

# Further Excavations at Wairau Bar, New Zealand

*Received 8 October 1974*

MICHAEL M. TROTTER

## INTRODUCTION

SINCE its discovery in January 1939, the Moa-hunter site on the shingle spit at the mouth of the Wairau River on the northeast coast of the South Island has become the best known archaeological site in New Zealand. Numerous excavations have been made here to recover artifacts and to obtain information on the people who made them. Excavation techniques have ranged from the use of a plough to locate human burials to sophisticated troweling and recording to elucidate stratigraphy.

It was principally on the basis of the human skeletons with associated burial goods found here that Roger Duff formulated his theories on the Moa-hunter Period of Maori culture (Duff 1950). Wairau Bar has been considered a "type site" for this aspect of New Zealand prehistory, although similar early human burials with distinctive ornaments and "unfinished" stone adzes as grave goods are in fact very rare elsewhere in New Zealand.

Although the presence of pre-European occupational material near the mouth of the Wairau River had been known locally for some years, it was not until school-boy Jim Eyles dug up a perforated egg of a moa (an extinct flightless bird of the order Dinornithiformes, standing 2 to 3 m high), human bones, and artifacts in 1939 that any interest was aroused in the site. This material was purchased by the National (then Dominion) Museum in Wellington. No more digging was done until 1942, when Eyles discovered another burial, again with a moa egg and artifacts. Shortly after this the site was visited by Roger Duff of the Canterbury Museum, and together he and Eyles excavated five more human skeletons. The following year a further fourteen burials were located and excavated by Eyles and Duff. In 1945 Eyles found eight more, did further work in 1949 and 1950, and in 1951-52, now

a member of the staff of the Canterbury Museum, he excavated seven more with volunteer help.

In 1955 Robert E. Bell of Oklahoma University and Roger Duff dug a compact area in search for posthole patterns. This was considered to be of prime importance because although other aspects of Moa-hunter culture were known, no reliable evidence of dwellings or other buildings of this age had been obtained. Many postholes were found on this occasion, some with post butts still in position, but no plausible pattern emerged.

Investigations of Wairau Bar up to this date have been described by Duff in the second edition of his book (Duff 1956) and by Bell in *Asian Perspectives* (1957: 136). In this article I will briefly review subsequent work at the site and list radiocarbon dates that have been obtained for it.

### BURIAL 39

Up until 1956 thirty-six human burials had been excavated at Wairau Bar; in January that year four more were located in what has become known as the "southern burial area" at the southeastern end of the site. Burials 37 and 38 were generally similar to others in this area in that they were fairly shallow (45 and 40 cm respectively) and the bones were all in a poor state of preservation. Number 37 was lying on its back, oriented with the head to the north facing toward the west, and the feet to the south. Number 38 had the cranium missing, removed after burial, although the mandible was still present. It was oriented east-west with the head to the west. Burial goods were a moa egg, at least six imitation whale-tooth necklace units, two reel-shaped necklace units, and four stone adzes.

Burial 39 (Plate I) was excavated by Jim Eyles and myself in January 1956, and I am thus able to describe it in greater detail. Burials in this area had been located at approximately regular intervals and this one was about 2 m from the last one that had been found.

In this area of the site the topsoil comprised a 15-cm thick layer of porous gray loam containing virtually no occupational material. Its homogeneous nature was probably due to its having been mixed by ploughing. At the time of occupation the ground surface would have been somewhere within this top 15 cm.

The first indication of the burial was a lens of black humus immediately below the surface layer. This lens was up to 7 cm thick (see Fig. 1) and contained some mollusc shells and fish and bird bones (including moa) which did not occur elsewhere in the excavated area. The dark color appeared to have been caused mainly by staining from the decay of organic material; no charcoal was visible in either lump or powder form. It was found that this black humus lens occurred only above the hollow that had been dug to take the body and associated material, and it was therefore either part of the upper portion of the fill placed over the body or a deposit of midden subsequently placed in the depression caused by the decomposition of the body and settling of the fill.

