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# Rarotoka, Foveaux Strait, New Zealand: its Artefacts and Settlement History

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## ABSTRACT

For just over one hundred years the only occupants of Rarotoka (Centre Island) have been those associated with the lighthouse service which operates on the island. However, archaeological, traditional and historical sources indicate that there were extensive Maori settlements there during the pre-European and post-European periods. The artefactual assemblage from the island is described and discussed and the other sources reviewed. It is concluded that although some artefacts belong to the Archaic period, the majority belong to the late pre-European and early post-European periods when the strategic position of the island made it an ideal place for settlement.

*Keywords:* RAROTOKA, FOVEAUX STRAIT, ORNAMENTS, ADZES, FISH HOOKS, LATE PRE-EUROPEAN/EARLY POST-EUROPEAN, KATI MAMOE/NGAITAHU.

## INTRODUCTION

Rarotoka (Centre Island) lies in the western approaches to Foveaux Strait, about 12 kilometres off the southern coast of the South Island of New Zealand (Fig. 1). It is a low-lying, rocky, windswept island, about 146 hectares in area. No modern, scientific archaeological investigations have been carried out there; the island is known archaeologically from one large collection of artefacts gathered in the 1880s and several small ones obtained more recently. Most of the artefacts were surface collected from eroding sand dunes and no details of their stratigraphic contexts survive. Despite this and the problems caused by selection bias, the Rarotoka assemblage is an important one for a number of reasons.

Many of the assemblages from southern archaeological sites have been dispersed among private collections and museums, both in New Zealand and overseas. As a consequence they are poorly known and documented. All the artefactual material believed to have been recovered from Rarotoka, however, is held in New Zealand and, furthermore, it is relatively well recorded. In addition, the collection is a diverse one, representing a wide range of activities over a considerable period of time. The majority of the material appears to be from the late pre-European and early post-European periods. This was a time of great political and social upheaval in the Foveaux Strait area and Rarotoka was a centre of considerable power and influence. Finally, the field collection of the Rarotoka assemblage and its subsequent history provide some fascinating insights into the social climate of late nineteenth century New Zealand society as well as into the development of private and museum collections in this country.

Over 90 percent of the Rarotoka assemblage is from the Chapman collection, now held in the Otago Museum. It was acquired by the Museum in 1921 when Judge Sir Frederick Revans Chapman donated his large collection of mostly Maori material. Further pieces

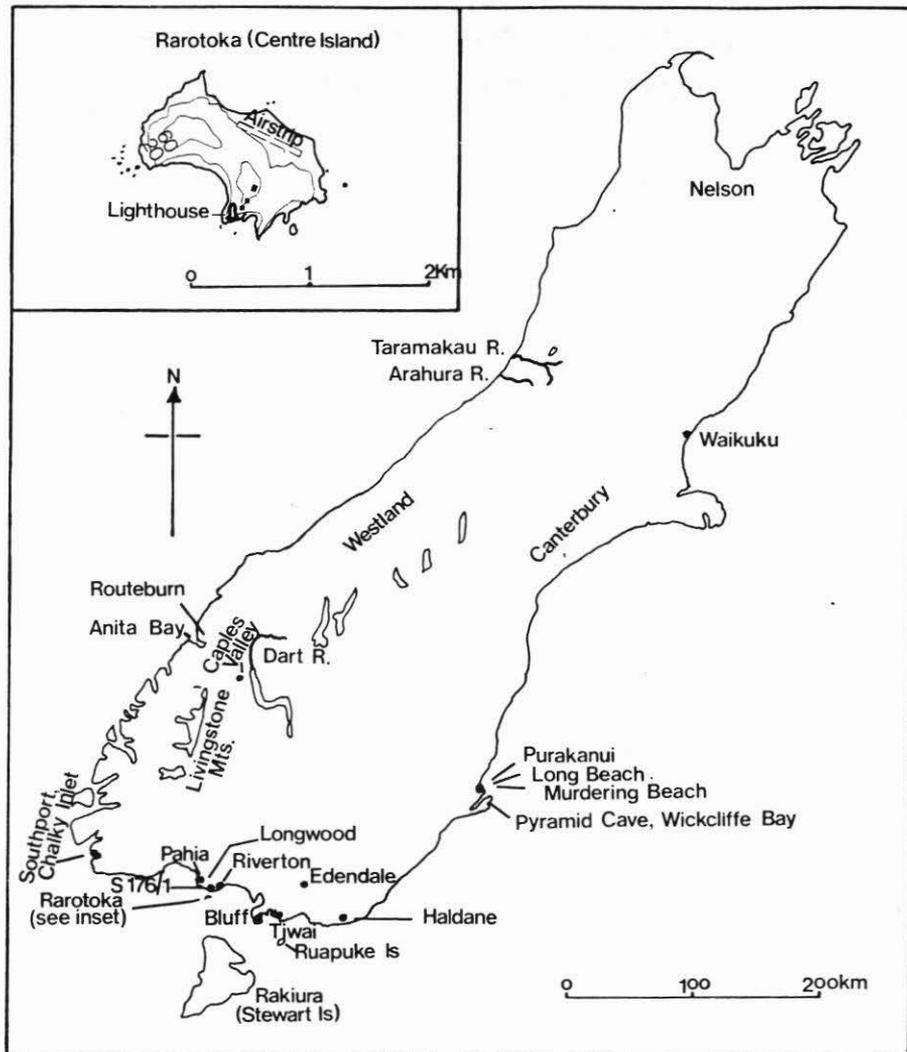


Figure 1: Location map and places mentioned in the text.

were received in 1936 following Judge Chapman's death. Although most of Chapman's New Zealand material (particularly that from Otago beaches) was personally gathered (H. Leach 1972: 3), the Rarotoka material was not. His acquisition of it in the 1880s is closely linked with the post-European occupation of the island and will be discussed later in this report. There are also a few artefacts provenanced to Rarotoka in the Bollons collection in the National Museum, Wellington. Captain John Bollons served on several ships in the Foveaux Strait region during his career in the Merchant Marine (Law 1984) and it is probable that he obtained the Rarotoka material personally while on a ship servicing the lighthouse in the late 1800s or early 1900s. The only other artefacts known from Rarotoka—two adze preforms found during the construction of the airstrip in 1963 and

several flakes also found in the 1960s—are held in the Southland Museum. An adze, fish hook point and several flakes seen during a recent (February 1985) visit to the island were recorded and left *in situ*.

### THE STONE ASSEMBLAGE

The stone assemblage is dominated numerically by adzes and chisels. As is often the case with private collections made before about 1940, there are no waste or, indeed, utilised flakes in the Chapman and Bollons collections.

#### ADZES, CHISELS AND GOUGES

The Chapman collection contains 42 adzes, chisels and gouges and the Bollons collection 13 adzes. They vary considerably in both size and form, and a number of categories were able to be recognised (Table 1, Figs 3–6). Also noted in Table 1 are tentative hand specimen identifications of the rock types, for the Chapman collection only. Most of the stone other than nephrite is thought to have been obtained from the Caples Valley, Livingstone Range, Longwoods, Tiwai, Riverton and Stewart Island areas (Mason pers. comm.) (Fig. 1). One small chisel, however, is possibly made from metamorphosed argillite from the Nelson district.

The nephrites were identified as being from various Westland and Wakatipu sources (Beck pers. comm.). Table 2 shows the probable sources of all nephrite artefacts in the collection. Overall, there is little difference in the usage, by weight, between Westland (52 percent) and Wakatipu (45 percent) sources. Numerically, however, Westland is the preferred material (62 percent and 26 percent respectively), particular for chisels (91 percent) and gouges (75 percent). All the bowenite in the site is from Anita Bay, Milford Sound.

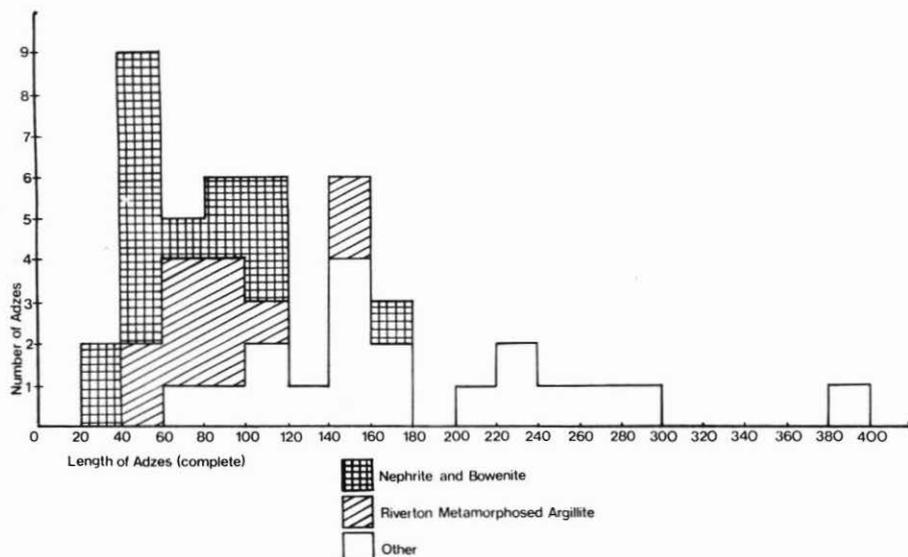


Figure 2: Number, length and stone type of adzes in the Chapman collection.

