

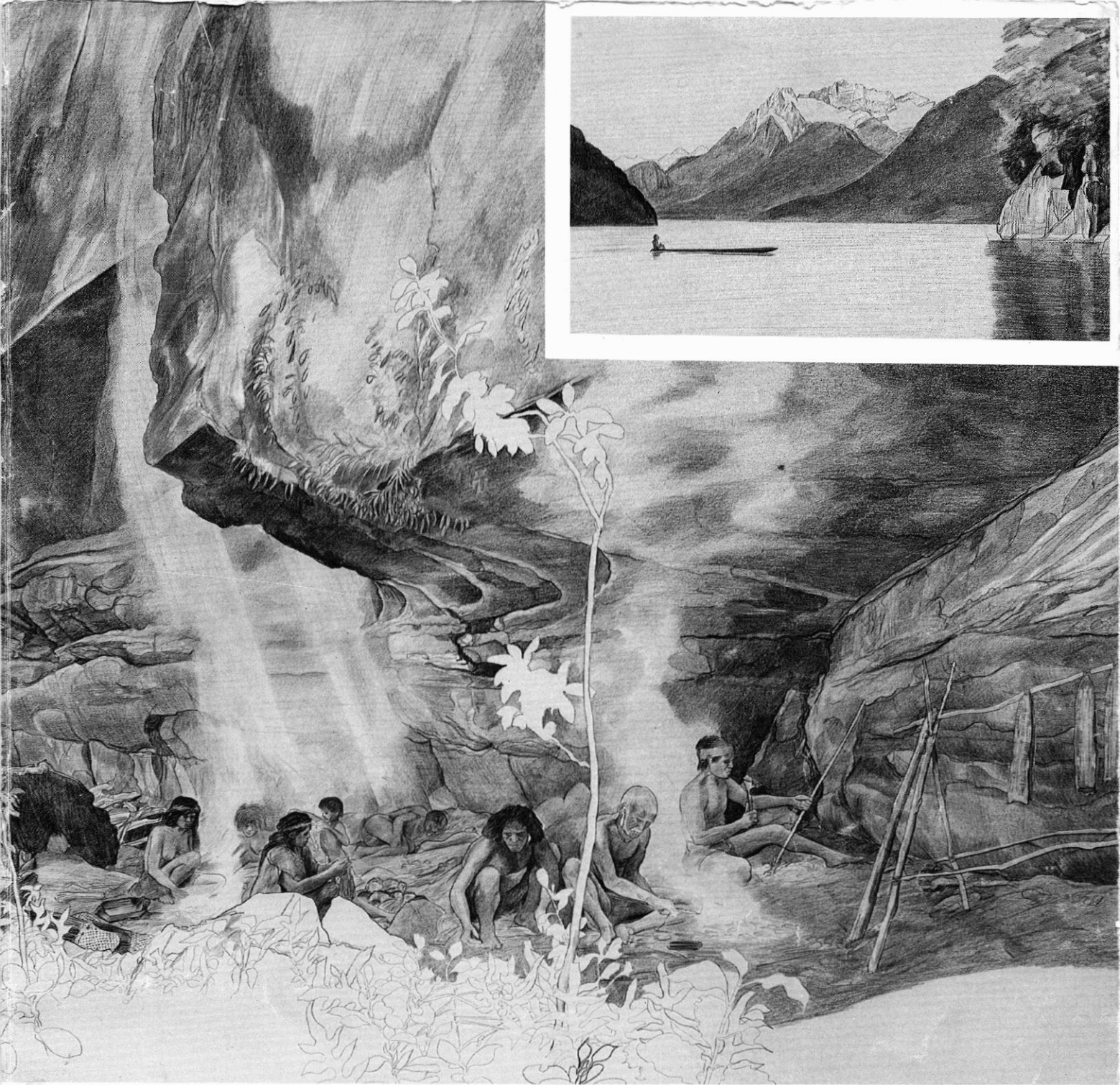


**NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION MONOGRAPH 18:
Atholl Anderson and Richard McGovern-Wilson (eds), *Beech Forest
Hunters***



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Beech Forest Hunters

Edited by
Atholl Anderson and Richard McGovern-Wilson

New Zealand Archaeological Association Monograph 18

BARK AND FIBRE ARTEFACTS

Atholl Anderson, Jean Goulding and Moira White

A large quantity of bark and fibrous material was collected from the sites. This included partial but well formed artefacts and materials (mostly grasses) which were apparently unmodified after collection. Worked material was often fragmentary and most artefacts appear to be incomplete, having frayed or decayed ends. The knotted portions may have survived better because of their density. Only two or three pieces were complete and recognisable as particular artefacts.

BARK

Strips of bark occurred commonly in the Lee Island sites. Totara bark (probably *Podocarpus hallii* in this case) had, traditionally, a variety of uses including cladding for shelters, the fashioning of baskets known as patua, rudimentary rain capes, and the outer covering of delicate containers such as kelp poha. It was also used as tinder for fires (Best 1942:126-132; Beattie n.d.).

Table 5.1. Bark pieces and fragments.

Note: * = collected in 1979 from surface in fossicked areas.

Provenance	Material	Comments
S131/3		
B2 Surface	<i>Cordyline</i> sp.	260 x 50 mm
B2 Surface	<i>Podocarpus</i> cf. <i>hallii</i>	350 x 40 mm, folded twice and frayed
B4 L.2	Unidentified	3 pieces, 80 mm
B4 L.1	<i>Podocarpus</i> cf. <i>hallii</i>	fragments
C1 L.2	" "	5 pieces, heavily frayed, twice folded
C1 L.1	" "	260 x 10 mm, several folds, heavily frayed
C2 L.2	" "	fragments
C2 L.2	" "	fragments, one chopped
C2 Surface	" "	fragments
C3 L.2	" "	fragments
C3 L.2	" "	fragments
C3 L.2	" "	2 pieces, 500 x 65 mm, tack marks, cut ends
C4 L.2	" "	fragments
D3 Surface	" "	2 pieces, 100 mm
S131/4		
A2 L.2	<i>Podocarpus</i> cf. <i>hallii</i>	fragments
A9 L.1	" "	1 piece, 140 mm
A9 L.1	" "	fragments
A9 L.2	" "	fragments, one heavily frayed
A9 L.2	" "	fragments
A10 L.1	" "	1 piece, 210 x 10 mm
A11 L.1	Unidentified	fragments, some chopped ends
B3 L.1	" "	4 pieces, one folded with tack marks
B3 Surface	<i>Podocarpus</i> cf. <i>hallii</i>	2 pieces, frayed
B4 Surface	Unidentified	fragments
B5 Surface	" "	fragments, some burnt
B5 L.2	<i>Podocarpus</i> cf. <i>hallii</i>	fragments, burnt and frayed
B6 Surface	" "	fragments
B7 L.1	Unidentified	fragments
B7 L.1	" "	2 pieces, 40 mm, 30 mm
B7 Surface	<i>Podocarpus</i> cf. <i>hallii</i>	fragments
B8 L.1	" "	1 piece, 80 mm
C2 Surface	Unidentified	1 piece, 30 mm
C2 Surface	" "	1 piece, 25 mm
C2 Surface	<i>Podocarpus</i> cf. <i>hallii</i>	fragments
C3 L.1	Unidentified	1 piece, 40 mm
C3 Surface	" "	1 piece, 40 mm
C3 L.1	<i>Podocarpus</i> cf. <i>hallii</i>	1 piece, 130 mm
C3 L.1	" "	1 piece, 120 mm, frayed ends
C4 L.1	Unidentified	2 pieces, 80 mm, 50 mm
C4 L.1	<i>Podocarpus</i> cf. <i>hallii</i>	1 piece, 300 x 50 mm, one fold
C5 L.1	Unidentified	1 piece, 80 mm
C5 L.1	" "	1 piece, 40 mm
C5 Surface	<i>Podocarpus</i> cf. <i>hallii</i>	1 piece, 150 x 30 mm
C5 L.1	" "	fragments, burnt
C6 Surface	Unidentified	fragments, burnt
C6 L.1	<i>Podocarpus</i> cf. <i>hallii</i>	fragments
C6 Surface	" "	1 piece, 220 x 50 mm, frayed at fold
D4 L.1	" "	fragments
D5 L.1	Unidentified	fragments, some burnt
*Disturbed	<i>Podocarpus</i> cf. <i>hallii</i>	2 pieces, 600 x 70 mm, folded and frayed
*	<i>Elaeocarpus hookerianus</i>	1 piece, 350 x 55 mm, one end chopped
*	<i>Podocarpus</i> cf. <i>hallii</i>	1 piece, 350 x 65 mm, frayed ends
*	" "	2 pieces, 365 x 40 mm, neatly chopped ends, one fold
*	" "	1 piece, 330 x 120 mm, burnt one side, neatly chopped ends
*	" "	1 piece, 160 x 70 mm, burnt one side, tack marks, folded and frayed
S131/6		
B3 L.2	<i>Podocarpus</i> cf. <i>hallii</i>	1 piece, 350 x 65 mm
B5 L.2	Unidentified	1 piece, 190 x 10 mm
C4 L.2	" "	fragments
C5 L.2	" "	fragments
D2 L.2	<i>Podocarpus</i> cf. <i>hallii</i>	fragments
D2 L.2	" "	fragments, burnt
D2 Surface	Unidentified	1 piece, 160 x 10 mm, 2 rows of tack marks
E2 L.2	" "	1 piece, 120 mm, burnt, chopmarks

In Table 5.1 is a list of the material recovered in 1979 and during our investigations. The identifications are by Professor A.F. Mark (Botany Department, University of Otago) and Dr P. Johnston (Botany Division, D.S.I.R.). Cave (1979:13) also records one fragment of kamahi (*Weinmannia racemosa*) bark, but this was not re-located. The distinction between pieces and fragments in Table 5.1 is between bark which appeared to exhibit some evidence of deliberate use, such as shaping, and the remainder (fragments) which did not.

