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Life & Death on the Otago Frontier Preliminary Report on the Lawrence Cemeteries

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Introduction

In April 2018 a team from Otago University carried out archaeological excavations at the sites of the 'old' and 'new' cemeteries in Lawrence, Otago (Figures 1 & 2), as part of an archaeological and bioarchaeological joint project that aims to study the lives of some of the participants in the nineteenth century Otago goldfields, and in particular the Chinese and other marginalised individuals. This excavation is the second phase of a research programme that commenced at St. John's Cemetery in Milton in 2016 (Petchey et al 2017), which is intended to examine the health, wellbeing and society of historic-period settlers in the Otago region. The research applies a 'biocultural' approach that combines biological and



cultural information, and focuses in particular on human remains and the archaeological evidence of funerary traditions, set within a wider archaeological landscape.

Figure 1. The location of Lawrence in Otago, New Zealand.

The 'old' cemetery on Ardrossan Street is recorded as archaeological site H44/1135 (Figure 3), and the 'new' cemetery on Gabriel Street is site H44/1136. The Chinese section of the Gabriel Street cemetery (confusingly known as the 'old' part of the new cemetery) where our research is focused, is at the southern end where numerous standing and fallen

Chinese gravestones are still present (Figure 4). The excavations were carried out under Archaeological Authority No. 2018/456 issued by Heritage New Zealand and Disinterment Licence No 09/2018 issued by the Ministry of Health. Extensive consultation was carried out prior to the permissions being sought, including with the Lawrence Tuapeka Community Board, the Otago Southland Chinese Association and Te Runanga o Otakou. Wider community consultation was

conducted through newspaper and other media releases and a public meeting in Lawrence in October 2017. Relevant landowners all gave their permission (Harry & Anne Barnett, Mark & Jude Patterson, and the Clutha District Council).

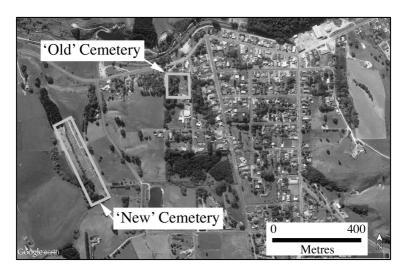


Figure 2. The locations of the old (Ardrossan St) and new (Gabriel St) cemeteries in Lawrence, Clutha District, Otago (annotated GoogleEarth image).



Figure 3. The 'old' cemetery on Ardrossan Street prior to the excavation starting. Burials were found running down the hill on the far side of the old shed. The area in the foreground and under the shed has yet to be checked.



Figure 4. The Chinese section of the 'new' cemetery on Gabriel Street. The area being investigated in this project is within the old oak trees.

Background History

The major rushes to the Otago Goldfields occurred in 1861 (Gabriel's Gully, where Lawrence now stands) and 1862 (Dunstan), and were followed by over 40 years of continuous or episodic mining activity. The first gold miners were a cosmopolitan mix of predominantly European men, most of British origin or extraction, but slowly a more mixed and gender-balanced society began to develop. The infrastructure of settlements and roads that was established in Otago during the goldrush years formed the framework that still exists today; towns such as Lawrence, Cromwell and Alexandra all began as mining villages of wood and canvas. An essential part of any town is a cemetery, and in Lawrence the 'old' cemetery was probably established at the same time as the settlement during the gold rushes of the early 1860s, but a new and larger cemetery was established in 1866 slightly out of town. The old cemetery was closed in 1867, and the Lawrence Borough Council sought permission from descendants of those buried there to move the bodies to the new cemetery (Cross 1995). However, as the archaeological excavations described below have found, this disinterment was not carried out, although local myth maintained that the disinterments had occurred except for a single grave left behind, marked by the remains of an iron railing fence.

