensive as the galaxy is wide.

In less than a century, man has realised the dreams of Leonardo Da Vinci. He has gone from the sands at Kittyhawk and the history-making flight by the Wright brothers, to space travel.

The 19th century writer, Jules Verne, wrote of man's first voyage to the moon, shot from a cannon in a bullet-shaped projectile. In the late 1960s, the United States, through its space agency NASA, made this dream come true.

Into the 1980s space travel has concentrated on shuttle flights, or the use of returnable space craft, in orbits the Earth's atmosphere.

As the 20th century draws to a close, scientific research is taking man's quest to the stars. International astro physicists, such as Carl Sagan, talk of space colonisation in the 21st century.

Author Arthur C. Clarke, in his classic novel '2001 a Space Odyssey' wrote of man's colonisation of the Moon, and interplanetary travel. Since writing this book in the 1960s, Clarke's vision of shuttle-type spacecraft has become a reality. NASA today has plans for space colonisation in the next century.

Australia has played an important role in the NASA programmes since the early 1960s. And this role is likely to grow in the future.

Tasmania has made a significant contribution in the field of astro physics, and today has an international reputation in certain areas.

Key to this is the highly-reputable

department of physics at the University of Tasmania. Its head, Dr P.A. 'Pip' Hamilton, is one of a group of Australian astro physicists leading research in this field. He joins a growing list of eminent scientists pioneering aspects of astronomical research at the Hobart campus.

One of the pioneers of radio astronomy, American Dr Grote Reber, has worked closely with the University of Tasmania since the 1950s. His work once meant spending half of his year doing scientific research back in the United States, and the balance of the year in Tasmania. Today, he lives in virtual retirement in the solar-powered house he built himself at Bothwell, his over-sized garage filled with experimental vehicles based on old Messerschmidt three-wheeler cars.

As to the future, the university's research in the field of radio astronomy will take a quantum leap with the building of the Mt Pleasant telescope near Richmond. The former NASA telescope from Orroral Valley, near Canberra, is being re-fabricated to form part of a 1,400km base line, extending from the NSW observatories at Parkes and Siding Springs. When brought on line, the Tasmanian telescope will form an important link in the 1988 Australian Bicentennial National Telescope project making the collective link-up of observatories the most powerful radio telescope in the southern hemisphere.

The Tasmanian telescope will be used for about 10 months of the year for the university's own research programme, and for the other two months will be linked with the national network.

The university has now set its sights on the Mirrabooka satellite project. Its reputa-

tion in space research makes it a front-runner in tendering for the project to conduct a series of satellite-based experiments.

Dr Hamilton said the Mirrabooka series would involve the design of the satellite equipment, and control of the series of experiments. Mirrabooka One, to be launched from an American space shuttle late in 1988, would involve week-long experiments dealing with X-rays, to be followed-up by a year of analysis work back at the university. Mirrabooka Two would involve a six-month mission to be operated in conjunction with astronomers at the university, Dr Hamilton explained.

Apart from the research benefits of the Mirrabooka programme, it would provide a boost to local industry in the construction of highly-specialised equipment for the satellite.

Dr Hamilton is confident of a significant and growing role for the Tasmanian university in space research.

He also believes there is now a much wider acceptance of the value of research in this area as people generally become more aware of the reality of space science. "NASA has de-mystified space. We no longer get silly questions about little green men from outer space," he said. "If you lecture a primary grade classroom about astronomy today you are more likely to be questioned about quasars and black holes."

Space is what Dr Hamilton enthusiastically describes as "one of the last, great frontiers of science." What he and fellow researchers at the university are doing today makes them, in a sense, pioneers in a modern-day frontier which knows no bounds and where time is infinite. ♡