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– ARTICLE –

Victorian Era European Exploitation of Pounamu in Dunedin, New Zealand

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ABSTRACT

European greenstone lapidaries in Dunedin, New Zealand enjoyed a short boom as raw material became available from the gold mining industry and Europeans developed a taste for both traditional Māori and Victorian designs. In the process of recent earthworks at a central Dunedin site two discrete assemblages of pounamu associated with a lapidary's workshop were recovered. The manufacturing techniques employed by the European lapidaries and the markets they were servicing are investigated here. The assemblages were most likely cached and may have been intended for manufacture, possibly contributing to a grey market of 'fake' Māori artefacts.

Keywords: Pounamu, greenstone, lapidary, European, Māori, New Zealand.

INTRODUCTION

Pounamu is the Māori name given to New Zealand nephrite, semi-nephrites, bowenite and serpentinite. The term 'greenstone' is used interchangeably with pounamu and is used here to include nephrite and bowenite. Only nephrite is a true jade in the geological sense. Bowenite and serpentinite, while having similar aesthetic qualities to nephrite, are chemically different and inferior in both toughness and hardness (on the Mohs scale) (Beck 2002:18).

Māori held pounamu in the highest regard as a raw material and once discovered, it soon became uniquely intertwined with the divergence of the Māori culture from its East Polynesian origins (Firth 1959:396). There are numerous Māori myths associated with it (Chapman, 1891:483; Gibbs, 2000:259). Toki poutangata (ceremonial adzes) and mere pounamu (fighting clubs) were symbols of high status, passed down through the generations. Mere pounamu were regularly used as burial goods, but were often reclaimed by the tribe at a later date (Firth 1959:396). Greenstone artefacts were highly valued by both Māori and Pākehā in the late nineteenth and early twentieth centuries (Beck 1970:85) and this was accompanied by a growing Victorian taste for pounamu or greenstone jewellery. In response lapidaries began utilising the material, establishing workshops in centres such as Dunedin.

Two assemblages of nephrite, bowenite, cut shell for jewellery manufacture and associated lapidary manufacturing materials were recovered as part of monitoring work for a new extension to Dunedin's Harvest Court Mall (Middleton 2009, 2014). In the process of ground works two discrete assemblages of pounamu were revealed, each comprising more than 600 specimens, along with a small quantity of material which was most likely inadvertently spread from the upper layer of the first assemblage. The assemblages provide a unique insight into the period when greenstone was being worked using European technology, for both Māori and Pākehā (European) tastes. The size and diversity of the assemblages gives an opportunity to determine the methods by which the stone workers were breaking up the parent rock, the sources from which the rock was obtained, and potentially the end products and the market for this. This appears to be the first detailed report of European working of nephrite and bowenite in the nineteenth century, although Victorian examples of greenstone jewellery and other items abound.

THE HARVEST COURT SITE – HISTORICAL BACKGROUND

Harvest Court Mall sits between George Street and Great King Street in the heart of Dunedin's main retail area (Figure 1). One of the first settler structures on the Great King Street frontage was Kincaid and McQueen's Vulcan Foundry, established by about 1862 and manufacturing gold working machinery by 1864. The foundry was successful for nearly thirty years, manufacturing not only gold working machinery such as dredges but also steam cranes, ships and some railway locomotives. But with the 1890s came a downturn in the gold mining industry and a waning of the foundry's fortunes. In 1891 the sole remaining partner, McQueen, wound up the company and the site and plant was auctioned off in the following year

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(Middleton 2014).

The closure of the Vulcan Foundry brought changes to Great King Street. Further subdivisions of the original sections in Block XXI, Town of Dunedin, had taken place by 1892 and more businesses were situated along Great King Street. The Ignis and Aqua insurance plan (Middleton 2014: 8 [Figure 11]) shows the Vulcan Foundry, 'now vacant', predominant amongst these. Smaller businesses, and residential occupants as well, soon filled the area. The *New Zealand Post Office Street Directory* for 1896 identifies George Chisholm, a 'lapidary' (a 'cutter, polisher or engraver of gems'), along with a cabinetmaker, in the area where the Vulcan Foundry once operated. Two engineers were neighbours to the north or possibly at the rear of the section towards George Street. By the turn of the century occupation intensified as names proliferated in the area once occupied by the foundry and as far as Albion Place. Later directories list several names at the same street number; in 1902 George Chisholm, the lapidary, was still at no. 32, while at no. 40 there was a second lapidary, John Laing, along with a machine broker and a vendor of 'asbestos and rubber goods'. Family history however states that Laing had begun working at 40 Great King Street as early as 1864, working 'both nephrite and bowenite' (McCready 1988: 6). In 1908 some of the same names continued. George Chisholm remained at no. 32, but John Laing, who died in 1913 (McCready 1988: 6) was replaced at no. 40 by the 'Milford Sound Greenstone Company, William Bertram manager.' Street numbers had changed by 1911 and both the lapidaries, Chisholm and the Milford Sound Greenstone Company, had disappeared, although engineers and machinery manufacturers continued. In 1925 much of the land once owned by Kincaid and McQueen was sold to the Drapery Supply Association, which by 1927 had constructed a new two-storied brick building, subsequently named 'Harvest Court', where the foundry once stood. This is the structure that still stands today.

Nineteenth century Dunedin was the major centre for greenstone manufacturing in New Zealand. Large scale manufacturing was carried out by Māori political prisoners between 1879 and 1881 (Reeves 1999: 125) in Dunedin, using raw material supplied by the government (Chapman, 1891: 497). The methods by which the Māori prisoners worked the stone incorporated European technology, using fencing wire with traditional methods of water and sand to cut up to ten 'bars' at a time from a boulder. Ear pendants were the main finished product, but mere were also manufactured (Chapman, 1891: 497). The first European lapidaries appeared in Dunedin during the 1860s, associated with the greater availability of the raw material exposed on the goldfields of the West Coast. When dredging of West Coast rivers began in the 1880s (Salmon 1963: 225, 236), even larger quantities were purchased from miners (Conly 1948: 57; Beck and Mason 2010: 171).