The evidence of cultural modification is various. Many pieces have frayed edges, usually the ends, and often a fold. In a few cases the fold is marked by tacking impressions of the kind used to mark the folds in the bark basket (below). Some pieces also bear chop marks, and in several cases these have resulted in neatly chopped ends. All that can be deduced about the implement used is that it was sharp and straight-edged. An adze seems most likely.

None of the pieces can be identified as parts of any specific artefact. However, there are seven large pieces of totara bark, five of them in S131/4, which have been cut to approximately the same length, 300 to 370 mm. They are probably too short, and certainly too narrow to have been used in making a single-piece container, cape or shelter and they are, perhaps, strips of cladding from a small poha.

Where the bark can be identified it is mostly from totara. This clearly reflects deliberate selection, given the scarcity of totara relative to other trees around Te Anau. It can be assumed, therefore, that the collection of this bark was for some artefactual uses, and was not merely the by-product of firewood accumulation or for some casual use such as bedding. However, the numerous small fragments of totara bark which had been ripped and shredded, and sometimes charred, indicates that the scraps were used as tinder.

The bark basket

On the surface of S131/5 lay a totara bark basket, upside down, and with cut strips of totara

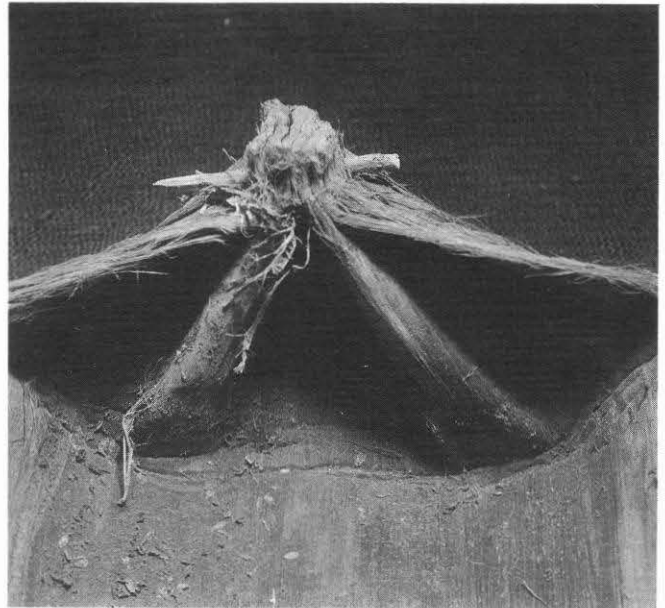
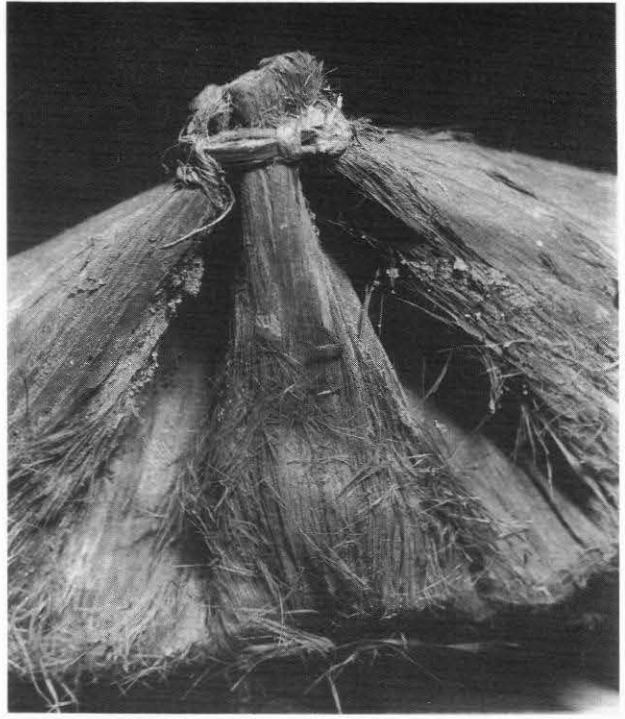


Figure 5.2. Each end of the bark basket from S131/5.

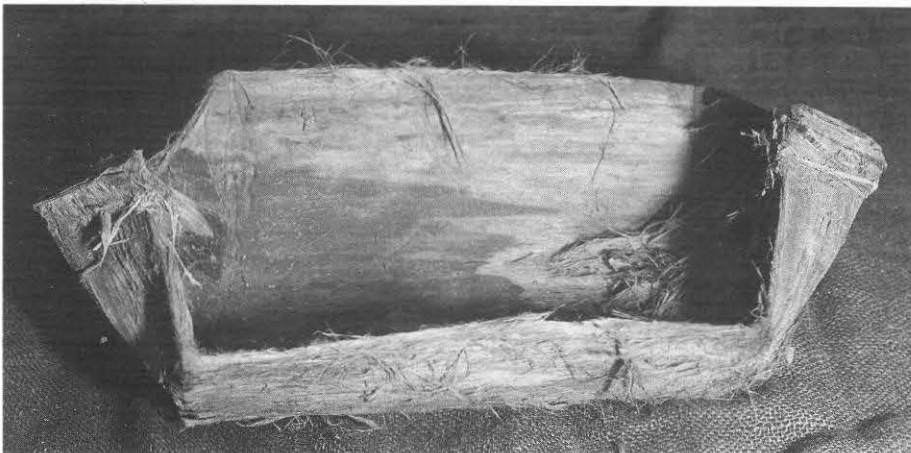


Figure 5.1. Totara bark basket recovered from S131/5 (Z.2885).

bark protruding from the soil nearby. The basket (Fig. 5.1), is 545 mm long by 300 mm wide. It has an inside length of 400 mm and averages 135 mm deep. It is made from a single rectangular piece of totara bark which, laid flat, would measure 650 x 350 mm. One of the associated strips of bark measured 380 x 64 mm and was possibly part of a lid for the basket.

The bark had been folded to a point at each end, and the fold lines tacked by a straight-bladed implement with a blade width of 30 mm. The apex of each fold is bound by unplaited flax

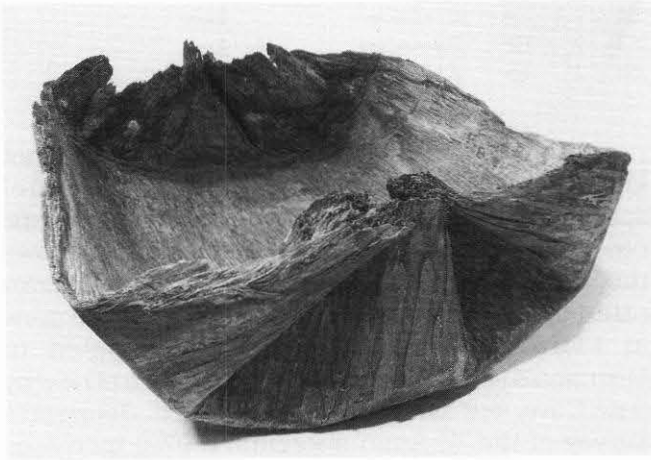


Figure 5.3. Totara bark basket recovered from Lake Te Anau site S140/6 (Z.3728).

threaded through the bark, and one end has also been secured by a sharpened manuka twig (description after Cave 1979:7-8), as seen in Figure 5.2.

Bark baskets are known from ethnographic descriptions of Fiordland, such as the reference by Menzies in 1791 to "...two rude baskets formed of the bark of a Tree...", lying near a Maori hut in Dusky Sound (McNab 1907:306). Other examples of a form identical to that at Lee Island have been located archaeologically. One, which measured 230 x 70 mm, was associated with the Mary Island burial at Lake Hauroko. It had partly split, spilling its contents of human faeces (Simmons 1968:3,25). Another totara bark basket (Fig. 5.3), 295 mm long, 210 mm wide and 90 mm deep, was found upturned and in association with strips of chopped totara bark, in a rockshelter (S140/6) on an island in Middle Fiord, Te Anau (Williams 1982:5).

