There was no knowing what secrets lay buried in the unmarked graves of St Mary's Church in Adelaide, but as the first coffin was opened the broken human bones told archaeologists they were unearthing an untold story of our pioneer past.

"Secrets of St Marys" is a scientific detective story that follows a team of student archaeologists as they set out to discover what life was like for the first settlers of South Australia.

Remarkably little is known about the personal lives of these pioneers. Founded as a free colony in 1836, South Australia held out the promise of a Utopian society - a world free from poverty, vice and religious persecution. But as the remains of men, women and their children were uncovered a very different story emerged.

Assisted by a team of forensic anthropologists, the project leader, Tim Anson, pieces together the lives of the people they find in the gravesite. Through their stories, the horror of life in early Adelaide becomes vividly clear.

TRANSCRIPT

Narration: In the oldest Anglican churchyard in Adelaide, South Australia lie the graves of early pioneer settlers. This team of archaeology students have been given one month to unearth the settlers' skeletons. They're about to come face to face with the reality of life for the people who lived in Australia's only free colony.

In 1836 the first migrants set out from Britain for the new colony of South Australia. These were not convicts, but businessmen and idealists. Adelaide was sold and designed as a utopian society, free from the problems of Europe - religious persecution, class barriers, vice and poverty. Skilled labourers were granted free passage to this town of opportunity. After five treacherous months at sea, the settlers stepped into an alien land.

Situated on the outskirts of Adelaide, St Mary's and surrounding districts were farming communities. The people who died here were laid to rest in the St Mary's Church cemetery. At the back of the churchyard lies a settlers' burial site. No headstones mark the graves. This is the ground the team are excavating.

Luke (Student): Do you reckon it sounds pretty hollow?

Sarah (Student): Yes, compared to the end.

Luke: Definitely sounds quite hollow so most probably right on top of grave at the moment.

Nick (Student): Looks like we've found and broken into the inside of a coffin here. There's a hollow in here, so hasn't actually fallen in here. If you look in there you can actually see the line of the wooden coffin in there along with the marks of the rusted coffin nails. Full of dirt though, don't know how we're going to get to it, we'll see what happens.
Narration: Archaeology lecturer Dr Bill Adams, is supervising the excavation. With him is PhD student Tim Anson. It's Tim's job to analyse the remains that they find. All the bodies must be retrieved within a tight dig schedule. It's already taken a week to remove the tons of soil covering the graves, but the students are finally ready to expose their first burial. For some of the students, it's their first encounter with a human skeleton.

Adam (Student): This is the first human burial that I've ever excavated. It didn't bother me at all until we opened the coffin and I just stood there looking at it and. this is a person. The skull was just there and sort of looking up at you, it was weird.

Narration: Adam and Ashley have the task of cleaning the bones.

Ashley (Student): We're wearing gloves because a lot of the black stuff in here is actually decomposed organic matter from the bodies and we don't know if there are any residual diseases or anything like that hanging around. After 100 odd years in the ground that's what we all end up looking like.

Narration: But there's something strange about the way these bones are placed.

Dr Bill Adams, Supervising Archaeologist, Flinders University: I've never seen a skeleton with ribs sticking up like that.

Narration: Already the students are getting their first insights into these people's lives. While the Victorians placed great importance on the ceremony of burial, for the penniless there was little dignity in death. Complaints in the press and Parliament tell how corpses of the destitute were crammed into undersized coffins. Was this person a victim of such callous practices?

Ashley: It would appear that this individual was actually larger than the coffin they were put in, may have broken feet to fit in. Maybe it was all that this individual could afford.

Narration: In this promised utopia, these colonists had lost their dreams of a better life. Buried in unmarked graves they ended their days in poverty. For the Church the excavation solves a practical concern. The cemetery is nearly full. As with all churches, old grave plots must be cleared for new burials. Until now, the settlers' graves could not be removed, because records from the 1800's were sparse. Nobody knew how many lay in the ground or where they were located.

Rev John Stephenson: Go in peace to love and serve the Lord, in the name of Christ amen...

Narration: As the pace of work picks up, bodies are coming up around the site.

