

Leather Report

King George V Recreation Centre The Rocks

For Casey & Lowe

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1.0 Introduction

The footwear and leatherworking artefacts discussed in this report form part of the Organic Catalogue compiled by Robyn Stocks for Casey & Lowe Pty Ltd in 2004. The catalogue system was developed by Casey & Lowe Pty Ltd. All information was added to an Access database, with each item and fragment assigned to a three-step functional category. Additional typology and other descriptors specific to leather morphology has been used by Robyn Stocks in consultation with Casey & Lowe for this catalogue and analysis.

The artefacts were discovered in a rock-cut well and surrounding contexts during the 2004 excavations at the King George V Recreation Centre, the Rocks, Sydney, prior to redevelopment. The archaeological excavation was undertaken by Franz Reidel, Tim Adams and Glen Suey for Casey & Lowe Pty Ltd. The well deposits were excavated by hand in contexts defined by physical differences and depth. This part of Sydney has been occupied by Europeans from 1788 with the people undertaking a variety of activities causing numerous physical changes to the site.

The deposits in the well included a variety of artefacts, such as ceramic, glass and building materials. The wet and near anaerobic conditions enabled the excellent preservation of organic items, for instance animal bone, shell, seeds, wood and leather. The leatherworking artefacts discussed here were primarily used for footwear and were presumably sold by a local shoemaker or cobbler in the Rocks. The range of shoe and boot types, styles and sizes indicate that they could have been worn by the residents of the Rocks as well as other Sydney clients in both domestic and work settings.

Once cataloguing was completed and three fragmentary items tested, 46 of the most significant and fragile shoes and shoe fragments were conserved using the freeze-drying process by the Australian Museum, Sydney (Appendix 1). In addition, the range of types of footwear were photographed both prior to and after conservation (Appendix 2). The methodology of the classification and the analysis are described in Sections 2 and 3 and the conclusions reached about the results of the analysis drawn in Section 4. Shoe and boot parts are depicted in Figures 1-3 supported by a glossary of terms in Section 5. Finally references used in this report are listed in Section 6.

2.0 Methodology

2.1 Overview of Methodology

The 245 catalogued footwear and other leatherworking artefacts from the site were made of leather, fabric and metal. The classification of the items began by sorting fragments from each context in an effort to recombine elements of single shoes or boots, and to separate footwear from leatherworking offcuts. Individual footwear (given the generic term shoes) of each shape, type and size, whether whole or in fragments, were catalogued within their context and assigned a minimum item count (MIC). Offcut fragments were identified and grouped by thickness and colour, each type then assigned a MIC which has not been further refined or adjusted for this report (see Section 3.11).

In order to ascertain the minimal count of the footwear items in the well as a whole, the MIC per context was adjusted (adjusted MIC) for this report, becoming a total of 105 (Tables 1, 2). The adjustment of the total minimum count of individual shoes was based on the presence of outsoles. Paired shoes were counted as two, even when one comprised only parts of the matching upper, because in these instances a careful check was done of the all the other soles in the assemblage. Similarly a full check was done for soles of shoe uppers of unusual construction so they could be included in the adjusted count. Although the adjusted MIC is used in this analysis and shown on all the tables of the report, researchers should be aware that the (uncounted) uppers and fragments are an important resource and may represent additional items for future research.

Shape	Adjusted MIC	%	MIC	%
boot	1	1.0	5	2.0
boot, lace-up	11	10.5	15	6.1
shoe	58	55.3	182	73.5
shoe/boot	4	3.8	5	2.0
shoe, lace-up	0	0.0	2	0.8
shoe, latchet	5	4.9	7	2.8
shoe, pump	8	7.7	10	4.0
eyelet	0	0.0	1	0.4
fabric	0	0.0	1	0.4
shoe buckle	1	1.0	1	0.4
offcut	17	16.3	17	6.8
TOTAL	105	100	245	100

Table 1: Minimum and adjusted numbers of items of relating to footwear and leatherworking.

The MIC was adjusted after cataloguing due to the difficulty of rejoining the separate fragments across the entire corpus while they were in a fragile state. The leather items were recorded when still damp and flexible, maximising the visibility of physical attributes and enabling an accurate measurement of their size. If allowed to dry out without conservation, leather becomes warped, shrunken and difficult to manipulate. Further research on the assemblage is now possible as much of the leather has been treated in a freeze-dryer. Throughout this report the relevant context numbers will be identified in brackets.¹

¹ For information about archaeological leather, its composition, tanning and conservation see: Anderson 1968; Goubitz 1984; Shopland 2005.

Context	General Function	Special Function	Shape	Adjusted MIC	%	MIC	%
3501	personal	clothing	shoe, lace-up	0	0.0	1	0.4
3502	industrial personal	by-product clothing	offcut	4	3.8	4	1.6
			boot	0	0.0	2	0.8
			boot, lace-up	3	2.9	7	2.9
			shoe	31	29.5	119	48.6
			shoe/boot	4	3.8	5	2.0
			shoe, lace-up	0	0.0	2	0.8
			shoe, latchet	3	2.9	5	2.0
			shoe, pump	1	1.0	3	1.2
3503	industrial personal	by-product clothing	offcut	3	2.9	3	1.2
			boot, lace-up	4	3.8	4	1.6
			shoe	7	6.7	19	7.8
			shoe, latchet	1	1.0	1	0.4
			shoe, pump	3	2.9	3	1.2
3506	industrial personal	by-product clothing	offcut	4	3.8	4	1.6
			boot	1	1.0	2	0.8
			boot, lace-up	2	1.9	2	0.8
			eyelet	0	0.0	1	0.4
			shoe	10	9.5	28	11.4
3507	industrial personal	by-product clothing	offcut	3	2.9	3	1.2
			boot	0	0.0	1	0.4
			boot, lace-up	2	1.9	2	0.8
			fabric	0	0.0	1	0.4
			shoe	9	8.6	11	4.5
			shoe, latchet	1	1.0	1	0.4
			shoe, pump	4	3.8	4	1.6
3510	indust pers	by-prod cloth	offcut	3	2.9	3	1.2
			shoe	1	1.0	3	1.2
			shoe buckle	1	1.0	1	0.4
TOTAL				105	100	245	100

Table 2: Minimum and adjusted numbers of items relating to footwear and leatherworking within each context.

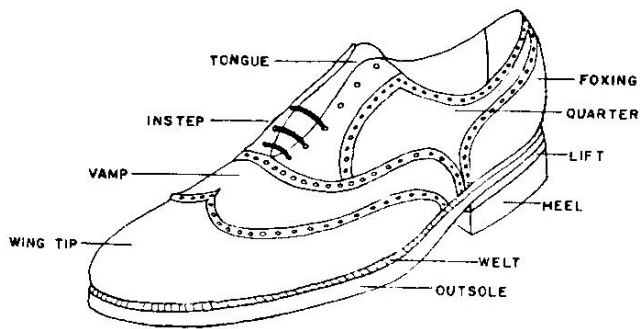
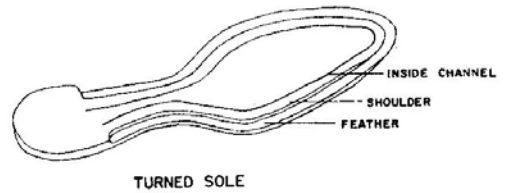
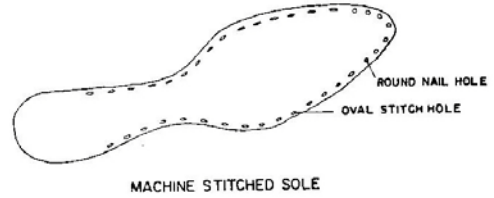
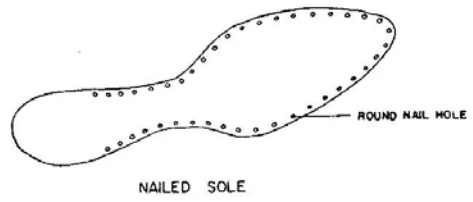
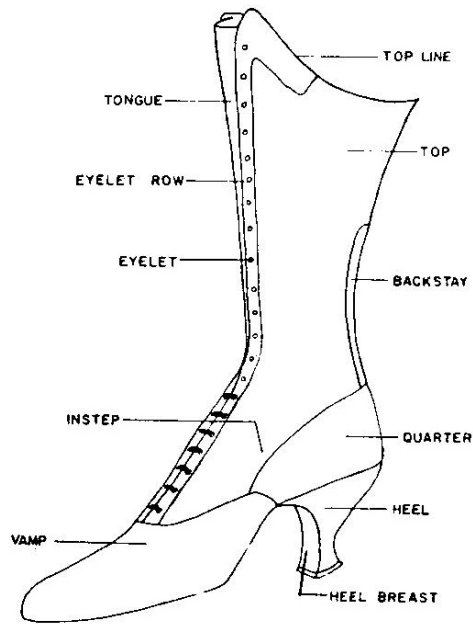


Figure 1: Shoe insoles evidence of construction types (from Anderson 1968: Fig.7).

Figure 2: Shoe part terminology of 1920 boot and shoe (from Anderson 1968: Fig. 5).

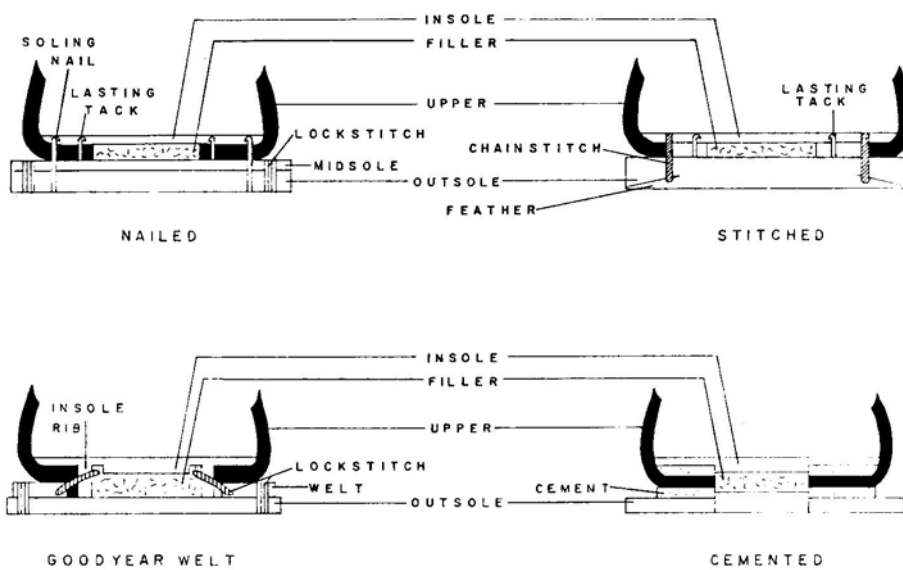


Figure 3: Shoe sole construction types (from Anderson 1968: Fig. 3).

