



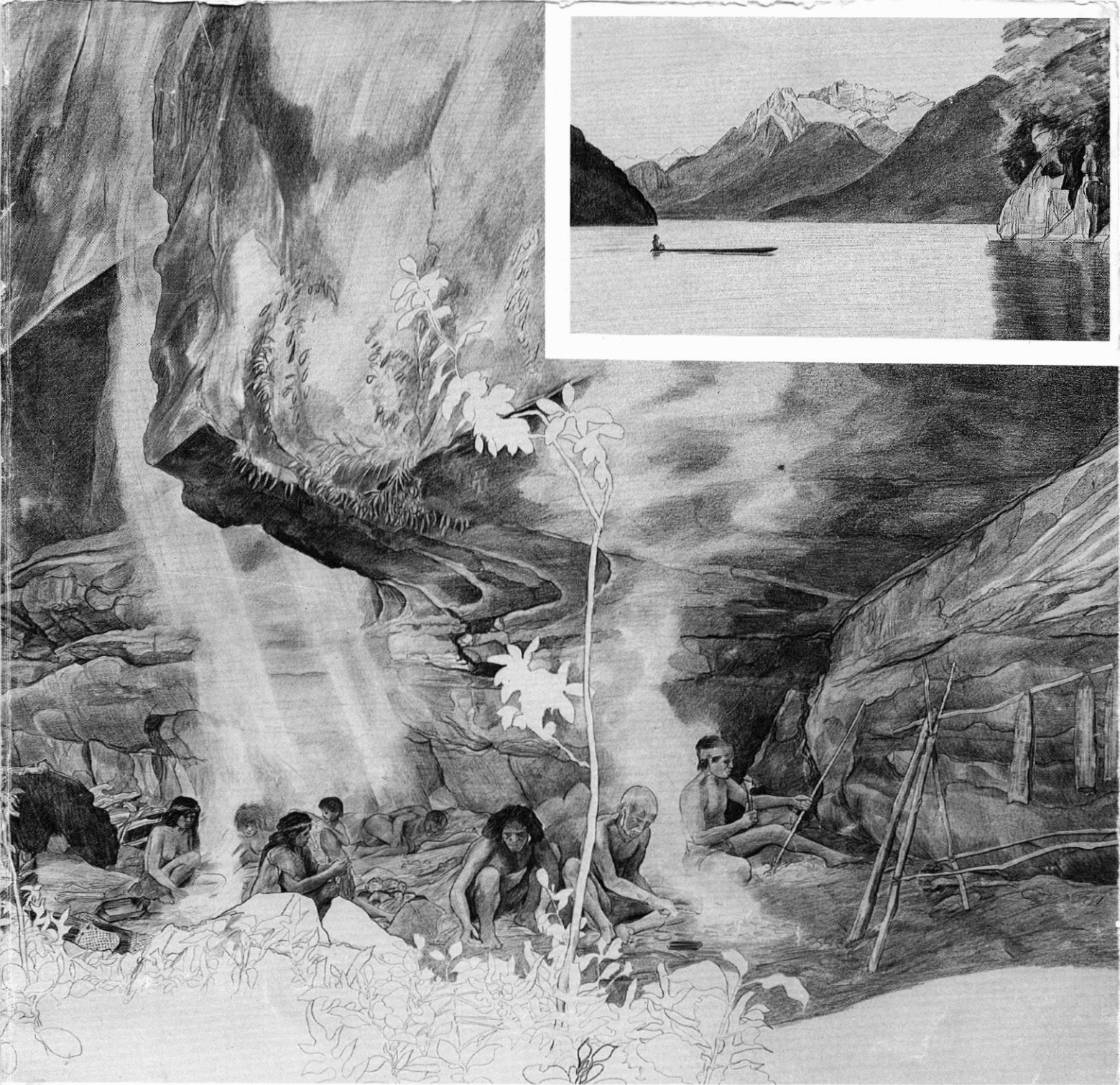
**NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION MONOGRAPH 18:  
Atholl Anderson and Richard McGovern-Wilson (eds), *Beech Forest  
Hunters***

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# Beech Forest Hunters

Edited by  
Atholl Anderson and Richard McGovern-Wilson

New Zealand Archaeological Association Monograph 18

# BIRD-SKIN AND FEATHERS

Simon Holdaway

The dry environment of the shelters preserved a number of bird-skins and skin fragments, as well as numerous feathers. The skins with attached feathers (Table 7.1) are crumpled and fragile, and it is not possible to tell whether they are complete, but they appear to be nearly so in two cases of kaka skins. One, though, is partly charred and the coke-like residue along one edge is exactly the same as material, otherwise unidentified, which was found in association with feathers on the margins of the hearth on the middle terrace at S131/4.