Dr Bill Adams All these metal plates at the side are in very bad shape.

Luke: The most obvious thing is the four breaks in the leg bones so that could be due to some accident, possibly from a fall.

Narration: It's time for the skeletons to go on the next stage of their scientific journey - a trip to the Medical School at Adelaide University.

Prof Maciej Henneberg, Physical Anthropologist, Adelaide University: Let's take them out.

Narration: Here the bones will be examined to reveal the secrets that lie within. Professor Maciej Henneberg is a renowned physical anthropologist. Just from the bones, he can determine a dead person's sex, age and clues to their lifestyle.

Prof Maciej Henneberg: And there are many aspects of this like one already emerging. Many people were in a lot of pain - for example they suffered from various conditions.
**Dr Renata Henneberg:** Because it was the 19th century, one of the worst centuries for dental health.

**Narration:** His wife Renata specialises in the study of teeth. It's these that will prove to contain vital clues to the quality of life for the early colonists. We will see what the bones shall tell us. With the dig half way through, the students themselves are becoming intrigued by the condition of the teeth.

**Lara (Student):** At the back the molars were already gone before this person passed away because the jaws actually rubbed thin here, it's nice and smooth here. And the teeth we have found were rotted right down to the jaw. This person could be mid 30's or younger in age.

**Narration:** Close by is a woman, believed to be of child-bearing age. She too had lost almost all her teeth by the time she died.

**Tania:** Yes, she's smiling at us, she's got one tooth hanging down there. Had a bit of a chuckle at her, it was almost like, thank you for finding me.

**Narration:** As Renata and project leader Tim examine skulls, it's clear that teeth were a source of great pain.

**Dr Renata Henneberg, Odontologist, Adelaide University:** Here we have a lot of cavities, and huge ones. The tooth is half way eaten up. Many of the teeth were still present in the jaws causing very bad breath.

**Tim Anson, Project Leader, Flinders University:** So this person would have been in a great deal of discomfort?

**Dr Renata Henneberg:** A great deal of pain, obviously, yes. And you can see here as well rotten teeth. The infection went down the root, the bone was rotting and producing a lot of puss. The puss opened the hole in the bone and was released through the hole. If the pieces of bone were infected to the stage [to cause poisoning to the blood], could even have caused the death of one of the individuals.

**Narration:** It's not just the adults that suffered with their teeth. Even more telling are the records left in the dentition of the young.

**Lara:** I was really intrigued by the teeth, they're very bad for a young child, and some of the second teeth have come through and already have cavities, so dental hygiene was obviously not an issue.

**Narration:** In fact this girl's bad teeth are symptomatic of a much more serious problem. A terrifying infection that most likely killed her.

**Prof Maciej Henneberg:** Oh! This is beautiful. This is a classic case of congenital syphilis, the affected crowns of permanent molars and permanent incisors. All have been affected at birth.

**Tim Anson:** So clear case of an eight year old contracting it from parents.

**Prof Maciej Henneberg:** Well from mother, in the womb. The girl, depending on how badly she was affected, would have. If the child survives, the child might have some developmental defects.

**Tim:** So we're getting a clear idea of diseases that would have affected whole community.

**Narration:** As the students dig deeper, childhood death is emerging as a major fact of life. Within the roots of an old olive tree overshadowing the excavation lays the youngest baby found so far. The paper-thin bones and shallow grave suggest it was stillborn.

**Dr Bill Adams:** Up until the 1920s stillbirths didn't have to be registered in South Australia. You could take a stillbirth and bury them in your backyard. Maybe someone buried their stillborn child without the church
knowing... just dug a hole and that's why it's so shallow. We'll never know.

**Narration:** The archaeologists may never find out how the baby came to rest in the graveyard, or how it died so young. But one thing is certain, the baby was not alone. Of the bodies excavated so far, the majority are infants.

**Chris:** It's very delicate. If you think about it too deeply you feel emotional, you think about all the grief that went on in the past. You know how the parents must have felt losing their child and husband losing their wives, so many died in childbirth.