In 1948 Thomas Conly (1948: 63) recorded details of the early Dunedin lapidaries 'while there are men living who yet remember them'. William Dickson, whom Conly (1948: 57) considered the 'pioneer' of the industry, began working in the 1860s along with John Murdoch. Laing was also among these pioneers, as noted above. He received his training from his father, Henry Laing, in Edinburgh prior to his departure for Dunedin in 1861 (McReady 1988: 6; Conly 1948: 58). These early lapidaries were working stone using 'manual machines'. John Murdoch is believed to have trained others in how to work pounamu. Among these was George Chisholm, who was established in Great

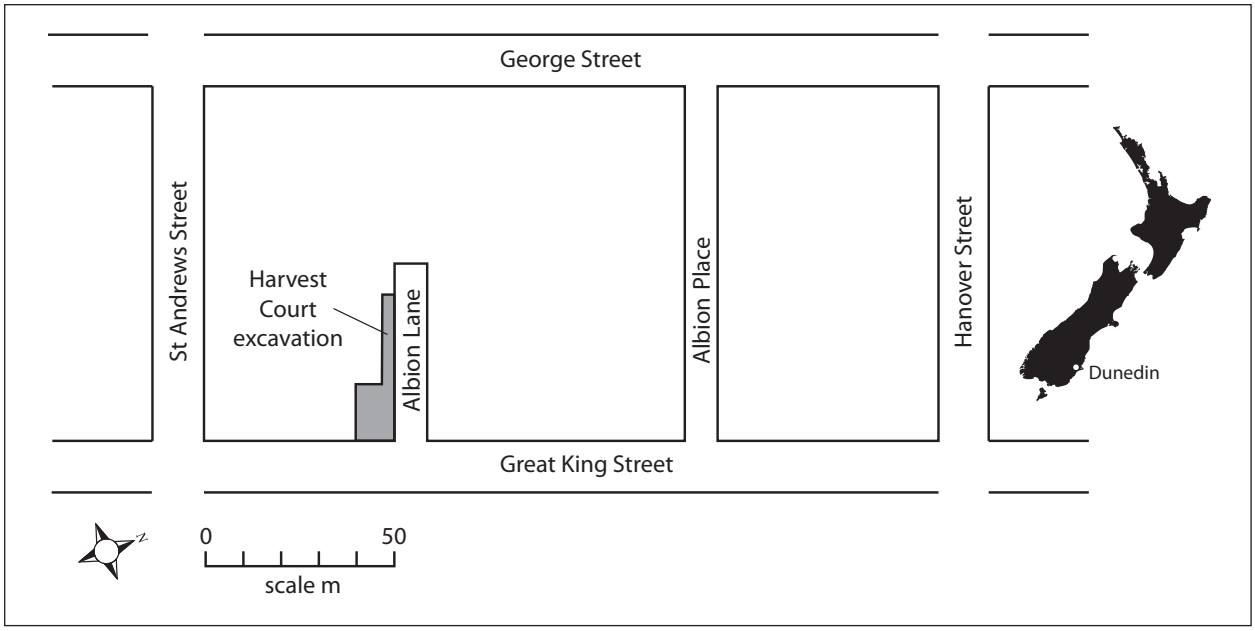

Figure 1. Site map of Harvest Court site and surrounding area.

King Street 'close to St. Andrew Street corner' (the Harvest Court site) by 1895, earlier than the street directory date given above (Conly 1948: 58). While Laing was listed on the Great King Street site in 1906, William Bertram, of the Milford Sound Greenstone Company, was also working there in this year – although the company's name does not appear in the street directory until 1908 – or possibly Laing was working the stone Bertram recovered.

The boom of the greenstone industry in Dunedin was brief, peaking in the period 1900–1902. By 1908 only three lapidaries remained: the Devlin brothers, George Chisholm and Dickson. John Laing is believed to have ceased production by 1906, although his son, George Bell Laing was working in the partnership of Laing and Hamilton in Bath Street until 1909, when he moved to Auckland (McCready 1988: 6). In 1910 A. Devlin was the sole remaining Dunedin lapidary (Conly 1948: 59).

SITE INVESTIGATIONS

While features and material were found at the Harvest Court site relating to the Vulcan Foundry and subsequent blacksmithing and wheelwright activities (Middleton 2014), only the pounamu is discussed in detail here. Earthworks began on 20 June 2013 and the following day uncovered the first deposit, Feature 1, consisting of 618 pieces of nephrite and bowenite, assorted grinding material, 3 pieces of cut exotic shell (probably *Tridacna sp.*), 1 piece of cut paua (*Haliotis iris*), a slate pencil and a single clay pipe bowl. Feature 1 was shallow, located just beneath the asphalt of the old car park and was in a small area (< 1^2m) (Figure 2). The surrounding matrix was of mottled clay fill, which, other than the nephrite feature, did not contain any other artefacts.

The second deposit, feature 2, was uncovered some months later, on 15 August in the western area of the earthworks (Figure 2). This feature was also located close to the asphalt surface of the car park. Feature 2 contained densely packed pieces of nephrite of various sizes, located on a surface of stained and possibly heat modified clay. The feature was approximately 75cm in circumference and a maximum of 20cm deep (Figure 3). The surrounding matrix was of dark brown/grey clay fill and no other artefacts were recovered from the same stratigraphic layer. The layers below and above that in which the pounamu was located had evidence of foundry activity in the form of highly heated clay and oxidised ferrous staining, the upper layer most likely being redeposited from another part of the site at the time the asphalt was laid. The bluestone foundations (Figure 3) relate to an earlier period of European use of the site, predating deposition of the pounamu assemblages.

Analysis of the assemblages

All pounamu samples were measured and weighed and the number of cut sides recorded. The nephrites and bowenite from Harvest Court were visually identified to source by direct comparison with the lithic reference material in the archaeological laboratories at the University of Otago. The