One important group (and the most immediately noticeable ethnic group) in the goldfields was the Chinese (Figures 5 & 12). The goldfields Chinese were predominantly Panyu Cantonese, from the Province of Guangdong in Southern China, and many who came to New Zealand had previously been in the Victorian Goldfields in Australia (Ng 1993). The Chinese began to arrive in Otago in numbers in 1866 (the first actually arrived in December 1865) after being invited by the Otago Provincial Council. The Council and commercial interests were worried about a declining goldfields population and saw Chinese immigration as a way of boosting population and economic activity, but there was tension with many existing European goldminers who saw the Chinese as competition. Commercial interests won the day with the invitation for the Chinese to come, but unfortunately many of those who did experienced the prejudice of the European miners. Later official attitudes would also harden, resulting in the introduction of the infamous Poll Tax (a £10 tax, later raised to £100, on each Chinese immigrant to New Zealand), for which then Prime Minister Helen Clarke apologised in 2002.



Figure 5. Wing Chung working at his cradle in 1901, with George McNeur of the Presbyterian Church alongside (Don 1923).

By December 1867 some 1185 Chinese were at work in Otago, rising to a peak of some 4200 in early 1872 (Ng 1993: 134). All were male, and most were miners. They tended to work together in parties linked by kinship ties and home county associations, and a number of Chinese camps or settlements grew up, including at Cromwell, Arrowtown, Lawrence and Macraes Flat. The intention of many (if not

most) of these miners was to earn money to send back to family in China, and/or to return themselves once they had accrued enough. The reality is that many grew old and died in New Zealand, and were buried in local graveyards; James Ng (1993: 66) estimates that there were possibly 1000 Chinese deaths in New Zealand prior to 1900. In keeping with Chinese custom that a person should be buried in the soil where they were born there were two mass exhumation events in the wider Otago region, where Chinese skeletal remains were to be returned to China. In 1883 some 230 bodies were repatriated, and in 1902 a further 474 graves were exhumed but the *SS Ventnor* sank off the Hokianga Harbour on the return voyage and only ten coffins floated ashore (Ng 1993: 66). In the twentieth century the Chinese section of the Lawrence cemetery was neglected and became very overgrown (Schmidt 2004). Much of this area has since been cleared and tidied up.

Research Questions

There are numerous reasons why people came to New Zealand in the nineteenth century. For many settlers it was the promise of a better life than they could have at 'home' (mostly the British Isles), and the land companies issued a great deal of propaganda material that promoted this idea. For those who rushed to the goldfields (either from overseas or from within New Zealand) it was a more immediate prospect of financial gain: in many ways a similar expectation of a better life, but tied to rapid wealth rather than long-term hard work as a settler. As discussed above, a significant group that came from the late-1860s were the Chinese, who also sought financial advancement. Most of these Chinese miners came from poor rural backgrounds.

This research project seeks to study some of these goldfields individuals to investigate their lives in New Zealand, and to determine whether they did indeed lead a better life here, or whether life on the goldfields was any improvement at all on their earlier existences, complementing and expanding on the existing programme at St. Johns Cemetery in Milton (Petchey et al 2017). The experiences of gold miners and especially the goldfields Chinese has been extensively studied from historical (eg Ng 1993) and archaeological (eg Ritchie 1986) perspectives, and recent archaeological work at the Lawrence Chinese Camp (established in 1867) is casting more light on the experiences of these men and those that associated with them (Jacomb et al 2006). The same prejudices that were suffered by many Chinese were also applied to women who associated with them, but this is a group that has been little studied (although see Ng 1995 for an account of mixed marriages). Even more 'respectable' women and children are virtually invisible in the historical records, and so an archaeological approach is essential to study them.

Despite the existing research, there has yet to be an opportunity to apply modern biocultural (the combination of biological and cultural investigation) techniques to Otago goldfields populations. The proposed study seeks to fill this gap, by directly studying the remains of Chinese and European miners and their associates to obtain primary evidence of their health, wellbeing and lived experiences (including evidence of trauma associated with hard goldfields working conditions). Bioarchaeology is the analysis of human skeletal remains from archaeological sites, and is uniquely placed to address questions about the biological life histories of this goldfields population. A variety of analytical techniques can be used to examine the lives of these individuals, including macroscopic examination of the bones and teeth, and chemical and molecular analyses of diet, migration and health (Buikstra & Ubelaker 1994; Hillson 1996, 2000; Katzenberg & Saunders 2008; Larsen 2015; Ortner 2003; Price et al 2002).