Beneath the surface layer and the black lens was a layer of brown gravel, normally about 15 cm thick, lying on gray gravel of untested depth. The grave had been dug into the gray gravel to a total depth (from the present-day ground surface) of 50 cm, and was filled with brown gravel, indistinguishable by sight from the normal brown gravel layer.



Plate I Burial Number 39, Wairau Bar, New Zealand. Field photograph, 1956.



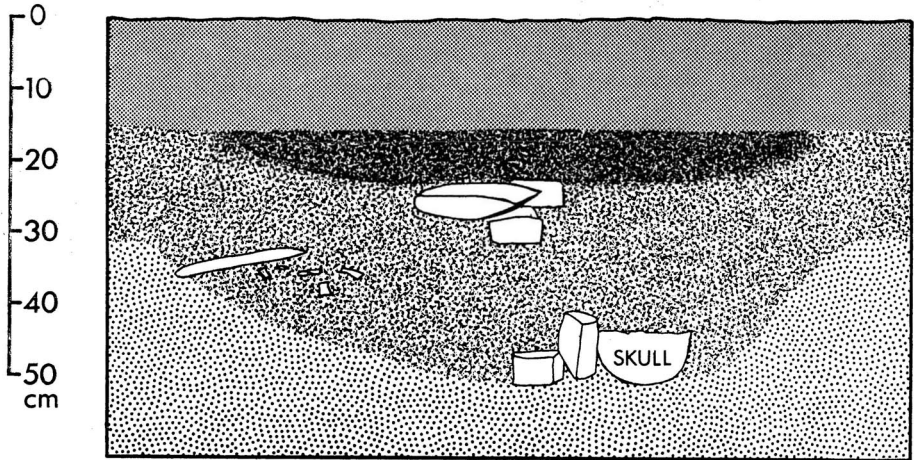


Fig. 1 Burial 39, Wairau Bar, showing relative depths of burial material and stratigraphy.

The body of a well-built adult man had been placed in the grave, face downward, oriented approximately north-south with the head to the north. The legs were slightly flexed and twisted with the feet to the east. The right arm lay alongside the body and the left arm was bent and placed underneath the abdomen. Teeth had been in good condition in life although they showed some even wear. All the bones were in a poor state of preservation, those retaining some part of their original shape being the front portions of the skull and mandible, both radii, both ulnae, part of the pelvis, both femora, fibulae, and tibiae, one patella, three tarsals, and one finger bone which was by itself near the neck.

The back of the cranium had been crushed, doubtless by the weight of overlying soil. Most other limb bones were distinguishable only as bone "dust," and the vertebrae and ribs left no trace that could be seen in the field. No explanation can be given for the presence of a single finger bone in the region of the neck, nor for its good state of preservation. Neither hand was in this position, both being indicated by shapeless areas of dust amongst the gravel.

Around the neck, and scattered as far as 25 cm south of the base of the skull, were twenty-two necklace units of moa bone, each shaped in the form of a stylized whale tooth (Fig. 2). Most were in a poor state of preservation. Five flaked adzes of argillite (an indurated mudstone) had been buried with the body: two on the left side of the head (quadrangular section, type 1A of Duff's 1956 classification), two alongside the right arm (very narrow hogbacked, type 4), and one on the right thigh (quadrangular, type 1A). In the grave fill above the left hip, and separated from it by 10 cm of brown gravel, was a group of five more adzes, the uppermost one partly projecting into the bottom of the black humus lens (two quadrangular, type 1A, one triangular, type 3, and two flat quadrangular approximating type 2A). Adzes from beside the skull and alongside the right arm are shown in Figure 3. About 40 cm west of the skull was one more adze (triangular, type 3), and south of it, centered 35 cm from the left elbow, were the broken pieces of a moa egg. Lying along the left side of the body some decayed wood dust indicated the remains of a narrow wooden artifact, about 1.5 m long.