Associated with it were totara bark strips, the largest of which measured 870 x 72 mm, and a rectangular piece of bark, probably matai (*Podocarpus spicatus*) measuring 733 x 476 mm and bearing four rows of small holes. A cranium and two sterna of Cape pigeon (*Daption capensis*) found nearby suggest that some or all of the bark pieces had been parts of containers for preserved birds brought in from the coast (Williams 1982:4).

Bark baskets, and wooden bowls with pouring spouts which are also mainly found in rockshelters in the southern interior (Anderson 1983; Williams 1982:4), were part of the traditional paraphernalia of cooking, preserving in fat, and transporting birds, although there were other uses for these artefacts, some quite unexpected as in the Mary Island case.

Brunner (1849:81), at Parika, south Westland, in November 1847, observed the use of a shallow totara bark basket in bird processing:

"The natives preserve the birds they catch during the winter months, when the birds are in excellent condition, in a rimu or sea-weed bag. The bird is

opened down the back, and all the bones are taken out; the flesh is then laid in a shallow platter made of the bark of the totara tree, called a patua, when they cook the bird by applying red hot stones. They then place the cooked birds in the rimu bag, and pour over them the fat extracted while cooking, tying tightly the mouth of the bag. I have eaten of birds kept two years in this manner, and found them very good."

The Lee Island basket has an oily stain at one end which might indicate such a use, but it proved impossible to clearly identify the substance involved (Cave 1979:7). The shallowness of the basket, however, suggests that it was more likely used for cooking than storage; known storage patua, such as those made in the Wanganui district, were much deeper and had a different shape (Downes 1928). In any event, the association of the Lee Island basket with sites rich in bird remains strongly suggests that it was involved in their processing in one or other of these ways.

FIBRE

Monocotyledon leaves were present as both processed fibre and as unprocessed blades, most falling into the latter category. For most of the *Phormium* specimens the blade had been cut and split lengthwise and the midrib removed. In some cases the cuticle is missing - often on one side only. This may be the result of scraping or may represent differential decay. Some occurs as slightly scraped leaf, some as heavily scraped fibres and in one case only (Catalogue number 48, Tables 5.2-3) as beaten and softened fibre.

While fibre was recovered from all three excavated sites, there was a differential distribution both in terms of the amount of material present and the species represented. In the worked material, *Phormium* and *Cordyline* were the predominant species in all three sites, with only minor occurrences of the other species. But in the collection of unworked fibres *Pteridium* and *Cortaderia* comprised approximately half of the recovered fragments with a wider range of species making up the remainder. Worked fibres were distributed in more or less equal quantities between the three sites, but S131/4 contained approximately twice as many fragments of unworked fibres as S131/3 which in turn contained three times as much material as S131/6.

Identifications of the fibrous and leaf material (Tables 5.2-5) were made by Jean Goulding (Auckland Institute and Museum). This process was hampered by consolidant being applied to much of the material before it was sent to her. The following genera were distinguished: *Phormium*, *Cordyline*, *Cortaderia*, *Astelia*, *Chionochoa*, *Aciphylla* and *Poa*, plus the species *Freycinetia banksii*. Samples of sedges (Cyperaceae) were identified to family level only.

Table 5.2. Catalogue of identified worked fibre and leaf artefacts (provenance and identifications).

Note: the material from the disturbed area in S131/4 was collected in 1979; catalogue numbers correspond to those in Table 5.3; - indicates details are missing.

Cat.	Layer	Sq.	Material species	Comments
S131/3				
2	1	B2	<i>Phormium</i>	knot
3	1	C5	<i>Cordyline</i>	knot
4	1	C5	<i>Phormium</i>	strand
5	2	C1	<i>Phormium</i>	knot
6	2	C2	<i>Phormium</i>	knots
7	2	C3	<i>Phormium</i>	cord and knot
8	2	C3	<i>Cordyline</i>	knot
9	2	C3	<i>Phormium</i>	2 knots
10	2	C3	<i>Phormium</i>	knot
11	2	C3	<i>Phormium</i>	knots
12	2	C3	<i>Cordyline</i>	knot
13	2	C3	<i>Phormium</i>	knot
14	2	C3	<i>Phormium</i>	knots
15	2	C3	<i>Phormium</i>	knot and loop
16	2	C3	<i>Phormium</i>	knot
17	2	C3	<i>Phormium</i>	knot
18	2	C3	<i>Phormium</i>	knot
19	2	C3	<i>Phormium</i>	plaited length
20	2	C3	<i>Phormium</i>	knot
21	2	C3	<i>Astelia?</i> / <i>Cordyline?</i>	knot in rope
22	2	-	<i>Freycinetia banksii</i>	twisted fibre
S131/4				
1	-	-	<i>Phormium?</i>	knot (feathers)
23	Sf	B3	<i>Phormium</i>	knot
24	Sf	B8	<i>Cordyline?</i>	plaited plus leaves
25	Sf	C7	<i>Phormium</i>	knot
26	1	-A9	<i>Phormium</i>	knot
27	1	-A9	<i>Phormium</i>	knot
28	1	-A10	<i>Phormium</i>	twisted fibre (cloak fragments inside box)
29	1	-A10	<i>Phormium</i>	cordage and skin
30	1	-A10	<i>Astelia?</i>	fibre loop with knot
31	1	-A12	<i>Cordyline</i>	knot
32	1	-A12	<i>Cordyline</i>	knot
33	1	A4	<i>Phormium</i>	fabric (skin and fibre) (dressed fibre) - see Figure 5.5
34	1	B3	<i>Phormium</i>	very small piece
35	1	C4	<i>Phormium</i>	knot
36	1	C4	<i>Phormium?</i>	2 knots
37	1	C4	<i>Phormium</i>	broken knot?
38	1	C4	<i>Cordyline</i>	knot
39	1	C4	<i>Phormium</i>	knot
40	1	C4	<i>Phormium</i>	knot
41	1	C5	<i>Freycinetia banksii</i>	flat twist
42	1	D4	<i>Cordyline</i>	knot
43	1	D4	<i>Cordyline</i>	knot
44	2	-A9	<i>Phormium</i>	scraped length
55	1	A2	strips of bird skin	
56	disturbed area		<i>Cordyline</i>	cut and scraped length
57	disturbed area		<i>Cortaderia</i>	cut and scraped length
S131/6				
45	Sf	D2	<i>Phormium</i>	knot
46	2	B6	<i>Cordyline</i>	knot
47	2	B6	<i>Phormium</i>	loop
48	2	B6	<i>Phormium</i>	very fine twisted fibre
49	2	B6	<i>Cordyline</i>	twisted fibre
50	2	C2	<i>Phormium</i>	flax knotted around bird skin

51	-	C4	<i>Cordyline</i>	knot
53	2	E4	<i>Phormium</i>	knot
54	2	E5	<i>Phormium</i>	knot

Although the majority of samples were not identified to species level the natural distribution of species in each genus, assumed to be much the same now as during the occupation of the sites, narrows the possibilities of species likely to have been utilized. For instance, only six *Astelia* species grow in Fiordland. *Astelia fragrans* was noted in Morrison's (1983) survey of the vegetation of nearby Safe Cove, but not on Lee Island itself. Johnson's survey of the Te Anau shoreline (1972) increases the number of readily available *Astelia* species to three, with some only available at higher altitudes. Of the numerous possible Cyperaceae (sedges) which grow in Fiordland three species: *Carex*, *Lepidosperma australe* and *Schoenus pauciflorus* were recorded growing on Lee Island. *Phormium tenax* (New Zealand flax) was found growing on Lee Island and *P. cookianum* at Safe Cove (Morrison 1983) and although neither were common they do occur in sufficient frequency in the greater region to have been a useful resource. Both *Poa colensoi* and *Poa laevis* (mountain and silver tussock respectively) are available, though not recorded by Morrison; similarly *Cordyline australis* (ti kouka, cabbage tree) occurs frequently in the general region. *C. banksii* and *C. indivisa* are also recorded from Fiordland. *Cortaderia richardii* is the only toetoe native to the South Island and is thus highly likely to be the species present in the Lee Island assemblage. Although not present on Lee Island or at Safe Cove in 1983 it is likely that it could have been found nearby at the time of occupation.

Cloak

Various pieces and fragments of fabric were recovered from Square -A10, Layer 1 in S131/4 and they all appear to be from the same garment (Fig. 5.4). The yarns are of flax fibre. Warp yarns were twisted in a Z direction (anti-clockwise) but weft yarns were two-ply with each component twisted in an S direction (clockwise) and the yarn then Z-twisted (terminology after Blackman pers.comm.).

