

Getting a date in the Kimberley

Rock dating expert Andy Gleadow and team of scientific and indigenous specialists are zeroing in on the age of the Kimberley's ancient art

For over four decades Andy Gleadow had nothing to do with rock art. "I'd seen a bit of rock art over the years, but had no particular interest in it."

Instead, the University of Melbourne geochronologist was busy pioneering techniques for dating ancient rocks, from Antarctica to Africa, and even the Moon. He even had a lead role in one of archaeology's most heated debates – the age of a site in Kenya where prehistoric tools had been unearthed by a team led by celebrity paleo-anthropologist Richard Leakey.

Along with another Australian geologist, Ian McDougall, Gleadow helped end the controversy. They demonstrated the site was 1.8 million years old.

Today, it's a very different story. Not only is Gleadow a frequent visitor to the rugged Kimberley, the University of Melbourne scientist now heads the *Kimberley Rock Art Dating Project*, funded by the Kimberley Foundation Australia and the Australian Research Council. Other partner organisations include the Dunkeld Pastoral Company Pty Ltd and Archae-aus Pty Ltd.

And it all began with a phone call in early (March) 2007. Mike Lisle-Williams, the KFA's then CEO, was on the line. "He wanted me to join the newly formed KFA Science Advisory Council," recalls Gleadow who agreed to meet and discuss the problems and prospects posed by rock art. "It seemed interesting, and different from my early work."

But what finally hooked Gleadow was a trip to the Kimberley to assess the potential of dating rock art. Accompanied by KFA Chairman Maria Myers, the budding rock art enthusiast obtained an overview of the art, the geology, and the extraordinary cultural legacy of the Kimberley's first occupants.

"I realised there was potential to work out the ages of the different styles of rock art across the region," says Gleadow who promptly organised a second trip to the region, along with half-a-dozen Melbourne-based geoscientists and dating experts. The plan was to examine closely what was happening to the rock surfaces around, under and over the art – to look for erosion, mud wasp nests, nearby rock falls, and other geological, microbial and chemical clues to when the early painters created their works.

With this knowledge in hand, the little team was confident they could pull together a range of methods for dating materials above and below the art. This 'bracketing' would produce the minimum and maximum age of the work, most of which is impossible to date directly.

By building on the data, the team believed they could date the sequence of the Kimberley's rock art styles, from the oldest rock markings and naturalistic art,

through the Gwion (or Bradshaw) paintings, to the static polychrome and painted hand periods, ending with the evocative Wanjina works.

Gleadow and his colleagues also knew they could use this dating tool kit to investigate the durability of the sandstone 'canvasses'. That would help them estimate how long art in various sites can endure.

"We thought this is really worth doing, but it's going to be very hard," Gleadow says of that second pivotal trip. "My conclusion was, if we can't do this with the amazing scientific tools at our disposal and this group of people, it simply can't be done. We all said, 'let's give it a go. Let's give it our best shot'".

And they did -- thanks to Gleadow's grant writing expertise and the track record of an expanded, nationwide team of archaeologists and other dating experts. The *Kimberley Rock Art Dating Project* was funded in 2013 for three years and officially started in July 2014.

"We will run to the end of this year," says Gleadow who recently completed a "new, bigger" application for five more years of support.

To date, progress has been substantial. Initially, the team identified four possible rock dating techniques which they believed they could adapt to the project. They knew each method had potential, each could fail. "In my heart of hearts, I hoped one would work. Now they're all working. It's just fantastic," Gleadow says enthusiastically.

Although all the numbers are not yet nailed down, results are coming in from the hundreds of samples the dating team collected in collaboration with traditional owners. They refined their geochronological tools and boosted knowledge of how the rocky landscape is evolving. They now know the rock shelters can protect the art for tens, even hundreds of thousands of years.

"Above all we have demonstrated that people have been producing important art works in the Kimberley for at least 20,000 years," adds Gleadow who is about to take a well-earned break. He's heading to Greenland to investigate continental rifting, a topic he studied in the 1970s. "I'm going back to where I started," says the rock art expert.