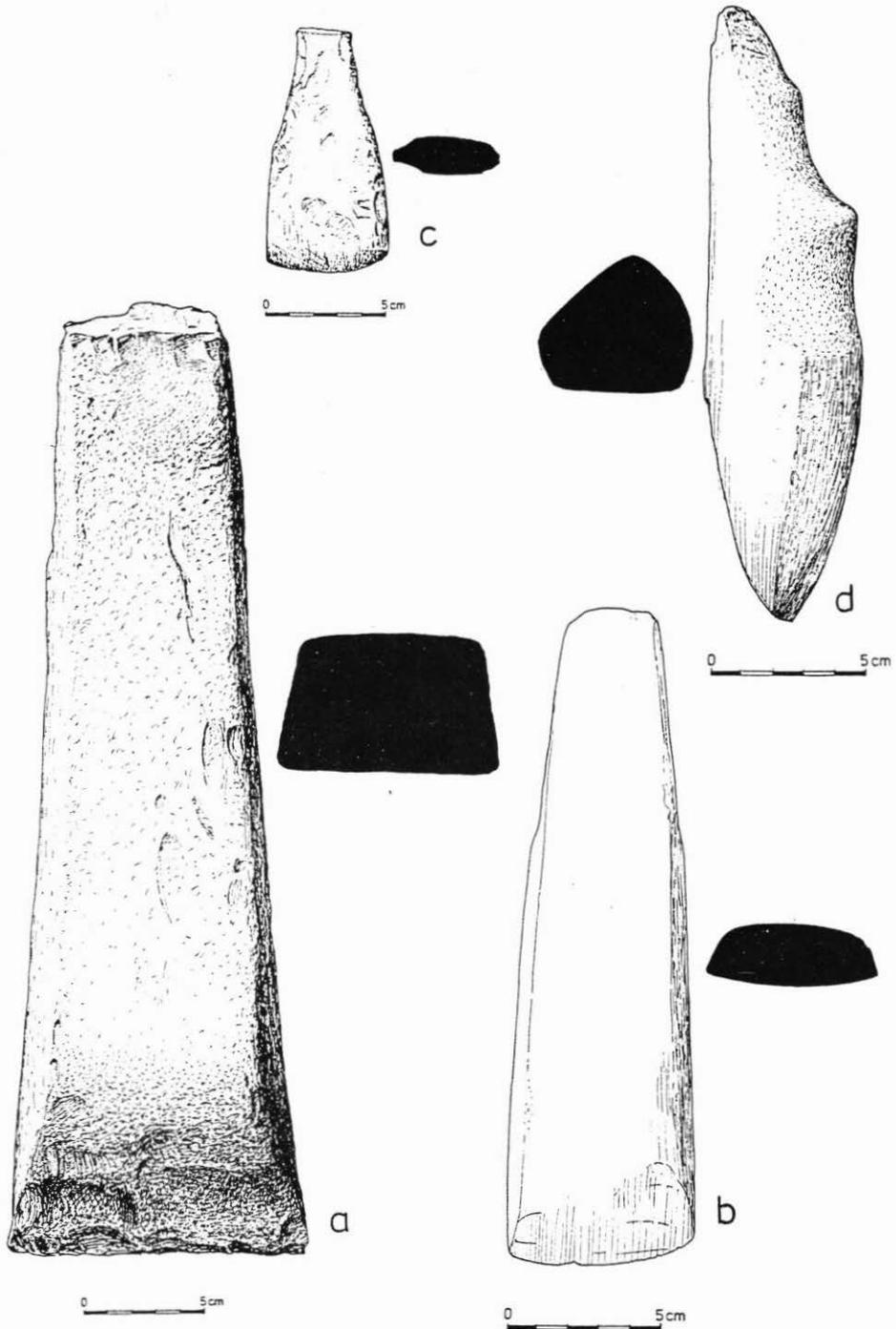


Figure 3: Quandrangular sectioned, gripped adzes. a. D21.539. b. D21.631. c. D21.549. d. D21.577.

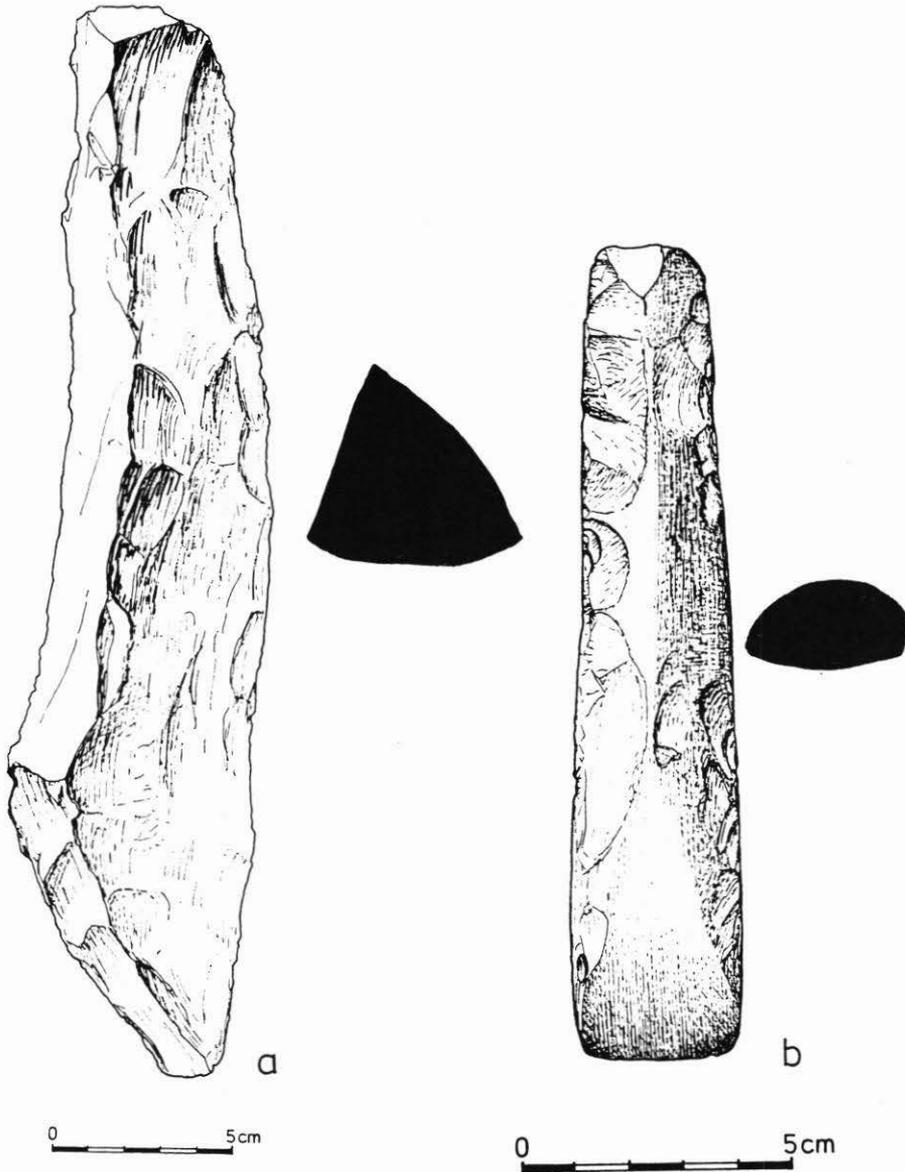


Figure 4: Reversed triangular and elliptical sectioned adzes. a. D21.548. b. D21.551.