2.2 Classification System

The classification system used during the cataloguing and analysis of the footwear is based on criteria of function, shape, material, technology, style, gender and age. The general size and form give clues as to the gender and age of the wearer. The type of material used and its quality can give an idea of occupation, status and wealth of the intended purchaser. The style of the upper, toe and heel in combination can often locate the shoe within a general time frame. Depictions of the main parts of footwear as well as the main construction methods to be identified where possible are shown above (Figs 1-3) and defined below (Tables 3-5, and glossary in Section 5).

The first of these criteria define the shoe types used in the catalogue and this report. They comprise the categories of last form, attachment method and shoe construction method (Tables 3, 4). The shoes were further described in the catalogue using a checklist of variables (Table 5). For ease of data entry, those that related to the four major parts of the upper as well as the heel were given numerical values which are also used in some of the tables in this report. Where shoes are fragmentary the manufacturing method can often be deduced from the actual hardware used to attach the various pieces together or the distinctive holes they leave behind. Some shoes and boots can be dated from a time after the invention of a specific patent but others fall within broader parameters. The historical context and dating of these attributes is outlined in Section 2.3, any additional information can be found within the references cited in Section 6.

LAST		FROM	TO
<u>S</u> traight	Left and right shoes the same. When heels fashionable before machinery difficult for shoemakers to keep ranges of lasts. Used longer for child shoes and poorer quality shoes.	c.1700	c.1860 (adult)
<u>C</u> rooked	Left & right shoes follow curve of feet. Medieval period, expensive shoes. Reintroduced when fashionable shoes had no heels. In general use after 1860s when nailing & sewing machinery & invention of pantograph enabled easy production of lasts with heels.	Medieval c.1800 c.1860	
SOLE ATTACHMENT METHOD			
<u>T</u> urned	Upper stitched directly to sole inside out then turned. Indoor shoes and slippers		
<u>O</u> ther	Welted & other construction methods upper attached to insole, then outsole attached at end. Outside and work shoes.		

Table 3: Shoe types relating to last and sole attachment method. Note underlined letters used as abbreviations in catalogue.

The abbreviated form of each item's type on the catalogue corresponds to the underlined letters and numbers of these parameters shown in the left columns of the tables. They are always listed in the same order to facilitate data sorting. For instance, a shoe of type "STHSt3" has a straight last, a hand-stitched turned sole with a stitching shoulder from the shank to toe, and a separately sewn heel seat.

The shoe retains its original type designation when mended using later technology so long as the construction method is basically intact. For example, a hand-sewn shoe may have machine-sewn repairs to the upper and a newly machine-nailed heel, all of which are listed in the description. The shoe would be dated from the most recent components or technology used to make the repairs, in this case from c.1862.

It is common, however, for shoes to be made of several earlier elements which are detailed in the general description. Cobblers and shoemakers routinely kept shoes and shoe parts discarded during the repair process and recycled them when the opportunity arose. Some of the offcuts found in the well came from such shoes or other leather goods. Worn or older-style outsoles were also found reused either as part of a new clump sole or as sturdy midsoles or insoles.

METHOD	No.	DESCRIPTION	FROM	TO
<u>Hand Stitched</u>	0	Other or irregular.		c. 1860
	1	Unknown turned type.		c. 1860
	2	Turned, stitching shoulder around entire upper edge of outsole.		c. 1860
	3	Turned, stitching shoulder shank – toe. Heel seat separately sewn.		c. 1860
	4	Turned out or stitched down, usually thick leather with welt or rand. Found UK from 17 th century. Common Sth African technique, known as Veldtschoen.		c. 1860
	5 6	Welted. Welted, insole holdfast seam.		c. 1860 c. 1860
<u>Machine Stitched</u>	1	Other/Unknown, usually 2 or 3.	c. 1860	
	2	Early Patents, toe & heel nailed.	1860	
	3	McKay Patent, exposed (uncomfortable) stitching around entire upper edge of insole, stitching around entire edge of outsole, welted.	1862	
	4	Goodyear Welt, stitching shoulder around entire lower edge of insole only, stitching around entire edge of outsole, welted.	1875	
	5	Feather, stitching around entire edge of outsole, on upper side holes are oval shoe-width wise, on lower side holes are more triangular/feathered. Combination with insoles, welted.		
	6	Turned Out or stitched down (see H St 4).		
<u>Wood Pegged</u>	1	Unknown type, usually 2 or 3. (peg holes are lozenge or sq).		
	2	Hand hammered, irregular shape (generally only heel to sole).		
	3	Hand operated pegging machine, mixed shape (upper, sole). Patent 1829, generally adopted USA 1843.	1829	
	4	Davey Pegging Machine hammered, uniform shape (upper, sole).	1854	1880
	5	Wood Pegged & hand nailed.	1829	
	6	Wood Pegged & machine nailed.	1862	
<u>Nailed</u>	1	Unknown, mixed holes.		
	2	Fe (sq/rect sctn) hand hammered.	1812	
	3	Aes (sq/rect sctn) hand hammered.	1812	
	4	Fe & Aes hand hammered combination.	1812	
	5	Fe (rect/circ sctn) cable nailing, machine hammered & cut.	1862	
	6	Aes (rect/circ sctn) wire nailing, machine hammered & cut.	1862	
	7	Fe & Aes machine hammered combination.	1862	
<u>Screwed</u>	0	Aes screw unknown.		
	1	Aes (circ sctn) cont. brass wire, no head, early machine hammered & cut.	1862	
	2	Aes Standard Screw Machine, very regular placement.	1880	
	3	Aes screw with Fe mach nailing combination.	1862	
<u>Rubber</u>	1	Unknown, mixed.		
	2	Sole/heel inserts.	c. 1850	
	3	Heel screwed, black vulcanised, thick solid.	1895	
	4	Solid cast, pink.		
<u>Cemented</u>	1	Unknown.	1926	
	2	Sole method upper glued to outsole.	1926	
	3	Combination with stitching/nailing.	1926	

Table 4: Shoe types relating to construction method and dating. Note underlined letters in method used as abbreviations in catalogue.

UPPER	Single or double layered, grade, texture, suppleness, flesh or grain out hand or machine stitched seams, latches, straps, elastic, buckles, lace/thong, eyelets (metal?).				
Toe	1	round	Throat	1	back seam
	2	pointed		2	straight
	3	narrow square		3	convex
	4	square		4	decorative stitched
	5	duck-billed		5	V corners
	6	open		6	bowed, widow peak
	7	capped inner lined, puff		7	tongue, long continual
	8	capped outer leather		8	tongue, separate piece
	9	steel capped			
Top Vamp	1	decorative stitched	Quarter	1	back seam
	2	cut-outs		2	no back seam, continual piece
	3	applied bow		3	counter, internal leather lining (3L)
	4	applied buckle		4	counter, no internal leather lining (2L)
	5	applied unknown		5	no counter, outer layer only
	6	hole(s) for lace/buckle, latchet		6	no counter, internal & external layers
	7	slashed		7	metal counter
INSOLE	Lasting & other nail holes, pegging, stitching, cementing, inserts, lining, paring, impressions.				
Heel cupping	U-shaped, hand stitched to shape (bracing) attached by pegs, nails.				
Heel seat	Attached by pegs, nails, bracing.				
OUTSOLE	Clump, stitching, pegging, nailing, cementing, paring, scoring, impressions.				
Heel	1	flat, none	6	stiletto	
	2	low	7	platform	
	3	medium	8	wood	
	4	high	9	cork	
	5	waisted			
Heel lifts	Attached by stitching, pegging, nailing, curved segments.				
Heel breast	Straight, concave, other.				
REPAIR/REUSE	Status of wearer & maker, availability of materials & tools, dating pre deposition.				
WEAR	History of usage, left or right foot, post deposition.				

Table 5: Shoe description variables. Note numbers used as abbreviations in catalogue.

2.3 Historical Background of Shoe Manufacture

The history of shoe manufacture has been compiled from the limited written and oral records of shoemakers, companies and clients, supplemented to a large degree by the pictorial record. Changing fashions in Britain, Europe and America, often seen in paintings, must be used with caution as a dating tool, due to the time lag of such trends to Australia and the individuality of the shoemaker as well as the purchaser. The catalogues of manufacturers and merchants are an invaluable source but tend to lack quantity and detail before the latter part of the nineteenth-century when mass manufacturing transformed the industry.²

Shoes were all hand-made until after the middle of the nineteenth-century, however from the beginning of the eighteenth-century, a selection of ready-made footwear was hand-manufactured in leatherworking towns, such as Street in Somerset. These were commonly available across England and provided a cheaper but more limited alternative to bespoke ware. The workers who cut out the patterns were called 'clickers'. For the cheaper trade, where the styles underwent little change,

² For general and specific discussions of shoe technology and styles see: Anderson 1968; Bower 1999, Butterworth 1998; Goubitz 1984; Goubitz et al 2001; McDowell 1989; Mitchell & Ward 1997; Pratt & Woolley 1999; Riello & McNeil (Eds.) 2006; Stevens & Ordoñez 2005; Sutton 1979; Veres 2005; Wilson 1974. A comprehensive glossary of leatherworking and footwear terms are listed in Goubitz 2001; Utulsa n.d.

fewer patterns were required. Different standard sizes were introduced in Britain at Norwich in 1792 and in 1888 in the USA.³

For the general populace, turned pumps, slippers and latchets were the most common styles for lighter shoes, simply made by hand sewing the uppers to the outsole when inside out. Weltp construction, often using a holdfast seam on the insole, was used for sewn heavier shoes and boots. Experimentation and adoption of other methods of sole attachment were increasingly used including wood pegs, and metal nails and screws. The leather had little treatment, shoe or slipper uppers were supple, those for boots more coarse. The outsoles were often hammered to make them more compressed and durable.