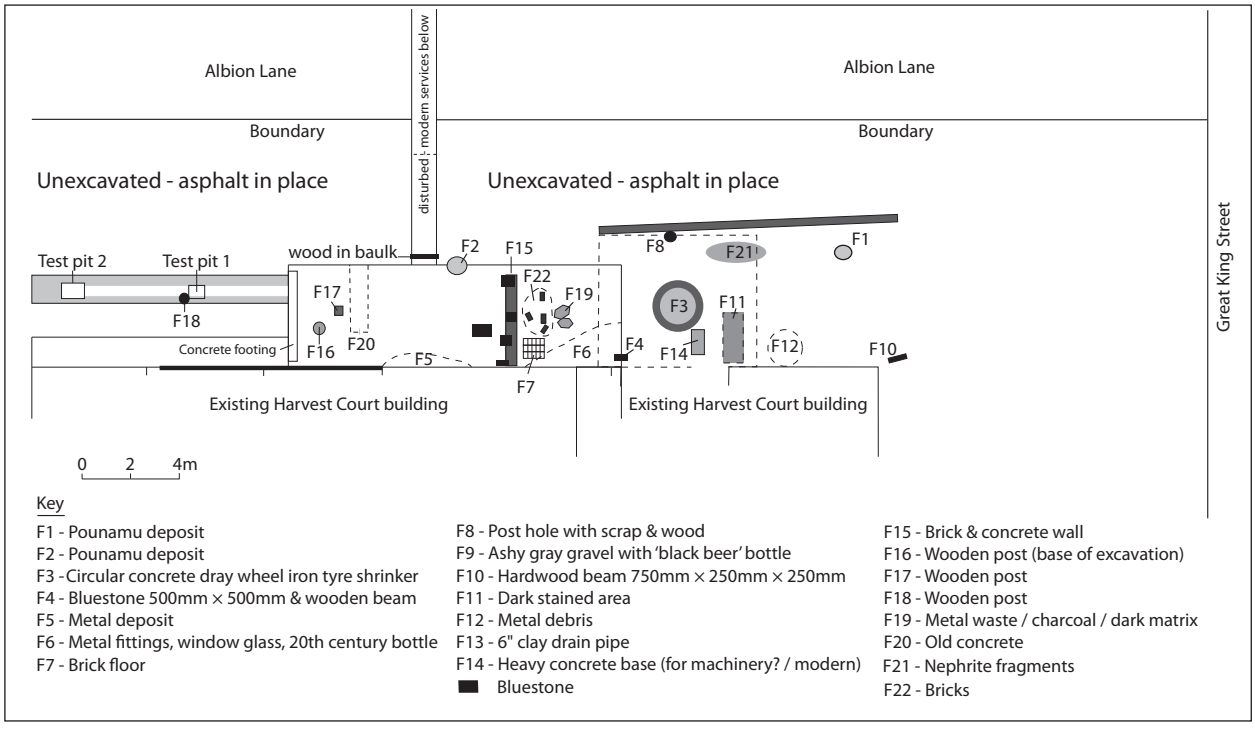

Figure 2. Harvest Court Site Plan and archaeological features.

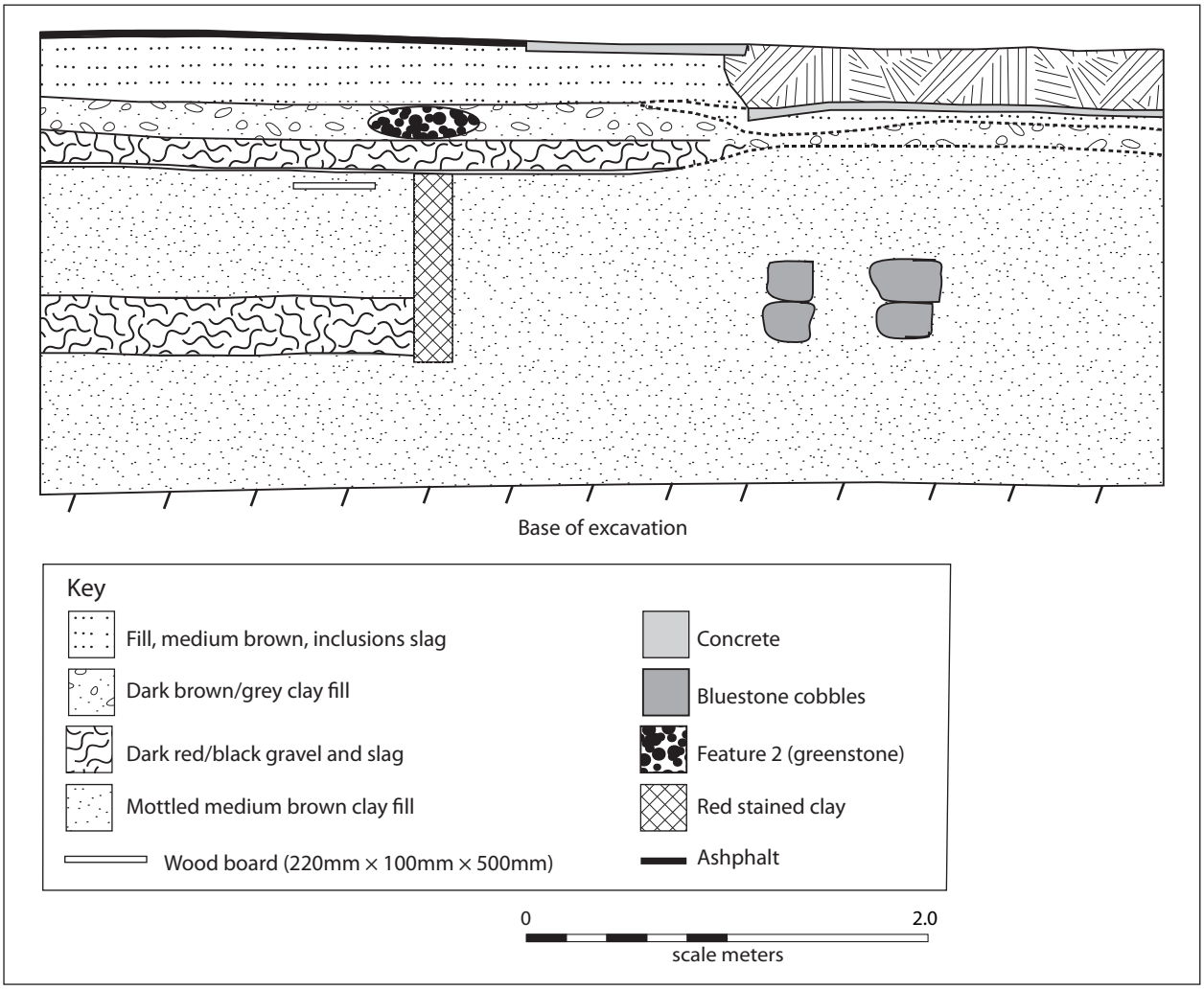

Figure 3. Stratigraphy area b, showing feature 2 and earlier European site use.

assemblage was sorted into four broad categories: chunks, debitage, slabs and blanks (see Figure 4 for examples). The absence or presence of cortex and the type of cortex was recorded (see Figure 5).

Morphological attributes

Chunks (amorphous broken pieces of cobbles and boulders) were the least modified pieces of greenstone, usually having one or no cut sides and were 'chunks' of material that had been broken up by some means. Three methods were used to break up large boulders prior to being cut on a mud (or slurry) saw; percussion using sledge hammers and/or fracture using cold chisel and hammer, and an even less subtle method known as 'popping' – drilling a hole into the boulder and then packing it with explosive. All of these methods had negative consequences, creating or extending any existing flaws in the stone (Beck 2010: 47) Mud saws employed one or more rotating hand beaten metal discs partially immersed in a slurry of mud and grit. The stone to be cut was suspended either by clamps on an arm or for larger samples suspended from a block and tackle (Beck 1970: 84).

Debitage, like chunks, were largely unmodified by mechanised cutting of the greenstone as they have few cut sides, and are considered to be waste. Debitage pieces contained notable flaws or were too irregular in shape to be suitable for creating a blank. The flaws may be internal fractures but were more often the presence of cortex of the boulder or the irregular surface of chunks. Cold chisel marks are present on some samples, but no impact marks from a sledgehammer have been noted on any of the Harvest Court assemblage.