**Lara:** At the particular time when this coffin last saw daylight, would have been grieving parents. We're the next people to see this coffin.

**Dr Bill Adams:** I think for some of them it's their most immediate confrontation with their own mortality. I know that when I go home every night I give my son an extra hug.

**Narration:** The mass of infant graves show that in St Mary's a child had only a 50% chance of surviving to adulthood. With no sewerage system or refrigeration, flies quickly spread infection. Whooping cough, typhoid, pneumonia and measles were major killers. Rich and poor infants alike were at risk, but children weakened by lack of food were particularly vulnerable. Signs of malnutrition can be found in bones. The skull of this four-year old girl is typical.

**Prof Maciej Henneberg:** There is some pitting, fairly delicate pitting on the roofs of both orbits. So yes, she had anaemia and possibly iron deficiency. So she wasn't fed very well shortly before she died. One thing is certain and that is this poor girl had a life that was rather short and probably full of diseases.

**Narration:** In the final days of the dig, a site has been discovered full of adult male burials. It contains the most shocking evidence yet of the troubles faced by the St Mary's settlers. As Bill juggles the removal of coffins, he hardly notices that the man in Burial 78 bears the mark of a particularly gruesome and unexpected affliction.

**Dr Bill Adams:** The spine is interesting because it's gotten zig-zag, I don't think it's scoliosis, it's just got bent around.

**Narration:** With the bones laid out, the significance of the curved spine becomes apparent.

**Prof Maciej Henneberg:** I believe that he suffered from leprosy. So muscles of his back would have been weakened and I believe in the last year his life before death he walked stooped, he had inflamed and ulcerated skin on his face and he had lost some of the ends of his fingers and toes, so he wouldn't have been a happy individual.

**Tim Anson:** So he would have been an interesting sight walking through the village of St Mary's.

**Prof Maciej Henneberg:** Not a pleasant sight, no.

**Narration:** Typically found in tropical lands, leprosy was a surprise. But the site has yet to give up its most bizarre mystery.

**Luke:** Very surprised. Found a watch, also pencil and pieces of chalk.

**Narration:** Luke and Nick's paltry haul of grave goods are the only items of property found in the coffins - another indication of these people's poverty. But the find will soon be overshadowed by the violent nature of this man's death.

**Tim Anson:** Well Maciej, this is a male around 35 years and had some interesting fractures around time of
Prof Maciej Henneberg: Yes, suggests to me a violent break to the skull and this would be consistent with hanging. Why it happened I don't know, but we can clearly see what killed him. Death in this case was almost instantaneous. And if we place the jaw to the skull we get quite a good idea of where the rope was sitting. It was sitting right here, and then the person was dropped, fell down, the knot pulled it off, broke the two vertebrae, broke the spinal chord, broke the blood supply to the brain and the death occurred.

Narration: What caused the middle aged man to end his days on the end of a rope? If he'd been hanged as a criminal he would not have been buried in the St Mary’s graveyard.

Tim Anson: The only other sort of hanging is lynching or suicide, so we speculate that this might be suicide, a suicidal hanging. These cases, the cases of whether or not a suicide was buried inside the consecrated ground or not is really up to the discretion of the local priest.

Narration: We shall never know what might have driven the man to take his own life, but it is perhaps a sign of the desperate time and place in which he lived. The secrets of St Mary's have been unearthed and calm descends once again on the dig site.

Narration: For Bill, Tim and the students the excavation is over, but they take with them a new appreciation of the great toll paid by the founders of South Australia.

Tim Anson: These people were pioneers. They put a lot of work into the building of colony right from the landing of the first ships and were living under extremely harsh conditions.

Narration: We now know that these settlers led a life of almost constant pain. Years of hard labour caused arthritis in the elbows and back. Infectious disease was rife and syphilis endemic. With rotten teeth, even eating was difficult. What has made this project unique are the personal stories of the settlers that have emerged from these skeletons.

Now, in this corner of the St Mary's graveyard, the bones of these colonists will be re-interred. A Pioneer Memorial will be erected in their honour. At last there will be a permanent monument, to ensure they are never again forgotten.