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EXCAVATION OF AN ARCHAIC SITE
AT TAHUNANUI, S20/2, NELSON

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Abstract

This report outlines the excavation of an Archaic site at Tahunanui, Nelson. The site is notable for the evidence of extensive utilization of metamorphosed argillite and other rocks in tool manufacture. The material evidence is described and some attempt at interpretation of the functional nature of the settlement is made.

INTRODUCTION

The first somewhat sketchy report (Millar, 1964) did little more than indicate the presence of an Archaic site in the Tasman Bay area where only one other at Anapai (Wilkes 1963, 88) had been archaeologically substantiated. Subsequent excavation at Tahunanui of approximately 590 square feet of occupational residue has been carried out by the writer with occasional assistance from members of the Nelson Historical Society's Archaeological Group. As the site was situated a few yards from the Nelson-Richmond Highway in the centre of a commercial and residential area, large scale area excavation was avoided to minimize disturbance to the lawn and fruit trees of a well developed residential section.

Neither historical nor traditional evidence of the site has been located, while the only indication of the probable topography of the site is contained in a photograph taken by Mr F. N. Jones (Junior) in 1902 before the area was subdivided for residential sections. At that time the area appeared as low undulating sand dunes or gravel beach ridges with shallow swamp in some of the intervening lower areas. A small stream intersected part of the area between the flaking floor and the hill which rises to the east of the site. About 300 yards to the south-west a large stand of native bush remained. To the north, the Tahunanui Beach appeared to be only 60 yards distant. The inscription on the photo reads "General View of Tatahi (Tahuna), Nelson".

THE EXCAVATION

Early in 1964, after trial excavation had revealed the importance of further investigation, the potential excavation area was laid out in five-foot squares with datum lines lying N-S magnetic and E-W magnetic. The resultant grid was established with inch square pegs driven just below the surface of the lawn. In the succeeding years these pegs were easily located and provided no hindrance to the property owners. Excavation procedures involved the careful removal of the lawn turf and in most squares the removal of 6 to 12 inches of river silt which had been used in levelling the section many years earlier. Over much of the excavation area this river silt had successfully prevented disturbance of the occupation layer below.

The thickness of the occupation layer ranged from less than 2 cms at the periphery to 45 cms at the deepest part with much of the occupation being represented by residue 15 to 20 cms in thickness. This layer, which comprised of black greasy sand, alluvial gravel and some larger stones, contained considerable quantities of fish bone (mainly snapper, barracoutta and kahawai), quantities of rocky shore shellfish and Chione, faunal remains of dog, seal, moa and other birds, occasional lenses of compacted burnt shell and wood ash, waste flakes from tool manufacture and artifacts.

THE MATERIAL EVIDENCE

The most significant feature of the site was the extent of stone tool manufacture. Much of the raw material consisted of metamorphosed argillite (Keyes, 1958) from the Nelson mineral belt, although considerable quantities of hornblende-andesite and granodiorite also occurred. Considerable quantities of waste flakes littered the occupation layer with the density exceeding 10,000 flakes in 10 square feet sampled in the presumed centre of the flaking floor. The following stone constituents are treated in order of frequency:

Metamorphosed argillite:

By far the most important flake component and represented by many thousands of flakes. The quality and colour of the argillite utilized on the site had a wide variance ranging from the superior quality, light grey variety with black veining through the medium grey to black. Colour alone is unreliable in indicating the possible quarry source, but it seems reasonable to assume from the wide range of argillites represented in the thousands of flakes present, that the material had been obtained from several sources. The light grey argillite (still

referred to as D'Urville Island argillite) was common in the lower levels of the occupation but less frequent in the middle and upper zones. The "steel blue" and black variants were represented by a few flakes only, possibly representing breakages or re-utilization of artifacts originally manufactured somewhere else. Although flakes with natural patina occurred, a far greater number exhibited water-worn surfaces than would be expected if quarry sources alone had been exploited. Keyes (1958) warns about the need for correct petrological terminology in dealing with metamorphosed argillite on account of its significance in New Zealand archaeology. The identification of metamorphosed argillite in the field is often difficult due to the close visual similarity with some fine-grained basalts, while the cleaning of flake samples from the dark occupational matrix has been very time-consuming. Consequently, it should be noted that this listing is of a general nature only and may be subject to correction when further statistical and petrological work has been carried out on the samples.