With the exception of nephrite, bowenite and a fine-grained, green, metamorphosed argillite from Riverton, no correlation between the stone type and the size or form of an adze is discernible. Most Riverton argillite adzes, however, are either small, rounded quadrangular sectioned, ungripped forms or small, thin, often irregularly cross-sectioned and roughly finished (Fig. 5c). Several of the adzes in this latter category are flaked over much of the blade and back but have polished working edges and it seems likely that they were functional in their present form. Overall, Riverton argillite adzes are smaller than

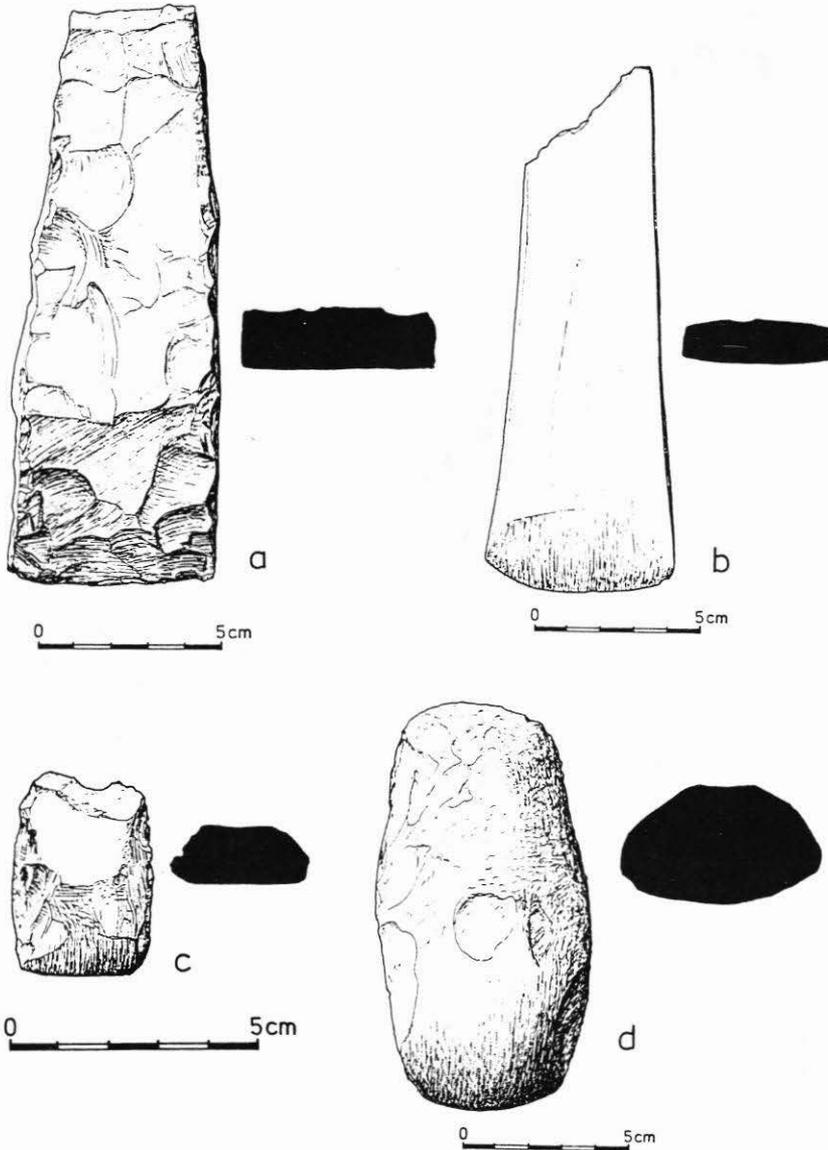


Figure 5: Quadrangular and irregular sectioned adzes. a. D21.552. b. D21.461. c. D21.709. d. D21.567.

other non-nephrite adzes (Fig. 2). However, there are two large adzes, which are thought to be Riverton argillite, in the collection. One is the fragment of the bevel of what has been a large, thick, probably quadrangular sectioned adze (possibly a Duff (1956) type 1A or 1D) while the other has been a large quadrangular sectioned, gripped adze and was in the process of being reworked when it was left in the site.

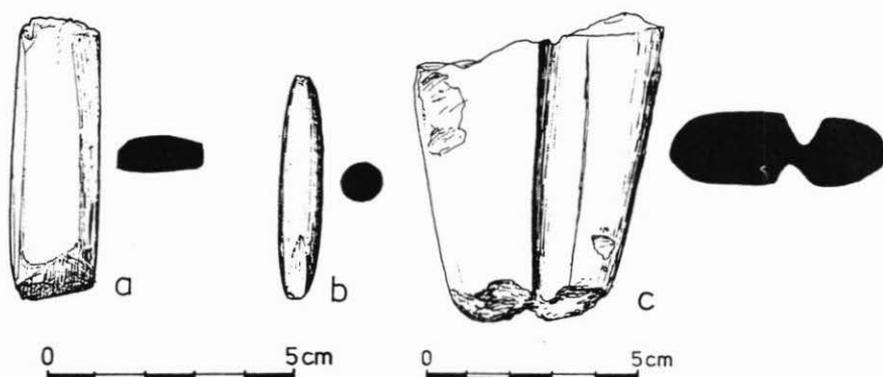


Figure 6: Nephrite artefacts. a. chisel, D21.530. b. gouge, D21.532. c. worked nephrite, D21.480.

Nephrite occurs most commonly in the form of small chisels with relatively narrow, straight working edges (Fig. 6a). Apart from two unusual larger examples, the nephrite adzes are also small. It is likely, therefore, that they, together with the chisels and gouges, were used for light wood—and perhaps bone-working. The two larger adzes, however, probably had a different function. One flares quite markedly to a curved working edge which has been ground from both the blade and back (Fig. 5b). A transverse fracture has removed any possible signs of the hafting or attachment method used. The working edge of the other is similar. There is a cutting scarf and groove down one side while the other has been reduced through hammerdressing. Neither adze shows signs of use.

There are only two finished bowenite artefacts. Both are chisels. Because bowenite is not as tough as nephrite and fractures easily, the latter was the preferred material for tools and bowenite was used primarily for ornaments and, occasionally, cutters and scrapers (Beck 1984: 67). Adzes and chisels of bowenite are rare (Couatts 1971). Both of the bowenite chisels in the Chapman collection are small and have been modified by resharpening and regrinding several times.

A number of adzes in the collection are “non-standard” in their shapes. In some cases this is due to the use of a poor quality or badly shaped core while in other cases it has been caused by continual resharpening and reshaping.

#### WORKED STONE AND FLAKES

The Chapman collection contains an additional ten pieces of nephrite and one of bowenite. The bowenite has been partially ground on the front and back surfaces. All of the nephrite pieces, too, have been modified by cutting and/or grinding. Many, in fact, have been larger or broken adzes and are now in the process of being reshaped into small chisels and possibly ornaments (Fig. 6c).

Twenty-four flakes were seen on the island recently. Three had polished surfaces indicating that they had been struck from adzes. Several of the flakes seen on Rarotoka and some of those in the Southland Museum have edge damage which is consistent with their having been used as simple scrapers. The remainder are thought to be waste flakes although, since only a brief examination was carried out, it may well be that some of them had been

TABLE 1  
ADZES, BY FORM AND STONE

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QUADRANGULAR SECTIONED WITH GRIP

*Lugged:*

D21.539	?meta-basalt (Fig. 3a)
NM7989	—
NM5852	—

*Unlugged:*

D21.558	meta-sandstone
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*Front wider than back:*

D21.578	meta-sandstone
D21.579	metamorphosed stone
NM5853	—
NM6717	—

*Slight bilateral reduction or spade shouldered:*

D21.631	Riverton meta-argillite (Fig. 3b)
D21.633	Riverton meta-argillite
D21.549	Aphratic stone (Fig. 3c)
NM5554e	—
NM5359	—

*Thick sectioned with or without raised shoulders:*

D21.577	?meta-sandstone (Fig. 3d)
D21.582	Aphratic stone
NM6713	—

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MISCELLANEOUS AND MISSHAPEN

D21.541	Metamorphosed stone
D21.567	Igneous stone (Fig. 5d)
D21.634	Riverton meta-argillite (Fragment)
NM6211	—
NM5312	—

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REVERSED TRIANGULAR SECTIONED

D21.548	meta-sandstone (Fig. 4a)
D21.555	aphratic stone

*Chisel forms:*

D21.584	Greywacke-argillite
D21.585	Weathered argillite
D21.716	meta-sandstone

TRIANGULAR AND ELLIPTICAL SECTIONED CHISELS

D21.581	?Riverton meta-argillite
D21.551	?Nelson meta-argillite (Fig. 4b)
D21.583	Meta-sandstone

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## CIRCULAR SECTIONED CHISELS AND GOUGES

D21.532	Nephrite (Fig. 6b)
D21.535	"
D21.514	"
D21.536	"
D21.531	"
D21.534	"
D21.502	"