During the nineteenth-century shoe manufacture underwent significant change mainly due to technological innovations. However, these improvements appear to have been embraced only when they enabled a more economically viable way to supply footwear to the lower and middle classes and the overseas market, such as Australia.⁴ Most shoe remains found on archaeological excavations were made of leather as any fabric components were less likely to survive in the soil. Therefore coarser outdoor and working shoes and boots, as well as sturdy indoor shoes and slippers worn by the lower and middle class are the typical forms. Any shoes with fabric uppers can be hard to distinguish from those fully made of leather when only separate components remain. This is a problem when assessing the presence or absence of elite footwear as many were fully or partially made of fabric. In addition, the shortages of leather and leather goods coming into Sydney before the second half of the nineteenth-century made it necessary for shoemakers to use and reuse every scrap of available stock, even that of inferior quality. This can blur the distinction between low and higher quality footwear, and the perception of the social classes that wore them. Nevertheless, the shoes worn by middle or lower class people in the Rocks, where this site is located, were likely to have been made by a shoe maker or in poorer areas by a cobbler, rather than being imported. This is in contrast to bespoke shoemakers who tended to supply the upper class, especially after c.1850.⁵ Due to these considerations, many forms of footwear continued to be made by hand in Sydney and overseas well into the nineteenth-century for reasons of economy, fashion and class.

People at the top of society, especially in Britain, wore elaborately decorated pumps for indoor occasions. As a significant part of the ever changing fashion ensemble, shoes were made of fine woven materials. Changes in fashion filtered down through society influencing the styles worn by the middle class when dancing at balls & assemblies. By the early 1800s the rage for buckles had waned, leading to other methods of decoration and latchets being tied by a lace or thong. Shoes having pointed toes and low heels were being replaced from c.1805 by those with more blunt toes and no heels. They could be flimsy and often worn with ribbons around the ankle. If a heel was required it was hand sewn on and reinforced by hand nailing or wood pegging. Toes were fully square by c.1820, becoming duck-billed in Australia for a brief period during the 1830s to 1840s.⁶ Most continued to be square until the 1870s when they became rounded. This change began in British women's shoes from the 1850s, influenced by the new fashion of round toes in France from 1848.⁷

Boots made of sturdy leather for all-purpose wear were very popular for both men and women, even though women were generally confined inside. The styles were influenced by riding & military figures involved in the Napoleonic Wars, often being named after the generals who wore them. Most boots were lace-ups, with the 1827 patent for metal eyelets making the holes easier to

³ Anderson 1968: 59; Sutton 1979: 13.

⁴ Sutton 1979: 23, 29-30.

⁵ Bower 1999: 123, 129-130; Seymour 1984:131; Shaw-Smith 1984: 158.

⁶ Bower 1999: 125, Figure 3.1; Pratt & Woolley 1999:52-60.

⁷ Bower 1999: Figure 3.3; Stevens & Ordoñez 2005: 17; Sutton 1979: 21.

thread and the styles more regular, for instance the Balmoral boot designed in 1846 for Queen Victoria. By the 1850s the increase in sporting activity of men led to a more diverse range of styles, including ankle boots with cloth uppers.⁸

In 1837 elastic sided (gusseted) boots with cotton covered metal springs were invented in England. They became the most popular form during the nineteenth-century with the elastic becoming rubberised later on.⁹ Vulcanised rubber, patented in 1844 by Goodyear, was also used by 1850 as inserts in heels & insoles in everyday shoes and boots.¹⁰

By 1830 patterns were used for cutting shoe uppers. The popularity of boots made manufacture of reinforcing counters common, these items being curved firm pieces of leather inside the quarters of shoe or boot uppers. In 1845 a rolling machine was invented in 1845 that quickly compressed leather fibres making uppers and soles more durable. Many shoes until the 1850s were made on straight lasts with no differentiation between left and right feet. The demise of the heel for fashionable shoes in the early 1800s made crooked shoes easier to make. As they allowed for the curvature of each foot crooked shoes were also more comfortable to wear. In the USA crooked shoes did not become the norm until the 1860s when the Civil War made production of tolerably well-fitting army boots a priority.¹¹ From this time onward adult shoes were commonly made on crooked lasts whereas children's shoes continued to be made straight for several more decades.¹²

Affordable shoes for the general population in Australia became possible because of a series of technological innovations in the USA and Britain that are described below. Machines that utilised wooden pegs, thread or iron and brass nails and screws changed forever the need for hand work in all but bespoke shoemaking. Their invention went in tandem with improvements to available power. In the USA machines were run from c.1855 by horsepower but by 1860 almost all factories had converted to steam or water power. Such innovations, however, tended to be more slowly adopted in Britain and Australia due to traditional workplace practices and organisation, as well as the costs that would be incurred in updating technology.

In 1829 a hand-operated pegging machine was patented that allowed large quantities of wooden pegs to attach the heel to the sole. By 1843 pegging by machine was generally adopted in the USA leading to the development of the Davey Pegging Machine in 1854 that fastened the upper to the sole. It was the first true shoe-making machine and was the method preferred by most shoemakers until c.1880 because it was faster than early nailing machines.¹³

The construction technique of nailing shoes or using hobnails to reinforce shoes or boots was done by hand during Roman times but not reintroduced until after 1800, perhaps as late as c.1812. This method continued until c.1862 when an iron cable nailing machine was patented that cut and inserted preformed linked nails into the sole. At the same time other devices used continuous brass wire that was cut & finished as a nail or screw each time it was inserted into the sole. In c.1874 an automatic machine was invented to drive nails into heels. This led to the development between c.1876 to c.1930 of the Standard Screw Machine that attached outsoles to uppers.¹⁴

In 1846 a machine that sewed only uppers was patented in the USA and quickly sold to a manufacturer in England. By 1856 the sewing machine was in general use throughout shoe trade

⁸ Bower 1999: Figure 3.2; Butterworth 1998: 379-380; Mitchell & Ward 1997: 24-25; Montague 1981; Pratt & Woolley 1999:53-54, 61-62.

⁹ Mitchell & Ward 1997: 25

¹⁰ Anderson 1968: 59; Sutton 1979: 26-29.

¹¹ Anderson 1968: 59; McDowell 1989: 34.

¹² Sutton 1979: 31.

¹³ Anderson 1968: 58-61; Huddleston & Watanabe 1990; Sutton 1979: 36; Utulsa n.d.

¹⁴ Anderson 1968:59-61; Goubitz 2001: 320; Sutton 1979: 36-37, 141; Utulsa n.d.

in USA From 1857 to 1860 another machine was invented & then patented in the USA by L.R. Blake that sewed uppers to soles, but toes & heels still had to be finished by hand. The insole had a loop stitch and ridge of thread on upper side making it uncomfortable. This innovation led to the development of the McKay patent sewing machine in 1862 where the entire sole could be sewn to the upper, the insole retaining the same upper stitching.¹⁵

In c.1875 the Goodyear Patent Stitcher was invented, for the first time enabling the entire sole to be machine sewed to the upper, requiring no nails. The method used a welt and was more comfortable to wear than the McKay Patent as it left a stitching rib only around lower side of the insole. The rib was similar in design to a holdfast seam on a hand-sewn shoe¹⁶.

In c.1875-76 a heeling machine was patented that compressed the heel lift & pricked holes for nails/pegs. This enabled the invention of the automatic heel attachment machine in the 1880s which led to return of affordable high heels. Ankle boots and laced shoes or brogues were common for both men and women with styles such as Oxford and Derby. The most popular shoes for women were a slip-on pump with leather & cloth uppers, many showing a variety of decoration, ties or straps. From this time onward a variety of lace-up and button-down walking shoes and boots, as well as indoor styles were advertised in numerous illustrated store catalogues and other media.¹⁷

By 1900 shoes in the USA were mostly mass produced in large factories. A year later the amount of shoes they had produced and exported to Britain had risen to over one million, forcing manufacturers in the UK to mechanise or be totally swamped. By 1912 the principal methods of shoe-manufacturing in USA were the Goodyear welt, McKay, turned, standard screw & nailed. In 1926 cemented shoes became practical with the development of effective glue. This method of sole attachment gradually superseded all others.¹⁸

¹⁵ Anderson 1968: 59-61; Sutton 1998: 32-35, 141, 145-147.

¹⁶ Anderson 1968: Figures 3 & 4, 61; Sutton 1998: 32-35, 141, 148.

¹⁷ Cuffley 1984 & 1997.

¹⁸ Anderson 1968: 61-62.

3.0 Artefact Analysis

3.1 Overview of Analysis

The catalogued artefacts were analysed to gain more information about the residents of the site and their use of the buildings and yard areas. This was done by incorporating information about site history from the archaeological assessment with the artefacts, structures and deposits uncovered during monitoring. Additional historical and technical information was also sought at this stage in relation to specific artefacts.

The items relating to leatherworking and footwear provide information about individual clothing and fashion, gender, age, occupation and status. The range of methods employed to make the footwear indicate the level of technological sophistication of the Rocks' shoemaker(s) and the goods and machinery available to them. The shoes were part of a larger catalogued assemblage that are not analysed as a whole here, but which included other hand-worked artefacts of wood and ivory (see Miscellaneous, Organic and Bone Catalogues).

3.2 Footwear Shapes and Styles

A total of 87 items were able to be identified according to shape and style, of which 63 or 58.9 percent could not be classified beyond shoe or boot (see Table 1). They represent a broad range of sturdy and occasionally well-made footwear. Many unidentified fragments may be able to be rejoined in the future, or recombined with the major styles that are discussed in the following sections (Table 6).