The examination of mortuary ritual, and in particular gravestone design, has been a fruitful subject for many years (eg Deetz 1967, Mytum 2003). More recent archaeological excavation of cemeteries has allowed the buried trappings of Victorian funerary practice to also be examined, and there is a growing body of information about burial practice and coffin furniture (eg Brickley & Buteux 2006; Miles & Connell 2012; Petchey et al 2017). While bioarchaeological analysis may be able to determine the origins and health of the interred individuals, consideration of the funerary practices can help shed light on their cultural identity, and in the case of Chinese individuals how Chinese and European practices may have melded.

More pragmatically, the research project was also intended to determine whether the Ardrossan Street cemetery had actually been cleared, and members of the Chinese community had expressed an interest in knowing exactly where some of the Chinese graves in the Gabriel Street cemetery were located (Les Wong pers. comm.).

Methodology

The excavation commenced at the now-privately owned 'old' cemetery on Ardrossan Street on April 4th 2018. A 6-ton digger equipped with a smooth-lipped cleaning bucket was used to strip back topsoil over an area of 600 square metres to look for grave cuts, and then the ground around each grave was reduced to the level of the coffin top to allow hand-excavation of the human remains. Care was taken to ensure that the excavations were safe for people to work within, and met Worksafe guidelines (Worksafe New Zealand 2016). Stripping commenced at the site of the one suspected remaining grave (which was found three metres from where modern pegs had been placed), and then extended outwards from there.

Grave cuts showed up clearly in the yellow-brown rotten-schist subsoil, and a total of eight graves were found. The hand-excavation of the coffin contents and human remains followed normal archaeological practice, with detailed in situ recording conducted before any remains were lifted. Grave contents were either dry or wet sieved, depending on the nature of the soil. Context numbering was simple, with the graves being numbered 1 to 8, and identified as 'Lawrence Ardrossan Burial 1' etc. (shortened to A1, A2 etc.).

Excavation at the 'new' cemetery on Gabriel Street followed the same pattern, except that the excavation area was chosen based on the presence of depressions that indicated where old unmarked graves existed. While a number of Chinese headstones are present in this area, it is thought that many are no longer in their original locations (Les Wong, pers. comm.), and it is not possible to identify individuals from the existing records as no plot locations were registered for this part of the cemetery. Only three graves were investigated, as wet weather prevented a larger area being explored due to the sloping grassy surface becoming unsafe for the digger to operate. These burials were recorded as 'Lawrence Gabriel Burial 1' etc. (shortened to G1, G2 etc.).

In all cases the human remains were taken to the Anatomy Department laboratories at the University of Otago for analysis and secure storage.

Results: 'Old' Cemetery (Ardrossan Street)

Eight burials at the 'old' cemetery on Ardrossan Street were found, all located along the top of the broad ridgeline that runs up the property, in two rough lines of graves (Figure 6). The graves were mostly widely spaced, with only Burials A6 and A8 being close together (1.2m apart). Six burials (A1, A4-A8) were of adults, while two burials (A2, A3) were of infants. Seven of the graves were cut down into the hard bedrock (see more detailed discussion below), while Burial A5 was only cut down to the start of the bedrock, meaning that it was a very shallow 2 feet 8 inches (0.8m) deep. The only grave cut down to the full traditional 6 feet (1.8m) depth was Burial A1 (Table 1). Most adult burials were placed in the standard Christian orientation with the head to the west, apart from Burial A7 that had the head to the east (the infant burials A2 and A3 were not intact enough to determine orientation, although the coffin shape of A3 did suggest that the head was to the west).