'Slabs' are slices of greenstone, with at least two mud saw cut parallel surfaces, though they are sometimes also cut on one or more other sides. During manufacture of slabs, 'slab core ends' were produced as individual slabs were sawn then snapped off a parent core. These typically have evidence of two or more slabs having been removed. The snapping of slabs from a core is likely to be similar to

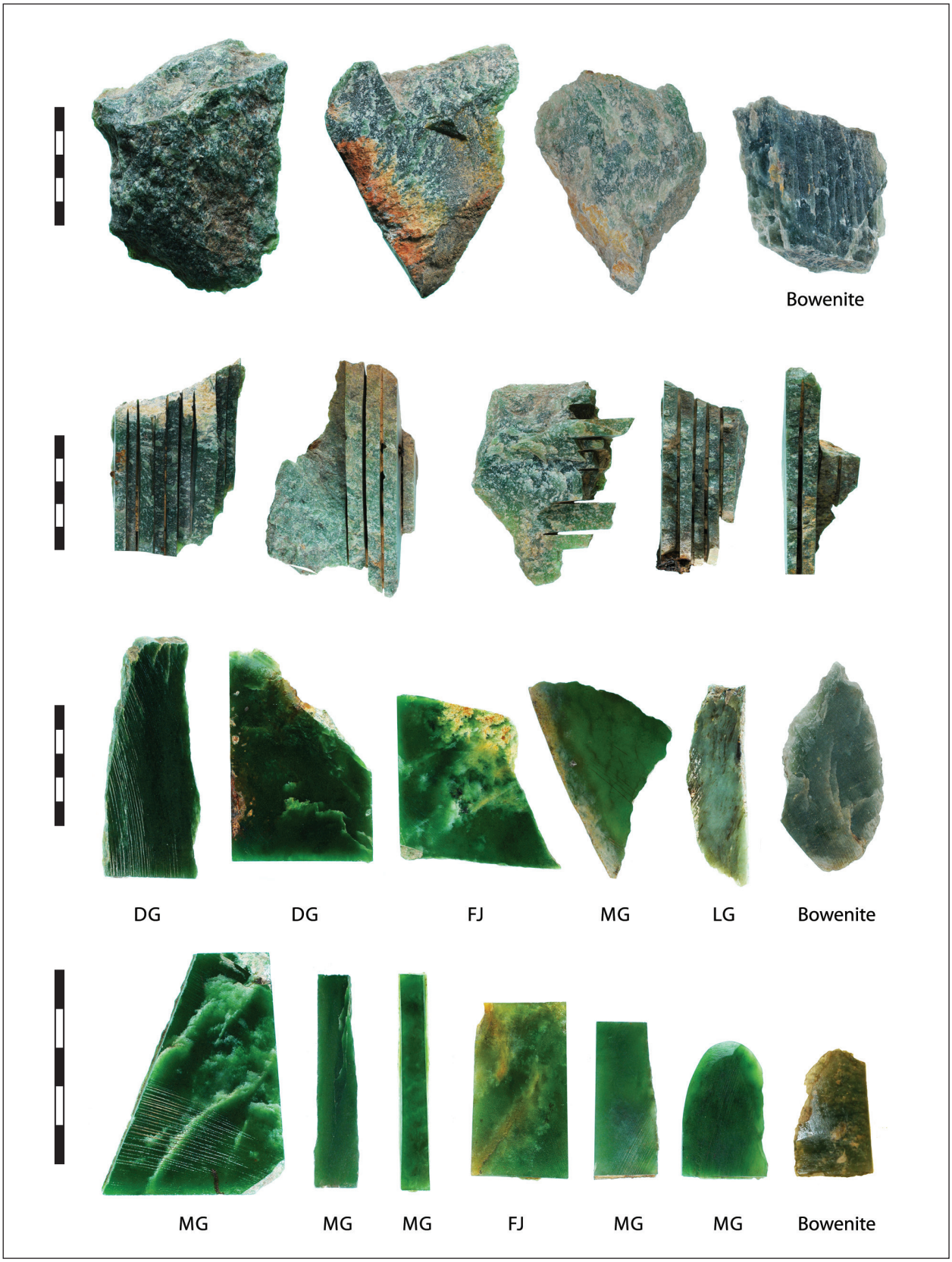

Figure 4. All material nephrite unless otherwise noted. Top row; chunks, 2nd row; slab core ends, 3rd row; slab and bottom row; blank. Bowenite examples are on the extreme right of the top, 3rd and bottom rows. Dark green (DG), medium green (MG), light green (LG), flower jade (FJ). All scales 5 cm.

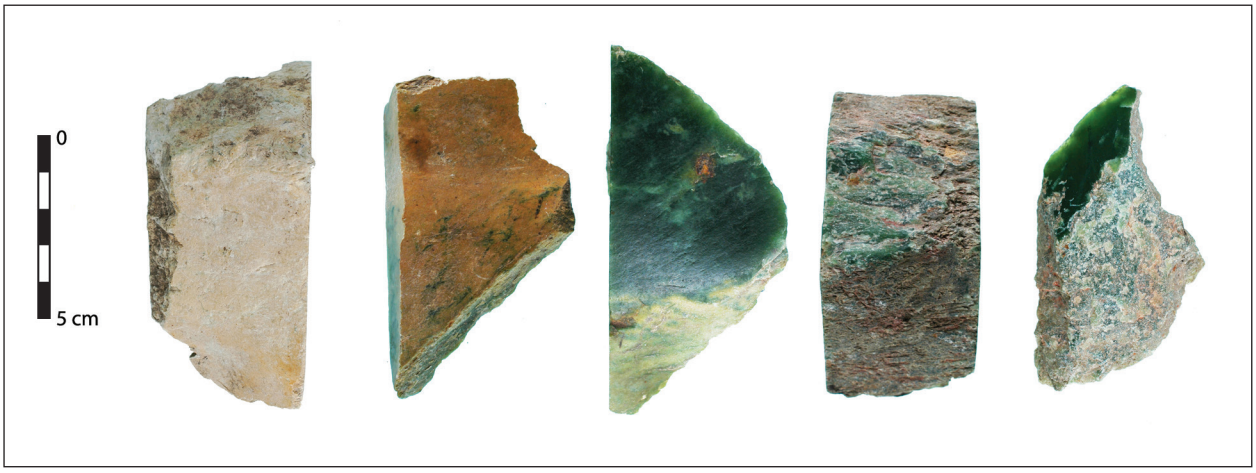

Figure 5. Cortex, left to right; rind, water polished with and without rind, non-water rolled with no rind and 'popped' (with polished window).

the process used in traditional Māori cutting where to save time and effort slabs were cut or ground until they could be broken (Beck 1970:74).

The assemblages were sorted according to the presence or absence of cortex and rind, water polished surfaces, or a combination of each (Figure 5). Water polishing is caused by the alluvial action of fine river sediments prior to the recovery of raw material. Specimens with rind present, but no water polishing, came from deep within sediments, most likely recovered by dredging, as was common in the Kumara area (Beck 2013, pers. com). Samples with a natural non water polished cortex but no rind were the last category, this indicates natural breaks without the time depth required to develop cortex.

