



**NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION MONOGRAPH 7:  
*Aidan J. Challis, Motueka: An Archaeological Survey***

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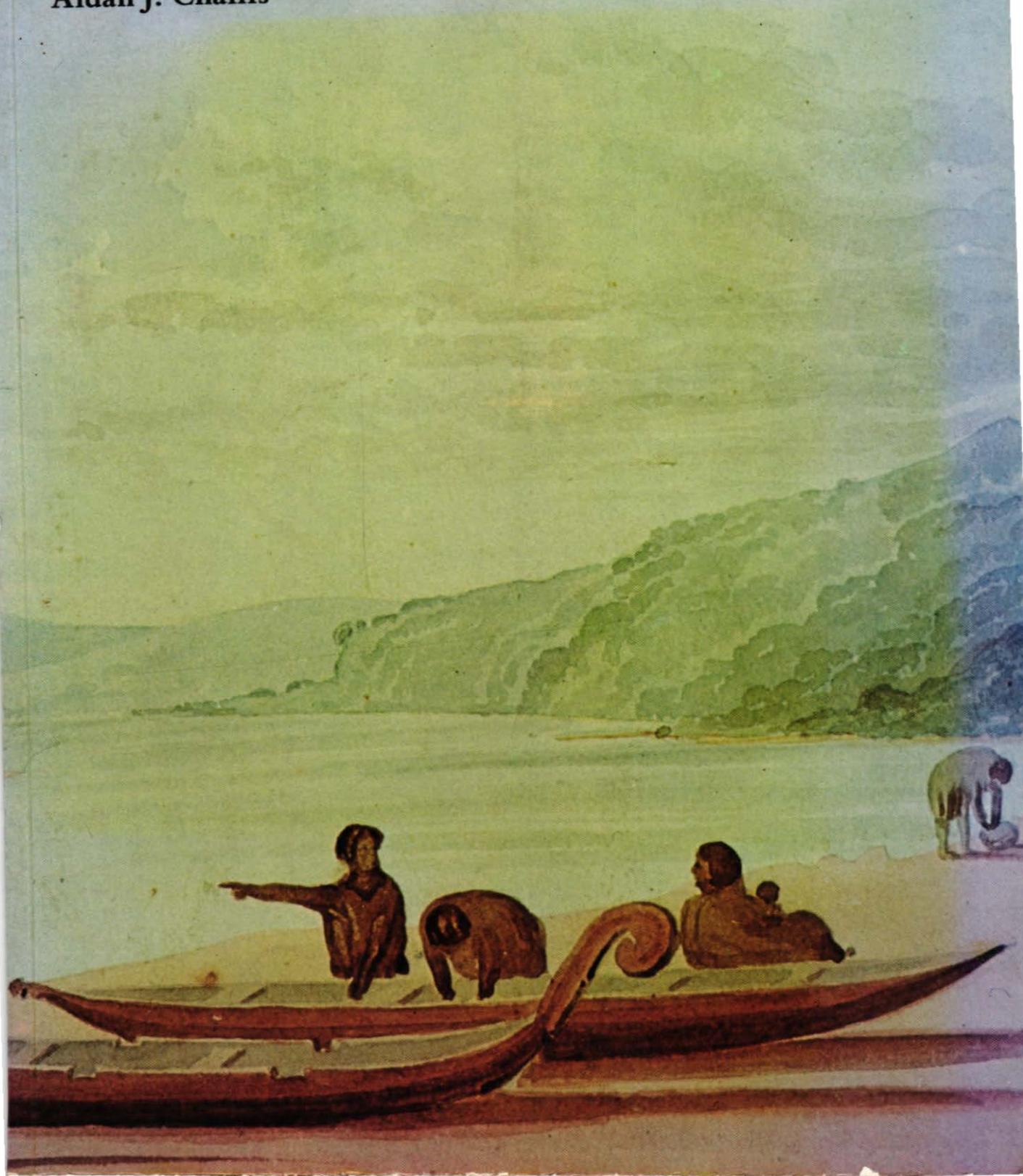


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**Motueka**  
An Archaeological Survey

**Aidan J. Challis**



# Motueka

## An Archaeological Survey

Aidan J. Challis



Longman Paul

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To Dennis Harding

Contents

# Preface

The purpose of this book is to examine the archaeological evidence of the Maori occupation of the Motueka district in the period before European settlement. It is hoped that the account will prove of interest to people of the Nelson region, as well as those further afield with a knowledge of archaeology. The research on which it is based was carried out during 1974 and 1975 while the author was resident in Motueka. Although there have been no excavations in the district, a wide range of other informative sources has been used. Assistance with fieldwork expenses was received from the New Zealand Historic Places Trust, and the award of a University of Auckland Post-Doctoral Research Fellowship in 1976 enabled the study to be completed.

The text is arranged in five parts: introductory discussion; considerations of the evidence of settlements and artefacts; characteristics of the component subregions of the district; and finally, conclusions and recommendations. Although the presentation is detailed and explanatory, the descriptions and illustrations do not exhaust the research material. Full records are to be found in the New Zealand Register of Archaeological Sites held by the New Zealand Historic Places Trust, in the New Zealand Archaeological Association Site Record File, and in archives deposited in the Nelson Provincial Museum.

The author wishes to record his thanks to those who kindly assisted in his work. Many local people gave of their time and knowledge and allowed examination of their land and artefacts; a list of those who cooperated in the gathering of data is given in Appendix 1. Mr B.S. Bird, Mr R. Cassels, and Mr R.J. Scarlett kindly helped with identifications. Mr K.M. Peters gave technical assistance in the preparation

of the illustrations. Finally, gratitude is recorded to Mr J.Y. Walls and Professor R.C. Green, who read the text in draft, for their stimulating advice and friendly encouragement.

A.J.C. 1977

# Chapter one

## Archaeology, environment, and tradition

### Introduction to the research

Archaeologists are interested in any material evidence which indicates characteristics and activities of human groups of the past. In New Zealand archaeologists are concerned with evidence of settlements and objects which remain from the pre-European residence of the people, now known as Maori, who arrived from tropical East Polynesia several centuries before A.D. 1000.<sup>1</sup> Such evidence is to be found in the ground. It ranges from the occasional find spot of stone adzes and other artefacts, suggesting minor activity, to major settlement foci such as spectacular defended pa sites with their interior terraces and pits.<sup>2</sup> Many sites such as ovens and middens (rubbish dumps) can be recognised without difficulty, and it is apparent that past Maori occupation may have been heavy, especially in coastal areas.

Often, farmers and others who work the soil know of the occurrence of sites on their property. Sometimes, to those wishing to develop land for other purposes, archaeological remains cause annoyance, particularly where they prevent wholesale desecration; but they are the principal source of evidence of the thousand years of New Zealand's human past for which no written records exist. All this evidence possesses significance.

Prehistory is part of a public heritage: people have a right to knowledge of it. Therefore it should be recorded, especially where it is certain to disappear. Furthermore, New Zealand prehistory provides a fine illustration for world anthropology of the adaptation of an immigrant population to a new environment, and of human occupation within a relatively short time scale.

Unfortunately archaeological sites throughout the world are being destroyed at an un-

precedented rate. This includes New Zealand's archaeological resources. Ploughing, road construction, and housing development have always destroyed sites, and an increasing depth and extent of cultivation, width of roads, and rate of urban expansion have created a real crisis. This is augmented by continuing afforestation, industrial and power development, and fossicking. Recording of all prehistoric sites, and conservation of selected sites and materials, is essential if the heritage is to be retained for future generations to study and enjoy. No such procedures are possible without public awareness. Thus archaeologists are involved in recording the evidence, and in communicating their results even at the initial stages when they still have much to learn.