Analysis of the human remains from the site is only just beginning in the Anatomy Department, University of Otago, and will be reported in future publications. The preservation of the skeletal material was very variable, with Burial A8 being the best preserved due largely to the dry conditions in which it was found (fracturing

of the bedrock allowed the grave cut to drain much faster than other burials, even the immediately adjacent Burial A6), which also favoured the preservation of clothing fabric (discussed below). All of the other adults were poorly to moderately preserved, however all individuals except A5 had dentitions present and long bone lengths could be recorded in situ. The two infants no longer had any bone or dental material present. Preliminary observations of tooth morphology suggest that Burial A4 may be Asian (ie probably Chinese).

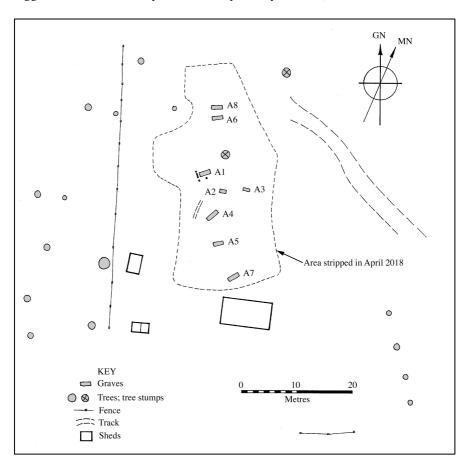


Figure 6. Plan of the April 2018 archaeological excavations at the 'old' cemetery on Ardrossan Street.

Table 1. Grave orientations and dimensions at the Ardrossan Street cemetery. Note that the orientations are magnetic compass readings.

Burial No.	Orientation	Grave depth	Grave length	Grave width
A1	230°	6 ft 1 in (1.85m)	6 ft 10 in (2.08m)	2 ft 7 in (0.79m)
A2 (infant)	247°	5 ft 8 in (1.73m)	3 ft 7 in (1.1m)	1 ft 10.5 in (0.57m)
A3 (infant)	223°	3 ft 9 in (1.14m)	3 ft 6 in (1.07m)	2 ft (0.6m)
A4	212°	5 ft 6 in (1.68m)	7 ft 7 in (2.31m)	2 ft 4 in (0.71m)
A5	227°	2 ft 8 in (0.81m)	6 ft 2 in (1.88m)	2 ft (0.6m)
A6	235°	4 ft (1.22m)	7 ft 2 in (2.18m)	2 ft 6 in (0.76m)
A7	029°	5 ft (1.53m)	6 ft 7 in (2.0m)	2 ft (0.6m)
A8	237°	4 ft 1 in (1.25m)	7 ft 1 in (2.16m)	2 ft 7 in (0.79m)

The coffin preservation was mixed, but the basic dimensions and form of all except Burial A2 could be determined (Table 2). All of the coffins were made from timber, the adult coffins all being of the 'single break' form (narrow at the head and feet and wider across the shoulders), while one of the infant coffins had straight sides (the other infant coffin was too poorly preserved to describe). There was no apparent decorative treatment to any of the coffins other than Burial A6, which had coffin handles and coffin plates (over head, chest and feet) on the coffin lid. These coffin plates were very corroded, and despite careful cleaning the painted inscription on the main coffin plate could not be read, although it was possible to determine that it had been finished in black with gold lettering.

Table 2. Coffin dimensions at the Ardrossan Street cemetery. All dimensions are only accurate to within one or two inches due to the poor preservation conditions.

Burial	Coffin Length	Head width	Shoulder width	Foot width	Depth
A1	6 ft (1.83m)	12 in (0.3m)	19 in (0.48m)	8 in (0.2m)	?
A2	?	?	?	?	?
A3	2 ft (0.6m)	8 in (0.2m)		6 in (0.15m)	?
A4	6 ft 3 in (1.9m)	10 in (0.25m)	16 in (0.4m)	11 in (0.28m)	10 in (0.25m)
A5	5 ft 10 in (1.78m)	12 in (0.3m)	?	10 in (0.25m)	?
A6	6 ft 5 in (1.96m)	12 in (0.3m)	21.5 in (0.55m)	10 in (0.25m)	?
A7	5 ft 9 in (1.75m)	13 in (0.33m)	19.5 in (0.5m)	9 in (0.23m)	?
A8	6 ft 3 in (1.9m)	9 in (0.23m)	18 in (0.46m)	8 in (0.2m)	?