The cloak was constructed by the single-pair twining technique with the twining twist in an S direction and each twist enclosing one warp (Fig. 5.5). There are three warp threads per 10 mm and a strip of birdskin with feathers attached, generally 3 mm wide by 10 mm long, is attached to every second warp thread and held in place by the weft threads which are in rows 10 mm apart. The feathers are very worn and mostly just stumps of shafts, but Darby (pers.comm.) was able to identify them as kiwi (*Apteryx* sp.).

Along the top edge of the largest piece of cloak fragment was a binding strip of dogskin held in place by half-hitching at 15 mm intervals (Fig. 5.4A). The yarn used for this is two-ply, Z-twisted and thicker than that used for the weft threads. The

Table 5.3. Catalogue of identified worked fibre and leaf artefacts (descriptions and measurements).

Note: catalogue numbers correspond to those in Table 5.2.

Cat. no.	Fig.	Notes	Estimated length of blade (mm)
2	5.8	2 lengths of undressed leaf tied together in firm knot; ends broken	200; 140
3	5.8	2 pieces of partially-scraped leaf tied together in loose knot; ends broken	80; 120
4	-	twisted length of strip of leaf; ends frayed; possibly partially scraped	85
5	5.8	knot only (no free ends), undressed leaf	4
6	5.8	two strips of undressed leaf each with an overhand knot spaced 80 mm and 125 mm away from their common knot (respectively)	160; 300
7	-	length of scraped fibres twisted as 2-ply cord, broken at fold; also a matted indeterminate knot now broken off	340
8	5.8	loose overhand knot in length of undressed leaf, possibly folded in half lengthwise; free ends broken off	210
9	5.8	3 lengths of undressed leaf - 2 joined by slipped reef knot, other pair by granny knot; broken	85+; 90; 40
10	5.8	strip (no midrib) of undressed leaf with overhand knot; leaf now split in 3	250
11	5.8	2 pieces of undressed leaf tied together with loose knot, longer piece ends in overhand knot; ends frayed	90; 250
12	-	length of leaf split into 4-6 strands, 1 end in loose indeterminate knot	350
13	5.8	strip of undressed leaf, overhand knot at 1 end; ends frayed	180
14	5.8	2 strips of undressed leaf knotted together, overhand knot at end of 1 strip (A)	A. 230 B. 100
15	-	strip of partially dressed leaf, firm overhand knot tied to form a 100 mm loop at one end; now in several pieces	270
16	5.8	2 strips of leaf - 1 undressed (A), 1 possibly scraped (B) - joined together by series of overhand knots; additional overhand knot 30 mm from major knot	A. 80?; B. 340
17	5.8	2 strips of undressed leaf tied together in half-hitch knot; ends frayed	160
18	5.8	strip of rolled leaf (A) tied in loose overhand knot at 1 end, catching a section of scraped leaf (B); fragment A has cross-cuts 50, 65 and 70 mm apart respectively	A. 330 B. 80
19	-	3-ply braid of scraped leaf fibre, very fragmentary; ends frayed	50
20	5.8	2 strips of partially scraped leaf knotted together - ends of 1 strip are tied together with overhand knot, 1 end subsequently knotted again around the double strand	370; 250
21	5.8	2 lengths of scraped fibres twisted together and tied at 1 end with simple overhand knot; ends frayed	140
22	-	2 lengths of scraped leaf, twisted then plied together	100; 40
1	-	several strips of leaf which tied a bundle of kakapo feathers, tied in slipped reef knot	280
23	5.8	2 wide strips of partially scraped leaf, tied together with reef knot	80
24	-	multi-strip 3-ply braid incorporating leaves of ? <i>Nothofagus</i> or <i>Weinmannia</i>	90+
25	5.8	tight knot only, ends lost; burnt; ? reef knot; 2 undressed strips	-
26	5.8	length of scraped leaf split into several strands in rough ? granny knot	120+
27	5.9	strip of undressed leaf doubled to form loop (260 mm in circumference), with firm overhand knot	340
28	-	-	-
29	-	-	-
30	5.9	strip of scraped leaf, ends tied together in a loose reef knot to form a loop 540 mm in circumference; ends cut	700
31	5.9	scraped fibres twisted into loose cord and tied with an overhand knot	130
32	5.9	3 strips loosely tied together, ends frayed; some cuticle lost	290; 180; 130
33	5.5	-	-
34	-	strip of undressed leaf, possibly an untied overhand knot; ends frayed	20
35	5.9	2 strips of undressed leaf tied together in overhand knot, then the finer strip (A) knotted around the other (B) by 2 half-hitches; A has a tight overhand knot in the half-hitch section	A. 40; B. 80
36	5.9	(1) scraped fibres tied in loose overhand knot (2) 2 loosely twisted cords of scraped fibres, tied together; ends frayed	110 80?; 80?
37	5.9	strip of unworked leaf, unravelled knot	100
38	5.9	strip of leaf tied loosely in overhand knot; ends frayed	50
39	5.9	2 strips of leaf tied together with a buntline hitch	190; 125
40	5.9	2 strips of scraped leaf in untidy knot	40?; 40?
41	-	bundle of 15-20 strips of leaf, undressed, tied together in flattened twist, ends cut (or broken when brittle) flush at limits of twist; could be 1 bundle tied around a second bundle	20
42	5.9	2 strips of leaf, possibly partially scraped, tied together in an overhand knot	90; 90
43	5.9	2 strips (1 with midrib) of possibly partially scraped leaf tied together with reef knot	160; 120
44	-	strip of partially scraped leaf; ends frayed	720
45	-	-	-
46	-	3 lengths of leaf, whole blade width - (1) basal piece has V-shaped cut at end, (2) has diagonal cut across remains of blade, (3) cut at each end, with scraped fibres at one	205; 240; 140
47	-	-	-
48	5.9	2 strips of undressed leaf, 1 (B) tied around the other (A)	A. 100; B. 180
49	5.9	2 strips of partly scraped flax tied together in buntline hitch; ends frayed	300; 125
50	5.10	length of scraped fibres tied into a loop (90 mm diameter) by 2 half-hitches, other end tied to short length of similar fibres (possibly broken original)	65; 30
51	5.10	length of twisted cord ca. 1 mm diameter, 1 end cut, other frayed; pounded and scraped soft fibre (muka)	75
52	-	scraped fibres twisted together in 2-ply cord; very fragmentary	45
53	5.10	strip of leaf with some scraped areas, tied at 30-60 mm intervals in simple overhand knot 80 around a piece of birdskin; ends frayed; in 3 sections	280; 170;
54	5.10	2 strips of partially scraped leaf, tied together with a post-hitch knot	490; 260
55	-	-	-
56	5.10	2 strips of leaf, 1 consisting of cuticle few fibrous strands, tied together; ends cut	40; 40

Table 5.4. Catalogue of identified unworked fibre and leaf artefacts (provenance and identifications).

Note: the material from the disturbed area in S131/4 was collected in 1979. Catalogue numbers correspond to those in Table 5.5.

Cat. no.	Layer	Square	Material species	Comments
S131/3				
3/1	2	D2	<i>Pteridium</i>	
3/2	2	D2	<i>Pteridium</i>	
3/3	1	B3	<i>Phormium</i>	
3/4	2	C1	<i>Phormium</i>	
3/5	2	C2	<i>Cordyline</i>	
3/6	2	C3	<i>Poa?</i>	
3/7	1	C4	<i>Pteridium</i>	
3/8	2	C3	<i>Chionochloa</i>	
3/9	2	C3	<i>Phormium</i>	
3/10	2	C2	<i>Cortaderia</i>	
3/11	2	C2	<i>Chionochloa</i>	
3/12	2	C2	<i>Chionochloa?</i>	
3/13	2	C2	<i>Cortaderia?</i>	
3/14	Sf	C3	<i>Pteridium</i>	
3/15	2	B4	<i>Pteridium</i>	
3/16	2	C4	<i>Cortaderia?</i>	
3/17	2	C3	<i>Cortaderia?</i>	
3/18	2	D3	<i>Cortaderia?</i>	
3/19	2	C3	<i>Pteridium</i>	
3/20	2	C3	<i>Poa?</i>	
3/21	1	B3	<i>Poa</i>	
3/22	2	C3	<i>Poa</i>	
3/23	Sf	C2	<i>Poa?</i> mainly	
3/24	2	C3	<i>Chionochloa?</i>	
3/25	2	C2	<i>Poa?</i>	
-	1	B6	<i>Chionochloa</i>	
-	1	C5	<i>Cortaderia</i>	
S131/4				
4/1	Sf	C3	<i>Cortaderia?</i>	
4/2	Sf	C4	<i>Cortaderia</i>	
4/3	Sf	C4	<i>Aciphylla</i>	
4/4	Sf	C6	Probably a grass	
4/6	1	A4	<i>Chionochloa</i>	
4/7	1	A9	Probably a grass	
4/8	1	-A10	<i>Phormium</i>	
4/9	1	-A11	<i>Phormium</i>	
4/10	1	A/-A12	<i>Cortaderia</i>	
4/11	1	B6	Cyperaceae	
4/12	1	B7	<i>Phormium</i>	
4/14	1	B9	<i>Cortaderia</i>	
4/15	1	C3	Roots, not fibre	
4/16	1	C3	<i>Cordyline</i>	
4/17	1	C3	<i>Cordyline</i>	
4/18	1	C4	<i>Phormium</i>	
4/19	1	C4	<i>Cortaderia</i>	material from vicinity of kakapo bone, skin, feathers
4/20	1	C4	<i>Cortaderia</i>	
4/21	1	C4	<i>Cortaderia</i> (prob)	material from immediate vicinity of kakapo wing
4/22	1	C4	<i>Dicksonia?</i>	
4/23	1	C4	<i>Cordyline</i>	
4/24	1	C5	<i>Cordyline</i>	
4/25	1	C5	<i>Phormium</i>	
4/26	1	C5	<i>Cortaderia</i>	
4/27	1	C6	<i>Cortaderia</i>	
4/28	1	D4	<i>Cortaderia</i>	beside pile of kakapo feathers

