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THE UNIVERSITY OF OTAGO 1996 FIELD SCHOOL EXCAVATIONS AT KAKANUI NORTH OTAGO

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INTRODUCTION

The Department of Anthropology, University of Otago 1996 field school was held about 100 km north of Dunedin, just up the coast from Kakanui River at Cat's Eye Point. Formally known as Archaeological Methods 2, the class consisted of 13 stage 4 students, 11 post-graduates who acted as supervisors, the class demonstrator (Graeme Somerville-Ryan), and the senior author as site director. The excavations took place over one week in late April and we were extremely fortunate to have some of the best weather experienced during any April at Kakanui - a fact emphasised numerous times by several long-time residents.

Cat's Eye Point extends from a sandy dune which provides some protection to the archaeological site located in its lee. Designated J42/4 (previously, S136/7), the site is situated at the north-east end of a long sandy beach where the low 2 - 4 m high cliffs just inland are undergoing severe erosion from high waves. A prehistoric cultural layer about .30 - .50 m thick and containing hearths, concentrations of shellfish and charcoal for about 50 m, is exposed .50 m below the top of the eroded bank (Fig. 1). Michael Trotter noted the possibility of partial damage to the site by sea erosion in August, 1958 and, 20 years later, the NZAA site record form describes the site as "almost totally destroyed by roadworks, dumping, construction of boat ramp [on the east side], sea erosion, and fossicking." Indeed, coastal erosion and fossicking are the greatest site threats today. Although the excavations were primarily conducted to teach students the basics in archaeological field methods, several additional objectives were sought: (1) definition of the areal extent of the site; (2) determining the depth, nature, and age of the prehistoric cultural layers; (3) sampling cultural deposits that were in immediate danger of destruction by on-going sea erosion; and (4) collecting sufficient information that would permit construction of an interpretive display on site. We describe below our field and lab methods.



Figure 1. Cat's Eye Point site J42/4 with dark midden layer about .5 m below the top of the cliff face. Scale near centre of photo is .5 m long; view north-east. (photo: M. Weisler.)

METHODS

A detailed plane-table and alidade site map was drawn at 1:250 scale which included the location of excavation units and important features of the surrounding environment such as concentrations of water-rounded basalt cobbles around the base of the cliff, the rocky point, and sandy beach (Fig. 2). All 16.5m² of excavated sediments were passed through 6.4 mm sieves with additional sampling of four 1m² units with 3.2 mm mesh. Bulk samples, up to 2 kg, were collected for analysis of land snails and other micro-midden constituents. All cultural material retained in the sieves was kept for analysis. Fire-altered rock - presumably oven stones - were counted and weighed at several units and discarded on site. Samples were retained for petrographic analysis. Representative stratigraphic sections were drawn of all excavation units including the nearly 11 m long erosional cliff face immediately seaward of the main excavations. Sediment samples were taken