Burial A1 had the only above-ground evidence remaining in the cemetery, consisting of the twisted and dismounted remains of a wrought-iron fence that had been set on stone block foundations, and the foundation for a headstone (Figure 7) (although the headstone itself was missing). The fence was hand-made, and each picket (the vertical iron rods) was finished at the top in a hand-hammered finial (Figure 8).

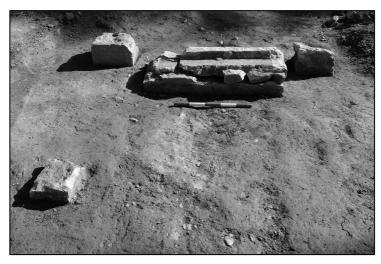




Figure 7 (above). The surviving in situ stonework for Burial A1, with three (of the original six) foundation blocks for the wrought iron fence and the headstone foundation.

Figure 8 (left). Hand-made wrought iron finial from the Burial A1 fence.

Results: 'New' Cemetery (Gabriel Street)

The three burials that were investigated were located in a row in the Chinese section of the cemetery (Figure 9). All were unmarked, but could be identified by the sunken depressions of the grave shafts at one end of a formal row, in alignment with the main cemetery survey. All three were cut down into clay, to slightly different depths (Table 3), and buried fragments of limestone headstone were found just below the surface in the grave fills of Burials G1 and G2. All three had their heads to the east, in contrast to the Ardrossan Street cemetery sample. However, due to the slope of the land this did mean that their heads were at the uphill end.

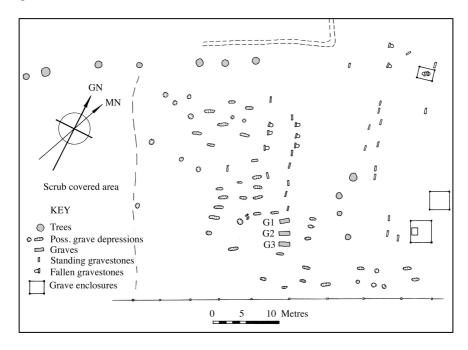


Figure 9. Plan of the April 2018 excavations at the southern end of the 'new' cemetery on Gabriel Street.

As with the Ardrossan Street sample, analysis of the human remains is only just beginning, and will be reported in future publications. Initial indications, based on field observations of tooth morphology, are that these three individuals were of Asian (ie probably Chinese) origin. The preservation of the skeletal material was

reasonable and extensive remains of clothing were found on all three individuals, particularly G1 and G3 (discussed further below).

Table 3. Grave orientations and dimensions at the Gabriel Street cemetery. Note that the orientations are magnetic compass readings.

Burial No.	Orientation	Grave depth	Grave length	Grave width
G1	040°	5 ft 2 in (1.58m)	7 ft 4 in (2.23m)	2 ft 2 in (0.66m)
G2	043°	4 ft 8 in (1.42m)	6 ft 5 in (1.96m)	1 ft 11 in (0.59m)
G3	041°	4 ft 4 in (1.32m)	6 ft 8 in (2.03m)	2 ft 11 in (0.89m)

The coffins were moderately well preserved, and the basic dimensions and form of all three could be determined (Table 4). All of the coffins were made from timber and were the traditional 'single break' form. All three were originally covered in black fabric with embossed zinc ribbon detailing (Figure 10). Burial G3 had a pair of cast iron coffin handles.

Table 4. Coffin dimensions at the Gabriel Street cemetery. All dimensions are only accurate to within one or two inches due to the poor preservation conditions.