## QUADRANGULAR SECTIONED UNGRIPPED

D21.553	Aphritic stone
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*Thin sectioned:*

D21.552	meta-argillite (Fig. 5a)
D21.437	Nephrite
D21.457	"
D21.460	"
D21.461	" (Fig. 5b)
D21.487	"
D21.489	"
D21.491	"
D21.495	"

*Small, rounded-quadrangular sectioned:*

D21.630	Riverton meta-argillite
D21.550	Volcanic
D21.554	Riverton meta-argillite
NM5554c	—
NM5554d	—
NM5705	—

*Small, flattened, slightly irregular sectioned:*

D21.709	Riverton meta-argillite (Fig. 5c)
D21.710-711	" "
D21.713-715	" "
D21.717-720	" "
D21.712	Meta-sandstone
NM6758	—

*Chisels:*

D21.494	Bowenite
D21.516	"
D21.503	Nephrite
D21.511	"
D21.501	"
D21.517	"
D21.524-526	"
D21.530	" (Fig. 6a)



D21.499							17.6			
D21.522						6.0 h				
D21.480				102.3						
D21.478				33.7						
D21.444	118.6									
D21.505	22.5									
D21.477			57.9							
D21.458			70.6							
D21.504			38.4							
D21.506					30.4					
D21.496							30.4 h			
D21.459*									58.6	
Ulu:										
D21.455								198.4 h		
Pendant:										
D21.508	4.9									
D21.55					1.7					
	575.1	178.5	259.1	140.7	70.9	365.4	401.3	30.4	198.4	77.0

\* = bowenite. h indicates that the stone has been heated.

A = Westland. A1 = Westland, A2 = Probably Westland, A3 = Probably Arahura, A4 = Probably Taramakau;

B = Westland/Wakatipu; C = Wakatipu. C1 = Probably Wakatipu, C2 = Slip Stream, C3 = Dart Valley,

C4 = Probably Routeburn; D = Anita Bay.

utilised. Most appear to have been made from the various metamorphosed argillites and they range in size from small chips to large primary flakes.

#### STONE ORNAMENTS

The Rarotoka assemblage contains a variety of ornaments in stone, bone and ivory. The bone and ivory ones are discussed later in this report. The *hei tiki* (Chapman 1891) (Fig. 7a) is small (77 mm x 57 mm) and made of Wakatipu nephrite (Beck pers. comm.). It is rather unusual in that it has a forked tongue, a trait which Skinner (Skinner and Simmons 1966: 12) believed was due to folk memory of the snake. The *hei tiki* has been described by Simmons (ibid.: 16) who drew attention to the similarity between it and other southern forms, particularly those from Pahia, Edendale Plain and Long Beach. It originally had a right-angled perforation through the top and back, drilled, using stone tools, in such a way that it was not visible from the front. This has worn through and has been replaced with a small, straight-sided hole made with European tools. The *hei tiki* does not appear to have been modelled from an adze, as was common in post-European times, and may well have been made and worn initially during the pre-European period as has been suggested by Simmons (ibid.).

The other nephrite neck ornament is small and asymmetrical in shape (Fig. 7b). While the left side is straight and smooth, the remainder of the perimeter is curved and rather unevenly serrated. Its style has some affinities with both the bird and the fish forms of neck ornaments described by Skinner (1974: 63, 72). It has a broken perforation which was made with a stone-tipped drill.

In addition to these two ornaments one of the small chisels discussed above has a broken perforation suggesting that it was once suspended from either the neck or the ear. Another of the nephrite chisels has a partially drilled hole.

A piece of soapstone (talc) probably from the Routeburn area (Beck pers. comm.) which has been squared at one end and rounded at the other (Fig. 7c) may also have been used as an ornament. It is rectangular in cross section and has been perforated slightly off-centre. Similarly shaped and perforated soapstone artefacts, some of which have serrated edges, have been found at Purakanui (Otago Museum D24.847) and Murdering Beach (Otago Museum D49.410) in Otago and Waikuku in Canterbury (Southland Museum D46.1900). Skinner (1974: 97) suggested tentatively that they may have functioned as toggles, although the size of the perforation would seem to make this unlikely.

#### OTHER STONE ARTEFACTS

The four remaining stone artefacts are all from the Chapman collection. The *toki poutangata* (Chapman 1891) (Fig. 8a) is made from Slip Stream nephrite (Beck pers. comm.) and is 194 mm x 38 mm x 20 mm in size. It has a single biconical "hourglass" perforation which is typical of those made by stone drill points. Reshaping and grinding of the poll and a deep chip have almost completely obscured another, older, broken perforation above the present one. Traces of polishing and bruising on corresponding edges of the front and back of the perforation are thought to be the result of cord abrasion. *Toki poutangata* are seldom found in archaeological contexts and it is possible that this one was acquired for Chapman by personal gift rather than found eroding from a site.

Polished flat stone knives (often called "ulu"), however, have been found in many early South Island sites. The majority are made of slate; nephrite ones are not common. The

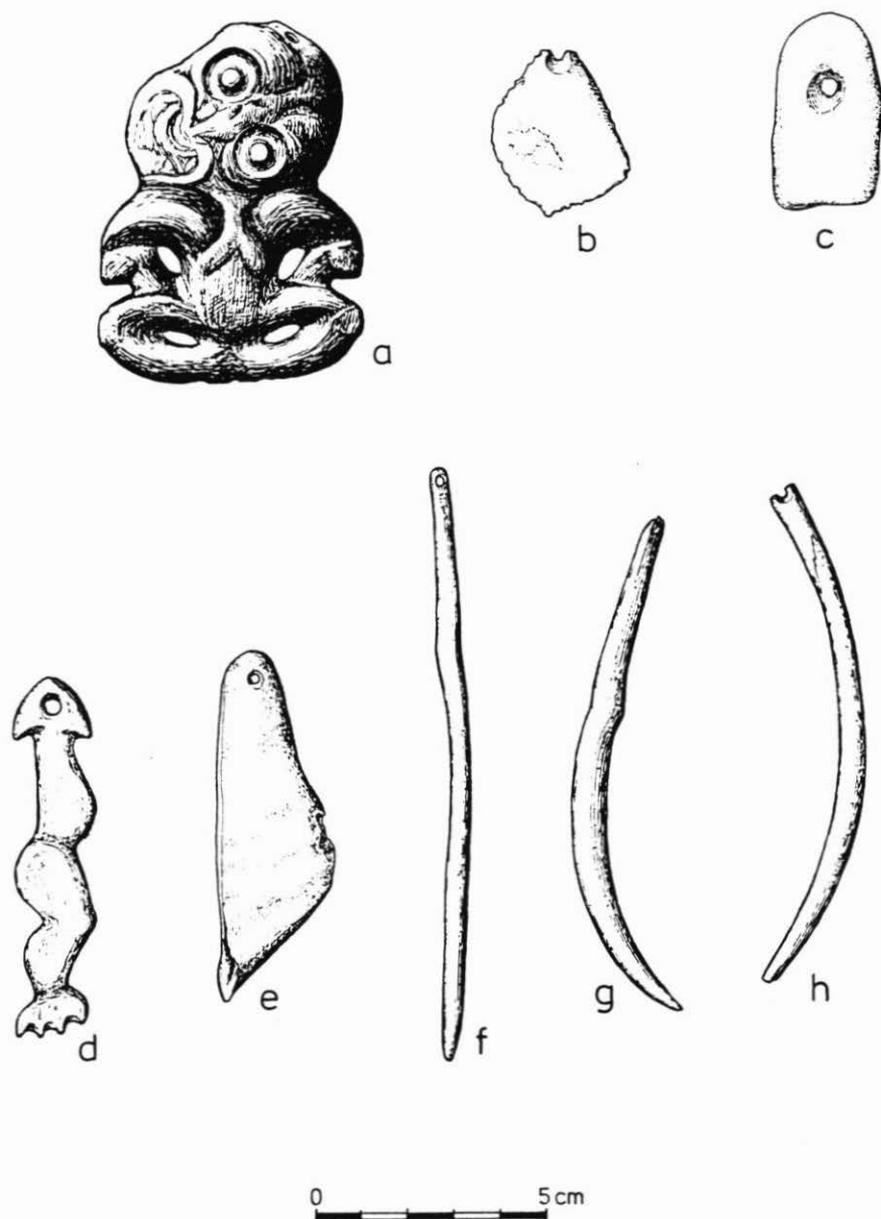


Figure 7: Ornaments. a. *hei tiki*, D40.48. b. nephrite, D21.508. c. serpentine, D23.189. d. bone, D23.128. e. bone, D23.187. f. bone, D23.133. g. bone, D22.700. h. bone, D22.698.

nephrite example from Rarotoka is rectilinear (Fig. 8b) in form and has been described by Skinner (1974: 116). The probable source of the nephrite is the Routeburn area.