Horneblende-andesite (?):

A fine-grained greenish rock from which some very large flakes (8 to 15 cms) had been struck. In spite of its poorer cleavage qualities, considerable quantities of this stone had been utilized. Some broken adze blanks of quadrangular cross-section occurred in this stone, but proportionately the incidence of this material was higher in Type 4 (Duff, 1959) adze blanks.

Granodiorite (?):

A coarse-grained dark green rock with crystals sometimes evident. Recognizable adze forms in this material were restricted to Type 4.

Obsidian:

Of the 566 flakes recorded, 234 were of green translucency and 332 were of grey translucency. Plotting of the distribution throughout the site and dispersal of flakes within the occupation layer revealed no discernable pattern of predominance or change. (Excavations at Rotokura, 10 miles distant have revealed a marked predominance of green translucent obsidian in the Archaic context.) A large prismatic-like core of Mayor Island obsidian roughly triangular in cross section and weighing 1.446 kilograms was located near the base of the occupation layer. The edges had been ground, presumably to minimize the chances of laceration during handling. Few flakes had been struck from this well prepared core.

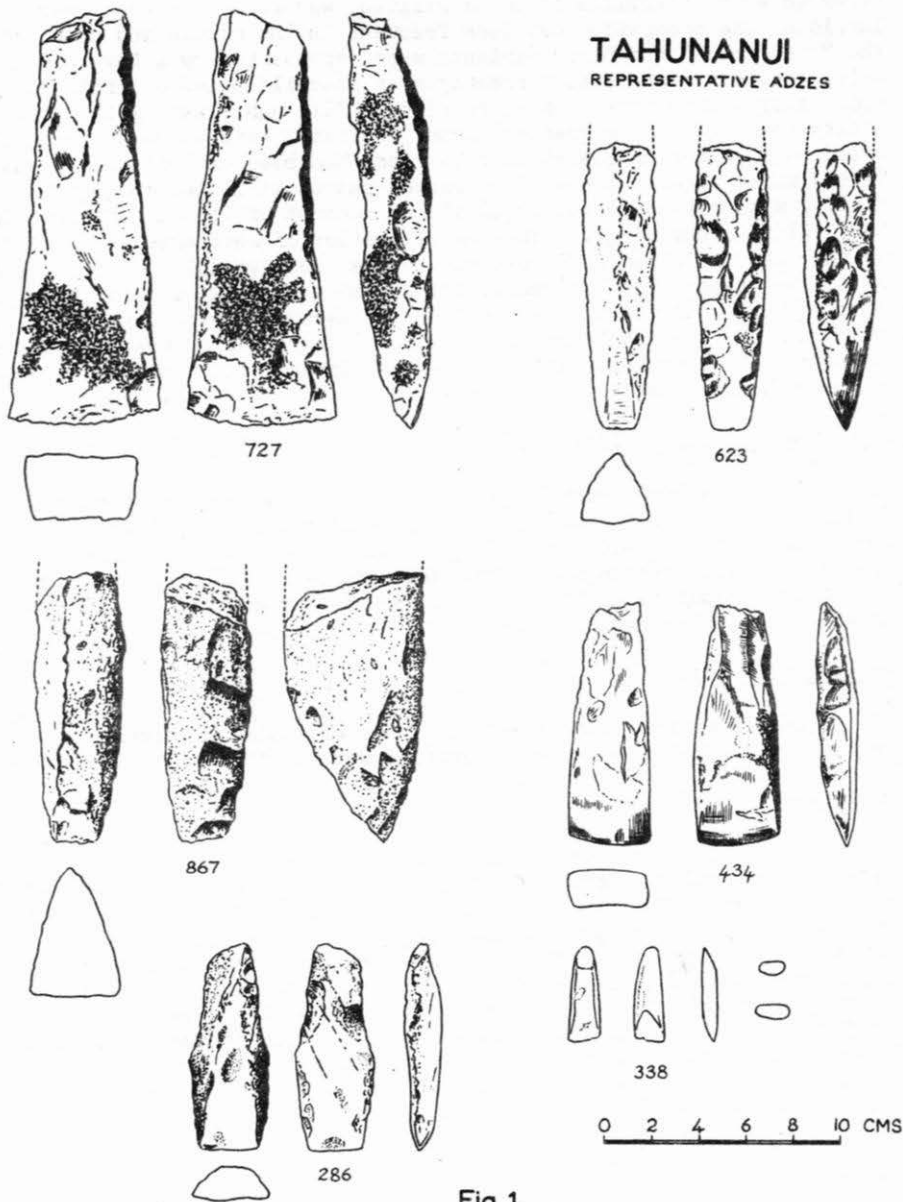


Fig 1.

TAHUNANUI
REPRESENTATIVE FISHING GEAR

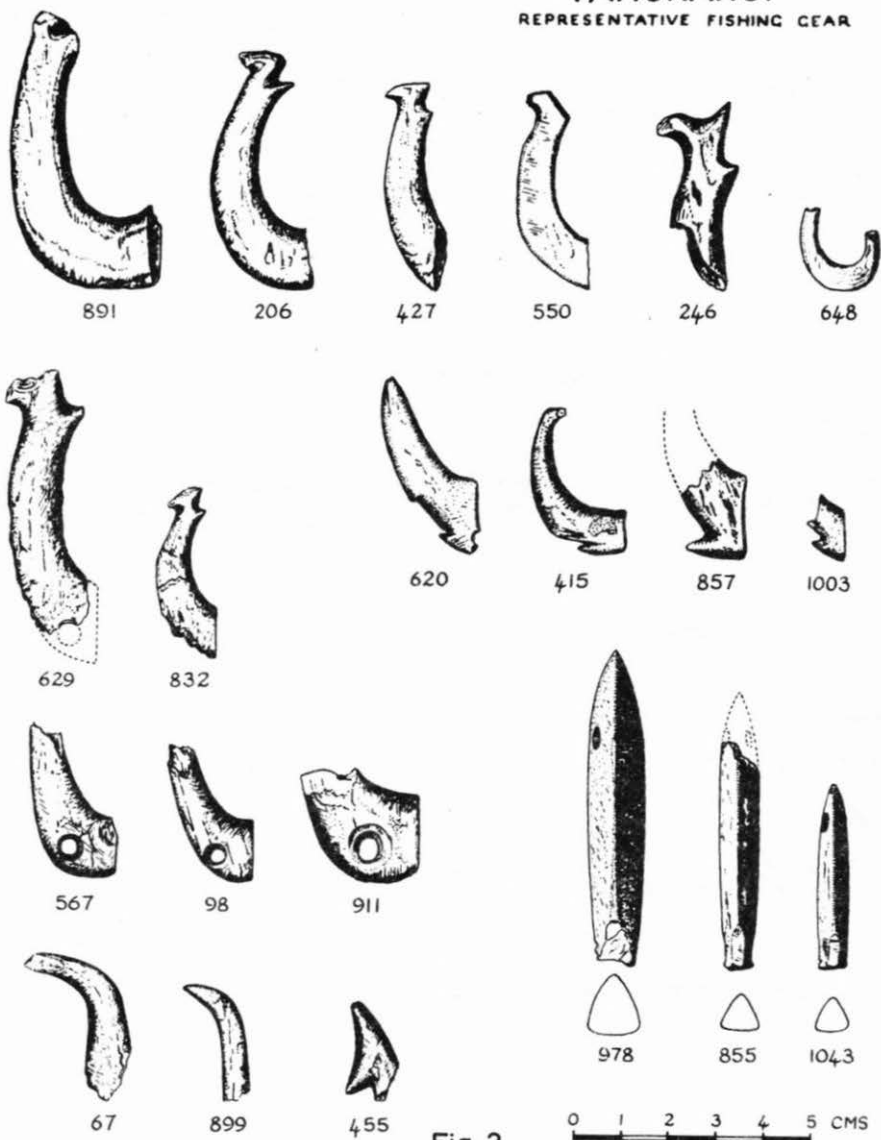


Fig 2.