Burial	Length	Head width	Shoulder	Foot width	Depth
G1	6 ft 2 in (1.88m)	13 in (0.33m)	22 in (0.56m)	12 in (0.3m)	?
G2	5 ft 7 in (1.7m)	10 in (0.25m)	22 in (0.56m)	8 in (0.2m)	?
G3	5 ft 10 in (1.78m)	12 in (0.3m)	22 in (0.56m)	10 in (0.25m)	10 in (0.25m)

Material Culture

Coffin Design & Furniture

The basic coffin design used for all adult burials was the traditional single-break form, and all coffins were constructed from timber planks nailed (some screws were also used) together. The coffins in the 'old' cemetery on Ardrossan Street were mostly plain and unadorned, except for Burial A6 which had three coffin plates in the traditional locations over the head, chest and legs as well as iron coffin handles. The coffin plates followed a typical pattern of a large chest plate (enamelled black, with the deceased's name painted in gold), a flower vase over the legs, and an angel over the head, a layout also observed in the St. John's Cemetery sample. In contrast, the three coffins from the 'new' cemetery on Gabriel Street were all covered in black fabric and trimmed with embossed zinc ribbon (Figure 10), and Burial G1 had a coffin plate over the chest (which was not

legible). This treatment is very similar to the 1870s burials excavated at St. John's Cemetery in Milton (Petchey et al 2017).

As the Ardrossan Street burials were all interred in the 1860s in a frontier context, it appears that simple burial practices dominated in this place and period, with additional complexity appearing in the following decades as the community developed. Simple coffin treatments have also recently been recorded in another goldfields context in Cromwell (Petchey et al in press). The use of standard European decorative elements on what are (tentatively) identified as Chinese interments in the Gabriel Street burials is of interest, and will be considered further as the research progresses.



Figure 10. The remains of the embossed zinc ribbon trim on the Burial G1 coffin.

Clothing

The 2018 excavations were notable for the well-preserved clothing present in Burial A8 at Ardrossan Street and Burials G1 and G3 at Gabriel Street. Clothing in other burials was represented by scraps of preserved fabric and buttons, of which white 'milk glass' button were the most common (five were found in Burial A5, three in A6 and four in A7). Burial A4 had brass and bone buttons and fragments of fabric, and more clothing fragments are expected to be found as laboratory analysis of the human remains proceeds.

Burial A8 was found wearing an undershirt, some form of shirt or overgarment, and knitted knee-length socks. No evidence of trousers survived, and he was not buried with boots. As already mentioned, the dry conditions in this grave appear to have preserved the fabrics.

The clothing in burials G1 and G3 were preserved in more tightly sealed damp (but not wet) conditions in clay. Burial G1 was wearing a shirt, trousers and socks, and had his felt hat and boots placed over his head and feet respectively (note that he was not wearing his boots: they were placed over the feet in the coffin, Figure 11). Burial G3 also had a felt hat placed over his head, and was wearing a heavy dark-coloured jacket, possibly with a waistcoat underneath. The field observations of these garments indicated that the individuals were dressed in a very similar style to the group of Chinese miners shown in Figures 5 & 12, with boots, dark jackets and soft felt hats. The garments were block lifted with the skeletal remains for detailed examination in Dunedin.



Figure 11. The boots placed in the coffin with Burial G1. The scale is 0.5m long.

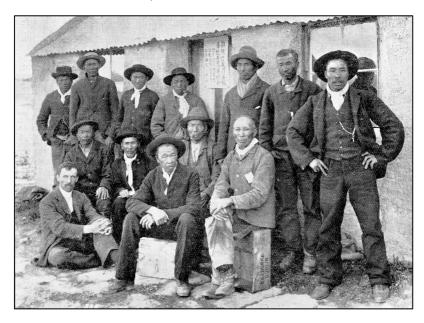


Figure 12. The Chinese miners who made up the Maori Gully congregation, with the Rev. W. Mawson sitting on the ground (Don 1923).