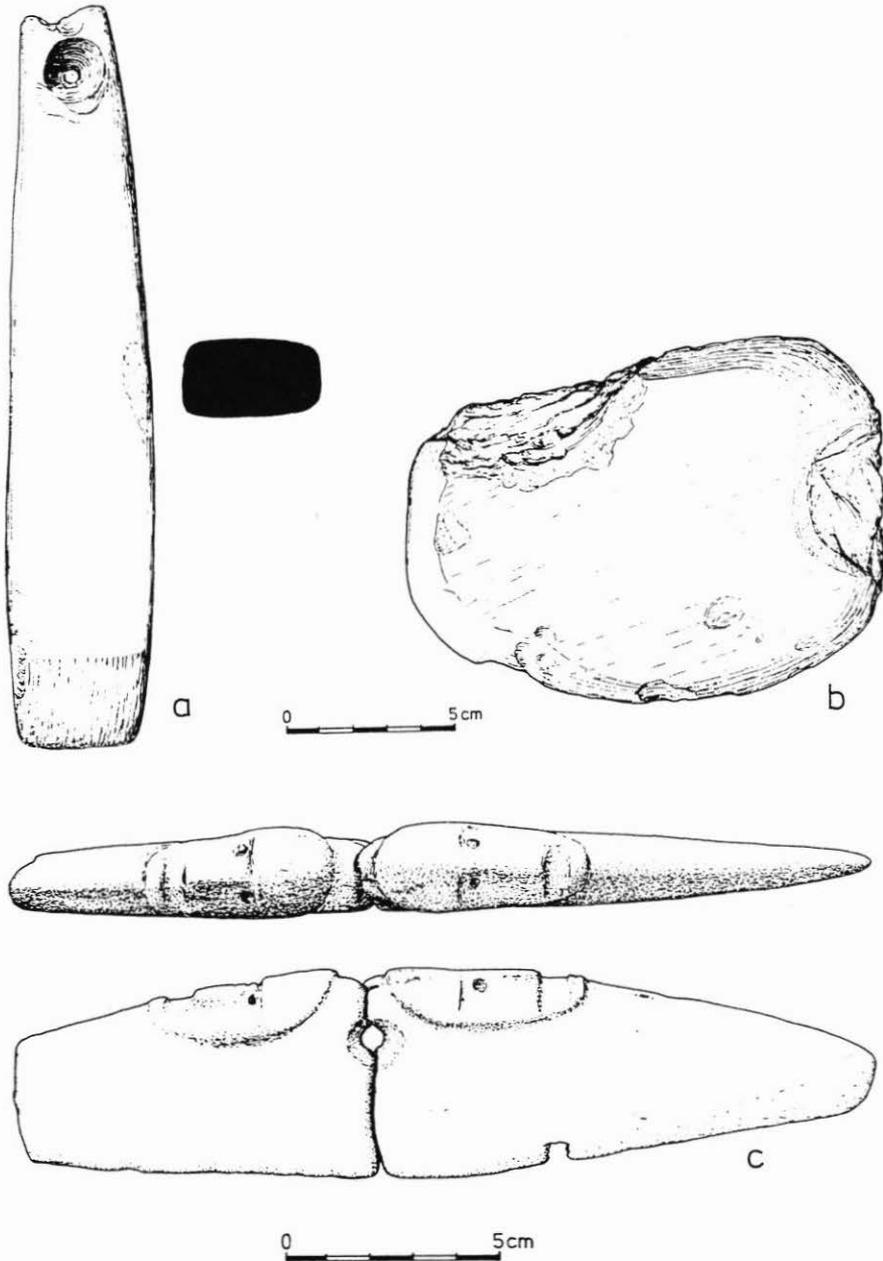


Figure 8: a. nephrite *toki*, D40.49. b. nephrite "ulu", D21.455. c. carved attrition saw, D21.844.

The *patu* fragment is the grip of what was probably a Skinner (1974: 151) type 1 *patu*. These are spatulate with straight sides and rather squared distal and butt ends. It has a biconical perforation and is made of grey metamorphosed sandstone.

The final stone artefact in the collection is a unique piece of carved sandstone (Fig. 8c). When it was first published, Hamilton (1896: 346) described it as a sandstone pendant of unknown use. More recently Simmons (1984: 17) suggested that it was an attrition saw of the type "that was used to cut moa bone." Although there is no evidence that moa bone was being worked on Rarotoka, the piece certainly appears to have been a functional attrition saw. The decoration and perforation, however, indicate that it was of particular significance and value to the person(s) who used it and that it was, on occasions, threaded with a cord and either worn as an amulet or hung in a special place.

The piece is symmetrical in shape, although one end has since broken off and is absent. It also has broken in half through the biconical perforation. The lower edge is 185 mm in length and has been shaped to an acute angle, similar to those found on other functional attrition saws. The upper edge is rounded and either side of the mid-point is decorated with a carved human face. These two faces, which are identical, are very stylised. The foreheads are rounded, the brow ridges straight and the eyes, noses and mouths accentuated. Their stylised form is reminiscent of the small wooden carving from Pyramid Cave, Otago Peninsula (Otago Museum D38.1245) whose similarity to some East Polynesian carvings has been considered by some scholars as an indication of an early date. In the *Te Maori* exhibition catalogue Simmon (ibid.) draws attention to the Oceanic affinities of the Rarotoka attrition saw and assigns it to the earliest phase of artistic expression in New Zealand (A.D. 900 – 1200).

## THE BONE ASSEMBLAGE

The bone assemblage is also characterised by a wide variety of ornaments and implements. Although fishing gear is the most numerous, there is no industrial bone or residue from the manufacture of fish hooks and lure points in the assemblage.

### FISH HOOKS

Altogether there are 118 fish hooks, lure points and composite bait hook points in the Chapman collection. These were sorted into various categories based on Hjarno's (1967) classification of southern New Zealand fish hooks (Table 3).

One piece fish hooks make up only 4 percent of the collection from Rarotoka. Of the five present, two belong to Hjarno's D1 type (U-shaped with incurved point) which is the most commonly occurring one-piece fish hook in southern New Zealand. One of these is complete (Fig. 9b) while the other, an unfinished example, has broken across the shank leg. Two other hooks may also belong to this category but in each case the point leg is missing. One is externally serrated and has a bait notch (Fig. 9a) while the other has a bait notch at the base of the shank leg. Only the shank end of the final hook is intact. The uniformity of the width and thickness of the shank leg and bend, together with their curvature, indicates that it was once part of a large circular type D2, hook.

Barracouta lure points make up 30 percent of the fish hook collection. Both plain (A1) and serrated (A2 and A3) forms are present (Figs 9c–g) in approximately equal numbers (Table 3). The only barracouta point in the Bollons collection is of the A1 type. The majority of perforated A3 forms were found to have been made from seal teeth (Table 3). Since

TABLE 3  
TYPES AND MATERIALS OF FISHHOOKS

FISH HOOK TYPE	Size Range (mm)	Total	A	B	C	D	E	F	G	H
<i>Barracouta lure points:</i>										
Hjarno type A1										
Plain	32-55	16	3	6	4	3				
Hjarno type A2										
Externally serrated	44-78	5	1	1		2			1	
Hjarno type A3										
Dog leg, knobbed, occas. serr.	45-62	7		1	2	4				
Perforated, knobbed, serrated	45-66	7		2						5
TOTAL		35	4	10	6	9			1	5
<i>Composite bait hook points:</i>										
Hjarno type C1a										
Plain, unbarbed	36	3	2						2	1
Hjarno type C5a										
Plain, unbarbed, incurved point	27-30	3	1	1	1					
Serrated, unbarbed, incurved pt.	24-41	4	2	2						
Hjarno type C3a										
Plain, external barb	23-59	29	3	6	8	3	2	7		
Hjarno type C3b										
Plain, internal barb	21-39	6	4		1				1	
Hjarno type C4										
Single barb, serrated	26-69	11		4	5			2		
Multibarbed, plain	27-33	3	2	1						
Multibarbed, serrated, "baroque"	46-72	7		3	1	3				
TOTAL		66	14	17	16	6	2	9	2	-
<i>One-piece bait hooks:</i>										
All types		5			5					
Unclassified fragments		11	2	4	4	1				

A = bone; B = mammal; C = sea mammal; D = seal; E = dog; F = bird; G = tooth; H = seal tooth.