Chert:

Four small cores and a number of flakes were excavated. With the exception of the obsidian core, these four chert cores were the only ones located.

Quartz:

Fractured fragments of clear quartz or rock crystal ranging from 1 to 4 cms in length occurred. The most likely source of this material would be the "Granite Coast" on the western side of Tasman Bay where quartz occurs in significant amounts in the granite outcrops. At Anapai (Wilkes, 1963) quartz forms the major flake component and almost certainly has been obtained from granite cliffs directly behind the site.

Rodingite:

The majority of hammer stones found were of this rock and, as would be expected, the greatest concentrations of fractured fragments were located among heavy concentrations of argillite flakes.

Haematite:

Some abraded pebbles and several broken pieces, the majority of which exhibited grinding or hammering. Probable source, Parapara, Golden Bay.

Schist:

Significant numbers of elongated pebbles with a small number showing abrasion grooves.

Serpentine:

Some flakes and a small number of polished fragments.

Greenstone:

Though few in number, all fragments were portions of artifacts or showed evidence of having been worked.

A small number of complete adze blades and many portions of adzes in various stages of manufacture were excavated. The predominant adze

form was type 2A (Duff, 1959) rendered mainly in argillite. All these adzes were comparatively small, the largest being 17 cms in length with the majority averaging 8 to 12 cms. Most breakages had been transverse breaks about halfway along the length of the blade, and had occurred during hammer dressing of the front surface. Type 4 adzes occurred in both argillite and granodiorite. One complete example of Type 3 in andesite and five blade portions of others in argillite were located. Two hammer-dressed adze butt portions and several deep sectioned quadrangular blade fragments were indicative of the manufacture of Type 1A adzes also. However, none of the adzes represented may be termed large and it is highly probable that only two of the specimens excavated would have attained a completed length in excess of 20 cms.

Fishing gear was typically Archaic with the majority of hooks manufactured from moa bone. Among the two-piece bait hooks, features were noted which are presumed to be typical of the Late Archaic phase in the Nelson area. For these two-piece hooks the most common form of attachment of point limb to shank was by lashing through the perforated base. Both shank and point limbs exhibited perforation. Excavation at Rotokura (report in preparation) a few miles distant, shows the increase of this form as supplies of moa bone diminished and its appearance preceding the multiple notched form of attachment. Six examples of notched attachment were found at Tahunanui but all of these had only a single notch. It seems certain that both variants had been deliberately manufactured as two-piece hooks and were not modified portions of broken one-piece hooks. The presence of tab cores with one edge sawn and the other curved edge drilled, would seem to support this. At the base of the hook, the platform which abutts the other half, had been carefully smoothed in each case. Perforations were below the centre line of the hook in each case, and one can only assume that this was intended to reduce the consequent weakening of the hook by retaining as much thickness of bone as possible above the line of lashing.

One-piece hooks were made mainly of moa bone with one made of whale (?) and a small specimen (No. 648) from the operculum of one of the larger shell fish, possibly *Neothais scalaris*. Numerous broken tabs and tab cores confirmed the predominance of one-piece bait hooks. Several hook fragments including three incurved points may possibly be from one-piece hooks also.

One hook fragment (No. 455) constitutes the only barbed point excavated. Exhibiting an inner barb and having the appearance of moa bone, the hook has been broken off just below the barb, thus making it difficult to classify as either a one or two-piece hook.