Pump or Slipper No Heel	Pump With Heel	Pump or Slipper Unid Heel	Latchet	Lace up Shoe	Lace up Boot	Shoe Unid	Shoe or Boot Unid	Boot Unid	TOTAL
5	1	2	5	x	11	58	4	1	87

Table 6: The major subdivisions of footwear shapes and styles.

3.3 Pumps and Slippers

Only eight shoes in the backfilled well could be distinguished as being hand-stitched pumps or slippers with uppers made of fine supple leather (Table 7). They were of turned and welted construction and probably joined several other unattached fragments in the assemblage. The opening seams were formed by simply turning the leather over and hemming the edge down (whip stitch). These styles favoured indoor wear, although several were sturdy enough to be easily worn outdoors.

Context	Cat#	Type	Style	Age	Gender	Toe	Heel	Surface Colour	From	To	Adj MIC	MIC
3502	25118	CTHS2	Slipper	Adult	Male	3	1		1810	1860	1	1
3502	25157	CTHS1	(Dress heel)	Adult	Female	2?		black	1790	1860	0	1
3502	25182	COHS6		Adult	Female		3		1862		0	1
3503	25191	COHS6	Dress	Child	Female	4			1820	1860	1	1
3503	25196	CTHS1		Adult	Female	1/4	2		1820	1860	1	1
3503	25199	COHS6		Adult	Female	3	3	tan	1862		1	1
3507	25237	STHS3	Slipper	Child		4	1		1820	1860	2	2
3507	25242	STHS2	Slipper	Adult	Female	1/4	1		1820	1860	1	1
3507	25243	CTHS3	Slipper	Adult	Female	1/4	1		1810	1860	1	1
TOTAL											8	10

Table 7: Pumps and slippers with their visible attributes.

All the uppers were cut from dark brown leather except for one which was black. Only one appeared to have a coloured surface finish and that was a ladies dress shoe, made or repaired after 1862 (3503/#25199). All the other shoes were likely to have been made sometime in the first half of the nineteenth-century. The earliest item may be the black leather upper fragment from a right pump or slipper with a damaged oval toe (3502/#25157).

The probable slippers are defined by their lack of heels and counters. All were of turned construction. Only one pair would have been worn by a child or adolescent. The uppers had the grain side out and only two were lined.¹⁹ Most of the throats were straight but one had a roughly stitched convex throat with V-corners (3502/#25118). Another was more carefully made with a bowed throat and a decorative embossed line across the vamp (3507/#25243). This slipper had an outsole with a repaired heel seat piece and wood lasting pegs. A slightly larger slipper may have been an apprentice piece as its outsole had been over-cut along one side, and was attached to the upper by widely-spaced stitches on a very wide shoulder (3507/#25242, Figs 4-6).



Figure 4: Women's soft pumps or slippers. Left to right: upper sides of two right turned shoes with rounded-squared toes. HSt3 with repaired/joined outsole heel and vertical embossed ridge across leather-lined vamp 3507/#25243. Possible apprentice piece with roughly overcut HSt2 outsole and basic two-piece upper 3507/#25242, 10cm scale.



Figure 5: Women's soft pumps or slippers. Left to right: lower sides of 3507/#25243, #25242 showing lack of visible hand-stitching and no heels on the outsoles, 10cm scale.

¹⁹ The grain side is that where the hair has been removed, as opposed to the flesh side.



Figure 6: Men's pumps or slippers. Left to right: narrow HSt2 outsole with irregular stitching holes in wide low shoulder and narrow squared toe (heel damaged) 3502/#25117. Simple unlined HSt2 turned pump or slipper with damaged toe and roughly whip-stitched convex throat and opening seams 3502/#25118. Worn HSt3 outsole with narrow squared toe repaired by hand-stitching 2502/#25126, 10cm scale.

Pump (or court) shoes are defined by the presence of heels and sometimes counters. Most were of welted construction. The uppers had the flesh side out and most have straight throats. An unusual unlined child pump had an upper of two pieces joined at the back and one side, and decorative stitching across the vamp (3503/#25191). One pump had been repaired using lasting nails. Parts of a ladies dress pump with medium-high heel was found in two different contexts in the well (3502/#25182 & 3503/#25199). It was the most recent pump or court shoe in the assemblage, and displayed evidence of careful bespoke manufacture as it had a tan finish, black silk lining, a bowed throat and fine stitching. The welted sole was made or repaired some time after 1862 with hand-forged iron nails and copper alloy machine-driven screws (Fig. 7).



Figure 7: Women's welted pumps. Left to right: upper parts of different quality pumps. High quality, right HSt6 welted dress shoe 3503/#25199 (joins heel 3502/#25182) with narrow shank pierced by wood peg holes; note tan coloured side with black silk lining. Partially leather lined left HSt6 welted shoe 3503/#25196 with straight throat; note iron nailed and creased insole, 10cm scale.

3.4 Latchet Shoes

The well fill contained the remains of at least five latchet shoes. This style of shoe is defined by the distinctive front part of the quarters that are extended into straps which pass over the instep of the foot, sometimes resting on the tongue of the shoe vamp. The straps or latches either overlap and are joined by a buckle, or, as in the case of most from this site, do not touch each other and are joined by a thong, lace or ribbon. The bases of the straps were attached to the lower sides of the vamp by a double row of hand stitching. None of the shoes had side holes and were probably first constructed in the decades after 1820 (Table 8; Fig. 8).²⁰

According to their size and decoration the hand-made latchet shoes in the well appear to have been worn by adult women and discarded after considerable wear and repair. Two pairs of leather-lined shoes were discerned with another possible pair represented by two vamps (3502/#25189). One pair (3502/#25143 & #25155) and a different right shoe (3507/#25244 & 3502/#25162) were of turned construction. Although probably constructed using HSt3 outsoles they were typed HSt1 as they were not complete or able to be fully inspected. A second pair (3502/#25154 & 3503/#25200) and a separate vamp (3502/#25163) had a welted sole. The latter pair had been repaired sometime after 1862, perhaps being fitted with the welted soles to make them sturdier. Several had decorative stitching across the vamp and two had traces of a pale surface colour (Figs 9, 10).

Context	Cat#	Type	Portion	Toe	Strap hole	Vamp dec	Surface Colour	From	To	Adj MIC	MIC
3502	25143	CTHSt1	whole	1/4	one	linear		1820		1	1
3502	25154	COHSt6	upper		one			1862		1	1
3502	25155	CTHSt1	vamp	4	one	linear		1820		1	1
3502	25162	CTHSt1	quarter		two					0	1
3502	25163	COHSt6	vamp				pale	1820	1860	0	1
3503	25200	COHSt6	upper/sole		one	linear	pale	1862		1	1
3507	25244	CTHSt3	upper/sole	3	two			1862		1	1
3510	25357	shoe buckle	whole		two?					(1)	(1)
TOTAL										5	7

Table 8: Adult female latchet shoes and shoe buckle with their visible attributes. Note: the buckle is not counted in the total of this table.

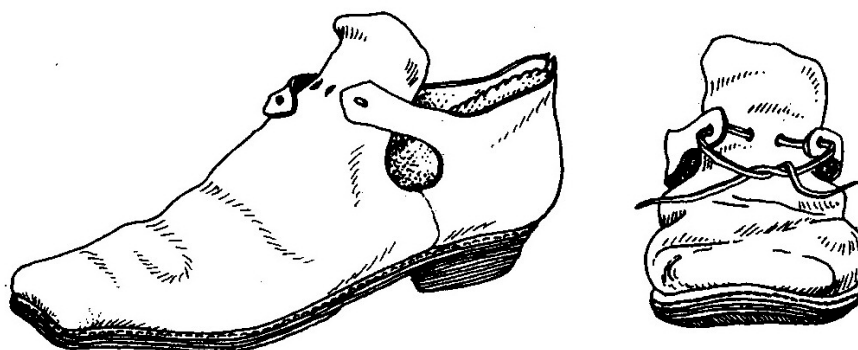


Figure 8: Illustration of a complete seventeenth-century latchet shoe from Holland showing placement of latchet straps and laces. Note the side hole is characteristic of this period and not those found in the well at the Rocks. From Goubitz 1984: Fig. 2.

²⁰ Butterworth 1998: 378-9; Goubitz 2001: 320; utulsa n.d.



Figure 9: Women's latchet shoes. Left to right: leather lined latchets showing hand repaired vamps. Welled right shoe with counter and single-hole strap at angle to sides, with possible wear hole 3503/#25200; note double decorative stitching across vamp and trace of surface colour at toe. Turned left shoe with single-hole strap perpendicular to sides 3502/#25143; note position of strap lapped seam at side of vamp and heel nails protruding above insole, 10cm scale.



Figure 10: Woman's latchet shoe. Lower side of HSt6 welled latchet 3503/#25200 showing clump sole and cut midsole. Feathered channel for shank stitching and ridge at clump join pierced by tunnel stitching. Concave-breasted heel attached/repared by hand-forged nails and copper alloy machine-made screws. Note considerable wear at toe and heel, strip welt missing, 10cm scale.

Of the five latchet shoes four had a single hole in the straps for the lace or thong. At least one latchet (joining (3507/#25244 & 3502/#25162) had a very narrow square or possibly oval toe. Its straps and vamp were pierced by two holes, possibly for a small decorative buckle (3510/#25357). The length of the pin of this buckle corresponded to the distance between the vamp holes. Due to these features, the latter shoe appears to have been made slightly earlier than the other latchets, perhaps c. 1805 and repaired sometime after 1862.²¹

The sturdy but comfortable latchet shoes from the well had low heels and would have been a good choice for women who endured a hard working day. They compare well to those found in nineteenth-century contexts in Boston, USA which also had a loose fit. Being literally slip(per) shod, these latter shoes were associated with whaler' s footwear.²²

3.5 Lace-Up Shoes and Boots

Some 11 lace-up boots are represented in the backfilled well. Due to the fragmentary condition of the three lace-up shoe uppers, it was not possible to easily combine the uppers with the available soles, and thus they were not able to be included in the Adjusted MIC (Table 9).