The main repositories of information about the nation's archaeological resources are the New Zealand Archaeological Association Site Record File, and the New Zealand Register of Archaeological Sites (held by the New Zealand Historic Places Trust). In these registers about 13 000 sites are described; but it has been estimated that there may be well over 200 000 sites in New Zealand. Some areas have been exhaustively surveyed for sites but others have been covered poorly, if at all. The Motueka district, prior to 1974, fell into the latter category. The New Zealand Historic Places Trust, aware of the need to record sites so that their presence might be taken into account as planned development (which threatens sites) occurs, has in recent years made sums of money available to assist in recording programmes. The research on which this book is based was carried out by the author in 1974 and 1975 with the assistance of the Trust.

Contrary to commonly held belief, digging is only one aspect of the archaeologist's work.

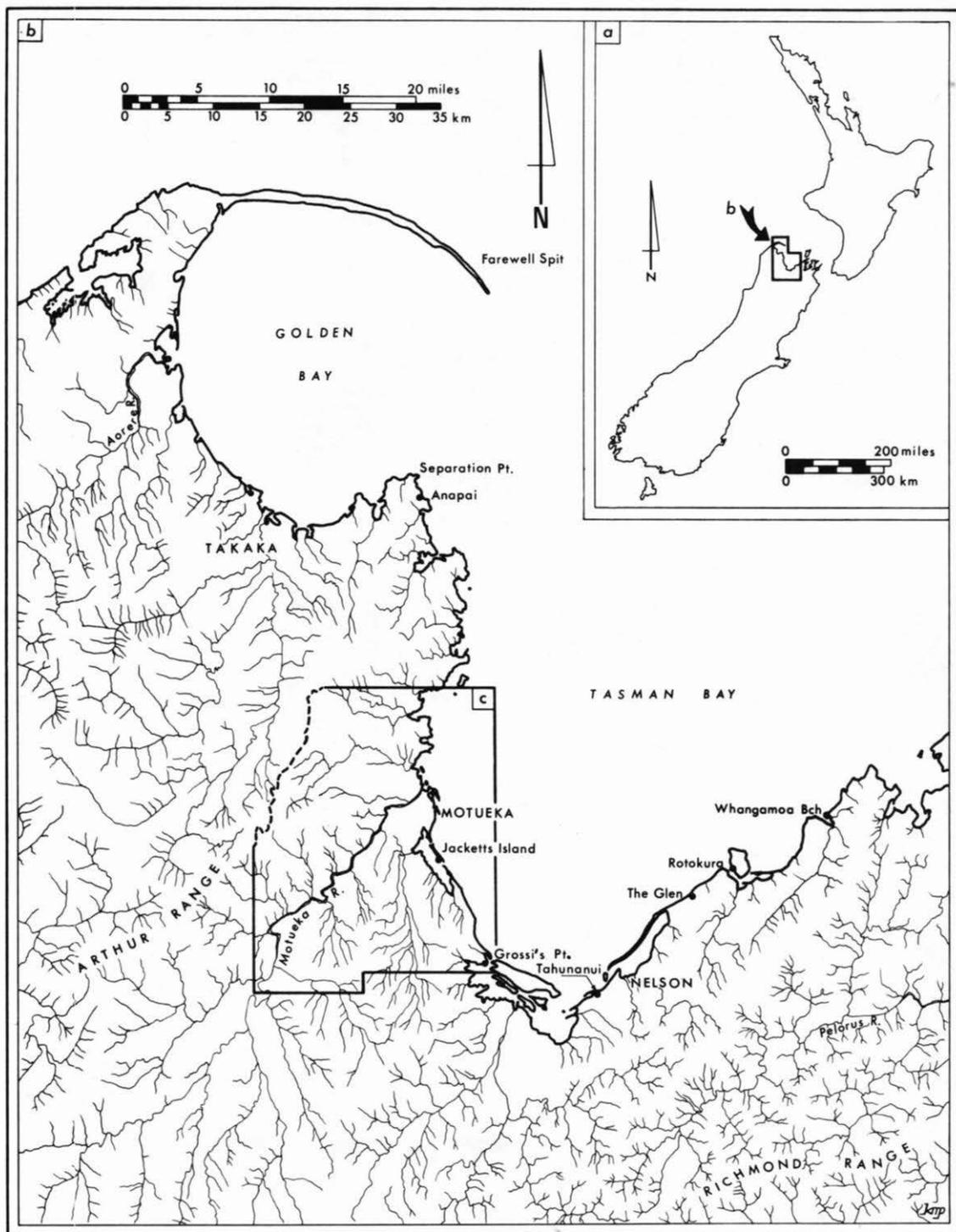
Indeed it can be argued that, except in the case of sites about to be destroyed, excavation is of lower priority than surface recording, although without the evidence of excavation many questions about pre-European occupation cannot be answered. In the absence of stratigraphic context, artefacts can only be considered in relation to classes of material and distribution patterns, and no definitive chronological framework can be proposed. Despite these drawbacks, however, much useful discussion can be based upon the results of a non-excavational survey interpreted in a broad context.<sup>3</sup> This approach is adopted here. Although it may be conventional and rather subjective it is believed to be of merit in reducing a large amount of information to a semblance of order on the basis of which further research can proceed.

Thus, as far as time and energy have allowed, all archaeological sites and artefacts in the study area have been examined, and related historical, traditional, and environmental sources of information have been considered. Identified locations of pre-European activity, large and small, have been allocated a number in the New Zealand Archaeological Association Site Recording Scheme. In this system S14/12 (Pah Point, Riwaka) refers to site 12 on the Motueka Sheet, S14, of the New Zealand Topographical Map (1 inch to 1 mile series). All relevant sites and their numbers are located on distribution maps (for relevant figure numbers see Appendix 3). The results of the research, analysis, and interpretation are presented here as an addition to the archaeology of the Nelson region and of New Zealand. Also, since much has been contributed by the people of the Motueka district, it is in this form that the knowledge is returned to them, so that they may place a higher value on their heritage and be made aware of the important part played by the Maori people in Motueka history.