Table 7.1. Lee Island bird skin.

S131/4			
Square	Layer	Species	Notes
C4	Sf	unid.	fragment of skin with feather shafts
-A10	1	unid.	fragments of skin and down
-A10	1	unid.	pieces of down
A2	1	unid.	fragment of skin with body feathers
A2	1	unid.	8 strips of birdskin with feather shafts, probably from the cloak
C1	1	unid.	fragment of skin
C2	1	unid.	almost complete skin, without feathers
C4	1	unid.	fragment of skin
C4	1	kakapo	fragment of skin with body feathers
C4	1	kaka	fragment of skin with feathers
C6	1	unid.	fragment of skin
S131/6			
Square	Layer	Species	Notes
C3	2	kaka	almost complete skin with feathers attached
C3	2	kaka	large fragment of skin with feathers
D2	2	unid.	fragment of skin with feathers
D3	2	kaka	large fragment of skin with feathers
D3	2	kaka	almost complete skin with feathers attached, partly charred and coke-like along one edge

The feathers in the Lee Island sites were mainly from two species, the kakapo (*Strigops habroptilus*) and the kaka (*Nestor meridionalis*). Feathers are rare in archaeological sites (Shackley 1981:193) and have featured in only a very few sites in New Zealand. In fact, if we discount material incorporated into cloaks, feathers have been reported from only Takahe Valley and the Southport sites in Chalky Inlet. At Southport, Coutts (1972:Tables 3.53-56) found feathers from a number of species, with the kakapo being most commonly represented. He identified the feathers and provided numbers by square and layer, but did not determine the body part of each feather. Duff (1952) recorded feathers

of kakapo, takahe, weka, kiwi and moa in the Takahe Valley site near Lake Te Anau. The Lee Island material thus provides a valuable opportunity to study the archaeological potential of investigating feather remains and to understand how the prehistoric Maori utilised this important resource.

## EXCAVATION

Feather remains were excavated from all three sites investigated. The majority of the feathers from S131/4 were in two bundles (one in Square C4 (Fig. 7.1-2) and the other in Square B1 (Fig. 7.3), with a number of smaller body feathers and feather fragments scattered in the immediate vicinity. Both bundles were found in Layer 1 and it would seem that both were deliberate caches. Other identifiable feathers and feather fragments were scattered thinly over the site in no apparent pattern (details are given in Table 7.2).

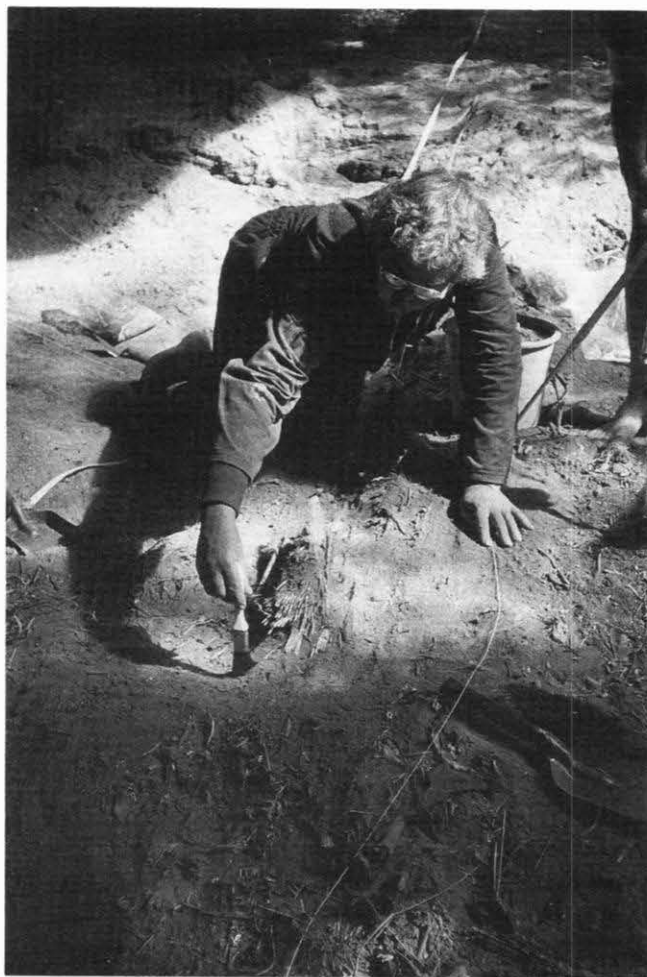


Figure 7.1. Excavation of kakapo feather bundle, S131/4, Square C4.