All the lace-up boots were plain and sturdy, with seven being welted with a holdfast seam insole, and four hand-nailed. All were ankle high and had low heels. Some seven of the 11 lace-up boot uppers were made of suede, the majority of which were unlined. Although boots were popular with both men and women in the second half of the nineteenth-century, almost all the ones represented here were worn by adult men. Only one was obviously child-sized.

Context	Cat#	Lace-up	Type	Portion	Age	Gender	Toe	Lace Holes	From	To	Adj MIC	MIC
3501	25211	shoe	COHSt5	instep				4		1860	0	1
3502	25113	boot	SOHSt6	upper/sole	Child	Female	1/3	6	1820	1860	1	1
3502	25159	shoe	COHSt5	upper	Adult	Male	1/4	6	1820	1860	0	1
3502	25160	boot		vamp	Adult	Male				1860	0	2
3502	25165	boot	COHSt6	upper/sole	Adult	Male	4	7	1820	1860	0	1
3502	25168	boot	CON2	vamp	Adult	Male	(1)	(3)	1812		1	1
3502	25169	boot	COHSt5	upper	Adult		3	4	1810	1860	1	1
3502	25171	boot	COHSt5	upper	Adult	Male		3		1860	0	1
3502	25176	shoe	COHSt5	instep	Adult	Male		3		1860	0	1
3503	25206	boot	CON2	upper/sole	Adult	Male	1/4	3	1820		1	1
3503	25207	boot	COHSt6	upper/sole	Adult	Male	4	3	1820	1860	2	2
3503	25208	boot	COHSt5	upper/sole			4	3	1820	1860	1	1
3506	25218	boot	COHSt6	upper/sole	Adult	Male	3/4		1820	1860	1	1
3506	25219	boot	COHSt6	upper/sole	Adult	Male	1		1862		1	1
3507	25252	boot	CON2	upper/sole	Adult	Male	1	3	1812		1	1
3507	25253	boot	CON2	upper/sole	Adult	Male	1/4	3	1820		1	1
TOTAL											11	18

Table 9: Lace-up shoes and boots with their visible attributes.

The popularity of boots in the first half of the nineteenth-century originated from the various styles worn by generals of the Napoleonic Wars. Most of the ones represented here were strong and similar to the army boot (Figs 11, 12). This style was named after the Prussian General Blü cher. A pair of suede Blü cher-style boots had been worn so extensively that both the vamps had split down the centre requiring careful, almost decorative stitching (3502/#25168 & 3507/#25252).

²¹ For clear illustrations of earlier styles of latchets with similar laced straps and tongue see Butterworth 1998: Fig. 2; Goubitz 1984: Fig. 2.

²² Butterworth 1998: 379.



Figure 11: Man's pair of nailed and welted lace-up work boots from above on right side. Well-used, leather-lined, N2 welted lace-up ankle work boots 3503/#25206 (right shoe) 3507/#25253 (left shoe). Note lack of back seam, finely-stitched lapped seams on upper, long tongue and stretched lace holes, 10cm scale.

None of the lace-up shoes and boots had extant or visible impressions of metal eyelets that were patented in 1827; indeed many of the holes were pulled from constant use. Some six boots, and the shoe insteps, had three lace holes, while the others had four, six or seven.



Figure 12: Man's nailed and welted lace-up work boot components. Well-used, leather-lined, N2 welted lace-up left ankle work boot 3507/#25253. From left to right: leather-lined upper with finely-stitched lapped seams, long tongue and stretched lace holes with reinforcement piece; insole with lower holdfast seam and inserts attached to outsole by large hand-made lasting wood pegs; clump outsole with feathered channel at shank and separate forepart showing hand-made nail holes, 10cm scale.

An unusual small-adult, or possibly adolescent, suede boot with side seams survived as an upper (3502/#25169). It had a narrow square toe and thin leather thong still in the lace holes. The left side seam was closed by a combination of laces and a covering tab. The laced side seam boot was a style made fashionable by the Duke of Clarence (Fig. 13).²³



Figure 13: Small adult lace-up boot with side seam from left side. Unique two-piece upper of suede ankle boot with leather thong 3502/#25169, showing lack of opening seam and adjustable laced side seam with covering hand-stitched tab, 10cm scale.

Although no elastic-sided boots were found in the well, there was an unusual pair of lined suede hobnail boots with a stretch or open back (3503/#25207). This oval area may have held elastic but it is more likely that it remained open (Fig. 14).



Figure 14: Man's welted lace-up work boot with open back, from right side. Well-used, unlined coarse suede, HSt6 welted, lace-up right ankle hobnail work boot 3503/#25207. Note open stretch-back, lack of opening seam, long tongue, stretched lace-holes, ripped and repaired vamp, 10cm scale.

²³ Butterworth 1998: 379; McDowell 1989: 35; Mitchell & Ward 1997: 24.

The eight hobnailed shoes and boots, some laced, were of large size indicating that they had been worn by adult males (Fig. 15). Often the forepart had been added and the square nails hammered in two or more rows (3502/#25147, #25178). They would have been suitable for outdoor and work wear. Heels and soles were fastened with hand-made nails from early in the nineteenth-century although their use was limited by availability in remoter regions such as early Australia. Hard-wearing hobnails provided greater reinforcement and traction in muddy, icy or slimy conditions.²⁴



Figure 15: Men's nailed and welted boot soles reverse, showing nails. Front: lower side of partly hobnailed, work right boot/shoe 3502/#25147, showing feathered stitching channels, and hand-made nails used to reinforce forepart and to attach upper lift to low heel. Back: lower side of hobnailed, work left boot/shoe 3502/#25178, showing rows of hand-made nails to reinforce separate/clump forepart, heel missing, 10cm scale.

3.6 Toe Forms

The toe forms of the footwear found in the backfilled well are shown in Table 10. The narrow square to square, and the square to round classifications describes shoes that were too worn or warped to be more closely discerned. The style changes can be approximately dated based on artistic and historical evidence as outlined in Section 2.3.

Context	Pointed c.1790- 1820	Oval c.1805- 1820	Narrow Square c.1810- 1860	Narrow Square to Square c.1820- 1860	Square c.1820- 1860	Square to Round c.1820- 1860	Duck Billed c.1830- 1840	Round c.1850-	TOTAL
3501									0
3502	1		6		10	6			23
3503			5		5	3			13
3506			6	1	1			1	9
3507			6		6	3		1	16
3510			1						1
TOTAL	1	0	24	1	22	12	0	2	62

Table 10: Diagnostic original toe forms for nineteenth-century hand-made shoes/boots in each context.

NB several shoes repaired at a later date.

²⁴ Goubitz 2001:320; Utulsa n.d.

Although one or possibly two examples of early pointed toes of c.1790-c.1820 manufacture were recorded, the predominant toe form was narrow square to square dating to c.1820-c.1860. In fashionable shoes toes were rounded from the c.1850s until the end of the century when square and pointed forms were again made depending on the style of shoe and other factors. At this time most shoes were constructed using mechanical technology of which the footwear from this assemblage has little. Furthermore the absence of duck-billed shoes and boots may imply that the footwear found in the well was made either before or after this temporary fashion of the 1830s to 1840s. Whilst the majority of the toe forms can be dated from c.1810-c.1860 a small proportion of the shoes were repaired using technology invented in c.1862. Allowing for a certain amount of time lag for the technology to be adopted but not too long for it to be the norm, this most recent mending could have been done as late as c.1870/1880.

The evidence of the toe forms combined with the construction and repair technology of the shoes indicate several possibilities. If the assemblage was deposited at the site as a single event then the leather represents the final stock of a single shoemaking or cobbling business that operated from c.1810-c.1870/1880. In this scenario the earliest toe forms were outdated pieces from discarded shoes which were held as stock. It does seem more likely, however, that the leather was deposited by a series of makers over a period of time with possible gaps in between.

3.7 Lasts

The division between straight and crooked lasts used for the footwear found in the well is interesting. Some 72 items had discernable last shapes due to their preservation (Table 11). As has been noted in Section 2.3, the changeover from straight to crooked lasts in footwear resumed early in the nineteenth-century but only became more common after 1860 due to technological changes. The use of straight lasts for children's and some female shoes is known to have continued for some time after that with young infant's shoes still made this way today.

Last	Child	Adult	Turned	Wetted	Other
Straight	11	1	8	4	
Crooked	3	58	25	28	8
Unid		2	2		
TOTAL	14	58	35	32	8

Table 11: Gender and sole construction according to type of last.

This assemblage tends to confirm the common use of straight lasts in children's shoes, well beyond the time that they had been abandoned for adults. The overwhelming majority of both turned and wetted stitched shoes were made on crooked lasts. The two examples of machine-stitching and the eight of hand-nailing were also done on crooked lasts. The predominance of crooked adult soles in the assemblage indicates that the footwear was being made from c.1860. However, it is possible that the craftsman was skilled and made bespoke crooked shoes for a better fit by utilising older shoes with largely crooked soles in stock or cutting new ones from hides.

3.8 Technology

The different methods used to attach the soles of the footwear are listed in Table 12. These types apply to the whole shoe as a whole. Although the last of the repairs to the heel or toe often dated the shoe, isolated fragments of these parts was not used to identify type. For example, many uppers were repaired by hand-stitching, whereas nails and occasionally wood pegs were used on the soles. Many of the outsoles were fixed to the insoles and heel during the initial stages of manufacture by use of lasting (central) hand-made wooden pegs. Machine-driven nails and copper alloy screws were used on 17 shoes and boots to mostly repair heels, and occasionally the forepart of the sole. They were not used to exclusively make footwear (see Section 2.2).

Hand-stitching was by far the predominant method used to make the soles indicating that the majority were probably made before c.1862, with a possible time lag until c.1870/1880, when machine-stitching technology was introduced (Table 12, Fig. 16). These could have been held in stock by the shoemaker to be recycled as evidenced by the 18 shoes with clump soles made by combining two or three outsole sections. All sole forepart and heel sections were joined by hand-stitching with a few reinforced by iron nails at the shank (Fig. 17). There was no evidence for a totally pegged or machine-pegged sole, although one pegged shank fragment indicated that one may have existed in the unexcavated part of the well. There were 13 outsoules where the technology remained unidentified.