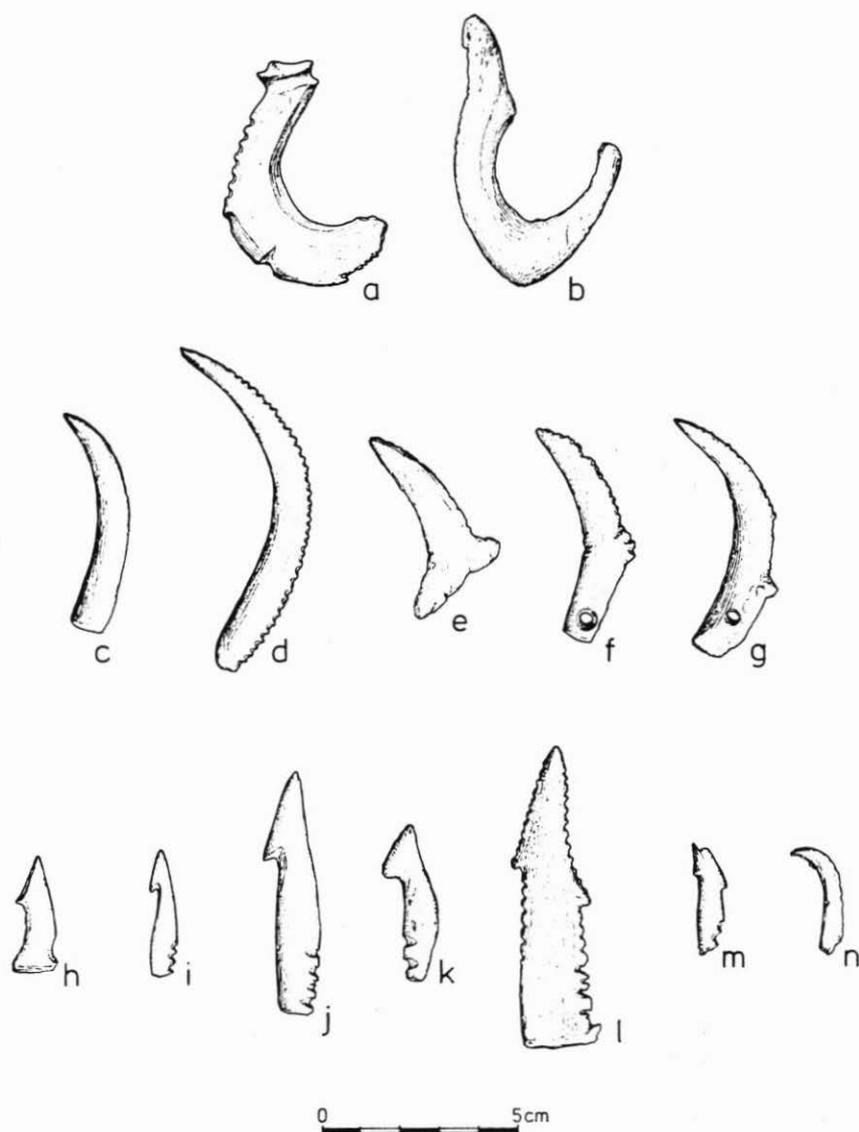


Figure 9: Fish hooks, fish hook points and lure points. a. D27.1401.9. b. D27.1404. c. D27.1398. d. D27.1390. e. D31.580. f. D27.1388. g. D27.1389. h. D31.540. i. D31.539. j. D31.518. k. D31.534. l. D31.515. m. D31.620. n. D27.1394.

Hjarno (1967: 18) has suggested that the increased use of this material may have been due to the influence of European sealers, a closer examination of the points, especially their perforations, was carried out in an attempt to detect the use of iron tools. Determining if an artefact has been made with stone or iron tools is often problematical, especially if that artefact has a smooth or polished surface. In this case, broken perforations, the presence

of the pulp cavities, and weathering, compounded the difficulties. Only three of the points are definitely thought to have been perforated with an iron drill (?nail).

The composite bait hook points also display considerable variation in design (Table 3). Single barbed points (Figs 9h-k) make up 53 percent of the assemblage with multibarbed and serrated styles (Figs 9l-m) also common (32 percent). All five composite bait hook points in the Bollons collection are externally barbed Hjarno C3a forms, as was the point recorded on the island. The remaining 15 percent of composite bait hook points (10 examples) are unbarbed. Some of them have strongly incurved tips (Fig. 9n) and several of these are externally serrated. Points of this type are seldom found outside the Foveaux Strait region (Hjarno 1967: 30) and appear to be a local development.

The type of bone (and ivory) used for each hook was determined, where possible. No thin sections were taken. The results (Darby pers. comm.) are presented in Table 3. In many cases it was not possible to specify, with any certainty, the type of bone. Much of that in the "mammal" category, however, is thought to be sea mammal, probably seal, rather than dog or human. Several hooks have been made from the rib bones of seals and two from the mandibles of juvenile seals (Darby pers. comm.). Only two pieces of dog bone were able to be positively identified and nine of the bird bone (McGovern-Wilson pers. comm.). Bird and dog bone were commonly used for making fish hooks and lure points in southern New Zealand, as indeed they were further north. The preference for sea mammal bone at Rarotoka is, therefore, surprising but may be related to the availability of bone.

#### SPEAR AND HARPOON POINTS

The Chapman collection contains five complete bird spear points, five broken ones and an unfinished one (Table 4). Two of the complete points are simple, plain types with widely spaced barbs and no basal grooves. The third (Fig. 10a) has more numerous and more closely spaced barbs and, although it does not have any basal grooves, it is externally serrated from a point opposite the basal barb. The final two complete points are unusual. One has an elongated tip (Fig. 10b) and nine closely spaced barbs, while the other has two rows of barbs. The latter spear point is triangular in cross section although the base is oval sectioned. It has bilateral notches and a groove around the base. Immediately above this, on each side, is a single, small, barb. The two rows of barbs are oriented at a 90 degree angle to these. The internal row has six barbs and the external one, two (Fig. 10c). Almost two thirds of the collection (Table 4) is crescentic in cross section. B. F. Leach (1979: 107) considers this style to be stronger and hence more suited to bird catching than the oval and flattened sectioned varieties.

The harpoon point from Rarotoka has been described by Skinner (1974: 139). It has a single barb and a single downward projecting foot (Fig. 10d). It is made of bone, possibly moa tibia (Darby pers. comm.).

#### PAUA PRISERS

These are bone spatulae which are thought to have been used as levers for removing paua from the rocks. With the exception of two examples provenanced to Otago (both of which are from the J. W. Murdoch collection which includes artefactual material from Southland), the distribution of over 45 paua prisers in the Southland and Otago Museums is restricted to the Foveaux Strait region, from Southport, Chalky Inlet in the west to Haldane in the east.

TABLE 4  
BIRD SPEAR POINTS

Registration Number	Material (bone)	Length (mm)	Number of barbs	Cross-section
D27.1383	Sea-mammal	58	2	Oval
D27.1386		70	3	Crescentic
D27.1380	Bird	55	5	Crescentic
D27.1285	Bird	85	9	Crescentic
D27.1382		Broken	3+	Crescentic
D27.1384		Broken	4+	Crescentic
D27.1377		Broken	3+	Oval
D27.1378		Broken	3+	Crescentic
D27.1379		Broken	2+	Crescentic
D27.1381	Sea-mammal	134	6,2	Triangular
D27.1371		64	unfinished	Oval

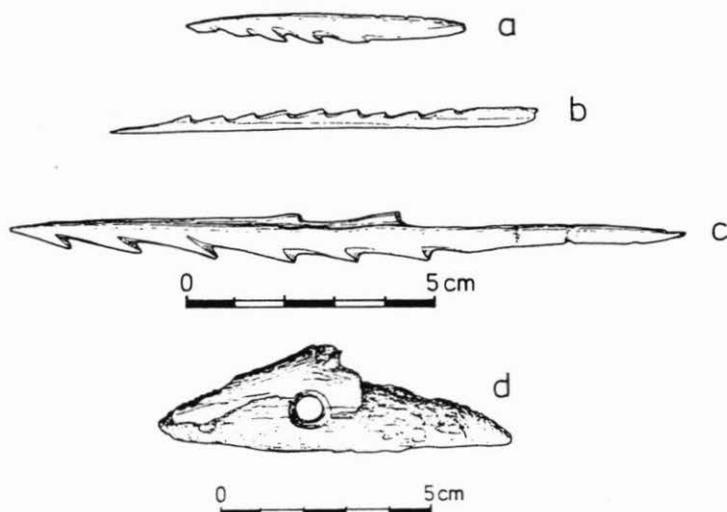


Figure 10: Spear Points. a-c. bird spear points. a. D27.1380. b. D27.1385. c. D27.1381. d. harpoon point, D27.1392.