A selection of slabs with evidence of saw cuts was measured to determine the diameter of the disk blades. The samples were selected as they had obvious cut marks and were of a range of sample sizes, the longest section being 160 mm (Figure 6). The diameter of the cutting discs was determined by measuring the length (l) and height (h) of the curvature of etched marks and using the following equation; diameter = $2(4h^2+l^2/8h)$.

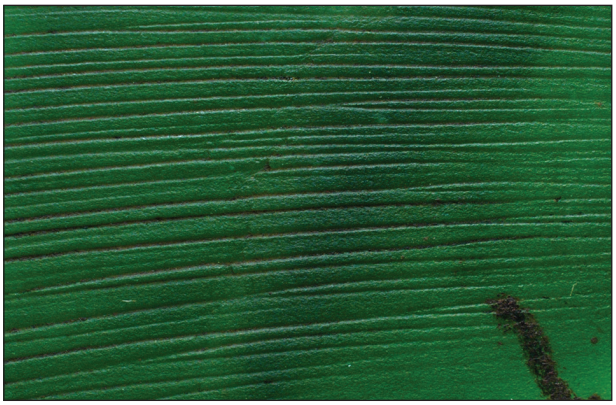

Figure 6. Close up of mud saw cut marks on a greenstone slab.

RESULTS

The nephrites were determined to be Westland varieties of light, medium, medium-dark greens and flower jades, most with good translucency (Figure 4). Flower jade is a term used to describe the varieties of nephrite with lighter green or yellow- to orange-red and brown plumes, or 'flowers', of oxidation within the stone, with portions of fine translucent green present in contrast (Beck 2002:113). The sourcing was confirmed by Russell Beck, a leading researcher in New Zealand nephrite. The bowenite is consistent with reference material from Anita Bay in Milford Sound. This was confirmed by historical research: William Bertram's company had staked a mining claim at Anita Bay by 1904 (*Otago Daily Times* 1 June 1904).

Bowenite was only found in Feature 1 and made up 10.8% of the assemblage. Medium green material was the most prevalent in feature 1 (60.2%) followed by flower jade (16.2%). Feature 2 was dominated by flower jade (71.1%), with medium green forming 17.7%. Light green samples were the least prevalent in both features (<2%) and dark green comprised roughly 10% of both samples (Figure 7). The majority of the two assemblages were slabs (66.5%) or chunks (19.5%). Blanks (2.4%), slab core ends (2.1%) and debitage (9.5%) make up the remainder of the assemblages. The most frequent width for slabs was between 5 mm and 6 mm, although some were over 12 mm (Figure 8).

Blanks were the smallest category, contributing < 2.5% of the total assemblage and were all 'tabs', rectangles and triangles ready for polishing. The small number of blanks, feature 1, n=21, and feature 2, n = 9, is too small to make any inferences as to which of the greenstone colours were preferred. The average thickness of the blanks was 5.04 mm with a range of 2.43 mm–8.6 mm. The range of blank

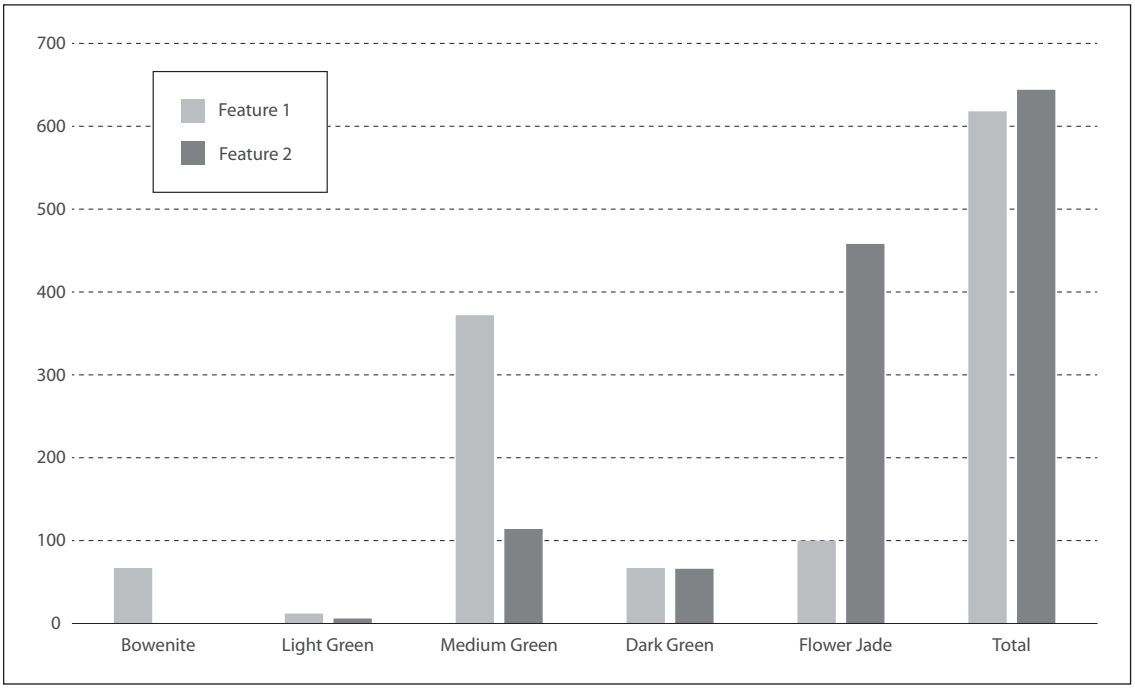

Figure 7. Bowenite and nephrite by colour, counts.