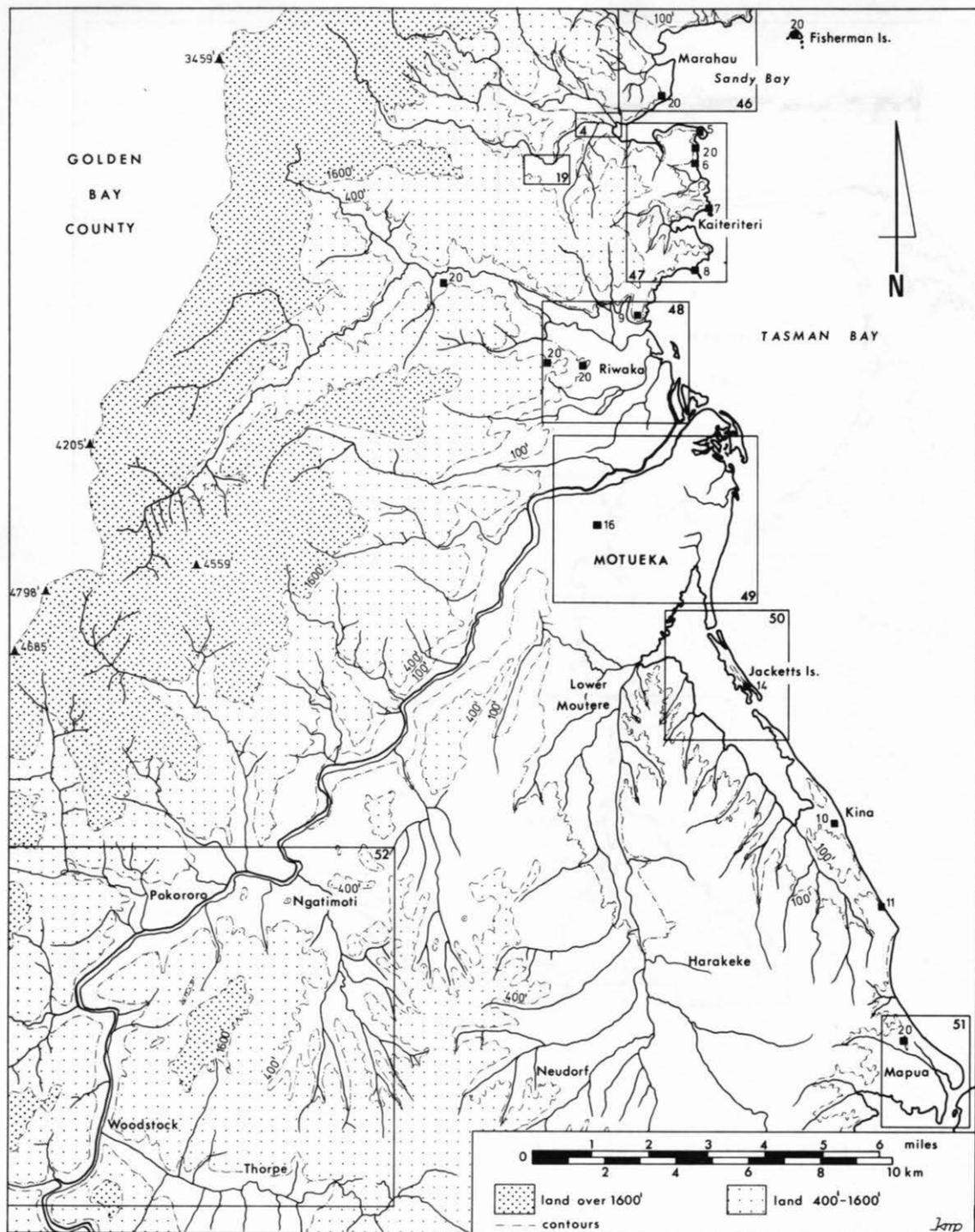
## Environmental context

The Nelson region (Fig. 1), of which the Motueka district forms a part, was quite suitable for prehistoric settlement. Although the interior was less favourable because of its rugged landscape and colder climate, the coastal strip presented more varied resources. Kumara, the dominant horticultural crop in prehistoric New Zealand, would probably have grown well in carefully chosen locations,<sup>1</sup> frost frequency being the major limitation in a typically sunny, calm climate. Marine resources of fish, particularly snapper,<sup>2</sup> and rocky-shore and protected soft-shore shellfish species, are excellent by South Island standards. The main non-food resource of the region for the stone-using Maori was metasomatised argillite rock, which occurs in the Mineral Belt of east Nelson.<sup>3</sup> Metasomatised argillite is a fine, resilient rock, typically grey or black and often free from flaws, which flakes well and takes a high polish. It was used extensively for stone tools, particularly adzes, which became distributed throughout New Zealand. The rock dominates the stone technology of the region and secures for it great archaeological importance.

The Motueka district (Figs. 1(c), 2) is here taken to extend to the boundary between Waimea and Golden Bay Counties in the west, to the settlements of Woodstock, Thorpe, and Upper Moutere in the south, and just beyond the Abel Tasman National Park boundary in the north. Although chosen principally because of convenience of size and access for study, the district is partly delimited by significant landform features: the Takaka/Riwaka watershed to the west, the higher parts of the Moutere Hills to the south (beyond which the land slopes downwards to the Waimea Plain), and the entrance to Sandy Bay to the north. Enclosed is a small, compact, isolated area, dominated by the Arthur Range and centred on the flats of the Motueka and Riwaka Rivers. In the present state of knowledge it cannot be claimed that the district was a tribal or cultural entity throughout the prehistoric period. Significantly, however, it is coterminous with the present-day urban field (the approximate range of service functions) of the town of Motueka.<sup>4</sup>



I New Zealand (a), the Nelson region (b), and the Motueka district (c)



2 The Motueka district—relief, and location of sectional maps and plans

Although a wide range of local relief, soil, climate, and vegetation regimes is present in the Motueka district, understanding is assisted by the recognition of four physiographic types, geologically defined<sup>5</sup> (and see Fig. 3). In the west, block faulted high country, predominantly Mount Arthur Series marbles and intrusive Riwaka Complex metavolcanic rocks, rises to over 4000 feet (Fig. 3, 3 and 5). Steep, erodible Separation Point Granite country extends down both sides of the Motueka River valley and rises from coastal cliffs north of the Riwaka River to over 1000 feet (Fig. 3, 4). The thick fluvio-glacial Moutere Gravels form a belt of steeply dissected low hills south of the Motueka River (Fig. 3, 2). All remaining areas are made up of recent fluvial, estuarine, marine, and swamp deposits, extensive around the Marahau, Riwaka, Motueka, and Moutere Rivers, and present in small pockets elsewhere along the coast (Fig. 3, 1).

The pre-European Maori did not choose settlement sites on the basis of geological recognition, however. Rather, the specific characteristics of the local environments which the surface geology supported were the determining factors. Dry sites which afforded easy access to a range of food resources, in forest, swamp, river, marine, and cultivated zones, would have been favoured. The resources of the sea (including snapper, kahawai, barracouta, flounder, and mullet), the seashore (a wide range of shellfish species), and the river (eels, white-bait, bulley, freshwater crayfish, and smelt) were bountiful. In view of this the location of many multiple (probably recurrent) and major settlements on raised beach formations close to river mouths and estuaries (Fig. 3) is surely understandable. However, although from the general distribution of sites the orientations of the prehistoric population appear to have been predominantly marine and riverine, three other important types of local environment, the swamp, the lowland rain forest, and the coastal forest, were accessible from these locations.

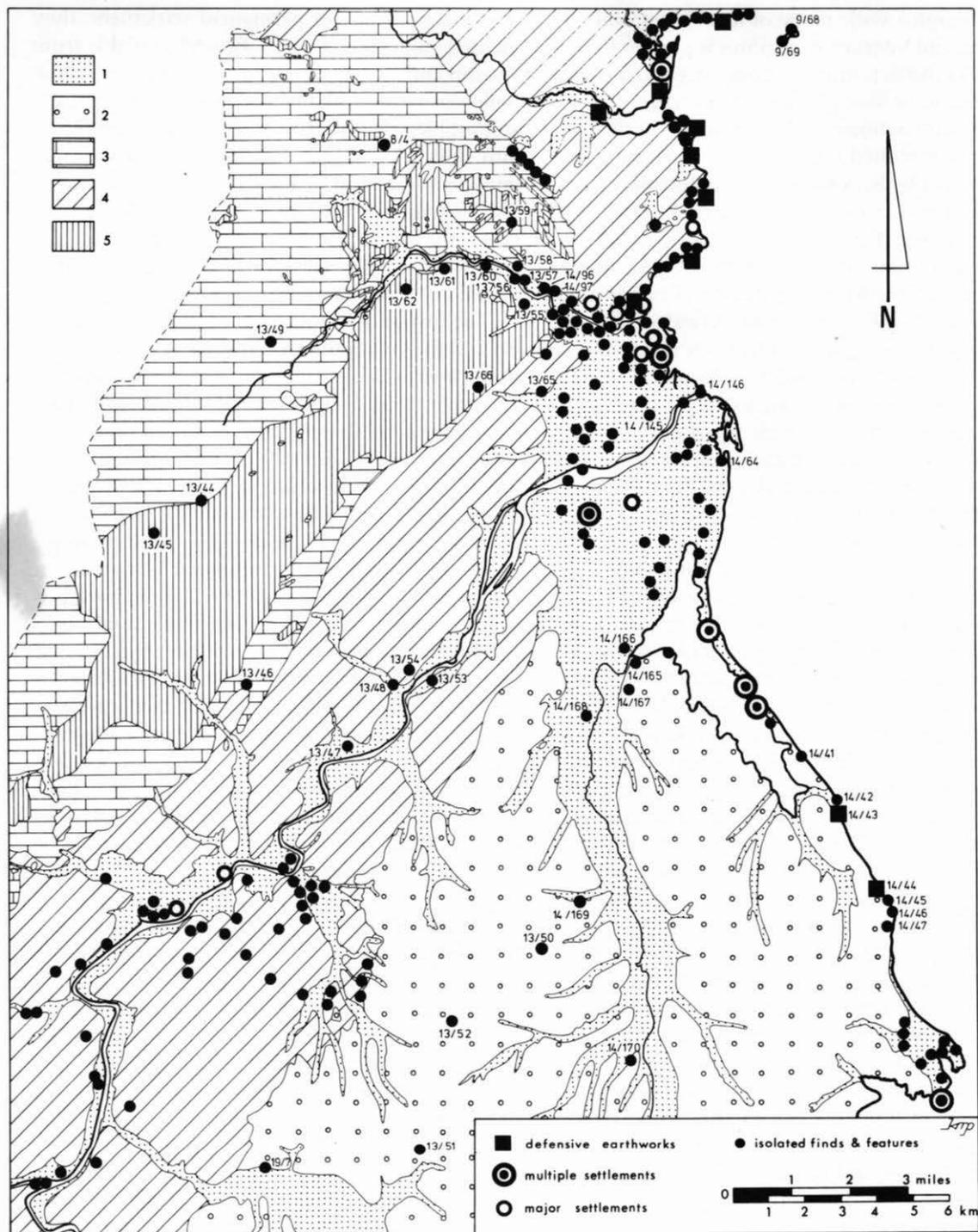
Swamp conditions covered larger areas in the pre-European period than they do today. Particularly affected were the lower reaches of the granitic coast rivers, the flats between Brooklyn and Riwaka,<sup>6</sup> the Moutere Valley,<sup>7</sup> and Seaton Valley, Mapua (see sectional maps, Figs 46 to 51). Although these wet areas limited