The Grave Cuts

The grave cuts at the Ardrossan Street cemetery all encountered hard bedrock; the diggers of A5 stopped at this point, while the others all persevered. Pick marks from the digging tools were visible on all grave cuts except for A5, and were so well preserved on several that details of the tools used could be determined (Figure 13). Grave A4 was dug with a miner's pick with a 3/8 inch (9mm) wide tip, while A8 was dug with at least two picks, one with a 3/8 inch (9mm) tip and one with a 7/16 inch (11mm) tip. Grave A2 was too small to be able to swing a pick effectively, and so the bottom was probably dug with a pointed bar with a tip approximately 2mm across (rounded). Some evidence of handedness was present, as the direction of pick swings could be seen, although this might also be the result of diggers' efforts to get into corners.

The square corners and relatively flat floor of the rock-cut graves suggests that the grave diggers were familiar with cutting into rock (rather than simply digging and earth or clay grave), which is not surprising in a gold mining community. Similar tool marks to those observed in the Ardrossan Street graves can be seen in historic hard-rock mines around Otago. The shallow bedrock also provides a clue as to

why the Ardrossan Street graveyard was closed after only a few years: the digging there was extremely difficult compared to the Gabriel Street site.

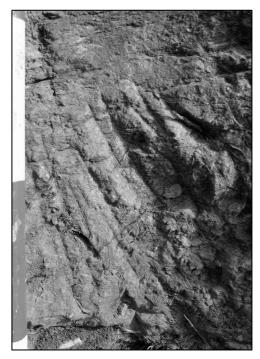


Figure 13. Pick marks in the side of the Burial A4 grave cut. The scale is in 100mm increments.

Conclusions

This is only a preliminary report, and detailed analysis has yet to be completed on the skeletons or the material culture. However, even at this early stage the project has been a success. One of the aims of the excavation was to determine how well the 'old' (Ardrossan Street) cemetery exhumations had been carried out, and the results make it clear that the planned exhumations of the 1860s never actually occurred, with the benefit to this study of providing a sample of individuals who died within a very tight chronological period in the immediate aftermath of the Tuapeka gold rush. It is known that some exhumations of Chinese individuals did occur from the Gabriel Street cemetery, so it was uncertain whether any remains would be present there: but once again undisturbed burials were found. Other researchers have found that historic exhumations were often not thoroughly carried out (Pitt et al 2017), so these results are not entirely unexpected.

The range of skeletal and artefactual material that has been found will allow a detailed examination of the people, their origins, health and cultural traditions (especially relating to death: a Victorian preoccupation). It is already apparent that there are both parallels and differences with the burials from St John's cemetery in Milton, possibly representing differences between the frontier society of 1860s Lawrence and the settled agricultural community of 1870s Milton. Frontier settlements grew rapidly and haphazardly (Mackay 1992: 70), which is perhaps reflected in the graves at Ardrossan Street that are widely spaced and only roughly placed in lines, while the Gabriel Street and St. Johns graves are more regular. The ornate above-ground treatment of Burial A1 suggests that it was the grave of someone of wealth and status, and contrasts strongly with the shallow and unadorned treatment of Burial A5. This suggests that social stratification in Lawrence was becoming firmly established by the mid-1860s.

The role of the Chinese in this developing society is an area of considerable potential interest. The three burials examined at Gabriel Street are notably different in their treatment to the Ardrossan Street individuals (probably due in part to being chronologically later), and while they bear similarities to the (possibly contemporary) St. Johns cemetery sample from Milton (particularly the coffins covered in black fabric and lined with embossed zinc ribbon), there are also differences, notably the inclusion of hats and boots in some graves (although it is likely that different preservation conditions have influenced the archaeological findings). Consideration of the similarities and differences between European and Chinese interments will be a significant part of the current research.

Further excavations are planned at both cemeteries, due to both the good results that are appearing and the poor weather in April 2018 that slowed down work then. The aim is to complete the clearance of the Ardrossan Street cemetery, and to increase the sample size from the Gabriel Street cemetery. Formal permissions are in place for this continuing work, but discussions with all affected parties will be ongoing and work will only proceed with their agreement.

Once our research is complete all of the individuals from the Gabriel Street cemetery will be returned to their original grave positions. It is most likely that the Ardrossan Street cemetery burials will also be reinterred in the Gabriel Street cemetery, as was planned to occur in the 1860s.

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