Original Sole Technology	Age			Last			Shoe type				TOTAL
	Child	Adult	Unid	Straight	Crooked	Unid	Turned	Wetted	Other	Unid	
Hand Stitched	14	46	5	12	51	2	35	30			65
Machine Stitched		2			2			2			2
Wood Pegged Unid			x		x		x				x
Hand Wood Pegged											0
Machine Wood Pegged											0
Combined Pegged & Nailed											0
Hand Nailed		8			8				8		8
Machine Nailed or Screwed											0
Unid		11	2			13				13	13
TOTAL	14	67	7	12	61	15	35	40	8	13	88

Table 12: Gender, last and shoe type according to original sole technology.



Figure 16: Women's outsoules and insoules. Left to right: two (left) turned HSt3 squared toe outsoules with finely stitched shoulders and worn heels 3502/#25125 and 3507/#25245. Bespoke shoe 3507/#25245 also has a toe insert and engraved name on the lower side of the shank "J G Co". Worn turned HSt3 outsole (middle) reused as insole in repaired MSt1 right shoe 3502/#25128. Two (right) welted HSt6 holdfast seam insoules showing lower and upper sides 3502/#25153, note thread impressions from heel bracing, 10cm scale.



Figure 17: Men's welted shoes showing clump sole construction and repairs. Left to right: tunnel-stitched shank seam of HSt6 welted shoe 3502/#25132, with heel cupping, remnants of fabric toe filler/lining and hand- and machine-nailed repairs. Pair of HSt6 shoes cut across shank for machine-nailed lapped seam 3502/#25181, with cut-away heel in between wood pegged and stitched heel cupping and lift, 10cm scale.

3.9 Bespoke Shoes

Only two shoes from the backfilled well could be tentatively identified as having been made by bespoke shoemakers. One was an outsole from a hand-stitched left shoe with a narrow square toe. The underside had an identified engraved or stamped manufacturer's name "J G Co" in script (3507/#25245) (Fig.16). A carefully made lady's dress pump or court shoe has already been described in Section 3.3 (3503/#25199, Table 13).²⁵

Context	Cat#	Type	Style	Age	Gender	Toe	Heel	Surface Colour	From	To	Adj MIC
3503	25199 & 25182	COHSt6	pump	Adult	Female	3	3	tan	1862		1
3507	25245	CTHSt3	shoe	Adult	Female	3	1		1810	1880	1
										TOTAL	2

Table 13: Bespoke shoes with their attributes.

3.10 Age and Gender

The footwear found in the well represents a broad range of sturdy and often well-made footwear worn by all ages from small children to adults. A proportion was able to be further separated by gender, some 80 percent of the adult corpus but only 16.7 percent of the children's. Of the 85 items able to be classified the overwhelming majority of 62 were adult (Table 14).

²⁵ For a description of the bespoke process, customer relations and stamped soles in Australia and England see Mitchell & Ward 1997: 30; in Ireland see Shaw-Smith 1984: 158.

The numbers indicate that the shoemaker was mainly catering for the adult trade, providing an equal amount of turned and welted types, appropriate for both indoor and outdoor wear (Table 15). In contrast children's shoes were barely provided for with approximately two thirds of the 14 items being turned pumps and slippers for indoor or light use, the other third were welted strong outdoor shoes and boots. However, most of their shoes were made with care with several of the vamps being modestly decorated with linear stitching (Fig. 18).

Context	Unid	Child Unid	Child Female	Adult Unid	Adult Female	Adult Male	Adult TOTAL	GRAND TOTAL
3501								
3502	4	4	1	21	5	6	32	38
3503	4	1	1	2	4	2	8	14
3506				9		4	13	13
3507		6		3	4	2	9	15
3510		1			1			2
TOTAL	8	12	2	35	14	14	62	85

Table 14: Adjusted numbers of footwear items by age and gender in each context.

Type	Child	Adult	TOTAL
Turned	9	23	32
Welted	5	25	30
Other		8	8
TOTAL	14	56	70

Table 15: Age according to known stitched shoe type.



Figure 18: Children's shoes and boots. Left to right: parts of carefully stitched pair of turned HSt3 pumps or slippers with worn heels 3507/#25237; leather-lined welted HSt6 lace-up boot with decorative stitching on vamp and instep behind 3502/#25113; welted HSt6 pump with decorative stitching on vamp 3503/#25191, 10cm scale.

3.11 Offcuts and Repairs

Almost all contexts had off-cuts of leather relating to leather working activities (Table 2). The items are grouped according to their thickness and colour within each context although they may have come from the same original piece. The types of leather, mostly thick hide, with occasionally more supple thinner grades, point to shoe and boot repair. The off-cuts included several irregular fragments from the edges of stretched hides, one being very large. Some of the hides had nail holes and impressions of metal clamps from when they were stretched. Other off-cuts had curved edges and features relating directly to shoe shapes such as heels. Several medium-weight dark brown pieces of leather with a hemmed straight edge were probably pieces of a reused coat or bag (Fig. 19).

Commonly found were cut-away shoe fragments, especially sole toes and heels. Several of these shoes showed evidence of subsequent repair with the formation of clump soles. Two methods were employed, either by hand stitching the butt seam, or alternatively by nailing the lapped or butt seam. Occasionally the uppers were also cut away, perhaps to salvage the leather. The common replacement or repair of the heel was evident and is often where machine driven iron nails were found. The retention of cut-away fragments, the existence of pairs, and the occasional unused items point to the presence at one time of a shoemaker in the immediate vicinity of the site.



Figure 19: Leather-working off-cuts. Front: Section of reused fine dark brown leather with stitched seam 3503/#25210. Back: Cut-off edge of medium to coarse hide with natural holes and clamp marks 3507/#25255, 10cm scale.

3.12 Work Tools

Although the well backfill contained no obvious leatherworking tools, two from context 3503 may have been used for this purpose. One was an iron punch, and another was a carefully shaped hand-held cylindrical whetstone that may have sharpened cutting knives (Table 16).²⁶

²⁶ For tools used in leatherworking see: Bata Ltd 1994: 59; Mitchell & Ward 1997: 29; Salaman 1986; Seymour 1984: 130.

Context	Cat#	General Function	Special Function	Shape	Type	Fabric	MIC
3503	25011	work	tool	punch		fe	1
	25294	work	sharpening	whetstone	hone	sandstone	1
						TOTAL	2

Table 16: Work tools possibly used in leatherworking.

However, these tools could also have been used by other people doing a variety of work in the vicinity, as suggested by the fragments of worked wood and ivory found in the well deposits (see catalogued Organic and Bone artefacts).

4.0 Conclusions

Using the results of the previous analysis, the TPQ and TAQ dates of artefact manufacture can be applied to the contexts in which they were found (Table 17). The TPQ is the earliest known dates for the most recent artefacts within each context, giving an absolute date before which the context cannot have been constructed or deposited (*Terminus Post Quem*). The TAQ (*Terminus Ante Quem*) is the latest date which the artefact was known to have been made.

Context	TPQ	TAQ
3501		c.1860
3502	1862	c.1880
3503	1862	c.1880
3506	1862	c.1880
3507	1862	c.1880
3510	1810	c.1860

Table 17: Leather from site contexts TPQ and TAQ.

The majority of the artefacts from the site came from the well which had been backfilled after it fell out of use with various domestic and small industrial artefacts. Of the 105 MIC items relating to leatherworking most were within contexts 3502-3507. Some 17 MIC items found within these contexts had been worn after being made or altered with the assistance of early sewing and nailing machinery after 1862 and probably before 1870/1880 depending on when this technology was introduced at the workshop. The cross-joins and similarity of materials, shapes, methods of construction and condition of the artefacts in these contexts indicates that they were dumped into the well at the same time, perhaps as soon as 1880/1890. Four leatherworking items were recovered from the lowest excavated part of the well in context 3510. None of these had evidence of machine-driven repairs. However, although the fill in which they were found appeared similar, there is limited evidence whether this and the lower unexcavated material had been deposited at the same time as the upper contexts or during an earlier event.

All the well contexts had leather off-cuts, including pieces of the original hides as well as re-used items. A punch and whetstone from context 3503 may have been part of a leatherworker's toolkit. The fills also contained turned wooden elements from dowelled furniture and the sawn base of a whale tooth (3503/#0311). The size and good condition of the artefacts in the well indicates that the workshops of a leatherworker, carpenter and a bone and ivory carver (sailor?) were located nearby.

The form and technology of the footwear displays contrastive information about the shoemaker(s) or cobbler(s) and the date of the assemblage as a whole. The leather shoes, boots and off-cuts were typical of footwear made from c.1790 with most dating to c.1810-1860. Almost all showed evidence of long-term reuse and repair. The leatherworker(s) made footwear and a small number of other items mostly for adults as well as a limited range of well-made shoes and boots for infants

and older children. Most were made for lower to middle class men and women with a limited budget who needed practical footwear for a variety of indoor and outdoor activities. Although the majority could not be classified beyond generic shoe forms a small number could be identified as shoe or boot lace-ups, latches or pumps. The types of lace-up shoes and boots were typical of the early to late nineteenth-century, with many no doubt being worn at work. The lack of metal eyelets indicates that some were made before 1827 when these were invented. The shoes included early examples of hand-made shoes that rarely survive on Australian sites, such as pumps or slippers that could date as early as c.1790 or c.1810, the latches from c.1820.

The almost total use of the crooked last for adult shoes is at odds with the accepted historical date of c.1850/1860 for the general introduction of this form. This suggests either that the shoemaker(s) carefully made his product to fit the curves of his customer's left and right feet from an early date or that he operated his business from c.1850 which several of the shoe styles contradict. The marked high-quality bespoke pump from Context 3507 may have been made as late as 1880 and is likely to have come into the workshop via a customer or as second-hand stock.