the land available for permanent settlement, they yielded valuable resources. Foods<sup>8</sup> available from swamp and swamp forest included the roots and pollen of raupo; the berries of kahikatea, matai, and supplejack; the fruit of kie kie; the trunk, pith, and frond stems of mamaku (black tree fern); and the fluid or honey from flax. (Flax also provided a major raw material for manufacturing.) Especially where accessible from rivers and streams, the swamp was a potentially productive environment.

The lowland podocarp-broadleaf rain forests, behind the rivers and the swamps, on valley floors and on areas of broad relief up to about 1200 feet, were also significant. Of the trees, the dominant rimu (berries) and northern rata (blossom honey), and the secondary matai, hinau, miro, and lowland totara (berries) were all productive of edible parts. The understory was even more useful, with nikau palm (young leaves, heart, and shoots), mamaku, and many berry- and fruit-bearing species. The rich supply of berries attracted birds which were caught by the Maori (see page 8). Areas within these forested flats and lower slopes could be cleared for cultivation. *Cordyline* (cabbage tree) species and bracken fern, dominant in the early stages of regeneration, would have provided the roots, leaves, and rhizomes commonly thought to have been a major feature of the prehistoric diet. In dryer podocarp-broadleaf forest areas, fuchsia berries and the fruit of titoki could have added significantly to the resources for settlement.

Although limited in extent, a separate coastal forest type may be recognised, present on low areas close to the shoreline. Patches remain, for example, below the cliffs on the northern edge of Ruby Bay, Mapua. The edible products of this forest, including the berries of *Coprosma* species (raurekau, kakaramu, and karamu) and of karaka, ngaio, and kawakawa, in addition to the resources of nikau palm and northern rata, would have formed an attractive local environment. Evidently forest types merged and showed variations. Nevertheless, the most productive forest areas lay on the coastal and riverine lowlands.

In contrast, the beech forest, which predominates in mountainous country over 1500 feet, and also on drier areas further down the ridges, was an impoverished environment.



3 The Motueka district—geology, and the distribution of archaeological sites. 1 Recent fluvial and marine silts, sands, and gravels; 2 Moutere Gravels, fluvio-glacial conglomerates (Lower Pleistocene); 3 Mount Arthur Series rocks (Upper

Ordovician); 4 Separation Point Granite (Carboniferous); 5 Riwaka Complex metavolcanic rocks (Devonian)  
(Other site numbers are shown on the sectional maps, Figs 46–52)

Berries, and consequently birds, were fewer. Fern-root and raupo would have been absent and fish relatively rare in the stream headwaters. Thin soils or cooler climate would discourage cultivation. Beech forest conditions also extended over much of the Moutere Hills, where soils are acid and infertile. There are few archaeological sites in these areas (Fig. 3). Resources were little better on the ridges and hills of the coastlands of the granite and Moutere Gravels, where a scrub vegetation of stunted fern, manuka, kanuka, and a little beech apparently existed in the early historic period.<sup>9</sup>

Access, both short- and long-range, was important in the prehistoric period. The location of major sites close to channels navigable at all stages of the tide (e.g. S14/24, Fig. 50; S14/63, Fig. 51) demonstrates that the sea was a highway, whereas the seaward orientation of defended pa sites (see Fig. 3 and pages 12 to 23) shows that the interior hills, although probably well known to the local Maori, acted as a barrier. It is clear from the distribution of sites (Fig. 3) that the Motueka River valley should be considered a thoroughfare. Despite the treacherous rapids of the river (which descends 200 feet between Pokororo and the sea) it is said to have provided a route to the east coast via Tophouse and to the west coast via the Buller.<sup>10</sup>

Finally, something should be said about the question of climatic change in the prehistoric period.<sup>11</sup> Evidence from many parts of the world indicates that there have been significant fluctuations in climate in the last 2000 years: major cyclical changes (variations of about 2°C) every 400 to 800 years, and within these, minor climatic cycles (amplitude up to 1°C). Research in New Zealand confirms these trends, and in particular demonstrates a Little Ice Age from A.D. 1600 to about A.D. 1800. Between 1600 and 1800 the Franz Joseph and Fox Glaciers of the West Coast were much more advanced than at present, and an anomaly in forest structure, the 'Podocarp regeneration gap' between 1300 and 1900, is most accentuated in the same period. Prior to this the climate may have been rather warmer than it is today. Clearly, since 1800 a slow warming has occurred. Early historical references to near-annual snowfall of an inch or two almost to sea level in the Marahau Valley<sup>12</sup> suggest that winters may well

have been more severe during the mid-nineteenth century.

### Traditional and historical accounts

Traditional Maori tribal history depicts the Tasman Bay area as affected by invasions of displaced North Island tribes, each of which successively achieved dominance. The resulting discontinuity in prehistoric settlement, together with the subsequent influence of the pakeha, accounts for the relative paucity of traditional knowledge of the Motueka district. Published descriptions of the tribal sequence vary. Peart<sup>1</sup> indicates that the early Ngaitara were succeeded before the seventeenth century by the Ngati Tumatakokiri, probably the tribe which clashed with Tasman in Murderers' Bay in 1642. The Ngati Tumatakokiri were themselves to some extent subjugated by the Ngati Apa in the eighteenth century, a situation which d'Urville may have observed in 1827 when he recorded both superior and slave Maoris. These tribes were annihilated in the Te Rauparaha raids of 1828 to 1830, and were replaced by the Ngati Rarua and Te Atiawa. Planned European settlement, preceded by the explorations of Captain F.G. Moore and others, began in 1842. Although it has been suggested that the Ngati Tumatakokiri may have been the earliest inhabitants of the region, the tangata whenua,<sup>2</sup> this is not certain. Allan, for example, considers that they settled Motueka after 1350, possibly succeeding the Waitaha, a tribe of whom little is known.<sup>3</sup> Unfortunately, writers of local histories often place too much faith in sources and reconstructions that are not based on authentic Maori tradition.<sup>4</sup>

Three full accounts have been published<sup>5</sup> of the Tasman Bay Raids of the late 1820s instigated by Te Rauparaha. The defeat of the Ngati Apa and Ngati Tumatakokiri at Te Mamaku pa (S14/43) towards the northern end of the Kina Bluffs, the butchery of panic-stricken families at Lower Moutere and Riwaka,<sup>6</sup> and the pursuit of stragglers to their eventual death in the Motueka Valley are often recounted by present-day local residents. After the raids the territory was divided and fresh immigrations took place. It has been suggested that the Maatu,

the flat land south of the Motueka River, and possibly also the Motueka Valley, remained unsettled until the arrival of Europeans in the 1840s because of disputes among the immigrant chiefs and the pronouncement of a tapu.<sup>7</sup> Nevertheless, it is reported that in the early 1840s some 200 to 300 Maoris were cultivating major potato gardens on the flats between the Motueka and Moutere Rivers.<sup>8</sup>