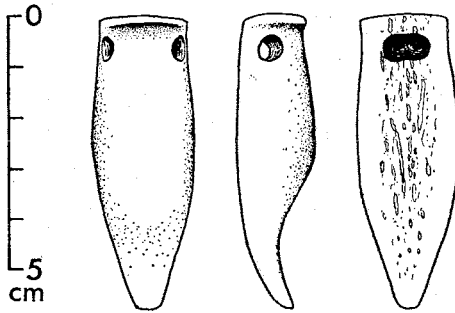


Fig. 2 Stylized whale tooth necklace unit made of moa bone. Burial 39, Wairau Bar.

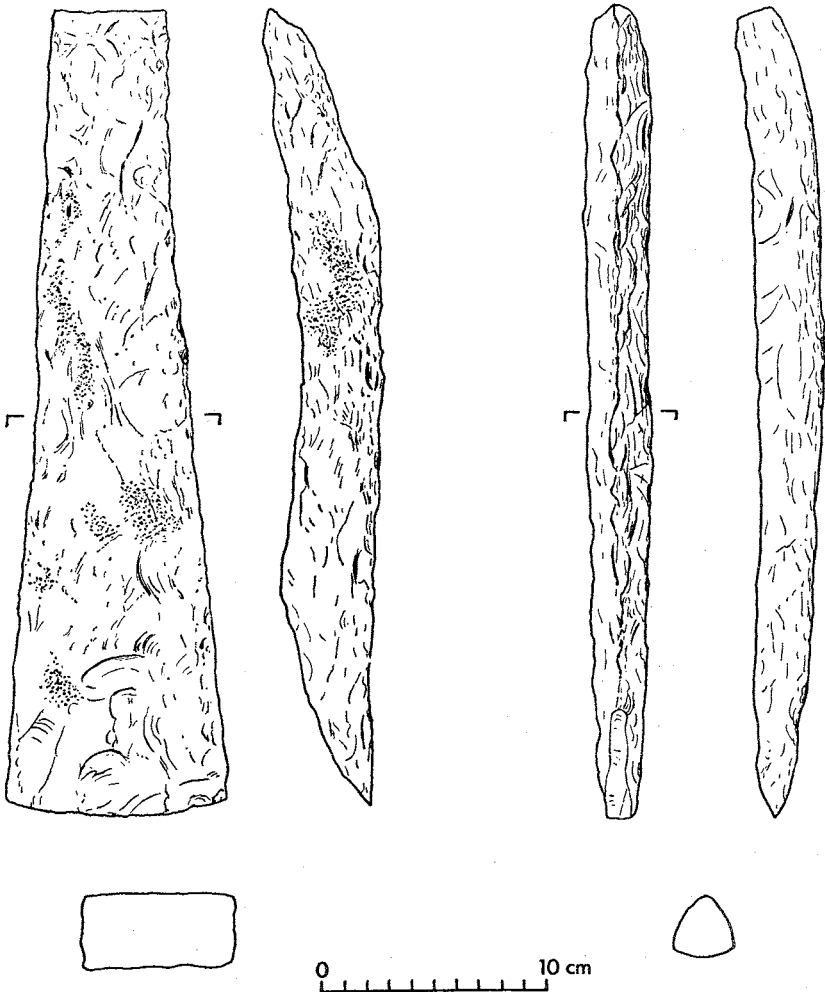


Fig. 3 Two of the eleven adzes found with Burial 39.

It is probable that all these artifacts were deliberately buried with the body. Although the moa egg and one adze were some distance away from it, they were nevertheless within the same hollow, as indicated by brown gravel intruding into the level of the gray gravel.

While it might be argued that the group of five adzes above the left hip was the result of subsequent caching, the fact that they were below the black humus lens, which appeared to be associated with the burial, suggests that they were buried at the same time as the body.

#### 1959 AND 1964 EXCAVATIONS

In 1959 a Canterbury Museum party extended the area opened up by Bell and Duff when looking for postholes. As well, a trench was dug from the nearby lagoon edge, revealing that the occupational layer extended below the present high tide level, thus suggesting a change in the relative levels of sea and land since occupation. More burials were found at this time, bringing the total number excavated up to 44.