There are four paua prisers in the Rarotoka assemblage. Three are made from whale bone and the fourth is thought to be seal rib bone. The functional edge on two of them is relatively straight and wide while the other two have slimmer, more pointed edges (Figs 11a-d). Only one is perforated, the hole having been made from chipping, both from the top and back surfaces, rather than by drilling. The perforation in the Riverton example (see discussion) has been made in the same manner. The holes in the three other perforated examples in the Southland Museum collection (of a total of 23 with intact ends) have been drilled. There are a further three perforated ones in the Otago Museum; two of them have been drilled and the final one chipped.

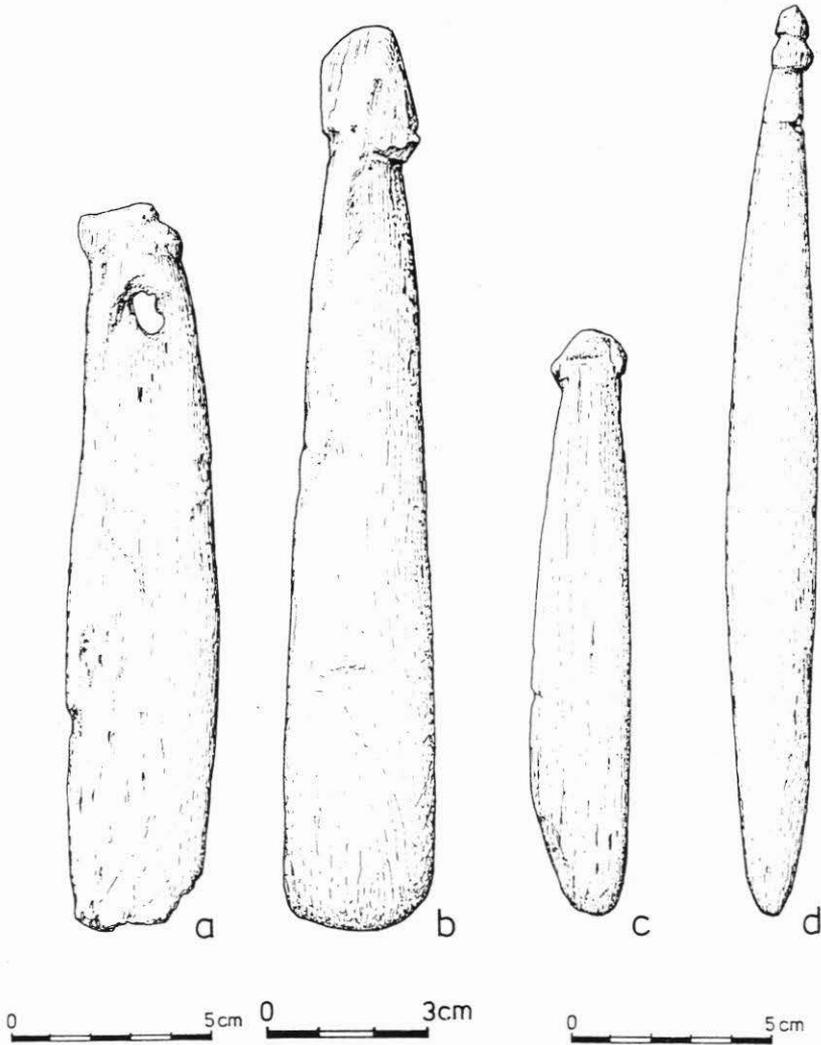


Figure 11: Paua prisers. a. D34.606. b. D34.605. c. D34.608. d. D21.1047.

#### PATU PARAOA

Hand clubs are rarely found in New Zealand archaeological sites and it may be that the whalebone patu in the Chapman collection was given to him as an ethnographic *taonga* rather than as an archaeological specimen. It is of typical form—spatulate in shape with straight sides and slight bilateral reduction at the shoulders. The distal end is rounded and the proximal end is knob-like and unperforated.

### BONE FLUTES

Three of the bone flutes (*koauau*) are made from albatross or mollymawk (*Diomedea* sp.) bone while the fourth is made from a smaller bird. The longest (235 mm) has a partially drilled suspension hole at the unridged end, but no stops. It is not necessarily unfinished, however, as *koauau* without stops are capable of producing a wide range of notes (McLean 1968). The only other completely intact *koauau* is 202 mm in length and has three stops but no suspension hole. A third large flute has at least three stops and is broken mid-section. The final one is much smaller, 132 mm. Only a small portion of the unridged end is intact; it has been decorated with small notches. None of the flutes are incised.

### BONE ORNAMENTS

There are a variety of bone ornaments in the Chapman collection. One of the best known is the bird headed man (Fig. 7d). Skinner (1974: 54) describes it as follows:

Leg, buttock and stomach immediately recognisable. Profile of face suggests bird head, and, moved by requirements of symmetry, this has been duplicated rearwards.

Another unusual pendant is a bird form made from the scapula of a fur seal (Darby pers. comm.) (Fig. 7c). There are two bone "kinked" pendants (Figs 7f, g) and two curved ones (Fig. 7h) which may be cloak pins. Another pendant or pin has been shaped to a point at one end and is bilaterally indented at the other (chipped) end. Its sides are decorated with an incised chevron and cross pattern. A further bone pendant is an oblong, circular cross-sectioned piece of subfossil sea mammal bone which has a broken perforation at one end. There are also two drilled human teeth (one a molar, the other a premolar) which are either necklace units or ear pendants.

### NEEDLES, AWLS AND OTHER BONE ARTEFACTS

The collection contains three bone awls, two of which have been shaped from the femur and the other from the ulna of the fur seal (*Arctocephalus forsteri*) (Darby pers. comm.). One has notching on one side of the bevel and the apex. There is a further stout point made from sea mammal bone and four pickers or threaders of unknown use. Nine slivers of bird bone have been sharpened at one end and may have functioned as needles. Of the four perforated needles, three have drilled eyes and the other is sawn. Another piece of pointed bone, which is broken at one end, may be a robust needle or a tooth of a comb.

### MOA EGG SHELL

Also given to the museum were a large number of pieces of moa egg shell, several of which had been fitted together by Chapman prior to their donation (Chapman correspondence 1921). Chapman believed the eggs had been taken to the island for food (Anon. 1889: 171). They may also have been used as water containers.

### DISCUSSION

The diversity of the Rarotoka assemblage indicates an occupation which lasted several centuries. Artefacts such as the quadrangular, gripped (Figs 3a-d) and hog backed (Fig. 4a) adzes and the ulu are more likely to have been used during the Archaic period and one piece fish hooks, too, are more commonly associated with early deposits. Harpoon points were a part of the earliest hunting kit, although recently Davidson (1984: 72) has suggested that they may have continued in use until as late as the eighteenth century. Paua prisers

also remain an enigma. Very few have been recovered from stratigraphically controlled excavations. One was found in a test pit in area C of the Riverton adze manufacturing site, S176/1. It was located at the interface of the second turf zone and the cultural layer (L.4) although its precise position within area C is not known (Leach and Leach 1980). The cultural deposits are thought to have been built up over a long period of time and the dates of  $1730 \pm 40$  and  $1500 \pm 54$  A.D. obtained for layer 4 are considered acceptable (*ibid.*). Two complete paua prisers and two fragments were found during excavations at Southport, Chalky Inlet by Coutts (1969, 1982, Fig. 9.12). At least one of these, that from the Southport 1 site, was associated with post-contact material.

Bone barracouta points were used throughout southern settlement from the Archaic to the early 1800s (Hjarno 1967). The more elaborate and dog-legged varieties (Figs 9d-9) became more popular during the later period (*ibid.*). Likewise, multibarbed and serrated composite bait hook points (Figs 9l-m) were preferred in late pre-European times. These more recent styles are well represented in the Rarotoka assemblage. The ornaments and the nephrite and bowenite tools are more likely to be from the late pre-European and early historic occupations as well. The *hei tiki*, at least, was manufactured with stone tools and modified with iron ones. Bird spear points, also, do not seem to have been used in any great numbers until the late period in southern New Zealand (Simmons 1967: 47, Leach and Hamel 1981).

A range of activities, from wood working and carving to basic subsistence tasks are indicated by the wide variety of artefacts. Of all the non-nephrite adzes only those made of metamorphosed argillite from Riverton have sufficient uniformity to suggest that they may be contemporary and could possibly have been made within the same adze-making tradition. The Riverton adze manufacturing site, which appears to have been occupied repeatedly from the 13th century until the 18th (Leach and Leach 1980), is the nearest source of stone as well as being the closest point on the mainland. Whether these Riverton meta-argillite adzes were brought to the island as cores, preforms or the finished product is not known.