Early historical references to Maori population numbers, although unrelated to the pre-1828 situation, are useful because they indicate the possible order of magnitude of the prehistoric population. The above reference to 200 to 300 Maoris at Motueka is complemented by Captain Moore's observations in 1840 of 300 to 500 people in Motueka and Riwaka, and of twenty warrior-laden native canoes (probably representing a population of 500 at least) at Sandy Bay.<sup>9</sup> Both these groups are likely to have been of the Ngati Rarua tribe.<sup>10</sup> A population for the district of up to 1000 is indicated. This may be an overestimate, but later references testify to a substantial Maori population: 173 males and 73 females in Motueka at a census in January 1845, said to have been followed by immigration from the Cook Strait region,<sup>11</sup> and nearly 100 people seen at the Riwaka pa some time before 1847.<sup>12</sup> However, a figure of 251 for the whole Tasman Bay coastline at a census in 1863 suggests a later decline, said to have been caused by epidemics and by a return of Maoris to their old homes in Taranaki and Horowhenua.<sup>13</sup>

The accounts of early European settlers contain interesting references to the food-producing habits of the Maori people in the 1840s. There is little note of shellfish exploitation, but fishing was apparently significant. Expeditions to fishing grounds at Astrolabe departed from a port known as Manuka Bush or Raumanuka (S14/64), south of the Motueka River mouth.<sup>14</sup> Sharks were taken and hung out in the sun to dry. Eels were caught in large numbers in the rivers at Lower Moutere, Motueka, and Riwaka, especially at autumn neap tides.<sup>15</sup> Whitebait, abundant in late spring, were a particular favourite. Evidently the Motueka Maoris dug trenches by the river and laid flax nets in the bottom. When the whitebait swam into these traps the nets would be lifted and the catch tipped into waiting flax baskets.

The fish would later be left for a time in heaps, and then spread out in the sun to dry (a method of curing said to be most offensive to passers by), after which they were stored in baskets. When required they would be soaked in water and boiled.<sup>16</sup>

Many European settlers remarked on the abundant bird life of the district: pukeko and bitterns in the swamps; kakas, bellbirds, tuis, pigeons, and parakeets in the forest; blue, grey, teal, and paradise ducks by the rivers; and woodhens everywhere. Forest birds were taken, particularly when driven from the hills by cold weather and when the tree berries were ripe.<sup>17</sup> Apparently, to catch them the Maoris 'would make a rough hiding place out of punga leaves, put a stick up on the slant, then make a noise with a leaf to imitate the birds. As fast as they settled on the stick the Maoris would switch them onto the ground. . . they would sell them for two shillings a bundle of four dozen.'<sup>18</sup> Birds would also be preserved for future use. For example, kakas would be plucked, boned, rolled, and boiled, and stored in pumpkin calabashes packed with fat from the boiling.<sup>19</sup> In this way seasonal scarcities were overcome by the storage of surpluses.

Although kumara was apparently still eaten by the Maori in the 1840s,<sup>20</sup> European crops dominated their cultivations. There are frequent references to the growing of potatoes in forest clearings south of the Motueka River. Maize is described as a great delicacy. The Maoris would place it 'in stagnant water where it was left until rotten. It was then taken out, scraped off the cobs, and boiled with brown sugar. They called it koni pirau.'<sup>21</sup> Captain Moore acquired a good supply of potatoes and maize (and fat hogs) by trading at Riwaka in 1840, and also noted that other Maori vegetable foods such as edible ferns, raupo roots, and nikau abounded.<sup>22</sup>

Traditional and historical evidence is of assistance in suggesting the time when certain sites were occupied. For example, the construction of Te Mamaku pa (S14/43) clearly pre-dates the Tasman Bay Raids. The palisaded pa at Puketawai (Old Pah Hill, Riwaka, S14/86) was an earlier site.<sup>23</sup> Accounts of a settlement nearby, close to the Wai-atua stream (S14/91; or Pah Point, S14/12), also relate to the pre-raid period.<sup>24</sup> Pah Point was occupied after 1830 but was

abandoned soon after 1841.<sup>25</sup> There were major post-raid settlements around the mouths of the Motueka and Riwaka Rivers (e.g. Hui Te Rangiora, probably SI4/107<sup>26</sup>), and another was founded in Motueka about the time of the first European settlement (SI4/154<sup>27</sup>). Further sites of this late period include cultivations and settlements elsewhere in Motueka (e.g. by Staples Street, SI4/151<sup>28</sup>), a village and burial grounds at Marahau (probably S9/48, 43, and 44<sup>29</sup>), and a temporary occupation site on a promontory between Marahau and Motueka (probably Anawhakau, SI4/76<sup>30</sup>).

Historic descriptions of the appearance of the Motueka Maoris are an opportune reminder to the archaeologist that he aims not merely to describe objects but to depict the lives of people. 'A very fine and intelligent looking race of men and women they were, mostly well made, of good stature. . . . Some of the men were elaborately tattooed all over the face with very intricate scroll patterns. . . . A few of the women were also tattooed. . . . Many of the old warriors were dressed in native fashion in well made flax mats, with carved greenstone ornaments, and usually carried a heavy mere of greenstone or a tomahawk. . . . They finished the ceremony by rubbing noses.'<sup>31</sup>

### The evidence and its interpretation

In comparison with those studying remoter periods of the human past, the New Zealand archaeologist is fortunate, because through Maori tradition he is provided with valuable insights into a prehistoric life style. Accounts of invasions, warfare, subjugation, and events at specific sites present a challenge to his techniques and interpretations. However, there is little common ground between the two types of evidence: the traditional, stressing events and feelings; and the scientific, concerned with artefacts and features. All may be regarded as contributing to a picture of the past, but an exact correlation between the two types of evidence cannot be expected.

Archaeologists deal with artefacts, the objects of material culture. New Zealand prehistory can be divided into two major cultures: (1) the Archaic, also known as Moa-hunter, in which

characteristics of East Polynesian origin are influential, and (2) the Classic Maori, a unique insular development. Unfortunately, although a broad division between the earlier Archaic and later Classic styles of artefacts such as adzes and fishhooks can be upheld,<sup>1</sup> forms dating to a narrow and well-defined time range are few. Stone adzes, the commonest class of finished artefacts, are a major problem in this regard: although some archaeologists have suggested that they can be closely dated,<sup>2</sup> others have despaired of affording them any chronological significance.<sup>3</sup> But stone-working, carried on professionally and on settlement sites in New Zealand prehistory,<sup>4</sup> provides the closest approach that can be made to the domestic material culture of groups of people precisely because of its ubiquity. Its products cannot be ignored. Conventional archaeological procedure groups together artefacts which appear to have characteristics in common (initially at least, a subjective process) into types, as a basis for comparison. It then relates these types to an appropriate chronological or historical framework, based on evidence of stratigraphy or association demonstrated by excavation, and on the use of parallels from other contexts where dating is available.

Unfortunately this procedure cannot yet be fully carried out in the Motueka district. No excavation has taken place so the indispensable evidence of clear association and stratification is lacking. The artefacts considered are therefore all without archaeological context and can only be treated as examples of types. Although there appear to be many artefacts from the district, the numbers are small when compared with those resulting from an excavation (for example, 400 drill points from The Glen<sup>5</sup>), and no statistical treatment is possible. Moreover, the numerical predominance of the stone adze is unrepresentative: other tools of stone would have been equally important. Those of bone, wood and fibre, because of the lack of excavation and the effects of organic decay, are hardly represented at all. But artefact study, particularly of stone technology, is an essential part of New Zealand archaeology, and efforts to develop it must be made, despite the difficulties.