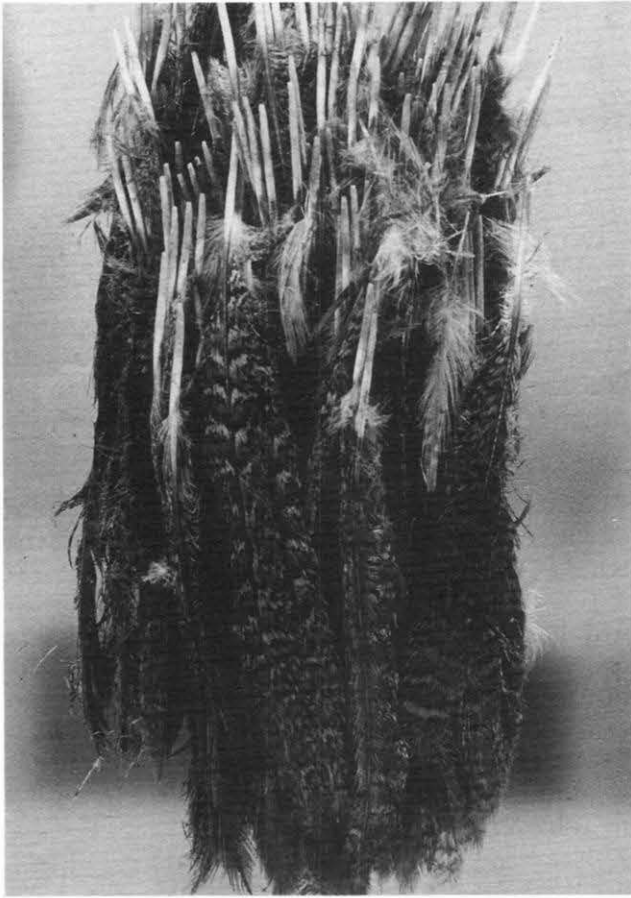


Figure 7.2. The cleaned bundle of kakapo feathers, S131/4, Square C4.

Feather remains from S131/6 were concentrated in Squares D2 and D3, with a few scattered about the inside edge of the cave. The majority of the feathers came from Layer 2 beneath an overburden of flax and rock from the cave roof. A few feathers were excavated from S131/3.

All feathers were carefully bagged and packaged in the field and once in the laboratory were cleaned by blowing down a glass tube to remove particles of dust.

#### IDENTIFICATION AND ANALYSIS

The state of preservation of the feathers was excellent, particularly in S131/4 where the kakapo feathers rivalled those held in museum collections for completeness and brightness of colour. This enabled reasonably easy identification based on colour and form using mounted and unmounted skins held at the Otago Museum. Where possible the position of the feather on the body was also recorded. Complete or near complete feathers were considered as acceptable for estimating the Minimum Number of Individuals (MNI) represented.

A list of the species identified and the MNI is given in Table 7.2. An attempt was made to sex the kakapo feathers using a preserved female kakapo in the Otago Museum. Examination of this bird's tail feathers revealed a definite lateral barring pattern consisting of yellow and dark brown bands.



Figure 7.3. Small bundle of kakapo feathers from S131/4.

Other skins held at the museum, and thought to be of male kakapo, showed a much more mottled, diffuse barring with a yellow/dark-brown/light-brown/dark-brown/yellow sequence. The majority of the kakapo feathers at S131/4 appear to be male.

Although there were a large number of kakapo tail feathers, there were surprisingly few body feathers. Indeed the 61 identified are far fewer than would be present on a single bird. This contrasts with an MNI estimate of 27 for the tail feathers (based on an average of 12 per bird). A further significant point is the lack of wing feathers; only a single tentative identification of a kakapo wing secondary was made. The significance of feather selection is discussed below.