4/29	1	D5	<i>Cortaderia</i>	
4/30	1	D5	<i>Phormium</i>	
4/31	1/2	A2	Cyperaceae	
4/33	1/2	A2	Cyperaceae (? <i>Lepidosperma australe</i>)	
4/34	1/2	A2	<i>Cordyline</i>	
4/35	2	-A9	<i>Astelia</i>	
4/36	2	C4	<i>Phormium</i>	
4/37	2	C8	<i>Chionochloa?</i>	feature 2 - hearth
4/38	disturbed area		<i>Phormium?</i>	
4/39	disturbed area		<i>Cortaderia</i>	scraped at one end
4/40	disturbed area		<i>Cordyline</i>	
4/41	disturbed area		<i>Chionochloa</i>	
4/42	disturbed area		<i>Cordyline</i>	
4/43	disturbed area		<i>Cordyline</i>	
4/44	Sf	A9	<i>Phormium</i>	
4/45	Sf	A9	<i>Phormium</i>	
4/46	Sf	B3	<i>Cortaderia</i>	
4/47	Sf	B4	<i>Cortaderia</i>	
4/48	Sf	B6	<i>Chionochloa</i>	
4/49	Sf	B6	<i>Phormium</i>	collected with bark
4/50	Sf	B7	<i>Cordyline</i>	
4/51	Sf	B9	<i>Chionochloa</i>	
4/52	Sf	C2	<i>Cordyline</i>	
4/53	Sf	C3	<i>Chionochloa</i>	
4/54	1	C4	Cyperaceae	
S131/6				
6/1	2	B5	<i>Freycinetia banksii</i>	
6/2	2	B5	<i>Cordyline</i>	
6/3	2	B6	<i>Cordyline</i>	
6/4	2	C2	<i>Chionochloa?</i>	
6/5	2	C3	<i>Cordyline</i>	
6/7	-	C2	<i>Phormium</i>	
6/8	2	C3	<i>Freycinetia banksii</i>	part of netting bag

dogskin was tightly knotted at the free end, which appeared to be one upper corner of the cloak. Like the feathers, the skin was well worn, especially at the knot, and it is possible that the cloak had been discarded as a garment of no further use.

A separate, rectangular piece of dogskin (Fig. 5.6), which measured 60 X 50 mm, may have come from this garment as well, since it had a line of stitching across one corner. The hair on it is yellow, thus confirming that this colour existed amongst pre-European kuri, a matter which has been questioned at times (Allo Bay-Petersen 1979:166; and see Anderson 1990). This piece, however, was recovered in S131/6, (Square B3, Layer 2) along with another smaller and hairless strip of dogskin (Square B6, Layer 2). If they are from the cloak then contemporaneity of occupation between S131/4 and S131/6 is indicated. Some very small fragments of dogskin with brown hair were recovered in S131/4 (Square A9, Layer 2).

In one part of the main piece of the cloak the warp threads bifurcate, possibly indicating some shaping of the garment. Blackman (pers.comm.) and Davis (pers.comm.) who examined the cloak fragments both commented that it was well-made and would have been thick, warm and durable.

There are not many other archaeological examples of similar cloaks. The Hauroko burial cape (Simmons 1967, 1968:4-6), which is about the same age, had a different style of open-weave

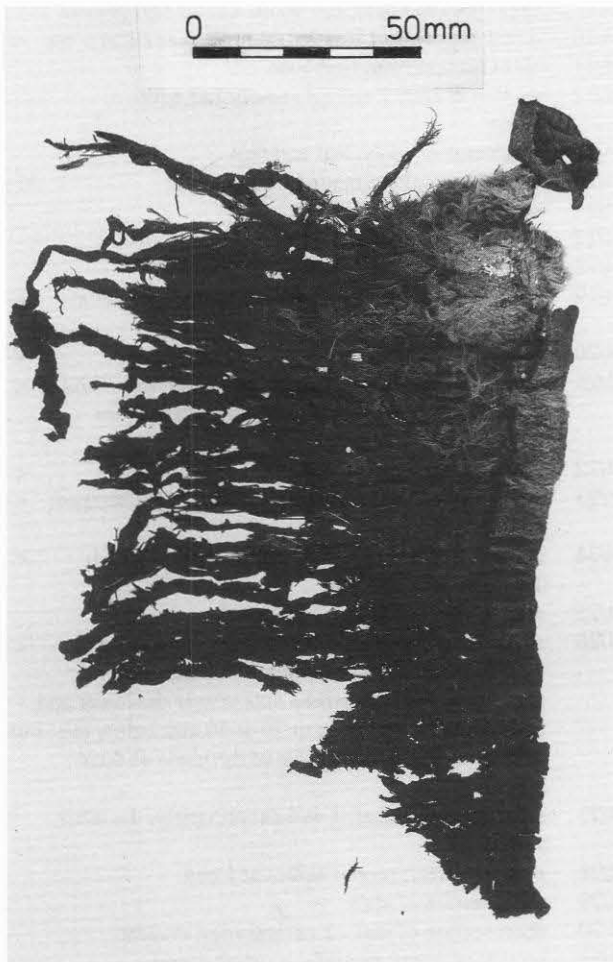


Figure 5.4. Cloak fragments recovered from S131/4, Square -A10, Layer 1. A: dogskin border and knot; B: fragmented and charred pieces.

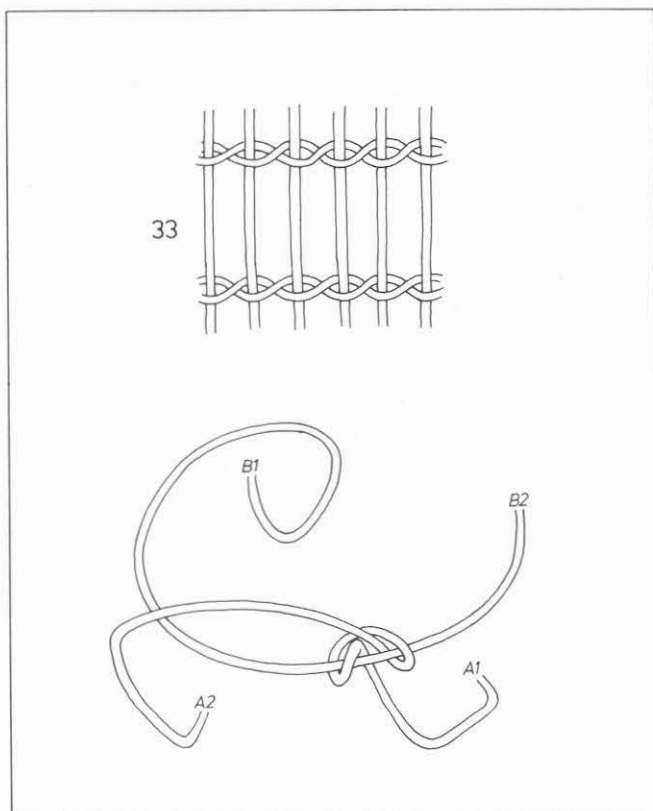


Figure 5.5. Exploded diagrams showing, A: the cloak construction; B: the knot used to tie the small bundle of kakapo feathers.



Figure 5.6. Fragment of dogskin recovered from S131/6.

Table 5.5. Catalogue of identified unworked fibre and leaf artefacts (descriptions and measurements).

Note: the catalogue numbers in this table correspond to those in Table 5.4.