The inclusion of very outdated pointed and narrow square toe forms and roughly hand-stitched shoes amongst pieces repaired after 1862 may imply that leather was valuable and carefully hoarded for future use, and/or that the customers or shoemaker(s) were conservative. This was evident in the numerous shoes and boots that had been thriftily constructed of small joined sections and off-cuts of leather. The size and nature of the business(es) is further revealed in the range of products as well as the small number with cutting and other errors typical of apprentice work or perhaps of undue haste.

If the assemblage was deposited at the site as a single event then the leather represents the final stock of a single shoemaking or cobbling business that operated from c.1810/1820-c.1870/1880, with the most work done from c.1820-1860. In this scenario the earliest toe forms were outdated pieces from discarded shoes which were held as stock, perhaps acquired from previous or competing local companies. Machine-assisted manufacture may have been adopted by the shoemaker within a few years of invention in the 1860s or after a few decades. However, even if they were made at the earliest possible date these shoes and boots were worn for a period of time before discarded, necessitating a date of c.1870/1880 for their final deposition at the site. An alternative scenario may have been that the leather was deposited in stages over a period of time by a series of leatherworkers who operated in the vicinity of the well. Products and usable stock would have been bought and sold to local customers and each other creating the mix of forms and technology that was found in the contexts of the site.

5.0 Glossary

Ankle strap	Narrow extensions of top fronts of quarters continuing around ankle and attached with a buckle fastening. The shoes do not generally have a tongue and are usually worn by children and women.
Back Seam	Vertical seam, often closed, at the rear of quarters.
Bespoke	Footwear individually made, often by hand, by a shoemaker. From c.1850 this implied high-quality and expensive shoes.
Bevel	Pared leather edge, skived, also seen in repaired heels/soles.
Binding	Sewn band of leather/fabric along raw edge to finish it off, commonly at the opening or throat.
Boot	Footwear with an opening cut at the ankle or higher level. Often robust and for outdoor use the fastenings, technology and styles define different types.
Bracing	Method of tightening & holding welt or seat cupping in place with thread in zigzag or crosswise pattern so outsole etc can be sewn on.
Butt Seam	Direct head-on join between leather sections, sewn together.
Cemented Shoe	Shoes/boots where upper is glued to the outsole at the sole seam, post 1926.
Channel	Cut channel for the sole seam on lower side of outsoles in order to protect stitching from wear, often used in conjunction with feathering.
Closed Seam	Join between leather sections where each piece has a conjoined narrow fold where they are stitched together, the stitches not visible on the outside.
Clog	Shoe made from hand-carved wood with leather or fabric upper strap. Provides protection from cold and damp.
Clump Sole	Fore (toe/ball) & rear (shank/part heel) repair patches / soles, usually tunnel stitched together.
Counter	Thick reinforcement piece inside the quarter at back of upper.
Court Shoe	See Pump.
Cobbler	Repairs shoes & makes shoes from recycled leather. Separate trade & guild from Shoemaker.
Crooked Shoe	Shoe/last shaped to more closely fit the different curves of left and right feet.
Edge Binding	Strip of leather whip stitched to edge of shoe' s opening.
Eyelet Facing	Leather reinforcement or lining.
Eyelet Row	Row of eyelets on instep.
Eyelet Tab	Short extensions in front of quarter for lace holes.

Eyelets	For lace or thong, metal reinforcing invented 1827.
Feathering	Pointed holes for sole seam on lower side of outsoles in order to facilitate stitching and protect them from wear, often used in conjunction with channels. A common practice from c.1850.
Filling	Material used to fill gaps or provide insulation between insole and outsole, often soft and organic.
Filling Piece	Insole inserts.
Flesh Side Out	Outer surface of upper that corresponds to the original inner flesh side of the animal' s hide. Flesh removed during skinning and tanning.
Grain Side Out	Outer surface of upper that corresponds to the original outer hairy surface of the animal' s hide. Hair removed during tanning.
Hand-made Nail	Various sizes and materials, shanks are square in section. Iron types are usually larger and stronger for sturdy shoes/boots and include hobnail types with prominent heads. Copper or brass (aes) nails are generally used on female or child shoes or those of better quality.
Hand-stitch	Stitching of upper, sole or heel done by hand, stitching holes oval and often irregular. Better-quality bespoke shoes in later years.
Heel Breast	Front-facing side of heel.
Heel Cupping	First roughly horseshoe-shaped layer of heel (lift) or used as welt below heel seat.
Heel Seat	Insole area where heel rests, can be above cupped welt.
Heel Welt	Cup shaped narrow strip of leather at heel seat of some shoes, often shaped with hand stitching & bracing, Seen mainly on machine stitched shoes. Earlier hand stitched shoes have cupped shoulder of stitching at base of insole (see H St.3).
Hobnail	Iron nail with large or thickened head hammered into underside of outsoles or heel for reinforcement or extra grip in wet, slippery or icy conditions.
Holdfast Seam	Raised narrow border on underside of insole seam pierced by tunnel stitching to attach sole. Commonly used on firm insoles in welted shoes and utilized as the Goodyear Welt in machine stitched shoes.
Insole	Upper part of sole, single piece or small inserts that foot treads on.
Instep	Part of upper covering top of foot above the arch, can be the front of quarters or a separate section in lace-up shoes/boots.
Internal Strengthening	Reinforcement pieces inside shoe, especially insole shank.

Lace Tag	Metal or other covering to reinforce tie lace end.
Lace-up	Shoes or boots with one or more eyelets along inner edges of the instep or front of quarters that can be tightened against the foot using a thong or lace. Alternatively the lacing occurs at a side seam.
Lapped Seam	Seam formed by overlapping leather sections which are then stitched, pegged or nailed together.
Last	Wooden model around which shoe is shaped and made.
Latchet Fastening	Extensions of top fronts of quarters continuing over a long vamp or tongue at the instep, with thong, lace or buckle fastening. Latchet shoes have this fastening as distinct from those used on lace-up or ankle-strap shoes.
Lining	Internal layer inside outer layer of upper made of leather or fabric.
Machine-made Nail	Various sizes and materials, shanks are rectangular or circular in section. Iron types are usually larger and stronger for sturdy shoes/boots and include hobnail types with prominent heads. Copper or brass (aes) nails are generally used on female or child shoes or those of better quality. Machine-made and used, or directly cut from nail-chains and inserted using machinery from c.1862. The circular shank sections can be confused with screws. For unusual types follow chronology for cut, cut and wrought and machine-made nails.
Machine-stitch	Use of machines to stitch upper or sole seam. Upper machines first patented 1846 and in general use by 1856. Sole machines from 1860 with major improvements in 1862 and 1875.
Medial	Inside edge of foot.
Midsole	Between insole & outsole.
Nail	Small tack-sized nails of various metals used to secure leather to last and to fasten soles and heels. Used in Roman times and then from c.1800 with known references only from c.1812. Made and applied by machine from c.1862. See hand-made nail, hobnail, machine-made nail, screw.
Opening	Top of shoe/boot where foot is inserted.
Outsole	Lower part of shoe that is below the foot and has contact with ground, outer surface is often rough/worn. Below insole and midsole, heel is attached to outer side.
Paring	Use of paring knife to shape or trim leather.
Paten	Footwear with clog or shoe attached above a circular metal ring. Provides good grip in wet, muddy, slippery or icy conditions.
Peg hole	Distinctive lozenge-shaped or square hole in heel or sole. See Wooden Peg.
Pump	Slip-on shoe with simple upper having no tongue or fastening, often but not always with heel. Those dress shoes with heel also known as Court Shoes.

Those without heel were common in decades around 1800 and can also be called slippers. Upper made of leather or fabric.

Quarter	Part of upper at back of shoe curving around heel of foot, can be single or two pieces joined at back seam, can extend to sides or even toe depending on style and technique.
Rand	Narrow strip of leather included in sole seam of some turnshoes between upper & outsole, to make them more waterproof. Single line of holes, compared with two rows in welt. Usually used in footwear before c.1800.
Rubber	Natural and later hardened rubber used in footwear. Initially used for heel inserts from c.1850 with a solid heel patented in 1895. Man-made synthetics later substituted.
Screw	Small machine-made and applied copper or brass screw used to fasten soles or heels, short, narrow, circular in section and similar in appearance on surface of leather to copper or brass nails/tacks. Cut and inserted using machinery from c.1862.
Seam	Join between different parts or leather sections of shoe. See Butt, Closed, Holdfast and Lapped Seams.
Shank /Arch Support	Stiff pieces of leather between insole & outsole under arch of foot.
Shoulder	Raised narrow border on upper side of outsole, the sole seam pierced by tunnel stitching to attach upper in turned shoe construction method. Also on lower side of insole as part of a holdfast seam.
Side Seam	Between vamp & quarter.
Single Heel Lift	Layer of leather under heel seat of 16 th century shoes etc.
Slipper	Soft indoor shoe usually without heel. See also Pump.
Sole Filling Piece	Between sole layers.
Sole seam	Between upper & sole of turnshoe.
Stitched Down Shoe	See Veltschoen shoe.
Straight Shoe	Shoe/last that is straight from toe to heel with no allowance for different curves of left and right feet.
Strap Keeper	Small loops to hold buckle straps in place.
Suede	Outer surface of upper with short soft or downy finish achieved by rubbing the tanned flesh side into nap.
Tack Hole	Lasting tack held shoe parts to last where it was to be sewn.
Thong	Lace made of strip of leather.