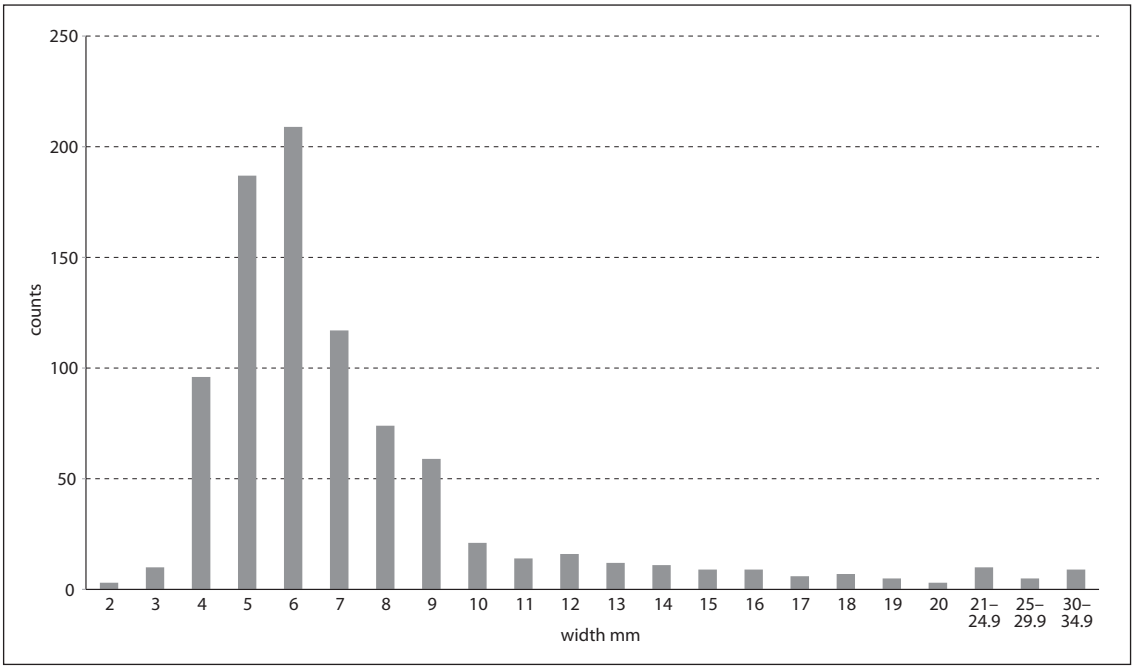

Figure 8. Cumulative counts, slabs by width in mm.

thickness is consistent with the overall average for the total assemblage. The mean width of slabs was 23 mm (σ 12.5 mm). The mean length of slabs was 61 mm (σ 32.3 mm).

Samples with no cortex were the most prevalent (60.3%). The high prevalence of cortex on the light green samples for both assemblages would suggest that this colour is not a separate variety but is found close to the outer cortex on some of the cobbles and boulders. The feature 1 flower jade assemblage had a high percentage of water polished cortex (50%) with only 22% of the assemblage having no cortex. This may suggest that the entire flower jade assemblage came from a single stone with the best material removed (Table 1). The accuracy of measurements to determine the cutting disk diameter is limited

Table 1. *Presence of cortex, by colour and feature. Cortex no rind (cnr), rind (r), no cortex (n), water polished (w), water polished with rind (wr).*

	CNR	N	R	W	WR
Area 1 bowenite	5	51	3	3	1
Area 1 light green	5	2	0	4	1
Area 2 light green	0	4	0	0	2
Area 1 medium green	39	282	11	19	21
Area 2 medium green	2	87	9	8	8
Area 1 dark green	4	33	7	18	5
Area 2 dark green	1	49	8	3	5
Area 1 flower	4	22	13	50	11
Area 2 flower	43	232	42	74	67

as close inspection of the curves indicated that the curvature was not consistent, suggesting that the 'groove' in the greenstone was created by grit on the side of the disk (Figure 6). The results of the two assemblages are similar, with the maximum disk size being approximately 450 mm and the minimum size 200 mm. The results suggest at least three different disk sizes were utilised in the creation of each assemblage (Figures 9 and 10).

The feature 1 assemblage included 8 pieces of material that would have been used to grind and polish the cut stone. All of the irregularly shaped pieces appear to be recycled components of industrial material. Two pieces are sandstone, which like the greenstone, has been cut with a mud saw. The four largest pieces are believed to be fragments of earthenware made on a potter's wheel, possibly used as a grinding disk for polishing (Beck pers. comm. 2013), each with grooves of a different width. The last two pieces are small (the largest 28 mm × 8 mm × 11 mm) and are an early example of carborundum, otherwise known as silicon carbide. Carborundum was invented in the United States by Edward Goodrich Acheson. Acheson first patented the material in 1893 and it was soon in mass production (Acheson 1893:198–199). As a group these abrasive artefacts could all be used in the finishing/grinding of greenstone but give the appearance of having been collected expediently rather than purchased (Figure 11).

DISCUSSION

The stratigraphic position of the assemblages confirms that they had been deposited after the closure of the Vulcan foundry and therefore dated to the late nineteenth or early twentieth century. At this time, gold mining operations in Westland were the primary source of New Zealand nephrite (Beck 2002:129). The assemblages represent some of the finest of the Westland green and flower jade varieties. There is, however, an absence of either the silver to bluish green inanga or yellowish brown spotted kokopu specimens the Arahura River is known to produce (Beck

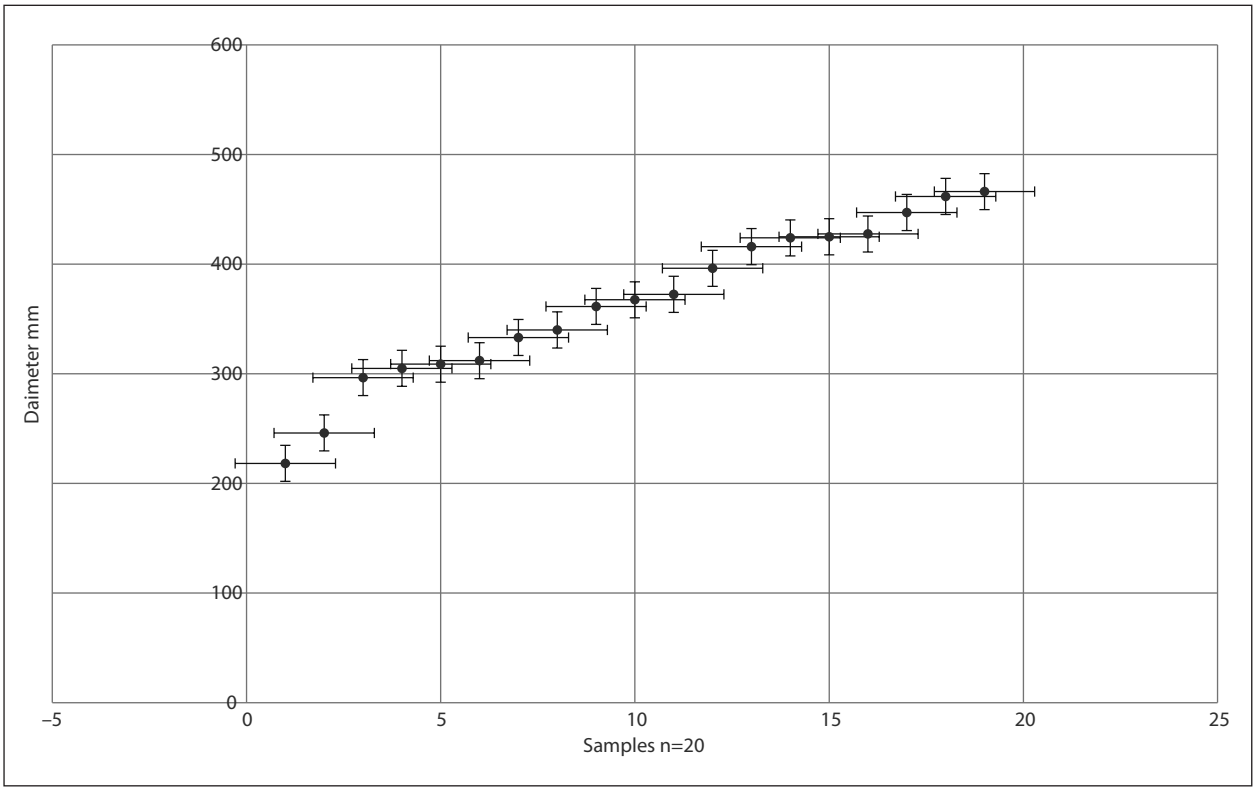

Figure 9. Feature 1 estimated mud saw disk diameter.