Cat. no.	Notes	Estimated length of blade (mm)		
3/1	section of stem - broken at 1 end, cut obliquely and charred at other	138	4/9	upper part of blade; full width and tip still present 280
3/2	section of stem, cut and charred at each end	138	4/10	a number of short lengths; some appear cut at 1 end < 110
3/3	several strips and whole pieces of leaf - some scraped, some just cuticle, some possibly beaten; ends frayed	60 - 210 (most ca. 130)	4/11	short section from near base 30
3/4	several strips of leaf (no midrib), cuticle removed from 1 side	110 - 120	4/12	section of leaf; 1 end cut; nearly full width of blade 65
3/5	(A) 1 piece of bark 40 mm wide, 1 end possibly cut (B) 1 piece of bark 25 mm wide	A. 75 B. 110	4/14	fragments of roots, leaf and fern -
3/6	approximately 20 lengths of unworked leaf in a looped bunch; ends torn; includes some bracken leaf and stem	200 - 300	4/15	small rectangle of matted root material 40 x 30
3/7	section of stem, fibres partly separated; ends frayed	190	4/16	section of leaf 105
3/8	3 tillers (1 with 5 leaves), basal ends cut off level; tips bent and frayed	< 360	4/17	several strands of leaf 80
3/9	strip of leaf, including midrib on 1 edge; 1 end cut, other frayed	145	4/18	section of leaf 140
3/10	several strips of leaf - some including midrib on 1 edge, others cuticle only, some scraped; some ends cut	< 180	4/19	various sections of leaf; some appear to be cut at 1 end < 210
3/11	2 tillers (5 leaves in 1) cut at base; upper ends frayed	85	4/20	sections of leaf < 230
3/12	2 fragments of leaf, 1 partially scraped? 1 end cut	55	4/21	lengths of leaf, mixed condition - some full width of blade, 1 has cuticle on 1 side only; some seem cut at 1 end < 350
3/13	section of base of bracken stem, base end partly cut	110	4/22	several fragments of fern < 100
3/14	section of stem, 1 end burnt	85	4/23	a quantity of leaf fragments - some appear scraped; some cut at 1 end < 280
3/15	section of stem, 1 end burnt for two-thirds of length	80	4/24	several sections of leaf - 1 appears cut at 1 end, 1 is full width of blade < 130
3/16	strip of partially scraped leaf; ends frayed	120	4/25	short section of leaf, 1 end frayed 25
3/17	strip of leaf; ends frayed	90	4/26	several long lengths of leaf - some include 1 edge, 1 appears to be the full width of a blade; several are very definitely marked across near the lower end and scraped hard for up to 20 or 30 mm below this; most of these have the natural tip of the blade as their other end < 720
3/18	(A) base of tiller with roots (B) fragments of strips of leaves	A. 70 B. 175	4/27	short section of leaf; 1 end cut obliquely, the other singed 70
3/19	section of stem	125	4/28	section of leaf; scored across at 1 end 55
3/20	numerous separate leaves with frayed ends; possibly a 'unit' e.g. wadding	< 200	4/29	short section of stalk 55
3/21	groups of tillers with roots attached; some tillers still attached to each other; several leaves per tiller; upper ends bent over and frayed. Together as a bunch	250 - 300	4/30	short section of leaf - 1 natural edge evident 110
3/22	clump of tillers, 45 mm wide x 30 mm deep, roots attached; ends of leaves broken or cut off at much the same height	110	4/31	section of ? leaf; partially scraped; 1 end possibly cut 120
3/23	sample only of a mass of leaves including some whole tillers; some ends cut; includes some bracken leaf and stem	330 +	4/33	section of blade, several with frayed ends < 140
3/24	numerous leaves including whole tillers, most ending flush, possibly wadding; includes other material e.g. bracken	380	4/34	1 section of leaf, cut at 1 end -
3/25	3 clumps of tillers together as a bunch, 1 clump laid end for end to others; 2 clumps include roots; numerous tillers per clump; whole wad measures 80 x 40 x 420 mm; some leaves doubled over	420 +	4/35	1 tiller, broken off at base; upper end appears to be cut 330
4/1	partially scraped section of leaf	110	4/36	section of leaf, heavily scraped; scored across near 1 end (feather caught in fibres near this end) 110
4/2	section of rachis	90	4/37	section of leaf folded back of itself lengthwise 110
4/3	(A) section of leaf, charred at 1 end; (B) tip of leaf	A. 80 B. 40	4/38	small tangled bundle of narrow lengths of leaf 45 x 35
4/4	roots and lower part of stems from 1 clump; ends singed, possibly cut	90	4/39	- -
4/6	several sections of leaf and stalk, some charred at 1 end	< 130	4/40	- -
4/7	several lengths of leaf, most frayed at both ends	< 200	4/41	several tillers; some root material still attached (i.e. pulled, not cut, free); upper ends singed, not full length of blade 490
4/8	narrow length of blade	200	4/42	- -
			4/43	several strips of leaf with end charred; 1 cut obliquely at 1 end < 220
			4/44	several lengths of leaf, on some the cuticle has been removed; crystals present; 1 end cut obliquely and charred; feathers included in sample < 570
			4/45	section of leaf, 1 end cut; thick with white crystals at other 80
			4/46	section of stalk, split lengthwise 150
			4/47	section of leaf, 1 end cut; cuticle removed from 1 side 210
			4/48	8 clumps; ends frayed, possibly cut in some cases < 80
			4/49	short section of leaf; cuticle removed from 1 side 30
			4/50	section of leaf; 1 end cut obliquely 90
			4/51	2 tillers; ends frayed; 20 mm length of stalk, 1 end frayed < 130
			4/52	section of leaf; 1 end cut obliquely and charred 100
			4/53	3 tillers; ends frayed < 130
			4/54	1 clump with roots and 1 leaf still attached 240
			6/1	several sections of leaf, most heavily scraped < 120

6/2	length of leaf; cut at both ends (obliquely at 1); cut marks show singed	150
6/3	several sections of leaf - at least cut at 1 end, some seem partially scraped, 1 burnt at both ends; 2 short lengths of stalk, 1 charred at 1 end	< 220
6/4	short lengths of leaf; ends frayed	-
6/5	2 sections of leaf; burnt at 1 end	< 130
6/7	sections of leaf; edges present; most have 1 end burnt; some possibly cut	< 160
6/8	-	-

construction, with kaka skin caught to the warps by an extra diamond-hitch thread. The Strath-Taieri example (Simmons 1968:6-9) has coarse three-ply plaited warps in which feathers were woven. Only the cloak from Central Otago, described by Hamilton (1892:488) appears very similar in construction. The birdskin strips (90 - 130 mm long) on it were thought to be from parakeets (*Cyanoramphus* sp.) and there was dogskin binding at the upper and lower edges (Gabrielle Mason pers.comm.).

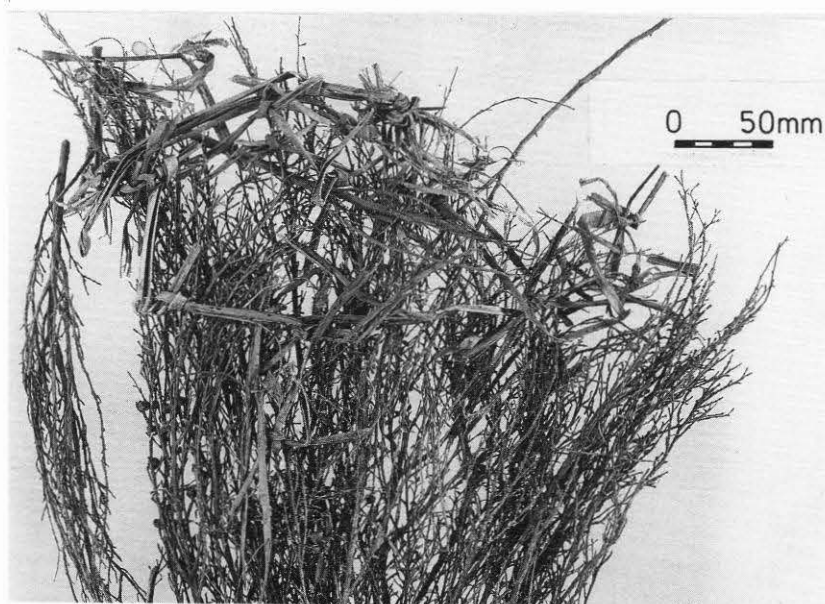


Figure 5.7. The brushwood and netting artefact in S131/6. A: as it lay on the site; B: detail of the end with netting.

Netting and brush artefact

The artefact illustrated in Figure 5.7 consists of an open mesh of knotted kiekie (*Freycinetia banksii*) over and among a layer of manuka (*Leptospermum scoparium*) brush, in S131/6. The limited connections between preserved sections of knotting makes it difficult to infer its exact construction. Leaves and seed capsules from more than one past year are still evident on the manuka.