Kaka feathers were also present in considerable quantity, the majority coming from S131/6. Identification of the body parts relied on a mixture of feather shape and colouring. Both wing primaries and secondaries had barring but the leading edge of the secondaries was not nearly as narrow as that of the primaries. Tail feathers were distinguished by the symmetrical arrangement of the vanes and the lack of barring. They were also noticeably worn on the underside. Orange-yellow coloured streaks on the feathers were not particularly useful as diagnostic features because the colour is a symptom of fading.

Table 7.2. Lee Island feathers.

Feather type	Square	Layer	Number identified
<b>S131/3 kakapo feathers</b>			
Wing primary	C2	2	1
Belly feather	C2	2	1
Side feather	C2	2	1
Large feather	C2	2	6- body position unknown
<b>S131/3 kaka feathers</b>			
Small feather	B4	1	1- body position unknown
<b>S131/4 kakapo feathers</b>			
Tail feather	B1	1	92- small bundle
	B3	1	2
	C4	1	230- large bundle
Belly feather	C3	Sf	2
	-A11	1	4
	C3	1	2
	C4	1	13
Wing secondary	C4	1	1
Mantle feather	-A10	1	1
Side feather	C3	Sf	1
	C3	1	2
	C4	1	8
Body feather	A9	Sf	1
	B5	Sf	1
	C2	Sf	1
	C4	Sf	1
	-A9	1	3
	B2	1	1
	B8	1	1
	C3	1	1
	C4	1	14
	-A9	2	2
	B6	2	2
B9	2	1	
Large feather	C5	1	1- body position unknown
<b>S131/4 kaka feathers</b>			
Tail feather	C5	1	1
Belly feather	-A9	1	2
	-A11	1	1
	C2	2	1
<b>S131/4 paradise duck feathers</b>			
Belly feather	B-1	1	45
	B2	1	3
<b>S131/6 kaka feathers</b>			
Tail feather	D2	Sf	4- cut
	B2	2	1
	D2	2	15- cut
	D3	2	25- cut
	D3	NE cnr	21- cut
Wing primary	D3	2	8
Wing secondary	D2	Sf	3-
	D2	Sf	8- cut
	D3	Sf	19- cut
	D2	2	3
	D2	2	5- cut
	D3	2	12- cut
Belly feather	D2	Sf	3
	D3	Sf	1
	B3	2	1
	B5	2	8
	D2	2	1
Body feather	B6	2	26
	C5	2	5
Large body feather	D2	2	15
	D3	2	20
	Small feather	A9	Sf
	B4	1	1- body position unknown
	B7	1	1- body position unknown
	C3	1	1- body position unknown
	-A9	2	2- body position unknown
	C2	2	5- body position unknown

A feature of the kaka feathers from S131/6 was the clear cut marks across the distal end of many of them (Fig. 7.4). The vanes had been sliced with a sharp instrument which produced a straight cut rather than the V-shape which results from simply snapping a feather. It is difficult to determine exactly how much had been cut off, as only a few of the cut feathers still retained both the calamus and rachis of the shaft. Measurements were taken from the start (proximal) of the vanes (normal pennaceous portion) and measured to the cut off point on the shaft on all the complete feathers available. The measurements were then compared to an average measurement of the length of kaka wing secondaries obtained from a skin at the Otago Museum. The results reveal that for the tail feathers, the average length of the museum specimen was 156 +- 5 mm while an average length of 115 +- 15 mm occurred in the archaeological material with complete vanes (and 66 +- 17 mm where the calamus and rachis had not been retained). The results for the wing secondaries reveal that the average length on a museum specimen was 141 +- 10 mm, and the average for the archaeological specimens with complete vanes being 109 +- 10 mm (while those without the rachis or calamus averaged 78 +- 16 mm in length).

As in the case of kakapo, there were few kaka body feathers. This presumably indicates plucking away from the site or, alternatively, careful collection and disposal of the feathers outside the lip of the overhang. Kaka body feathers with their red tips were of considerable value as ornaments for a variety of artefacts and it is entirely possible that the red feathers were collected for future use.

A small number of feathers were identified from three other species. Two from S131/6 were tentatively identified as from kea (*Nestor notabilis*). Four feathers were identified as parakeet (*Cyanoramphus* sp.), but since all appear to be body feathers, it was not possible to identify them to species.