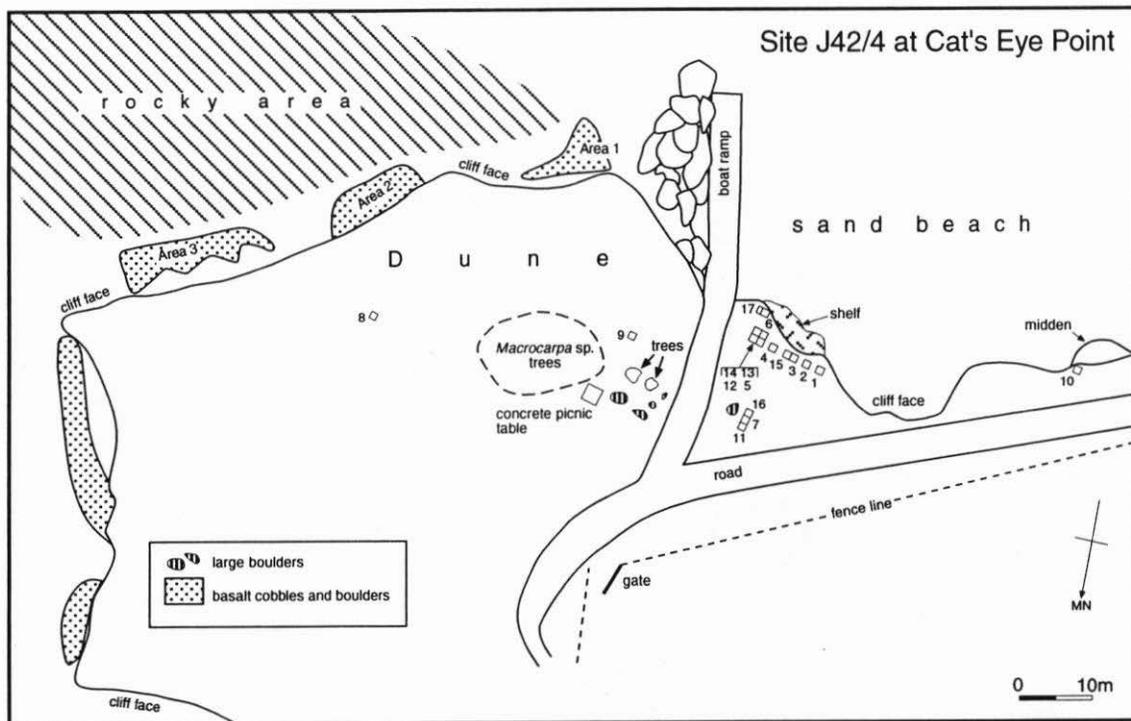


Figure 2. Map of site J42/4 showing the environmental setting and layout of excavation units.

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from units that represented the depositional variation of the site stratigraphy. Analysis of pH, organic matter, calcium carbonate content, grain size, and micro-constituents are underway in the Geoarchaeology Laboratory at the University of Otago. The site stratigraphy, excavation procedures, and general site environment was documented by black-and-white and colour photography. All unit excavation procedures and notes regarding sediment characteristics and artefact and midden collections were recorded on standardised forms (Fig.3).

Excavations were concentrated immediately inland of the thickest portion of the cultural layer exposed in the eroding cliff face. This was done not only to recover cultural material that had the highest probability of being lost from on-going erosion, but also allowed the site director to easily oversee student training. We were fortunate that several post-graduate volunteers assured one experienced supervisor for almost every untrained student. Some 13.5m² of excavation units were concentrated near the erosional face, while three 1m² units were excavated 20 and 50 m east, and 50 m west of the main excavation to determine the limits of the cultural deposit (see Fig. 2). After removal of the turf, excavations proceeded in arbitrary 5 - 10 cm spits within defined cultural layers.

In the field, all cultural material was sorted to shellfish, bone, lithic debitage, formal artefacts (e.g., hammerstones, adze preforms, fishhook fragments) and bagged separately to avoid breakage during transit and to facilitate the lab work. The material was washed in the archaeology laboratories at the University of Otago. Artefacts were catalogued with a typical number thus: J42/4-TP7/2-1, where J42/4 is the site designation, TP7 is test pit 7, /4 is spit 4, and -1 is the first sequentially-numbered artefact within the spit. All artefacts, midden data, samples (e.g., radiocarbon and sediment) were entered on a database using FileMaker Pro version 2.0. Shellfish were identified to nearest taxon and weighed. Fish bone was sorted and identified to family-level and the number of identified specimens (NISP) and minimum number of individuals (MNI) were recorded. Paul Rivett has identified most fish otoliths to genus-level. Bird remains were identified by Trevor Worthy, and Ian Smith is currently analysing the mammal bone.

Petrographic and geochemical analysis of basalt artefacts and source rocks are in progress at the Department of Geology, University of Otago in cooperation with Douglas Coombs. Geochemical analysis of obsidian will be supervised by Peter Sheppard. Two wood samples (species identified by Rod Wallace) and a sample of marine shellfish were sent to the University of Waikato for radiocarbon dating. A split of one sample was also sent to Beta Analytic Inc., USA. The results of all these studies will be presented in a future paper.