The tips of the manuka brush are at the base or main line of knots. The woody ends of the manuka, which have been broken off rather than cut, extend beyond the kiekie. The knotting is evident primarily on the upper surface. Occasional knots are embedded in the manuka but there appears to be none underneath the twigs. This could be the result of decay affecting material in contact with the ground surface more severely than any other.

The most frequently occurring knot is a widespread form often referred to as the netting knot (eg., Te Rangi Hiroa 1926:606). As used in netting, turning at the end of each row means the face and reverse of this knot would show on alternative rows on a completed article. Examples of both sides shown uppermost are present in this artefact as it was found. There are, as well, a number of other more complicated knots. Reasons for their construction may include the joining of a new strand of material, or a special provision for commencement or finishing.

One possible function of this artefact could have been its use as a tau; an ethnographically recorded device (Best 1929:65) for catching freshwater crayfish (*Paranephrops* sp.). Tau were generally bundles of dried fern which were lowered to rest on a lake bottom. There, crayfish could use them as shelter and be caught when they were raised. In the present case, however, the knotting structure seems much more like netting, and there were no crayfish remains in the sites, although they do occur in the lake.

An alternative is that this artefact functioned as a netting bag lined with brush such as might have been used in the transportation of delicate items. One particular use may have been as cladding around a kelp poha of preserved food.

Knots

The material recovered is described briefly in Tables 5.2 and 5.3 and exploded diagrams of the knots are shown in Figures 5.8-10. They range from simple overhand knots tied in both single and double strands to quite complicated structures. For many, little interpretive information can be

added. The terminology follows Ashley (1970).

In most cases the overhand knots may have performed one of a number of functions which it is not possible to choose between, e.g. acted as a collapsed half-hitch or half knot; as part of a more complex knot; to prevent unravelling; or to hold multiple strands together for storage.

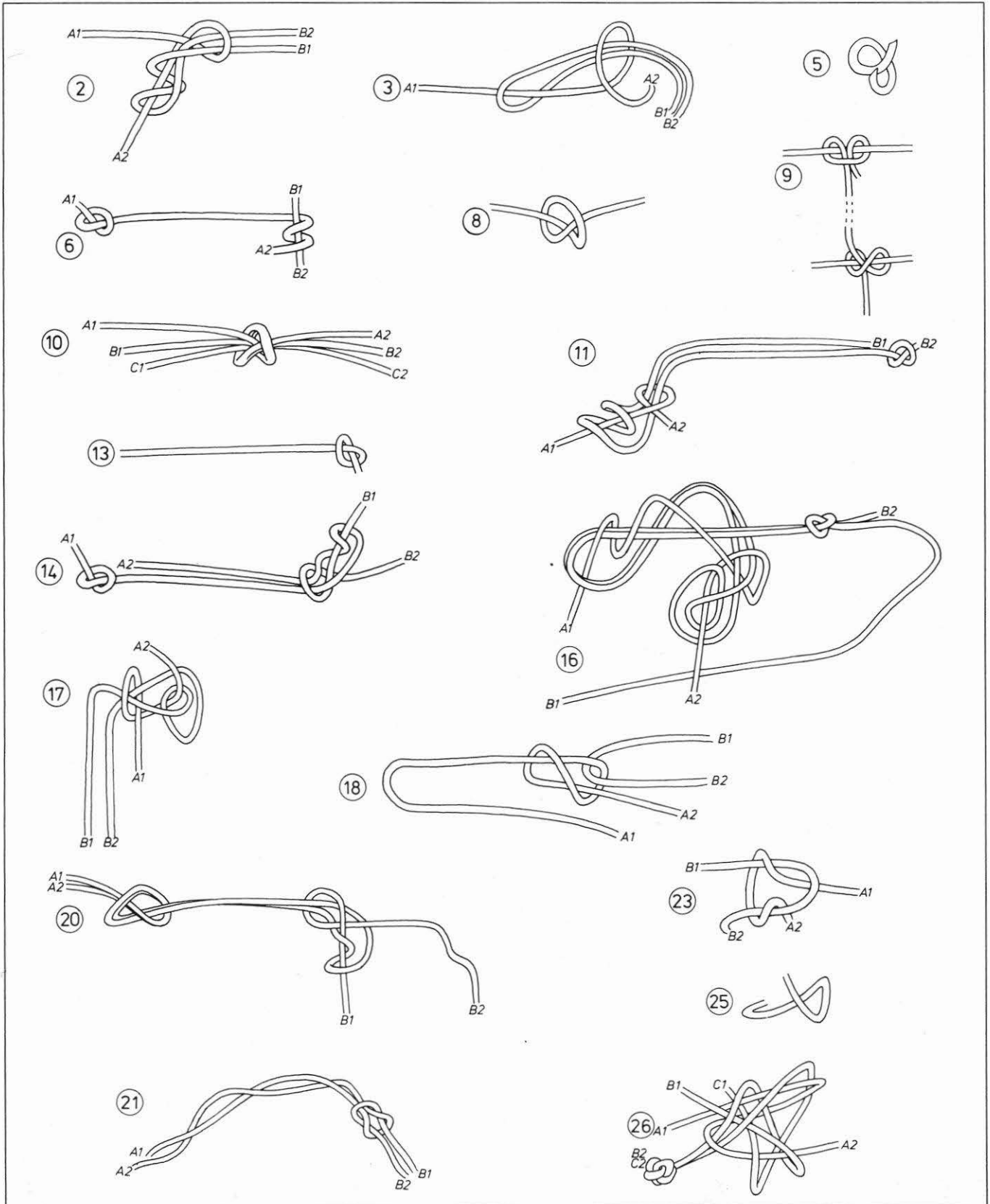


Figure 5.8. Exploded diagrams of some of the knots. The numbers refer to Tables 5.2. and 5.3.

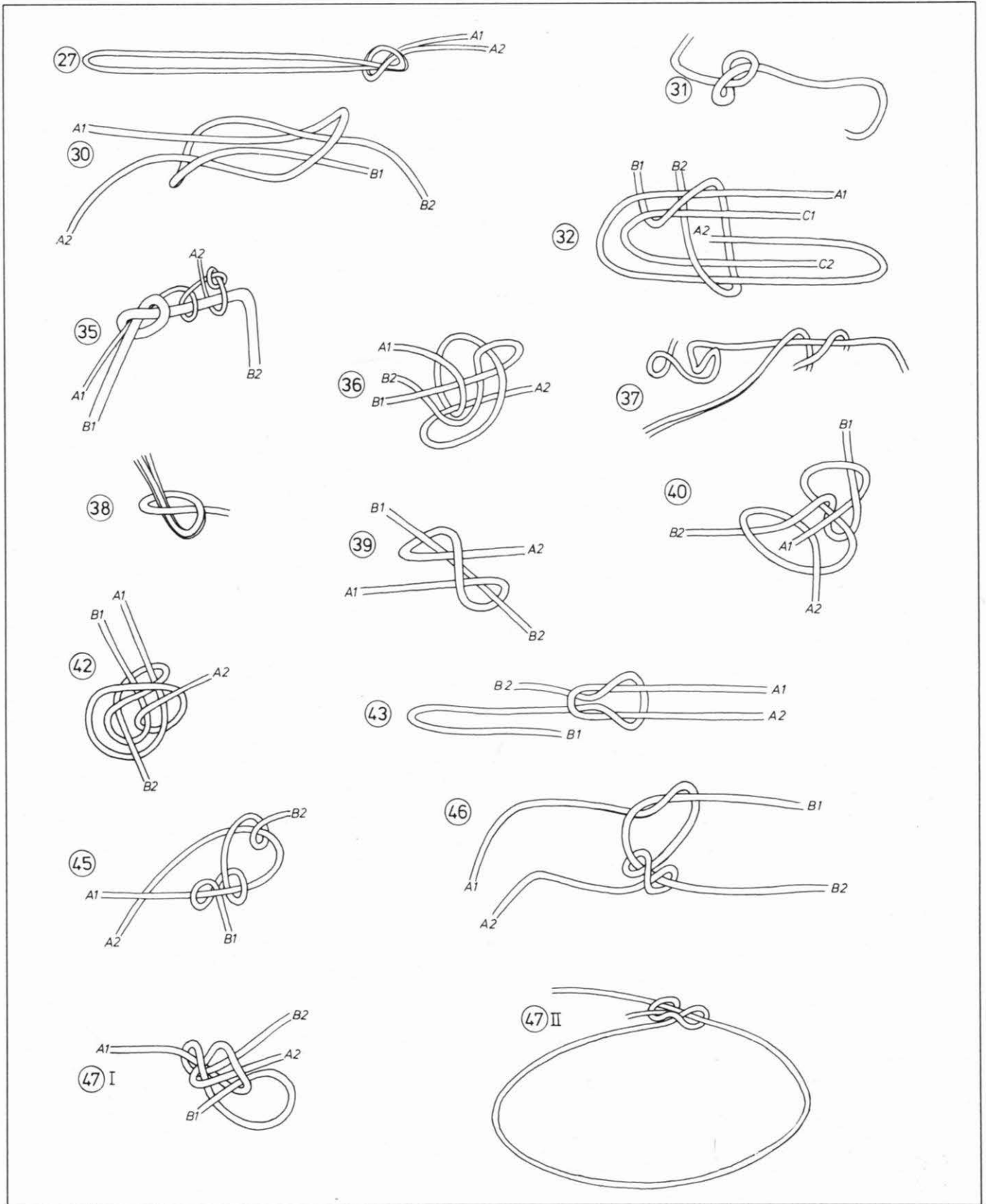


Figure 5.9. Exploded diagrams of some of the knots. The numbers refer to Tables 5.2. and 5.3.

