

Exploration Geophysics Applied to Archaeological Investigations

GPR Surveys to Determine Extent of 19th Century Aboriginal Deaths-in-Custody Cemeteries,

Rottnest Island (Wadjemup) WA 1990 – 2004

Some Memories

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INTRODUCTION

In May 1990, whilst employed as a Senior Lecturer in Geophysics at Curtin University, I was visited by representatives from both the Department of Aboriginal Sites (WA Museum) (DAS) and the Rottnest Island Deaths Group (RIDG). They told me that it was possible the main camping ground on Rottnest Island (“Tentland”) was located on the burial ground of at least 364 Aboriginal men who had died whilst imprisoned on the Island. Further, it was possible that every Aboriginal person living in WA has a relative buried at Rottnest. However, the majority of the public were completely unaware of this history.

Tentland’s budget accommodation options included on-site cabins, as well as areas for tenting, within an area of approximately 30,000m². See Figure 1. It was busy throughout the year and very busy during school holidays and for student’s end of year activities. Tentland was a major source of income for the Rottnest Island Authority (RIA) at a time when the WA Government expected Rottnest to be largely self-funded.

In 1985, whilst preparing for the 1988 Bicentennial, the WA Government formally recognised that an Aboriginal burial ground was located at Rottnest and commenced re-visiting the history of the site.

At this May 1990 meeting I was asked to advise of any geophysical method capable of determining the extent of the burial grounds without disturbing any graves. The ASEG has requested me to record what followed from that meeting.

HISTORICAL BACKGROUND OF ROTTNEST ISLAND ABORIGINAL PRISON

From the founding of Perth in 1829 until 1834 the clearing of the Aboriginal people off the land in WA had resulted in the need for another prison, in addition to the already overflowing Fremantle Gaol. In 1838 the few settlers on Rottnest were moved to the mainland and the Island was declared a prison for Aboriginal men.

During the period 1838 to 1902 records indicate that at least 364 Aboriginal prisoners died at Rottnest (approximately 10% of those imprisoned during that period) and were buried in two separate areas on the Island. It is reported that each body was buried with only the

blanket that was given to each prisoner on arrival at the gaol and possibly with an artifact such as a spear. It is recorded that the graves were dug to a depth of "5 to 6 feet".

A second burial ground was needed at Rottnest following the flu and measles epidemics of 1883. The new burial ground was selected, "located further from the prison" and the first burials at this site were in 1885. There are 298 recorded deaths up to the end of 1884 with a further 66 deaths recorded up to the closure of the prison in 1902.

The decision was made in 1917 to allow the public to visit and holiday on the Island. The small "Rottnest Island Cemetery" was retained, with records kept of the burials in both the Anglican and the Catholic sections of the cemetery, together containing 22 grave sites of the non - Aboriginal dead. The Aboriginal burial grounds were then planted over with trees, all official records lost, and the two areas set aside to be included in Tentland.

HISTORICAL EVIDENCE OF BURIAL GROUND LOCATION

Edward Jack Watson (1870-1939) had observed the two burial grounds whilst on the island and recorded in 1937 "the Native cemetery was located 200 yards NNW of the prison and about 150 yards East of the house in which Mr Harry Pearse now lives".

James O'Donoghue, who had lived on the island whilst the second cemetery was active, remembered that "the centre of this cemetery as being 200 yards to the north, northwest of the Aboriginal hospital", located adjacent to the gaol. Mr O'Donoghue was blind when he visited Rottnest in 1990 and made this statement.

In June 1970 the first Aboriginal cemetery was re-discovered by the RIA whilst their workers were extending a sewerage pipeline. They reported finding skeletons in every direction they dug. The RIA Manager reported that there must be many hundreds of burials at this location. The WA Government decided not to publicise the discovery.

The burials discovered in 1970 were indeed about 150 yards East of the house in which Mr Harry Pearse once lived. This lent veracity to Watson's indication, supported by O'Donoghue, that the second burial ground was in north-west Tentland.

PREPARATORY TO THE GPR SURVEYS

In mid-1983, whilst employed by Layton & Associates, I went to Rottnest Island with GSE Ltd personnel (Chris Leach & John Trust) and their newly acquired GPR system to see if it could assist to map the fresh water lens and geological structures within the Tamala Limestone that forms the Island. I was very pleased with the GPR results from that survey on both counts.