Lure hooks were well represented by stone lure shanks ranging in size from a thin complete shank measuring 76 mm in length to a small well-formed example only 39 mm long. Several specimens had been made from serpentine, while the remainder were of various soft rocks not yet identified. One specimen of rectangular cross-section with slightly rounded upper surface had the "eyes" drilled dorso-ventrally but all other shanks had been drilled transversely and were triangular in cross-section. The platform for hook attachment had been reduced below the level of the dorsal ridge in all cases, while the reduction of the corresponding under-surface and the provision of small lashing lugs on the lower extremities of the base provided the most common form of point attachment. Only one broken uniperforate point rendered in seal ivory can be classified as a lure hook point.

Greenstone constituted a small but significant proportion of the artifacts. A small nephrite chisel (Fig. 1, No. 338) measuring 43 mm in length exhibited complete polishing on all surfaces. Both ends of the chisel had been fashioned for cutting; one as a typical chisel, the other as a gouge. The context of this chisel near the base of the occupation layer is indicative of well-developed techniques of greenstone working during this period. A portion of another nephrite chisel (?) exhibits attrition scarfing and polishing while a portion of the butt of a polished and hammer-dressed nephrite adze and a small polished flake of a sub-nephrite (?) complete the greenstone assemblage. Although few in number, these pieces represented qualities of manufacturing technique in marked contrast to the Heaphy River site where the inhabitants exhibited limited knowledge of the techniques involved in working greenstone (Wilkes and Scarlett, 1967).

By far the most common artifact type excavated at Tahunanui was the stone point of which the majority were classifiable as "drill points". All but 20 of the 342 stone points excavated occurred in metamorphosed argillite with some of the remainder being rendered in hornblende-andesite. On the basis of method of manufacture, the following generalised classification is obtained:

Group A: Examples with a wide flange or flare towards the base of the point. These points appear to have been made from hinge flakes which originally exhibited a breadth measurement in excess of length (Shawcross, 1964) with the residual striking platform forming one of the vertices of the flange and the extension of the point proper produced by crescent-shaped reduction on the lateral surfaces. The number of points thus formed is small but, on account of their somewhat larger size than other points, they appear to be significant.

- Group B: By far the most common group formed in a similar way to the previous group but with the reduction of much of the perimeter of the flake.
- Group C: Twenty examples are notable for their dual points. These appear to have been made by reducing the perimeter of the flake opposite the striking platform to produce a common lateral surface for both points and then reducing the extremities of the striking platform and adjoining flake perimeter to form the opposing lateral edge.
- Group D: Miscellaneous points flaked so extensively that the original form is unrecognizable. Included in this group are those points derived from fragments of argillite which were already of a convenient shape.

Some of the points have a noticeable blackening of the tip as though heat generated during usage had caused the discolouration. A brownish deposit (bone powder?) is evident, ingrained in the small flake fracture concavities of some points. Only seven of the points showed evidence of having been fragments of completed or partially completed adzes.

Faunal remains showed the density and variety expected of Archaic sites. Dispersal was regular and, apart from small accumulations of fish bones and scales, no apparent concentrations of bones were noted. Identification provided by Mr R. J. Scarlett included the following:

Moa	<i>Anomalopteryx didiformis</i>
Moa	<i>Euryapteryx gravis</i>
Southern Fur Seal	<i>Arctocephalus forsterii</i>
Polynesian Dog	<i>Canis familiaris</i>
New Zealand Pigeon	<i>Hemiphage n. novaeseelandiae</i>
Red-fronted Parakeet	<i>Cyanorumpus n. novaezealandiae</i>
Parakeet (?)	<i>Cyanorumpus</i> sp.
Spotted Shag	<i>Phalacrocorax (stictocarbo) p. punctatus</i>
Small Kaka	<i>Nestor</i> sp. n.
Tui	<i>Prothemadera novaeseelandiae</i>
New Zealand Mutton Bird	<i>Puffinus griseus</i>
Weka	<i>Gallirallus australis</i> subsp.
Petrel	?
Penguin	?
Duck	?
Whale	?

DISCUSSION AND CONCLUSIONS

As the site is overlaid by a well established city residential area and the original topography outside the excavated area has been drastically modified, the prospect of locating any associated midden heaps, structures, etc. which may have existed, is remote indeed. The material evidence of the excavation has been extensive and varied, but the absence or rarity of some site elements means that some conclusions are based on minimal or negative evidence.