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Excavation Level Record

Site: J42/4 Unit _____ Stratum _____ Level _____
 Spit _____ Date _____ Recorder _____

	<p>Sieved: Dry Wet _____</p> <p>Size: 6.4 3.2 _____</p> <p>Depths: Surface Datum _____</p> <p>Samples: ¹⁴C Sediment _____</p> <p>Bone Shell Charcoal _____</p> <p>Other _____</p> <p>_____</p> <p>_____</p>																																																																																
<p>Comments: (Note sediment characteristics, colour, disturbances, problems).</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">obj.</th> <th style="width: 5%;">x</th> <th style="width: 5%;">y</th> <th style="width: 5%;">z</th> <th style="width: 80%;">Description</th> </tr> </thead> <tbody> <tr><td>1</td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td><td></td></tr> <tr><td>11</td><td></td><td></td><td></td><td></td></tr> <tr><td>12</td><td></td><td></td><td></td><td></td></tr> <tr><td>13</td><td></td><td></td><td></td><td></td></tr> <tr><td>14</td><td></td><td></td><td></td><td></td></tr> <tr><td>15</td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	obj.	x	y	z	Description	1					2					3					4					5					6					7					8					9					10					11					12					13					14					15				
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Figure 3. Standardised excavation level record.

RESULTS

Initial lab processing and some analyses, conducted by the stage 4 Archaeological Methods students, are in progress and we report here the preliminary results.

Artefacts and Lithic Technology

Artefacts recovered from J42/4 included several fragments of two-piece bone bait hooks, more than a dozen hammerstones, a few adze preforms, five pieces of obsidian, and several silcrete flakes. Most artefacts were associated with adze production, the source of material being less than 50 m south-east of the main excavation (Fig. 2). This is an important basalt source for the Otago region. A large flaking floor was exposed in a 4m² area (test pits 5, 12, 13, and 14) with hammerstones, adze preforms, and debitage representing all stages of adze production. In total, 5103 basalt flakes weighing ca. 18.5 kg were recovered. Detailed technological, petrographic, and geochemical analyses are on-going. It will be worthwhile to geochemically characterise stone artefacts from other collections, such as Shag Mouth and Pleasant River, to document prehistoric interaction between Kakanui residents and other populations.

Subsistence

More than 17.8 kg of shellfish were recovered; most taxa are from environments associated with the rocky point just south-east of the site; the dominant shellfish included mussels, turban shells, and oysters. Some 25,213 bones were retained; 8995 from 16.5m² (concentration index of 545m³) and 16,218 from 4m² (CI = 4055m³). While it is predictable that more bones per volume will be retained in 3.2 mm rather than by the 6.4 mm sieves, it was surprising to find that 207 fish bones were identified to family-level in the 6.4 mm sieves (in order of abundance: red cod, barracouta, black cod, and ling), while more than 300 otoliths were retained in the 3.2 mm sieves **from only four units**. Using 3.2 mm sieves in less than 25% of the excavations more than doubled the total number of identified specimens. This fact alone has tremendous implications for reconstructing overall meat weight represented by the midden, especially when this figure is used for estimating the numbers of people that could have lived at the site. It is also interesting to note that, based on preliminary counts, red cod represents 63% of all bones, yet when otoliths are added to the assemblage, the figure increased to 84% of all identified material. If 3.2 mm sieves were used throughout the excavations, it is likely that red cod would represent more than 90% of all identified fish. Indeed, otoliths - rarely found in 6.4 mm sieves - are a potential source of important information. The identification and interpretation of the bird and mammal remains will be presented elsewhere, but bones of moa, dog, fur seal, and possibly sea lion and elephant seal are present.