Previous archaeological work in Tasman Bay provides a basis for comparison. Excavations at

Anapai (S9/13<sup>6</sup>), Tahunanui (S20/2<sup>7</sup>), The Glen (S14/20<sup>8</sup>), and Rotokura (S14/1<sup>9</sup>), and test pitting at Grossi's Point (S14/63<sup>10</sup>) and Whangamoia Beach (S15/8<sup>11</sup>) have all produced Archaic evidence and have provided a wide range of artefacts and several radiocarbon dates (for site locations see Fig. 1). Classic Maori deposits have been excavated at Rotokura.<sup>12</sup> Many sites in the Abel Tasman National Park have been recorded.<sup>13</sup> Substantial collections of artefacts derive from an Archaic site (Kaingaroa, Jacketts Island South, S14/24<sup>14</sup>) and a Classic Maori site (Pah Point, S14/12<sup>15</sup>) within the Motueka district. This evidence provides a foundation for interpretation.

Archaeologists are also concerned with features, such as the banks and ditches of defended pa sites, pits, terraces, and middens. Clearly, a satisfactory interpretation of the features of a site and the relationships between them cannot be made on the basis of surface evidence alone. Excavation is essential for full discussion of prehistoric houses, storage structures, defence construction, or changes in diet. Without it the presence of stone-working areas or ovens on sites can often go unnoticed. To this extent also, the interpretation of Motueka district prehistory is curtailed. But archaeology begins with the surface features. Excavation is a further stage in the enquiry and it cannot be fully productive unless it is based on a regional study of surface features and artefact discoveries. Despite the lack of evidence from excavation, the present study is necessary.

After gathering information about features and artefacts, and defining their types and dates by analysis and excavation, the archaeologist examines their distribution in a district, interpreting the resulting patterns in relation to environmental resource zones and settlement systems. Many distribution maps are presented here (Fig. 3 and Figs 46 to 52). These maps run into an immediate problem: in the absence of an excavation programme the coexistence of the items plotted cannot be proved. Furthermore, the maps cannot be considered complete, because external factors have influenced the pattern of discoveries. For example, although sites exposed by erosion along the coastline are easy to see, scrub and bush-cover inland mask

surface features. Some coastal sites may have been completely destroyed, as in the area between the Riwaka Wharf and Anawera Point where there is evidence of erosion of sandy flat land during the last 130 years. Only 4 per cent of known sites in the Motueka district appear to be undisturbed. Partial destruction dominates, caused at 54 per cent of sites by cultivation, at 22 per cent by physical erosion, and at 16 per cent by bulldozing or construction activity. Many below-ground features are not apparent on the surface, even where sites are in good condition. The maps are only the initial step towards the definition of the distributional trends which were present in prehistory. Nevertheless, we should be thankful that evidence exists and has been recorded, whatever its state.

The New Zealand archaeological record is full of gaps in time, space, and materials, some of which the evidence from the Motueka district may fill. But at this stage the study of prehistory will only partially benefit by the Motueka evidence. The conclusions reached here are preliminary, and stand to be developed, substantiated, or refuted by further research. It is by a process of continuing enquiry that additions to knowledge are made.

(For full references see pages III to III3)

### Introduction to the research

- 1 Green 1974: 29.
- 2 Features of sites are defined according to Daniels 1970.
- 3 The interpretative potential of surface archaeological fieldwork is outlined in Challis forthcoming.

### Environmental context

- 1 Groube 1970: 160; Law 1969: 247.
- 2 For all scientific names see Appendix 2.
- 3 Keyes 1975; Walls 1974.
- 4 Research project by Motueka High School Form VII Geography Class, 1974.
- 5 Henderson *et al.* 1959.
- 6 Murray 1966: Part 1.
- 7 Allan 1965: 198.
- 8 Useful references for this subject include Cassels 1972; Stocker 1967; Leach H.M. 1969. The assistance of S. Walls is acknowledged.
- 9 Stocker 1967: 64; Rigg 1952: 20.
- 10 Peart 1937: 70.
- 11 Useful references include Leach B.F. 1976; Wardle 1973; Salinger 1976.
- 12 Murray 1966: Part 8.

### Traditional and historical accounts

- 1 Peart 1937: 8-54.
- 2 Brereton 1952: 14.
- 3 Allan 1965: 4-5.
- 4 Simmons 1973a: 1.
- 5 Allan 1965: 23-24; Brereton 1952: 16-18; Peart 1937: 22-30.
- 6 Pattie 1928.
- 7 Peart 1937: 61.
- 8 Allan 1965: 215.
- 9 Allan 1965: 34.
- 10 Allan 1965: 25; Eyles 1967: 20.
- 11 Tinline 1845.
- 12 Hill 1948: 7.
- 13 Peart 1937: 70.
- 14 Washbourn 1970: 23.
- 15 Murray 1966: Parts 1 and 4; Starnes 1939.
- 16 Murray 1966: Part 1.

- 17 Peart 1954.
- 18 Murray 1966: Part 2.
- 19 Murray 1966: Part 1.
- 20 Broad 1892: 72.
- 21 Murray 1966: Part 1.
- 22 Allan 1965: 33; Peart 1937: 102.
- 23 Peart 1937: 67.
- 24 Pattie 1928.
- 25 Peart 1937: 65.
- 26 Peart 1937: 58-59.
- 27 Peart 1937: 62.
- 28 Peart 1937: 62.
- 29 Murray 1966: Part 2; Peart 1937: 62.
- 30 Peart 1937: 62-63.
- 31 Broad 1892: 71-72.

### The evidence and its interpretation

- 1 Green 1974: 23-27, 34-35.
- 2 Simmons 1973b.
- 3 In conversation; some archaeologists take this view.
- 4 Challis 1976c: 467, 484.
- 5 Walls forthcoming.
- 6 Wilkes *et al.* 1963.
- 7 Millar 1971.
- 8 Walls forthcoming.
- 9 Millar 1967: 10-12; further information generously given in advance of publication.
- 10 Anderson 1966: 53.
- 11 Anderson 1966: 34-36.
- 12 Millar 1967: 10-12.
- 13 Wilkes 1961.
- 14 Challis 1976a.
- 15 Challis 1976c.

### Fortified pa sites

Although in the nineteenth century the term 'pa' was applied to any Maori village, defended or not, archaeologists now confine its use to sites of clearly defensive function usually enclosed by visible earthworks. These constructions include banks, ditches, and terraces, which would have been accompanied by stockades. The fortified pa is the most visually impressive type of archaeological site in New Zealand. Through the drawings of early European explorers and settlers, and the writing of Best<sup>1</sup> and Fox<sup>2</sup> it has become one of the well-known features of New Zealand prehistory. In the public imagination the heavily stockaded fort, full of buildings and operating as the focal point for the social unit under a chief in peace as in war, is typical of the Maori way of life.

However, current archaeological thinking holds that the pa was not always a dominant feature of New Zealand prehistory.<sup>3</sup> Early settlements were often coastal, seasonally-occupied sites at which no defence was intended, and if on higher ground, were open or only lightly palisaded. Evidence from the North Island indicates that it is from the late fourteenth or early fifteenth century onwards that earthwork fortifications became general. Defence of settlements and food supplies was necessary in conditions of increased warfare and the social responses to it. These conditions may have been caused in part by food shortages, possibly resulting from harvest failures in an increasing marginal climate, or from an inability to clear land for agriculture at a rate which kept pace with the demands of population growth. Thus, although fortifications are known elsewhere in the Pacific (as in Fiji, Tonga, Samoa, and the Marquesas), the elaboration of the New Zealand pa appears to have been an insular development.

Fortified pa can be divided into four classes according to the nature of their defences:<sup>4</sup>

Class I Terraces and scarps only

Class II Transverse ditches and banks across ridge and promontory sites

Class III Transverse and lateral defences forming a more or less complete encirclement

Class IV Swamp pa defended by palisades only.