A total of 48 feathers were identified as paradise duck (*Tadorna variegata*). These proved particularly difficult to identify being finely barred with light and dark brown bands. However, this pattern is seen in the paradise duck body feathers which are normally hidden from view.

A final feather had all the characteristics of a kakapo tail feather, apart from the colour which was bright yellow. The feather was tentatively

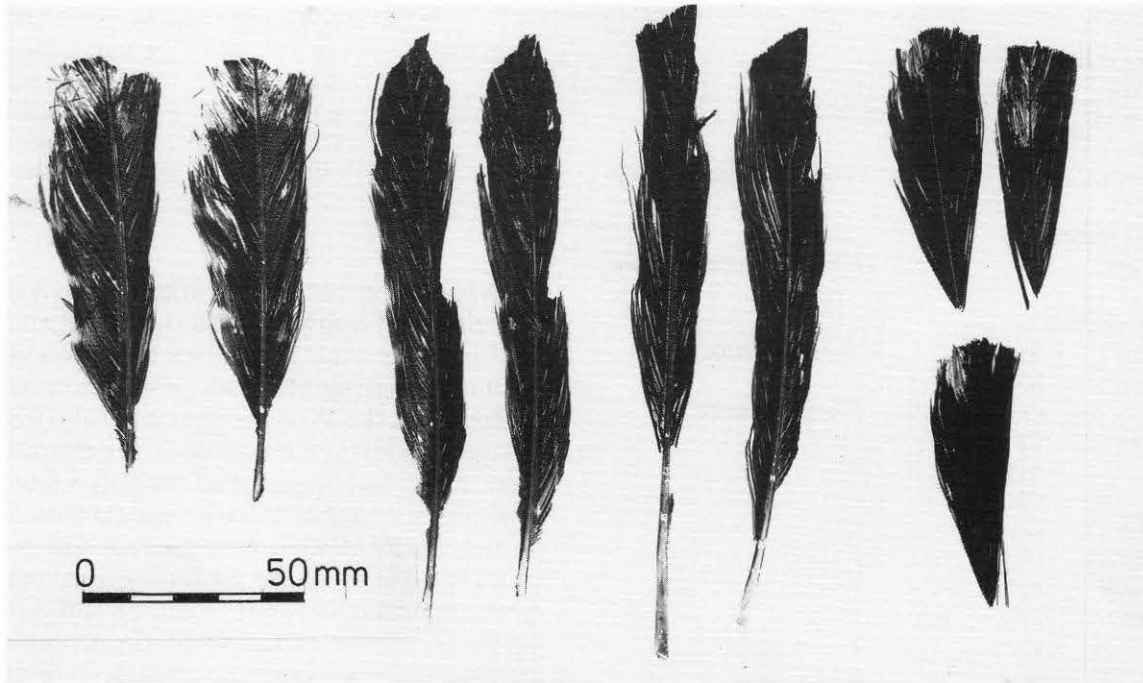


Figure 7.4. Examples of cut kaka feathers.

identified as a colour morph. Colour morphs occur occasionally in birds, producing a plumage of strikingly different colour often reversing the characteristic colour patterns. Reischek (1884; see also Westerskov 1981:273) describes one example noting that the wing and tail feathers were more yellow in colour than the normal plumage and Oliver (1974:552) notes that in general kakapo colour morphs show a change from green to yellow.

#### DISCUSSION

In all, 324 identifiable kakapo tail feathers were excavated from S131/4, the majority being in two bundles, one of 230 feathers and the other of 92. The identification of so many tail feathers is interesting when compared with what is known of kakapo behaviour and Maori methods of hunting the bird.

Kakapo exhibit lek behaviour (Merton 1975:46-47; 1977:139) in which the males build series of bowls connected by tracks along the crests of ridges from which they call, or 'boom', to attract females.

They are particularly vulnerable to predation at this time especially when hunted with dogs (Henry 1884; H.Best 1980; Reischek in Westerskov 1981; and Williams 1956). The fact that the feathers probably came from male birds, and the tendency for the birds to be widely dispersed outside the breeding season, suggests that the prehistoric hunters may have chosen to exploit the lek behaviour of the kakapo.

If so, then the season of occupation was almost certainly during the summer. Merton (1975:47) notes that booming has not been recorded prior to

November 26 nor later than February 16.