At the meeting with DAS and RIDG in May 1990 I suggested that GPR may prove to be the best method to locate disturbed ground meeting the specifications of a burial and if successful then determine the extent of the burial grounds. As it would take time to arrange the hire of a GPR unit I suggested I could take my senior geophysics students over to the Rottnest Island Cemetery and try our own equipment (EM 31, resistivity etc.) over known burials. We spent a day over there in June 1990 however results were inconclusive.

Whilst investigating the hire of a GPR set Cris Frampton indicated he had recently set up a signal data processing consultancy in Perth and was interested in buying a GPR set. Cris had earlier worked in the UK on conventional radar systems and data processing.

Cris initially formed Waveform, then formed Ground Radar Australia Pty Ltd in 1992. During the 1990 - 1993 period Cris was contracted by Curtin University to both acquire and process the GPR data on which I would base my interpretation.

GPR SURVEYS 1990 - 1992

In December 1990 we conducted a GPR trial survey on behalf of DAS over both the Rottneest Island Cemetery and the site of the first Aboriginal cemetery, partly re-discovered in 1970. The results gave us an insight into the GPR appearance of grave sites on Rottneest.

It was important to separate possible burials from other soil disturbance that had occurred over the years (latrines, rubbish deposits, tree roots etc.). The locations of below ground installations and previous digging (where known) were provided to us by the RIA and from our surface mapping.

The GPR data identified disturbed ground having the dimensions expected for graves at both sites. Further calibration tests were run at the Mogumber Aboriginal Mission grave yard north of Perth. At this site there were burials of the same age as at Rottneest.

The Pulse Ekko IV system was used for all 1990-1992 surveys. Line spacing was 1 metre and a reading was read every 20 cm along each line. Antenna spacing was 40 cm and signal frequency was 200 MHz.

Figure 2 below is a GPR time/depth section over a suspected burial at the first Aboriginal cemetery. Figure 3 is a typical section showing responses from some or all of tree roots, buried infrastructure, previous shallow digging and possible burial sites.

Following on from the trial survey the four further GPR surveys completed during 1991 - 1992 were over areas of Tentland considered by DAS and RIDG as most likely to contain burials. Several possible burial sites in north-western Tentland were indicated and reported on in June 1993. The RIA requested that these possibilities be proven by digging however this was not permitted by RIDG.

In October 1993 the RIA dug a trench 10 m west of the most western survey line and unearthed a skeleton. The second burial ground was now confirmed and proven to extend to the west of the completed GPR survey work. After a smoking ceremony at the site WA Premier Richard Court declared the area was Australia's largest Deaths-in-Custody burial site.

The skeleton was found 200 yards north-west of the prison hospital, adjacent to the prison.

GPR SURVEY 2004

The objective of the in-fill survey work completed in 2004 was to cover all ground in Tentland that may contain burials limited only by geology and the groundwater table. This work used a RAMAC X3M instrument with shielded 250 MHz antennas fitted to a sled. Data was processed using Ramac GroundVision software. A total of 626 lines were completed. This survey was completed whilst I was employed with URS.

CONCLUSIONS

The GPR surveys have determined the extent of the two Aboriginal burial grounds, historically recorded and proven from excavation work conducted by the RIA.

The GPR survey work extended over all of Tentland up to the physical boundaries of shallow outcrop and shallow water table. This has enabled the area to be re-designed to provide pathways (in more ways than one) for contemplation of the past

The locations of both burial grounds were indeed located quite accurately by E J Watson in his manuscript written in 1937 and by Joe O'Donoghue in 1990. The area is now named the "Wadjemup Aboriginal Cemetery".

IN MEMORIUM

Cris Frampton passed away in 1994. Cris bequeathed his Pulse Ekko IV GPR set to Curtin University.

REFERENCES

The GPR survey work and the history of the site is discussed in a paper and a film:

- (a) Rottnest Island Aboriginal Prisoners Cemetery, Delineation of Extent using Ground Penetrating Radar: P. Randolph, V. Wilson, C. Frampton, G. Merritt: pp 394-415, in Archaeology in the North, Proceedings of the 1993 Australian Archaeological Association Conference.
- (b) Wadjemup: Isle of Spirits. 1993. Blackswamp Films, Western Australian Museum, WA Department of Aboriginal Sites. A 26 min length film distributed as VHS; later digitised.