No evolutionary sequence can be proposed: all classes continued late in prehistory; still, in some areas it appears that ditches and banks used as encircling and internal defences were an addition to the earliest defensive repertoire of palisades and terraces and simple promontory sites.

In view of the relative infrequency of pa sites in the South Island, the presence of ten (see

Table 1

Fortified pa sites in the Motueka district

Site number	Name	Area (m <sup>2</sup> )	Figure(s)
S9/52	The pa of Te Makawawa	?	20, 46
S9/59	Otuwhero Inlet	2 400	4
S9/62	Toko Ngawa	4 100	5, 47
S9/66	Ngaio	420	6, 47
S9/67	Tinline	8 400	46
S14/43	Te Mamaku	1 200	10, 3
S14/44	Moutere Bluffs	1 500	11, 3
S14/65	Kaka Pah	13 600	7, 47
S14/76	Anawhakau (Anawera)	11 600	8, 47
S14/86	Puketawai (Old Pah Hill)	4 000?	9, 48

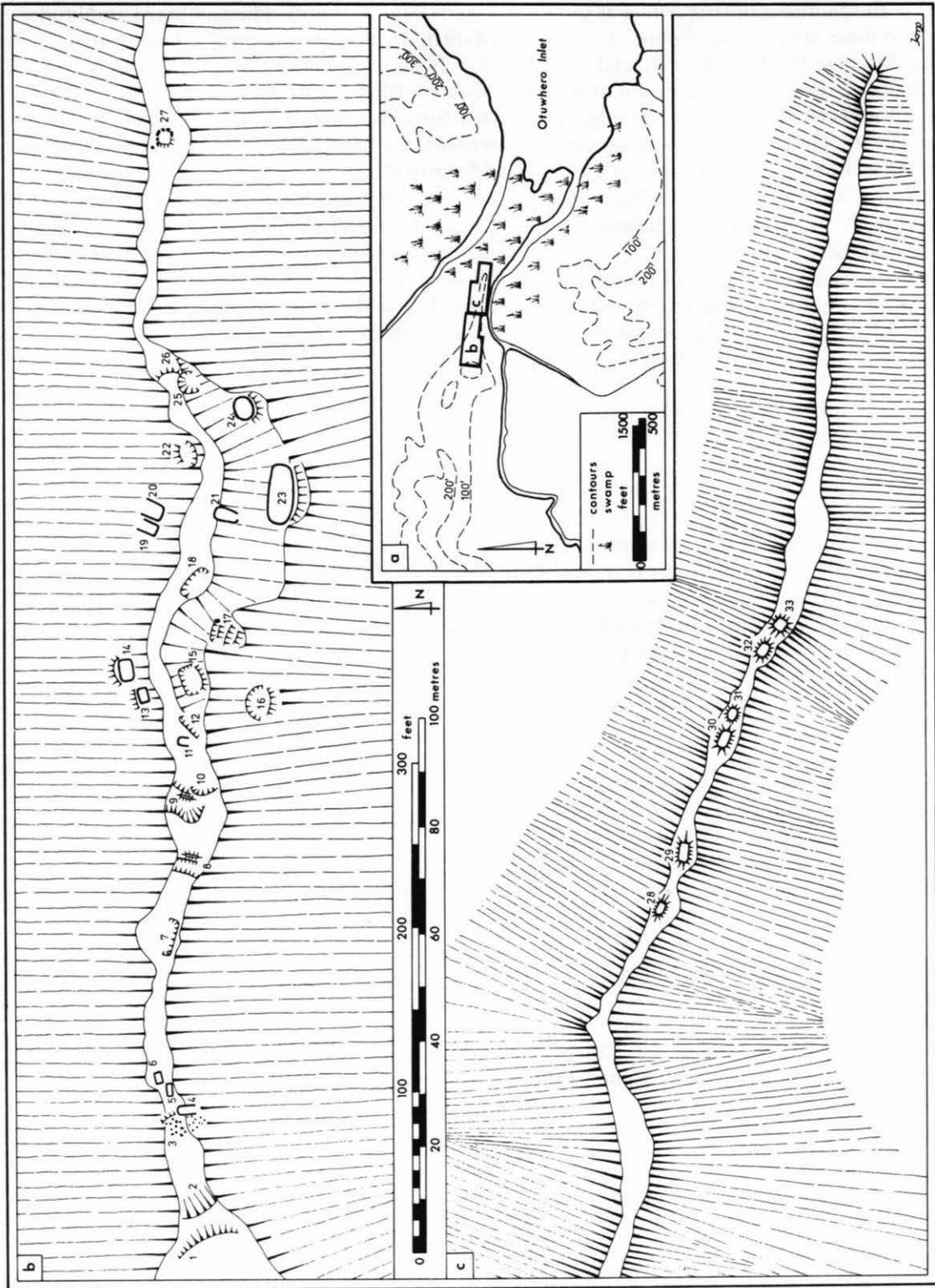
Table 1) in the Motueka district comes as some surprise. Of these, six (Ngaio, Tinline, Te Mamaku, Moutere Bluffs, Kaka Pah, and Anawhakau) are ditched cliffline promontory pa, and one (Otuwhero Inlet) is a ditched ridge-top site (all Class II). The remaining three sites are terraced (Class I), two being promontory sites (the pa of Te Makawawa and Toko Ngawa) and one a steep-sided hill-top site (Puketawai, a traditional palisaded pa<sup>5</sup>).

The predominance of pa sites of Classes I and II is a situation reflected in neighbouring districts. A coastal distribution of small promontory sites with ditch and bank defence (Class II) extends up the western side of Tasman Bay (e.g. Awaroa Head, S9/10; Potiki Tawa Pa, S9/27) into Golden Bay (e.g. Pariwhakaoho, S3/16<sup>6</sup>), through the Marlborough Sounds (e.g. Moki Point, S22/21; Island Point, Port Underwood, S22/23<sup>7</sup>), and into Kaikoura (e.g. Armer's Beach Pa<sup>8</sup>). (In the Wellington district all earthwork pa are of this type.<sup>9</sup>) Terraced pa (Class I) are not so common, but are present in the region, as at Whariwharangi, Abel Tasman National Park (S9/23<sup>10</sup>), and on D'Urville Island (Hapuka Rocks, Patuki Station, S5 & 6/5<sup>11</sup>). Groube's distribution of pa of Classes I and II<sup>12</sup> can thus be extended throughout the coastlands of Nelson and Marlborough.