There is little evidence in the form of hammerstones, flakes and grinding stones to show whether adzes were actually being made on the island. There is also an absence of files, drill points and industrial bone to indicate bait hook and lure point manufacture. The lack of such artefacts, however, could be the result of deliberate omission on the part of the collector. These types of artefacts were rarely considered of sufficient merit to include in collections and whilst Chapman, himself, collected the "rough" pieces left behind by other fossickers (Skinner 1938), he did not personally collect the Rarotoka assemblage.

The diversity in both the form and stone type of all adzes apart from those made of nephrite and Riverton meta-argillite, however, suggests that they may have been taken to the island already completed. The quantity of cut and unfinished nephrite pieces shows that it was being worked *in situ* and the presence of an unfinished bird spear point indicates that some bone working was being carried out.

#### TRADITIONAL AND POST-EUROPEAN HISTORY

Traditionally, Rarotoka is important as a settlement, a stronghold and a burial ground. Beattie (1954) records that the island was "chiefly resorted to for fishing" and that it acted as a rallying place for the Katimamoe prior to their skirmish with the Ngaitahu at Rakituma (Preservation Inlet) in the 1780s:

The preconcerted signal was given and in the midst of bustle for war and incantation for victory the all-important announcement reached the island. The whakairiki or war-cry was immediately sounded, and resounded from every part of this otherwise lonely island. A momentary silence ensued during which each man stood aside to repeat his own kitao or incantation on the weapon with which he was about to fight. These exercises concluded, the war-flotilla got underway. Women, children and the few others remaining behind, assembled on the promontory, now occupied by the lighthouse. . . (Carrick in Beattie 1954: 77).

Carrick's informant was Horomona Patu (Paatu), the son of the Katimamoe chief, Patu, who was one of the principal owners of Rarotoka (Wilson 1976: 30) and who took part in the fighting referred to. W. H. S. Roberts' comment (also quoted in Beattie 1954: 30) that there was once a pa on the island and that it was considered a "safe fortress" probably refers to this time of unease between the Katimamoe and Ngaitahu. Hjarno (1967: 11) and Bathgate (1969: 200) also refer to a fortified site on the island. No ditches or banks, terraces or other earthworks can be seen today.

When John Boulton visited the island in 1827 it was occupied. He noted (Begg and Begg 1979: 183) that it had been settled some years previously and that the population was increasing (*ibid.*: Appendix A). The resettlement of the island must have occurred some time after 1823, as during this year Captain John Kent of the cutter *Mermaid* spent many months in Foveaux Strait visiting Maori *kaika* arranging for the purchase of stripped flax. Although he records passing Rarotoka on several occasions (Kent n.d.) he did not call in, presumably because the island was unoccupied. Boulton mentions (Begg and Begg 1979: 183) that the soil was good, an indirect reference, perhaps, to gardens on the island. The earliest record of gardening—wheat, potatoes, pigs and chickens—is in 1840 (Howard 1940: 87).

After the establishment of onshore whaling stations at Bluff and Aparima (Jacob's River, now known as Riverton) in 1835 there was a movement of people from Rarotoka to these centres (Beattie 1954: 30). The island was not, however, deserted. Shortland (1851: 264) noted during his visit in 1843 that the two main centres of occupation in the region were on Ruapuke and Rarotoka islands. Unfortunately he did not visit Rarotoka and no population figures are given.

During the late 1830s Patu was residing on the island with his family. In 1836 a marriage between his daughter Kohikohi (sister of Horomona Patu, Carrick's informant) and Captain John Howell, the whaler who established the Aparima station, took place. Close ties between the Maori settlement on Rarotoka and the whaling station at Aparima were maintained (Wilson 1976: 16). Two years after the birth of their daughter Teriana (Sarah Anne) in 1840, Kohikohi died. Sarah Anne remained in Riverton and in 1857 she married William Cameron, a runholder (*ibid.* 35). Cameron was born in Scotland and arrived in Port Chalmers in 1855. After several rather unsuccessful attempts at runholding in Southland (Beattie 1979: 172, 227, 311) he, Sarah Anne and their family went to live on Rarotoka where he ran sheep. The date that they took up permanent residence is thought to be the mid 1870s. They had certainly established themselves on the island before this, however, probably as early as 1863 (*Western Star* Sept. 1, 1877). There is no record of any other groups living on the island at this time. Beattie notes that it was still being visited, on occasions, by members of Patu's family in the 1860s:

Chas Port told me he had been on Centre Island a good few times, his first trip there being with Wm Thomas and Paitu and Patu in 1864. There were no Maoris on it but in a small bay called The Landing the remains of Maori canoes were lying about, and there were the remains of whares on a gravelly beach. (Beattie 1954: 31).

In 1874 the Government started building a lighthouse on the island and a dispute arose between the traditional Katimamoe owners and the Government over legal ownership and compensation (Ross 1975: 76, Beattie 1954: 29–31). The Government was insistent that Rarotoka had been included in the original Murihiku purchase of 1853. The Katimamoe believed otherwise. Their position was expressed strongly in a letter written by Horomona Patu to his niece Sarah Anne Howell Cameron in 1877 which was published in the *Western Star*:

Aparima 17th August 1877  
Mrs Sarah Anne Cameron

... Your letter came to hand, the object of your letter stating a warning you got from the Pakeha to remove from the island, the Government having bought it. . . You must know, that island was never sold by me or Teau [the other principal owner]. The island was Tapu or burying ground of your Tipuna. Your great tipuna lay there. . . We your uncles and fathers never knew, never heard of that sale—no word, no writing, no reading, or publication of Teau and Mr Mantell at the conclusion of the Murihiku sale. . . It can never be a legal sale, sold unknown to the right owner without any papers, words or public notice. . .

Your uncle  
Na Horomona Patu  
Representative of Kati Ma Moe Tribe

As work on the lighthouse neared completion, Te Au's brother and son went to live on the island and occupied some of the buildings (*Western Star*, August 31, 1878). They were persuaded to leave by Patuki Topi of Ruapuke and several policemen after an assurance had been given that the claim of "Te Au son of the original grantee will be enquired into shortly by the Government" (*Western Star* Sept. 7th, 1878). After initially ordering Cameron, his family and stock off the island, a compromise was reached and the Marine Department employed William Cameron as a second assistant lighthouse keeper (Ross 1975: 76). That Cameron was given the job and allowed to remain on the island was due to Judge F. R. Chapman's intervention on Cameron's behalf:

... as you were kind enough to offer, in case of need, to put in a good word at Head quarters, for my getting something to do in the Lt House now about to be finished on this island. . . that it will be well for me to try what might be done through the influence of a friend, and I don't doubt, but a word from yourself to Sir George Grey who I believe is minister of Customs would have the desired effect, should you be please to do so. . . (Cameron to Chapman May 2, 1878).

Chapman had visited the island six weeks previously. The landing platform for ships was located on the northern side of the island, where middens are at present eroding from the sand dunes. It is not known if Chapman found any artefacts during his visit, but he certainly extracted a promise from Cameron that he would collect and send on any that he saw:

I have not forgot my promise of collecting any Maori things that may come across my way. I am keeping the [?fossick] in view (ibid.).

This he did on at least one occasion. In June 1883 a box of "curios, odds and ends" was sent to Chapman in Dunedin from Rarotoka. Cameron commented in a following letter that "we shall have an eye to anything we may pick up. The beach is fast being blown away. . ." (Cameron to Chapman July 1883).

Cameron remained on Rarotoka for another ten years until he was retired from his position as assistant lighthouse keeper (Ross 1975: 76). The family then moved back to Riverton.

## CONCLUSIONS

Most of the artefactual material from Rarotoka belongs to the late pre-European and post-contact period of southern settlement, although there are some earlier artefacts in the assemblage. Simmons (1973) suggested that the majority of the material is late because of the attraction that greenstone had for fossickers. Cameron, however, was not a fossicker as such. All the available evidence points to his merely gathering up material which was eroding from the sand dunes. Whilst this undoubtedly led to biases in the sample of material from the island, it is likely that the proportion of Archaic to late materials reflects the importance of the island in the relevant periods. Its strategic position in Foveaux Strait, close to the mainland and between Colac and Te Waewae Bays and the muttonbird islands, as well as the abundance of marine fauna must have made it an attractive place for settlement through the entire period of southern occupation. It was not until the late period, however, during the time of inter-tribal troubles and later, after the arrival of sealers and whalers, that its full potential as a place for settlement was realised.

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