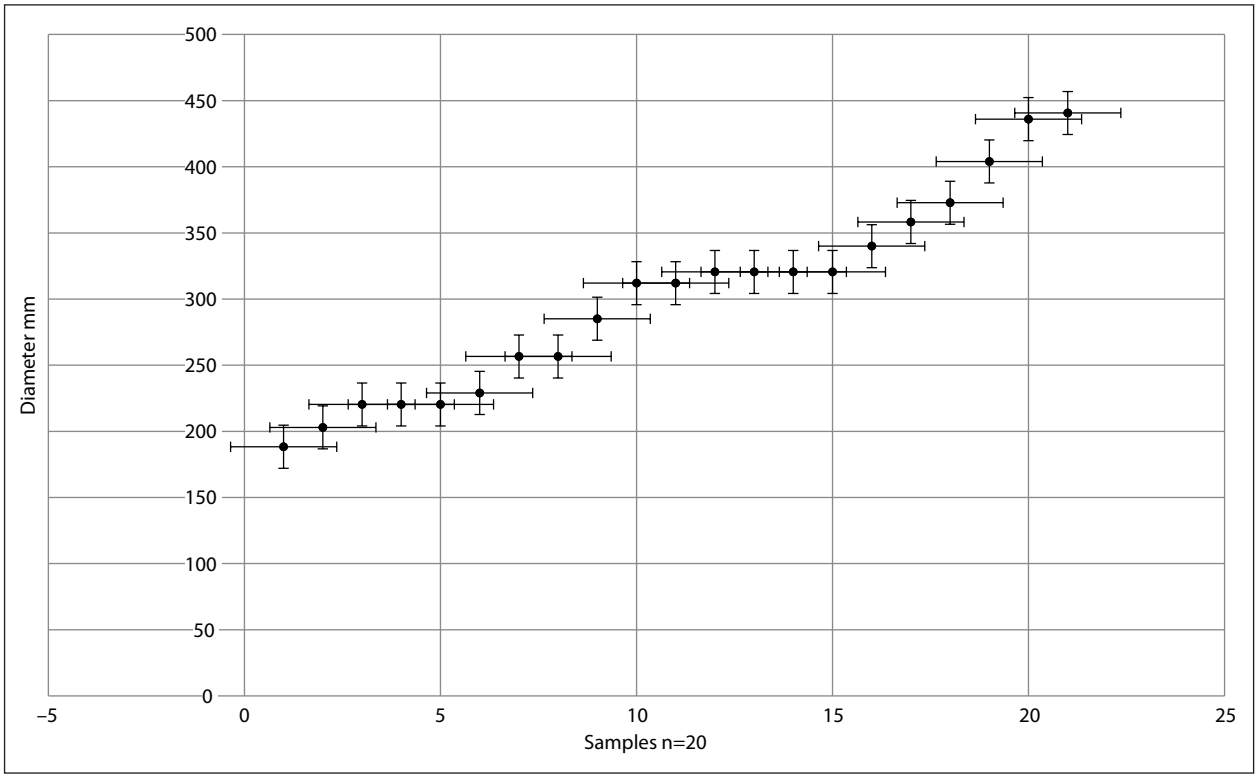

Figure 10. Feature 2 estimated mud saw disk diameter.

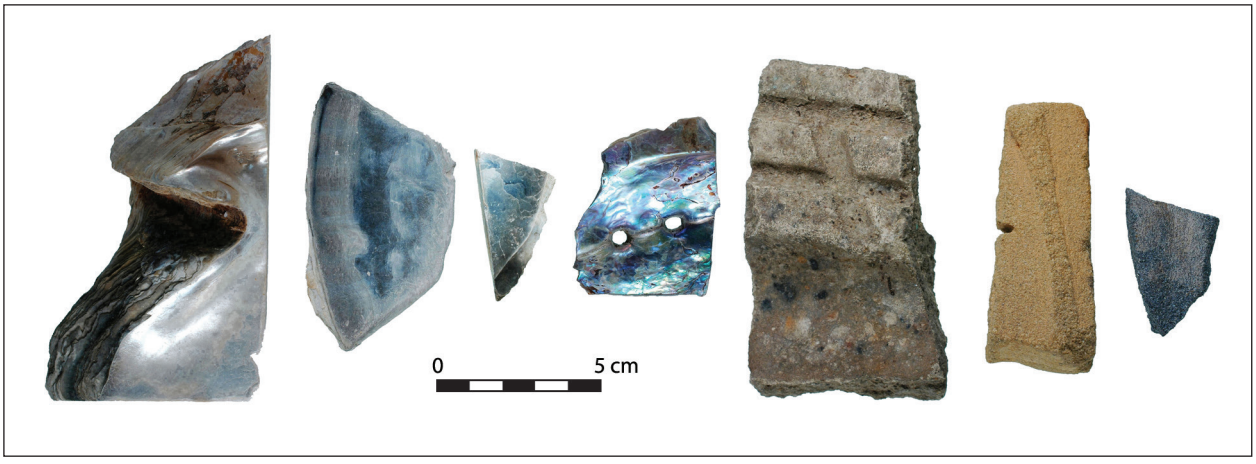

Figure 11. Left to right, cut exotic shell (1–3), paua shell fragment, potter's wheel fragment, sandstone and carborundum.

2002: 30–32). The bowenite assemblage is all of similar colour and translucence (see Figure 4 for examples).

On first inspection, the two assemblages, from features 1 and 2, were believed to be material discarded in the first stage of production from parent rock sectioned into useful sized blanks. However, the discrete locations and absence of any other material culture suggests that the assemblages may have been intentionally cached rather than just discarded. In determining whether the two assemblages were discarded or cached in large part rests on whether the material at the time was considered to be worth the time and effort required to create finished pieces of saleable goods. It is not possible here to evaluate the man hours and the costs of time and materials to create finished objects, but it is possible to evaluate whether each sample is of sufficient size and uniformity to be turned into a finished object.

An expanding European population provided a market for greenstone jewellery and other products. These included small rectangular 'bar brooches', hearts, earrings

and crucifixes, and cutlery handles, with silver or gold settings (for examples, see Beck and Mason 2010:174). Pounamu was also exported to Germany in large quantities, and then returned to New Zealand in the form of jewellery and reproduction Māori artefacts (Beck and Mason 2010:171). The German lapidaries produced hei-tiki and mere of high quality along with European objects.