To study further the implications of the stratigraphy revealed by the lagoon edge trench, the Canterbury Museum team returned in 1964 to dig two trenches, one of them near and parallel to that of 1959. This revealed stratigraphy from the following sequence from the bottom of the section.

The lowest deposit visible consisted of thin seaward-sloping layers of gravel and sand, with occasional non-midden mollusc and barnacle shells. Moderate quantities of sea-washed pumice of Taupo origin suggested that this deposit was a sea beach that was forming soon after about 1800 years B.P.

Above this was a layer of gray gravel and sand of lagoon origin. In places it was partly cemented by mud and silt, which resulted in good preservation of any postholes dug into it. Where it was not cemented or where postholes did not reach this level, they were generally very indefinite. Lying over this gray gravel was a fossil soil of brown sandy gravel, the ground surface at the time of occupation, into which had been dug postholes and cooking pits. Some of these cooking pits were below the present high tide mark, indicating beyond doubt a relative drop in the land level. Over much of the site the present day loamy soil and surface turf lay directly on this brown gravel, but in other places there was a dense deposit of occupational material comprising shells, bones, artifacts, burnt stones and lumps of charcoal, in a matrix of blackened sand. Artifacts were of the same general types described by Duff (1956), but the most noticeable feature was the large number of waste flakes of argillite. These flakes indicated the manufacture of adzes on the site from stone brought in from quarries, the nearest known of which is 50 km away.

#### RADIOCARBON DATES

During excavations in 1952 a sample of charcoal was collected from a charcoal-filled cooking pit, 43 to 75 cm below the present ground surface. The sample was divided in two, one half being processed by the Yale Geochronometric Laboratory and the other by the Dominion Physical Laboratory (New Zealand). The results have often been misquoted and their significance is often confused; in terms of radiocarbon years before A.D. 1950 they are:

Y204	Charcoal sample	935 ± 110 B.P.
NZ50	Duplicate of Y204	850 ± 50 B.P.

Because C-14 dates on charcoal from South Island archaeological sites have proven generally unreliable—averaging between two and three hundred years earlier than those from other materials—I submitted samples of bone and shell from the Canterbury Museum's 1959 and 1964 excavations to the New Zealand Institute of Nuclear Sciences in 1974. The new results are:

NZ1835	Human bone collagen (Burial 42)	780 ± 80 B.P.
NZ1837	Shell aragonite ( <i>Paphies australis</i> )	680 ± 50 B.P.
NZ1838	Moa bone collagen ( <i>Euryapteryx gravis</i> )	590 ± 60 B.P.

All results have been calculated using the 5568 year half-life of C-14, and ages are given in radiocarbon years before 1950, calculated with respect to the New Zealand standards for bone and shell (Rafter et al. 1972).

Until more is known about the possible duration of the prehistoric occupation of Wairau Bar, and of the results from human bone collagen as compared with other materials, these dates may be taken to indicate a period of occupation some six to seven hundred years before present. This is in keeping with other dated South Island moa-hunter sites.

#### REFERENCES

- BELL, R. E.  
1957 New Zealand (Regional Report). *AP* 1(1-2): 131-143.
- DUFF, R. S.  
1950 *The Moa-hunter Period of Maori Culture*. Canterbury Museum Bulletin 1. Wellington.  
1956 *The Moa-hunter Period of Maori Culture*. 2nd ed. Canterbury Museum Bulletin 1. Wellington.
- MCCULLOCH, B., and M. M. TROTTER  
1975 The first twenty years. Radiocarbon dates for South Island Moa-hunter sites. *NZJAN* 18(1): 2-17.
- RAFTER, T. A., H. S. JANSEN, L. LOCKERBIE and M. M. TROTTER  
1972 *New Zealand Radiocarbon Reference Standards*. 8th International Radiocarbon Conference, Wellington.