Geoarchaeology

On-going geoarchaeological studies will enable us to determine the depositional context of the cultural material both before and after the site was occupied prehistorically. What was the area like before people settled at Cat's Eye Point? How much of the coastline has been eroded? Was the cultural deposit more extensive and are we left today with only a small remnant? Has the sediment chemistry affected the preservation of organic cultural material? These questions are being addressed with current research.

Dates of settlement

Two wood charcoal samples of short-lived species - and from secure stratigraphic contexts - were submitted to the University of Waikato radiocarbon lab. Results suggest that portions of site J42/4 may be 900 years old. To determine further the accuracy of these early dates, an additional sample of marine shell from the same stratigraphic context as one of the wood charcoal samples was also submitted. Details of these and other dating results will be presented when available.

Site Management and Interpretation

The Cat's Eye Point site has been altered by coastal erosion probably since it was abandoned a few centuries ago. We may be left today with only a tiny remnant of what formally was a more extensive habitation and adze-making locale. Construction of the boat ramp during the 1970s destroyed the eastern edge of the site probably removing a portion of the stone-working floor. The top of the site was used for a historic dump sometime in the past as well. From one week of excavation we encountered earth ovens, extensive shellfish and faunal remains, identified a new source of fine-grained basalt that was fashioned into adze preforms on site, documented evidence of at least indirect contact with communities on the North Island (inferred from the obsidian artefacts), and recovered silcrete from Central Otago; yet more information will come from future analyses. It is now clear that efforts should be taken to protect what is left of an important site. Interpretive signs, planned in co-operation with Te Runanga O Moeraki, will be a step towards long-term site preservation through education.

FUTURE WORK

Additional excavations planned for March, 1997 will focus at the main site area to expose further the stone-flaking floor in units 5, 12, 13, and 14. Additional faunal samples should contain rarer taxa, thus providing a more complete picture of subsistence practices and the effects of humans on the local populations of birds. Recovered fish bone, and especially the otolith results, warrant further methodological investigations on recovery bias and its fundamental role in understanding prehistoric subsistence practices. The relationship of the Kakanui inhabitants with distant groups may be revealed

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through the determination of the sources of obsidian found in the site. That J42/4 was an important source of fine-grained basalt could add significantly to prehistoric interaction studies on the South Island.

Almost 20 years ago, J42/4 was considered "almost totally destroyed" by roadworks, sea erosion, and fossicking. If excavations at Cat's Eye Point have taught us anything, it is that the significance of prehistoric archaeological sites cannot be determined from viewing an exposed section, and the negative effects of coastal erosion must be demonstrated and not assumed. Current research will prove that the Cat's Eye Point site deserves the full protection accorded from our historic preservation laws.

ACKNOWLEDGMENTS

Kind permission to conduct archaeological excavations at Kakanui was granted by Te Runanga O Moeraki, in co-operation with Trevor McGlinchey, Peter Garven, and Gerard O'Regan. The on-site research was authorised in accordance with the Historic Places Act 1993 under application No. 1996/23. Jeff Connell, Department of Conservation, granted permission to work in the Cat's Eye Point Conservation Area (reference HRM/ARC1). We thank Kathleen Stringer and Jim Caldwell from the North Otago Museum and several members of the Runanga O Moeraki for their interest in the project and help with fieldwork. Several Kakanui residents visited during the excavations and shared valuable information on previous artefact collections and rates of shoreline erosion. Peter Bristow (Department of Conservation) contributed some historical research. Post-graduate students from the Otago Anthropology Department volunteered their effort; we thank Matthew Bilton, Hallie Buckley, Joanne Dickson, Karen Fraser, Dean Grogan, Dougald O'Reilly, Melanie Pearson, Paul Rivett, Teresa Smith, Tim Thomas, and Helen Widdicombe. Martin Fisher prepared Figure 2. Carol Quinn and Morris Brown assisted with their organisational skills and logistical support that made the project run smoothly. Lastly, Ian Smith brought the Kakanui site to the attention of the senior author.