The existence of many tail feathers and virtually no body plumage, suggests that kakapo were skinned rather than plucked. Best (1942) notes that the kakapo was one of the few birds that the Maori skinned and that the skins were used to make dress capes (kahu kakapo).

One use of tail feathers might have been to decorate gourds for storing birds preserved in fat.

"The feathers used for decorating these gourd-vessels were split and then formed into bunches ... The splitting process referred to consisted of stripping off a part of the rachis of each feather so used, on either side, so that it came away with the web attached. When a number of these were tied together the effect was much better than if the full-quilled, stiff feathers had been used, for the tail-feathers were the ones utilized for these decorations.

As to the birds that provided these feathers, it was customary to decorate a taha huahua with feathers of the species that the vessel contained, be it pigeon, parrot, tui, weka, kakapo, or what not." (Best 1942:327).

Best also notes that totara bark vessels could be used in place of gourds as receptacles for potted birds.

The most intriguing aspect of the kaka feathers from S131/6 was that a number of both the tail and wing secondary feathers had been deliberately cut. A minimum of 40 mm had been removed from tail

feathers, with the possibility of 90 mm being removed in some cases. Wing secondaries had also been clipped with approximately 30 mm, possibly ranging up to 60 mm, having been removed.

Two explanations for this clipping come to mind; either the birds had their wings and tails clipped to restrict flying, perhaps because they were decoy birds, or the cutting of the feathers represents some stage in the processing of material for future use, possibly in a garment.

Best (1942:202) describes kaka used as decoys (mokal), but makes no mention of wing clipping. Indeed, if clipping was practised to restrict flight it would be expected that the wing primaries from one wing would be clipped, rather than the wing secondaries and the tail feathers. It seems unlikely, then, that the cut kaka feathers from Lee Island represent decoy birds.

Kaka feathers were certainly used to decorate a number of important artefact types most notably taiaha, and red feather cloaks termed kahukura, however the feathers used on these items were the red tipped body feathers rather than those from the wing or tail. Still it is not inconceivable that the tips of the wing feathers were used for some type of decoration. Discarding most of the length of the feather would make the remaining portion extremely flexible, in a way similar to scraping the rachis. This flexibility was essential if the feathers were to be attached to a cloak. Buck (1925:236) describes how a quill was laid across one warp and then bent upwards and caught under the weft on the next warp. It is possible that the tips of the wing and tail feathers were destined to be woven into some garment, but with a length range of 30-60 mm and 40-90 mm respectively, they would seem to be rather short. A different technique was employed in the cloak fragment represented in S131/4.

#### REFERENCES

- Best, E. 1942. Forest Lore of the Maori. *Dominion Museum Bulletin* No. 14.
- Best, H.A. 1980. Recent kakapo research on Stewart Island. *Wildlife, A Review* 11:33-38.
- Buck, P.H. 1925. The evolution of Maori clothing VII. *J.P.S.* 34:223-251.
- Coutts, P.J.F. 1972. The Emergence of the Foveaux Strait Maori From Prehistory: A Study of Culture Contact. Unpublished Ph.D. thesis, Anthropology Department, University of Otago.
- Duff, R.S. 1952. Recent Maori occupation of Notornis Valley, Te Anau. *J.P.S.* 61:90-119.
- Henry, R. 1884. Notes from Lake Te Anau. *N.Z.J.S.* 2:82-84.
- Merton, D.V. 1975. Kakapo. *Wildlife, A Review* 6:40-51.

- Merton, D.V. 1977. Conservation of the kakapo; a progress report. Proceedings of a seminar on science in National Parks, pp. 139-148. Lands and Survey Department, Wellington.
- Oliver, W.R.B. 1974. *New Zealand Birds*. A.H. & A.W. Reed, Wellington.
- Reischek, A. 1884. Notes on New Zealand ornithology. *T.N.Z.I.* 17:187-197.
- Shackley, M. 1981. *Environmental Archaeology*. Allen and Unwin, London.
- Westerskov, K.E. 1981. Reischek's 1890 paper on 'the kakapo (*Strigops habroptilus*) in the wild and captivity'. *Notornis* 28:263-280.
- Williams, G.R. 1956. The kakapo *Strigops habroptilus* (Gray). A review and re-appraisal of a near extinct species. *Notornis* 7:29-56.