In one example (number 50) a series of half knots tied in a strand of flax are each threaded through a section of birdskin. It is not possible to determine the original size of the skins - whether each represents an individual bird or just a small part - but the repetition of the knots (approx 20-30 mm from one another) implies a wish for spacing.

The fibre is not of a quality which suggests that it was part of some article of apparel.

Only one type of knot other than the overhand is represented by several examples (numbers 2, 11, 14, 16, 17, 20). It occurs both as a complete knot and on one occasion as part of a more complicated structure (number 16). Five of these six examples

were found in the same square and layer and may have been part of a single item.

The only knot present which performed a known function is a buntline hitch which was used to tie a small bundle of kakapo feathers i.e., as a binding knot. One other example of this construction (number 39) was found from the same shelter. However, a number of other hitches were present: a balesling hitch (number 9), paired half-hitches (number 47), and a post hitch (number 51) were identified.

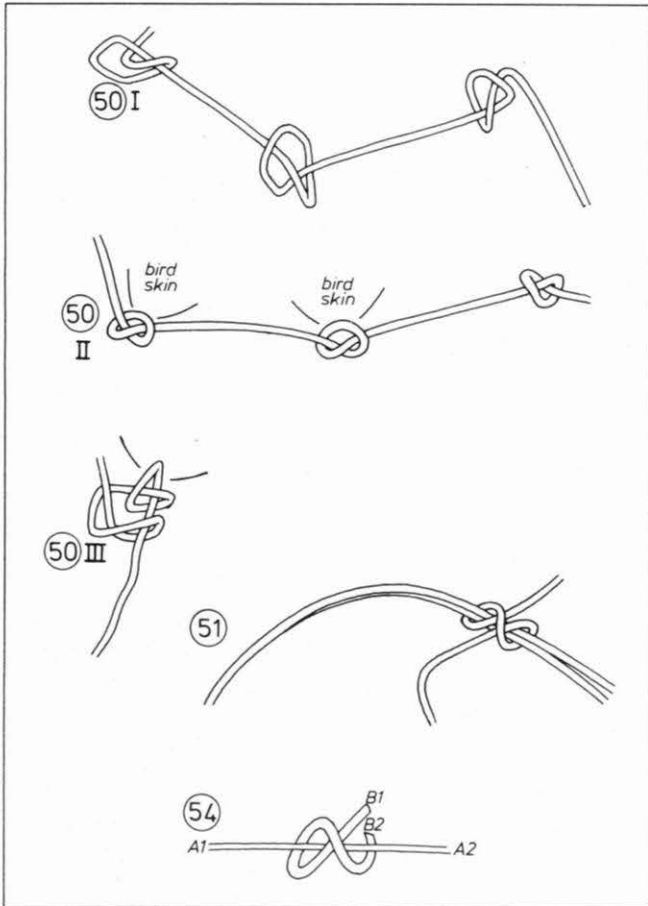


Figure 5.10. Exploded diagrams of some of the knots. The numbers refer to Tables 5.2. and 5.3.

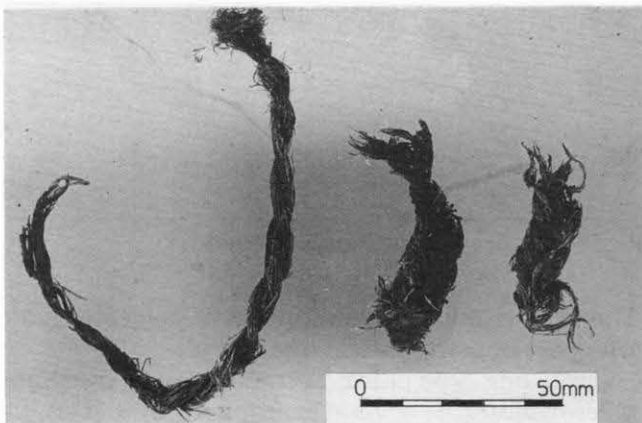


Figure 5.11. Examples of twisted and plaited fibre from S131/4.

There are none of the running knots one would expect if any of the material had been an active part of the bird snares that are commonly described in the ethnographic record. The fixed loop (number 47) is formed by two half-hitches and would not function in a comparable manner. The second knot seems to merely join on another length of flax.

The complexity of some of the knots appears unnecessary and this is possibly an idiosyncrasy in the work of a single individual. Alternatively, there might have been re-use of fibres in which previous knots were simply incorporated into subsequent knots.

In addition to the knots there are a number of short lengths of cordage: twisted and, or, plaited fibres (Fig. 5.11). Examples of the former exhibit both Z- and S- twists. *Phormium* is the material most commonly used but examples in *Cordyline*, *Freycinetia banksii*, and possibly *Astelia* are present. All three sections of plaiting are constructed with three strands. One very wide piece (number 24) incorporates leaves in the structure.

Two pieces of cordage (number 48 - a fine *Phormium* thread of similar diameter to a modern yarn, and number 49 - a small portion of a narrow *Cordyline* plait) have ends apparently sealed with some fatty substance. Another piece (number 29) seems to use an overhand knot to prevent untwisting.

This latter is the only piece other than the cloak fragment in which cordage is used to construct a more complex article: the centre sections of two twisted lengths are knotted together; below this join the ends are broken but above it one strand has a single overhand knot while the other is looped around a piece of birdskin and has overhand knots midway and at the base of this loop. No obvious function of this structure is apparent.

SEEDS AND MOSS

Amongst organic remains recovered during excavation were seeds, moss, a few fern spores and some pollen grains (Table 5.6). These were identified by Margaret Bulfin (seeds), Alan Fife (moss) and Neville Moar (pollen and fern spores). All the seeds are from species growing in the vicinity of the sites. There was nothing to suggest that they had been collected for food by the people who inhabited the shelters.

CONCLUSIONS

The bark and fibre remains are interesting mainly for their variety of raw materials and their general agreement with the interpretation of the Lee Island sites as fowling camps. This specialisation and the brevity of occupation (Chapter 9) are reflected in the few remains which can be recognised readily as artefacts of known function, and in the relative scarcity of evidence of fibre-working, which is further underlined by an absence of shell or stone scrapers (Chapters 3 and 6).

Table 5.6. Seeds and moss from the Lee Island sites.

Site	Species	Common name	Number	Comments	
S131/3	<i>Cyathodes juniperina</i>	mingimingi	-	fruits and leaf bud	
	<i>Podocarpus ferrugineus</i>	miro	2	fruit	
	<i>Pseudowintera colorata</i>	peppertree	1	fruit	
S131/4	<i>Drepanocladus</i> sp.	moss	-	possible new species	
	<i>Coprosma</i> (two sp.)	-	-	pyrenes	
	<i>C. propinqua</i>	-	2	pyrene	
	<i>Cyathodes juniperina</i>	mingimingi	1	fruit	
	<i>Elaeocarpus hookerianus</i>	pokaka	1	half fruit	
	<i>Leptospermum scoparium</i>	manuka	2	capsule	
	<i>Metrosideros umbellata</i>	rata	2	capsule	
	<i>Myrsine australis</i>	mapou	2	fruit	
	<i>Nothofagus</i> sp.	beech	1	capsule	
	<i>Podocarpus ferrugineus</i>	miro	26	fruit	
			4	half fruit	
	<i>P. spicatus</i>	matai	1	fruit	
S131/6	Polypodiaceae	fern	-	spores	
	<i>Coprosma</i> sp.	-	1	pyrene	
	<i>Cyathodes juniperina</i>	mingimingi	-	fruits	
	<i>Leptospermum scoparium</i>	manuka	3	capsule	
	<i>Metrosideros umbellata</i>	rata	1	immature capsule	
				1	peat capsule
	<i>Nothofagus</i> sp.	beech	-	pollen	
	<i>Podocarpus ferrugineus</i>	miro	3	fruit	
	<i>Earina</i> sp.	orchid	1	capsule with seeds	

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