The majority of the material recovered from Harvest Court (88.4%) was suitable for creating the most common Victorian greenstone objects. Of the recovered material only slab core ends and debitage are considered waste. The generally small size of slabs does make it probable that while useful as offcuts they were not the best parts of the processed material. The assemblages were cut using a simple method that required some form of power to drive a spinning disk. The lapidaries operating at the Harvest Court site were situated to take advantage of the neighbouring businesses' power sources – in the earliest period this was most likely steam power. Figure 12 shows a variety of sizes of hand beaten cutting disks hanging on the workshop walls of the Devlin brothers. The mud saws are clearly visible, on the left hand bench. The further stages of manufacture of finished pounamu objects are not evident in the assemblage, but for details of these see Conly (1948) and Beck (2010, 2012).

The two nephrite assemblages were deposited during the boom time for Dunedin lapidaries, between 1890 and 1910, after which only the Devlin brothers were trading. Two lapidaries are known to have worked at the Harvest Court site during this period, George Chisholm from 1895, and John Laing who retired by 1906. William Bertram of the Milford Sound Greenstone Company was noted in the street directories (above) at the same address as Laing occupied. Whether he was working for Laing (or Laing was working for Bertram), or whether Bertram had taken over this lapidary is unclear from published sources.

Three factors contributed to the boom in lapidaries: a growing interest in and market for Māori artefacts; an increasing European taste for greenstone; and an inexpensive source of greenstone. Nephrite was exposed on the goldfields of the West Coast, especially by dredging, and purchased from miners by Pākehā lapidaries, who were paying 6d per pound in 1900 for rough and unproved stone, while 'if broken and proved to be greenstone of attractive colour, then 1/- or even 1/6 per pound might be paid' (Conly 1948:62).

The bowenite was most likely supplied by William Bertram. In 1906 Bertram, under the nom-de-plume of his company, published a pamphlet about his 'discovery' of a source of bowenite, or tangiwai, 'the rarest of all forms

Figure 12. Devlin Brothers workshop, date unknown. (Hocken collection MS-3365)

of Greenstone' (Milford Sound Greenstone Company 1906:1). Bertram had driven a shaft through a slip that had buried the rumoured prehistoric 'greenstone quarry' at Anita Bay, Milford Sound, and recovered an amount of it (Milford Sound Greenstone Company 1906:2). His pamphlet contained testimonials from Māori confirming the stone as tangiwai or kokotangiwai as well as a request from a European to manufacture a mere in the style of a drawing he had enclosed, suggesting what some of Bertram's end products might have been. Bertram invited 'any purchaser of Greenstone' from his company to 'visit the Lapidary Works at Great King Street, Dunedin, where Mr. Bertram, the Manager, will be pleased to show the 'Tangiwai' being cut from the rough stone and manufactured into the finished article' (Milford Sound Greenstone Company 1906:2). By 1908 Bertram was attempting to sell his 'valuable greenstone mine', consisting of 200 acres of land outside the newly created Fiordland national park (*Otago Daily Times* 1 June 1904; *New Zealand Herald* 5 December 1908). These efforts failed and the Milford Sound Greenstone Company went into voluntary liquidation in 1908 (Coutts 1971:69; *New Zealand Herald* 16 January 1909).

The early lapidaries in Dunedin coincided with the incarceration of two large groups of Māori men, first in 1869–1872 and a second group from 1879–1881 (Reeves 1999:121, 125). The later of these groups was recorded working large quantities of pounamu into mere and ear pendants (Chapman 1891:479). It is possible that the European lapidaries were inspired by these Māori craftsmen. They may also have recognised the potential market to both Europeans and Māori for this reproduction Māori art. By 1890 European lapidaries in New Zealand and Europe, particularly in Germany at Idar-Oberstein, were manufacturing Māori art from pounamu for the local market (Beck 2002:129). From the early twentieth century until the 1940s there was also a growing international market for museums and collectors of Polynesian art, particularly Māori art (Skinner 1974:181).

The Harvest Court assemblages are not entirely consistent with known European tastes of the time, which favoured mid green flawless nephrite (pers. com. R. Beck 2014). The Harvest Court assemblages consist of both mid green and flower jade varieties. This suggests that these lapidaries were intentionally working flower jade, indicated by the high abundance of sawn slabs. This may support the theory that the lapidaries were supplying markets other than those popular with Europeans at the time (see Beck 2010:174–175 for examples).

The thickness of the slabs is consistent with the type of objects typically created, being less than 12 mm thick. The slabs which are greater than 12 mm in thickness could however have been offcuts of material being prepared for reproduction mere. There are no records of what the two lapidaries in the Harvest Court site were creating, but both Chisholm and Laing had the ability to drill greenstone, the only other lapidary known to have this capability being the Devlin brothers (Conly 1948:62). The production of mere would have required such drilling.

During the greenstone boom, the Devlin Brothers were known to have been manufacturing mere, selling them for 'about' £7 (Conly 1948:63), a considerable sum at the time. The finished mere were time consuming and difficult to create, were not polished, and often had three grooves on the butt. Conly (1948:63) suggests that the Devlin brothers sold the finished mere to Māori throughout New Zealand who then generally on-sold them as 'tribal heirlooms' to tourists and collectors, with some being purchased to replace 'lost or traded' taonga (Skinner 1974:182). It would seem likely that the lapidaries operating from the Harvest Court site could also have taken advantage of this profitable market in the manufacture of reproduction Māori artefacts.

From the start of early twentieth century through until the 1940s there were a number of individuals who took advantage of the growing interest and collecting by museums of Polynesian art, by acquiring or manufacturing 'genuine artefacts'. One of the most famous protagonists in the acquisition and sale of 'fake art' was James Frank Robieson. Robieson was in Dunedin in the early twentieth century, and at the time fossicked a number of sites around Otago harbour and Central Otago and the Te Anau-Manapouri area (Skinner 1974). He is recorded as having met the Devlin brothers during this time. Robieson was highly successful at selling 'genuine artefacts' to New Zealand and British museums, including the Pitt Rivers Museum, Oxford, and the Dominion Museum, Wellington. The fake artefacts were not only of pounamu but also other materials including human, whale and moa bone. (Skinner 1974). It would seem likely that Robieson passed off greenstone reproduction art from the Dunedin lapidaries to the sales or auction rooms in New Zealand and Great Britain.

The Harvest Court assemblages are examples of the technology employed by the late nineteenth and early twentieth century European lapidaries in Dunedin. Each of the two assemblages could be considered to be material that was less than ideal after initial processing. The majority of the recovered assemblages however were of high quality nephrite of colour and translucence suitable for quality jewellery or other items and therefore cannot be considered waste. The slab material all represents an investment in time and effort that would make disposal unlikely. It is possible that both assemblages were cached or hidden by unknown persons for later retrieval. Whether this was done surreptitiously or for personal gain will never be known, but the greenstone trade of the late nineteenth and early twentieth centuries had a complex and not always legitimate trade network.

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