Throat	Rear end of vamp, can be over instep & up to shin in boots.
Toe Puff	Internal reinforcement for the toe.
Toe Cap	External reinforcement for the toe.
Tongue	Backwards extension of vamp, or separately sewn piece above instep.
Top Band	Strip of leather sewn all around top line of open edge of boot as finish, often using whip stitch.
Top Line	Top edge of shoe or boot.
Top Lift	Top or final heel lift as made/seen from below by shoemaker.
Tunnel Stitch	Method where needle pierces through leather or shoulder to butt join leather sections or in decorative stitching.
Turned Shoe	Shoe made by sewing upper directly to outsole inside out, then turning outward. Usually hand stitched.
Vamp	Part of upper covering toe & forepart of foot.
Vamp Wings	Extensions backwards to quarters.
Veldtschoen	Turned out or stitched down shoe, usually thick leather with welt or rand. Found UK from 17 th century, & possibly earlier. Common South African technique, known as Veldtschoen.
Waist / Shank	Central narrower part of sole below arch of foot.
Wedge	Thin piece of leather, often triangular, between layers/lifts, can be part of welt.
Welted Shoe	Shoes/boots with robust construction often for outdoor or work wear, can be stitched or nailed. Generally have narrow strip welt(s) of leather with two rows of holes between upper & soles. These are often wider and thicker than rands. Welts provide improved strength, flexibility and damp-proofing, see also holdfast seam and rand.
Whip Stitch	Hemming stitch. Small angled stitching of lapped seam, often of top band or as decorative stitching.
Wooden Peg	Small shaped slivers of wood used to secure leather during cutting or paring, or to last when making shoes and to fasten shoe soles or heels. Hand-made pegs irregular, often square or rectangular in section but similar in size to matchsticks, inserted using machinery from 1829. Fully machine-made pegs were smaller with a uniform lozenge or diamond-shape and invented in 1854.

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Appendix 1 Leather conserved by the Australian Museum, 2005-2006

Some 49 items were sent to the Australian Museum Sydney for testing and conservation using the freeze-drying process. These are listed below in numerical order and according to shape. It is noted that the conservation of this material was delayed for some months because the freeze-dryer was broken.

CATALOGUE#			
25110	25157	25200	25239
25113	25158	25206	25240
25114	25160	25207	25242
25117	25161	25208	25243
25118	25162	25210	25244
25126	25163	25213	25253
25127	25169	25214	25255
25130	25170	25215	25258
25131	25182	25217	25259
25143	25189	25218	25260
25154	25191	25219	
25155	25196	25231	
25156	25199	25237	
TOTAL			49

Table 1: Catalogue numbers of leather items conserved by freeze-drying.

Adult Boots

#25169, #25206, #25208, #25207 (pair), #25218, #25219, #25253.

Offcuts / Hides

#25210 (stitched), #25255 (large)

Adult Latchet Shoes

#25143, #25154, #25155, #25162, #25163, #25200, #25244.

Adult Pump Vamps (female)

#25156, #25157, #25158, #25160, #25161, #25170, #25189.

Adult Shoes (mostly male)

#25117, #25118, #25126, #25215, #25242, #25243.

Adult technology range

#25130, #25131, #25182, #25196, #25199, #25217, #25231.

Child Shoes & Boots

#25110, #25113, #24114, #25127, #25191, #25213, #25214, #25237, #25239, #25240.

Tested Fragments

shoes #25258, #25259; offcuts #25260.

Appendix 2 Photographic Lists

IMAGE	DESCRIPTION
3278-3280	Children's shoe various hand-stitched sole types. Front l-r: 3502/#25110, 3507/#25235, 3502/#25115, 3506/#25213, 3502/#25114, 3502/#25112. Back l-r: pair 3507/#25240, vamp & insole 3502/#25113, 3503/#25191, outsole & insert 3502/#25113, 10cm scale.
3282-3284	Children's shoes hand-stitched soles. Left-right: type 3 outsole 3502/#25110, type 2 outsole 3507/#25235, type 3 insole 3502/#25114, 10cm scale.
3286-3288	Child's shoe hand-stitched type 3 outsole upper side with worn toe 3502/#25110, 10cm scale.
3289-3291	Child's shoe hand-stitched type 3 outsole under side with worn toe 3502/#25110, 10cm scale.
3292-3294	Child's shoe hand-stitched type 6 components showing holdfast seam on insole underside and insert in centre 3503/#25191, 10cm scale.
3295-3298	Child's welted lace-up boot vamp & insole underside showing holdfast seam with impressions of heel bracing 3502/#25113, 10cm scale.
3299-3301	Child's welted lace-up boot clump outsole underside showing iron nailed lapped seam and stitching holes 3502/#25113, 10cm scale.
3302-3304	Adolescent's shoes various hand-stitched types. Left-right: type 3 straight outsole 3502/#25109, closely stitched type 3 pair of straight outsoles with upper 3507/#25237, type 6 holdfast seam crooked insole cut across forepart 3502/#25152, 10cm scale.
3308-3311	Child's welted lace-up boot all components showing decorative stitching on vamp and stretched eyelets 3502/#25113, 10cm scale.
3312-3315	Adult female hand-stitched turned soft pumps/slippers upper sides. Left-right type 3 outsole & upper 3507/#25243, upper & cut type 2 outsole 3507/#25242, 10cm scale.
3318-3320	Adult female hand-stitched turned soft pumps/slippers reverse sides. Left-right type 3 outsole & upper 3507/#25243, upper & cut type 2 outsole 3507/#25242, 10cm scale.
3321-3322	Adult mostly female various hand-stitched crooked soles. Left-right: type 3 outsoles 3502/#25125 & 3507/#25245 with close stitching & bespoke maker's mark on underside, type 3 outsole reused as midsole or insole on machine-stitched outsole; pair of type 6 outsoles with holdfast seam one showing underside with heel bracing impressions 3502/#25153, 10cm scale.
3323-3326	Adult female hand-stitched latchet shoes from different pairs, repaired with single holes for lace/thong. Left-right: 3503/#25200, 3502/#25143, 10cm scale.
3327-3329	Adult female hand-stitched turned left latchet shoe underside, showing repaired clump type 3 outsole and iron hand-nailed heel 3502/#25143, 10cm scale.
3330-3332	Adult female hand-stitched welted right latchet shoe underside, showing repaired clump outsole with holdfast seam insole and iron hand-nailed and copper machine-screwed heel 3503/#25200, 10cm scale.
3333-3335	Adult female hand-stitched latchet shoes from different pairs, worn repaired clump outsoles with nailed low heels. Left-right: type 6 3503/#25200, type 1 3502/#25143, 10cm scale.
3336-3338	Adult female hand-stitched latchet shoes from different pairs. Front-back: vamps probably from latchet pair 3502/#25189, vamp with type 3 outsole cut across heel seat 3507/#25244, 10cm scale.
3339-3341	Adult female hand-stitched pumps of different quality. Left-right: joining components of narrow dress shoe with tan coloured upper, black silk lining, finely stitched type 6 holdfast insole and medium-high copper machine-nailed heel 3502/#25199 & 3503/#25189, lesser quality soft pump with leather lining, type 6 holdfast seam insole and repaired iron hand-nailed clump outsole and heel, 10cm scale.
3342-3344	Adult female high quality hand-stitched pump or dress shoe sole and heel components, finely stitched type 6 holdfast insole, inserts and outsole 3502/#25199 & medium-high copper machine-nailed heel 3503/#25189, 10cm scale.
3345-3347	Adult male hand-stitched shoes without heels. Left-right: straight roughly-cut sinuous type 2 outsole 3502/#25117, near complete pump or slipper with damaged toe of soft upper and straight type 2 outsole 3502/#25118, type 3 crooked outsole with hand-stitched repair to forepart 3502/#25126, 10cm scale.
3348-3350	Adult male pair of soles from hand-stitched hobnail shoes or boots. Very worn, constructed/repared clump outsoles with heel seat pieces and shank secured in centre by single machine-made nail. Left-right: 3502/#25131, #25131 components, 10cm scale.
3351-3353	Adult male soles from hand-stitched and nailed shoes or boots. Constructed/repared clump

	outsoles with heel seat pieces. Left-right: fabric lining or filler, hand-stitched shank seam, hand and machine-nailed forepart seam 3502/#25132, pair of cut heel sections affixed with hand-stitching, hand-pegging, hand and machine-nailing 3502/#25181, 10cm scale.
3354-3356	Adult male upper side of soles from hand-stitched type 6 welted and hand-made hobnailed shoes or boots with low heels. Front-back: separate cut insole pieces and double-rowed iron nailed outsole repair 3502/#25147, firm insole pieces and hobnailed outsole forepart 3502/#25178, 10cm scale.
3357-3359	Adult male lower side of outsoles from hand-stitched type 6 welted and hand-made hobnailed shoes or boots with low heels. Front-back: double-rowed iron nailed outsole repair and heel 3502/#25147, hobnailed outsole forepart with heel missing 3502/#25178, 10cm scale.

Table 1: Leather photographs taken before conservation.

IMAGE	DESCRIPTION
031-033	Right small adult suede boot upper with side seam from left 3502/#25169, 10cm scale.
034-040	Pair of lace-up adult boots from right. Front-back: 3503/#25206, 3507/#25253, 10cm scale.
041-043	Right lace-up adult boot from right 3503/#25206, 10cm scale
044-046	Pair of lace-up adult boots. Left-right: 3503/#25206, 3507/#25253, 10cm scale.
047-053	Left lace-up adult boot components 3507/#25253, 10cm scale.
054-058	Right adult suede open-backed boot of pair from right 3503/#25207, 10cm scale.
059-060	Pair of adult suede open-backed boots 3503/#25207, 10cm scale.
061-064	Right adult suede open-backed boot of pair components 3503/#25207, 10cm scale.
065-068	Right small adult suede boot upper with side seam from right 3502/#25169, 10cm scale.
069-072	Right small adult suede boot upper with side seam from left 3502/#25169, 10cm scale.
073-074	Left and right (not pair) of adult latchet shoes. Left-right: 3503/#25200, 3502/#25143, 10cm scale.
075-076	Right hand-stitched turned adult male pump/slipper components 3502/#25118, 10cm scale.
077-079	Child hand-stitched shoes and boot. Left-right: shoe 3507/#25237, lace-up boot 3502/#25113, pump 3503/#25191, 10cm scale.
080-082	Pair child shoes components 3507/#25237, 10cm scale.
083-085	Right child lace-up boot components 3502/#25113, 10cm scale.
086-087	Left child pump components 3503/#25191, 10cm scale.
088-089	Hide offcuts. Front-back: 3503/#25210, 3507/#25255, 10cm scale.
90	Hide offcut 3503/#25210, 10cm scale.
91	Hide offcut 3507/25255, 10cm scale.

Table 2: Leather photographs taken after conservation.