Further references:

- (a) Rottnest, Its Tragedy and its Glory: E. J. Watson, 1998. This book was published by his 3 sons in 1998 from Edward Watson's manuscript written in 1937.
- (b) On behalf of all who took part in the 1990 - 92 surveys, I presented the following paper on the work to the Society of Exploration Geophysicists at their International Exposition and 64th Annual Meeting, Los Angeles, USA, October 23-28, 1994. Location of burial sites using ground penetrating radar surveys on Rottnest Island, Western Australia. Vernon C. Wilson, Curtin University of Technology; Cris I. P. Frampton (deceased), Ground Radar Australia P/P; and Peter Randolph, Department of Aboriginal Sites, W.A. Museum: all Australia (NS1.5)

Figure 2 GPR Time/Depth section over a 19th century grave site at Rottneest Island
(Processed by C. Frampton, Ground Radar Australia Pty Ltd)

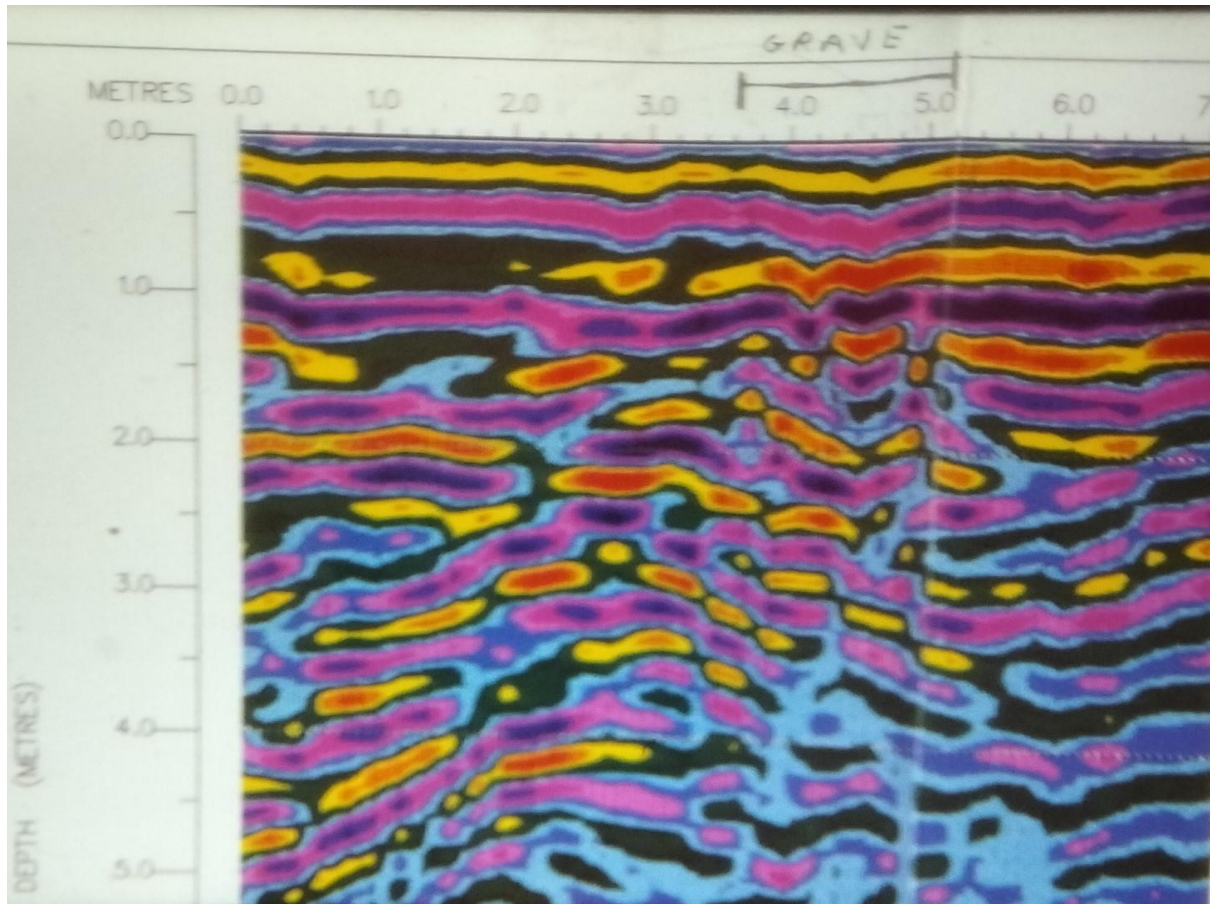


Figure 3 Showing some of the typical shallow GPR features found in Tentland - such as tree roots, pipes and other infrastructure, possible burials
(Processed by C. Frampton, Ground Radar Australia Pty Ltd)