The cultural layer, though of limited depth and lacking in marked visual or textural stratification, showed some differentiation discernable only because of the intensity of flakes and artifacts. The possible change of argillite sources, the decreased dependence on fishing and the intensification of argillite utilisation are examples of this.

It would appear that initial occupation was seasonal and spasmodic with the plentiful supply of fish, shell-fish, birds and occasional seals being sufficient inducement to the inhabitants to settle at least temporarily and to manufacture fishing gear on the spot. Initially, stone tool manufacture was practised, although not on the scale that was to follow later. At this period, significant amounts of metamorphosed argillite from the vicinity of D'Urville Island were being utilised, with hornblende-andesite boulders (presumably from the Nelson boulder bank just over a mile away) supplementing considerably the raw material supply for adze manufacture. It appears significant that supplies of argillite from the north-east quarry sources some 30 to 40 miles away were being utilized when at least three quarries - Toi Creek, Rush Pools and Wilson's Flat - all occur within nine miles of Tahunanui. The discovery and exploitation of these quarries may have occurred only after more permanent habitation of the region took place with the possible development of the argillite quarries commencing from the north-eastern end of the mineral belt and proceeding south-westwards as settlement and exploitation of the environment took place.

The only structures evident were two oven depressions, both still partially lined with blackened stones and containing appreciable amounts of charcoal. Both ovens had been scooped into the natural sub-stratum and both were associated with and superimposed by quantities of waste flakes and other occupational residue. A carbon sample from Oven 1 gave a C14 dating of 589 ± 70 years (before 1950) or A.D. 1361, a date which would have preceded the period of greatest activity in the working of argillite at Tahunanui.

Later developments at Tahunanui included a marked increase in the overall amount of argillite worked with proportionate decreases in the light grey variety and the more readily accessible horn-blende-andesite (although the latter remained a significant component throughout). Fishing gear declined to some extent and some fragments of worked moa bone appeared as though they may have been of a sub-fossil nature when utilized. (Tabs and tab-cores in a lower context almost certainly had been manufactured from fresh moa bone.) However, the density of drill points remained comparatively consistent throughout the occupation layer.

No statistical analysis of the flake samples has yet been attempted but flake sizes range from primary flakes 15 cms long to small fragments only a few millimetres in length. It is possible that adze blanks may have been brought to the site for completion but the evidence suggests rather the total manufacture of adzes at Tahunanui. The presence of a sub-spherical hammer-stone markedly similar to those found in the argillite quarries and one large and several small grindstones seems to confirm this.

Apart from a thin adze-shaped piece of polished serpentine which may have been intended as an ornament, no ornamental material was excavated. The absence of even the simplest of ornamental forms may be due to the limited area extent of the excavation; however, it seems more likely to be indicative of transient settlement.

The common occurrence of argillite flakes exhibiting waterworn surfaces, together with the comparatively small size of the adzes located, suggests that either significant deposits of quarry argillite were yet to be discovered or that the stone naturally dispersed by stream, river and ocean was abundant enough to meet the demand. Though less likely, the possibility of tribal conflicts limiting the use of some argillite sources should not be discounted. Whatever the reason, it is obvious that at Tahunanui, quarries were not the only source of argillite and may not have constituted the main source of supply.

Tahunanui was probably never an extensive nor particularly significant settlement in Archaic times. The lack of evidence of substantial structures or midden heaps; the absence of ornaments in an artifactually rich context; the evidence of utilization of argillite from many sources and the exploitation of what was probably a limited supply of local stones indicates rather a transient or seasonal settlement. However, the identity of the site is marked by a totality of adze and fishing-gear manufacture spanning a period when possibly occasional exploratory settlement was followed by wider

exploration and utilization of local resources, resulting ultimately in the abandonment (before the Classic Maori period) of the site in favour of more permanent settlement elsewhere. Petrological studies in the future may well provide the answers to questions concerning the sources, utilization and distribution of metamorphosed argillite from sites such as Tahunanui.

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