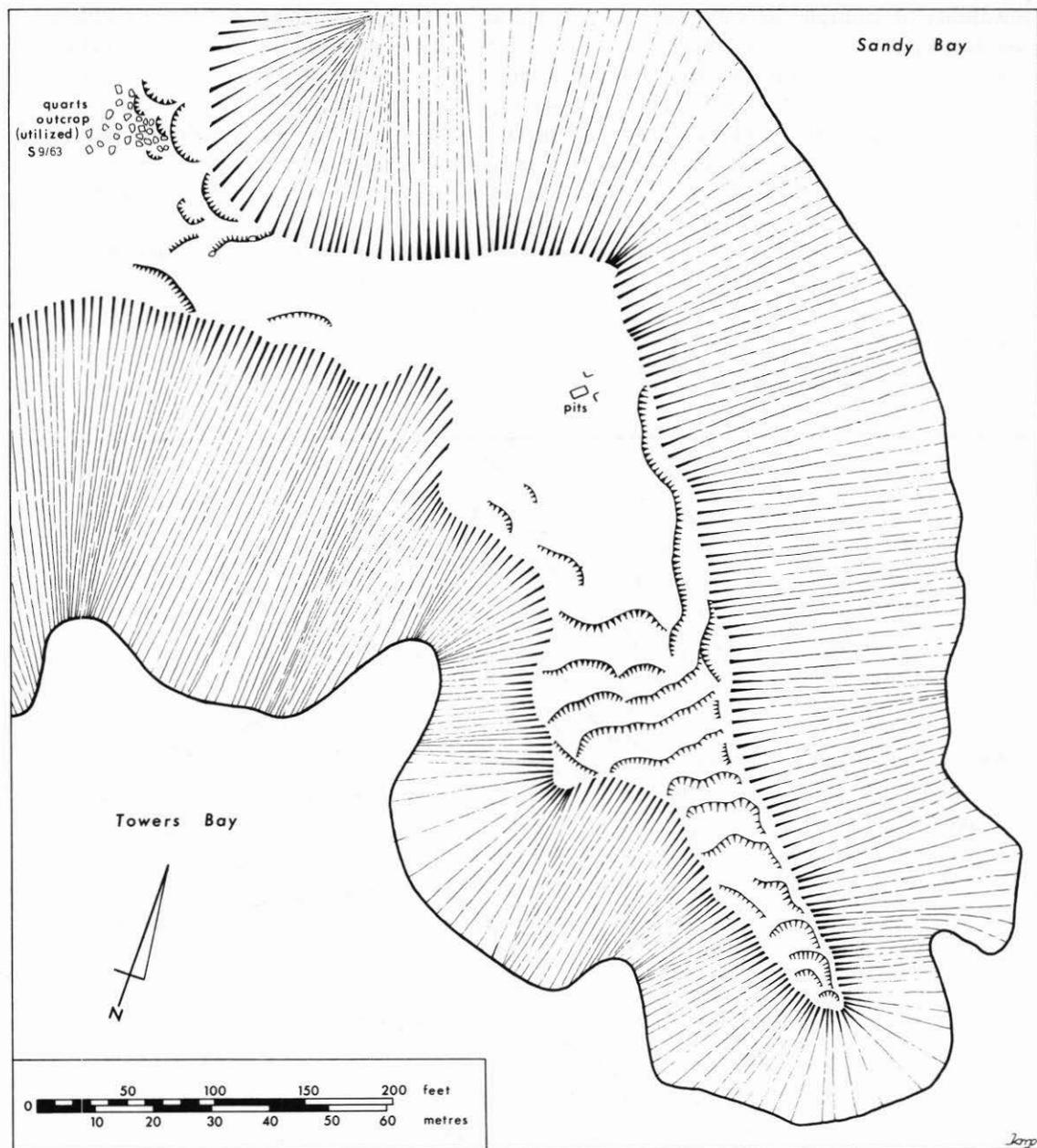
In all cases in the Motueka district, strong naturally defensive coastal locations have been chosen for the sites. Typical is the pa of Te Makawawa, which lies 'on the summit of a high and bold cliff. . . there are precipices on three sides of it. . . it must have been a fine stronghold'.<sup>13</sup> In some cases the edges of the cliffs and steep slopes have been artificially scarped (e.g. Toko Ngawa, Fig. 5; Anawhakau, Fig. 8), particularly where the slopes are slightly less precipitous (e.g. Kaka Pah, Fig. 7, and Tinline, south sides). Stockades may have surrounded the cliff edges. However, the alignment of major transverse defences suggests that enemy advance across the easier landward approach was expected.

The transverse defences are most commonly ditches, with the material that has been dug out being used to form internal banks (e.g. Otuwhero Inlet, Fig. 4, features 8 and 9; Ngaio, Fig. 6; Te Mamaku, Fig. 10; Moutere Bluffs, Fig. 11). On occasion the spoil was apparently also used in the construction of internal terraces (e.g. Kaka Pah,

Fig. 7; Tinline Point). The combined amplitude of ditch depth and bank height is substantial (e.g. Ngaio: 2.45 m; Te Mamaku: 2.50 m; Moutere Bluffs: 1.30 m). Evidence of excavated structures elsewhere<sup>14</sup> indicates that strong fences retained the banks and scarps on their downslope side, providing a shield for defenders and an additional obstacle for attackers. Transverse terrace defences (e.g. Toko Ngawa, Fig. 5) were doubtless also surmounted with stout palisades. Hodder's account<sup>15</sup> (possibly fictional) tells of palisading at the pa of Te Makawawa (a site now largely concealed by scrub).



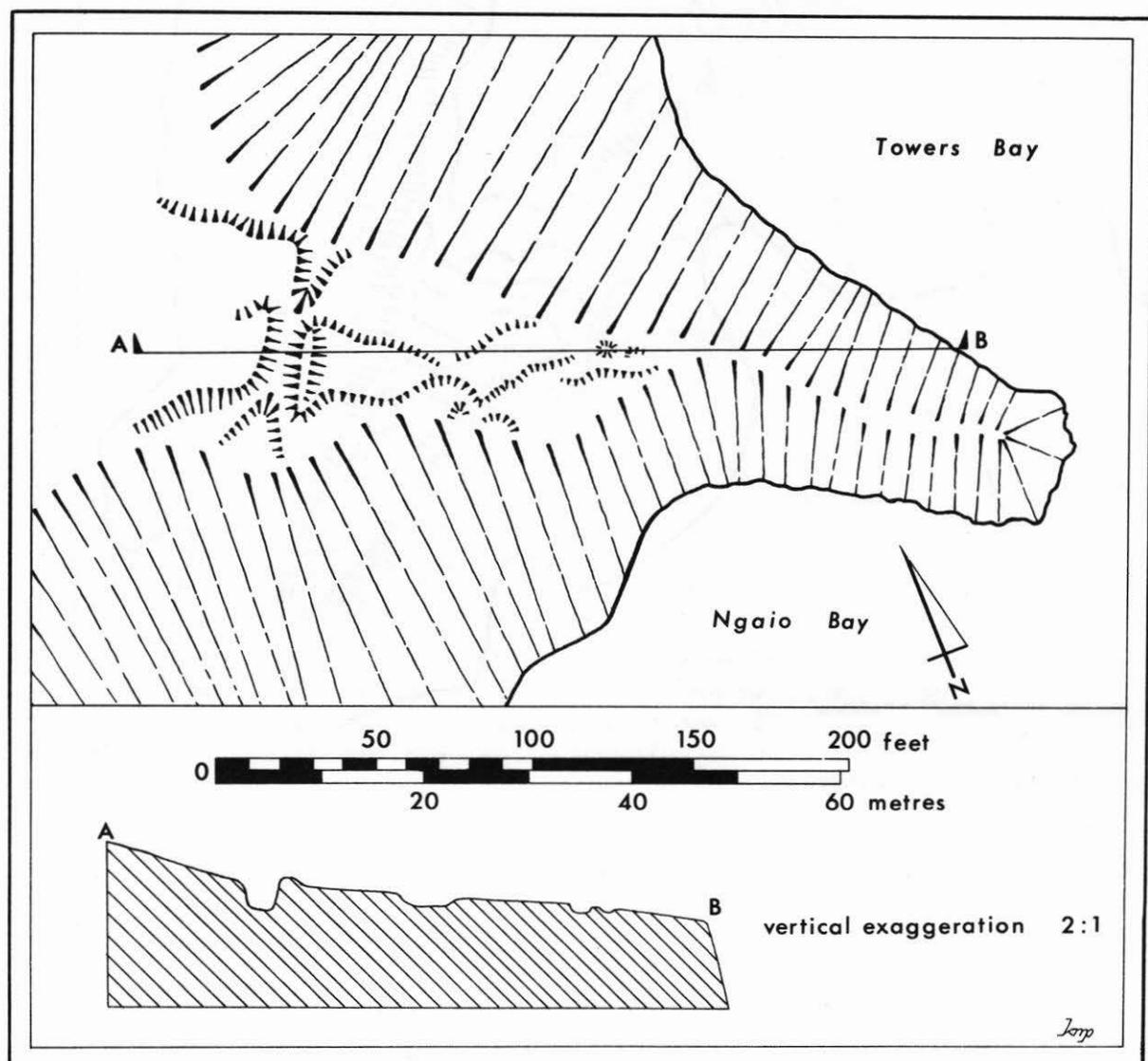
4 Otuwhero Inlet, S9/59, defended site



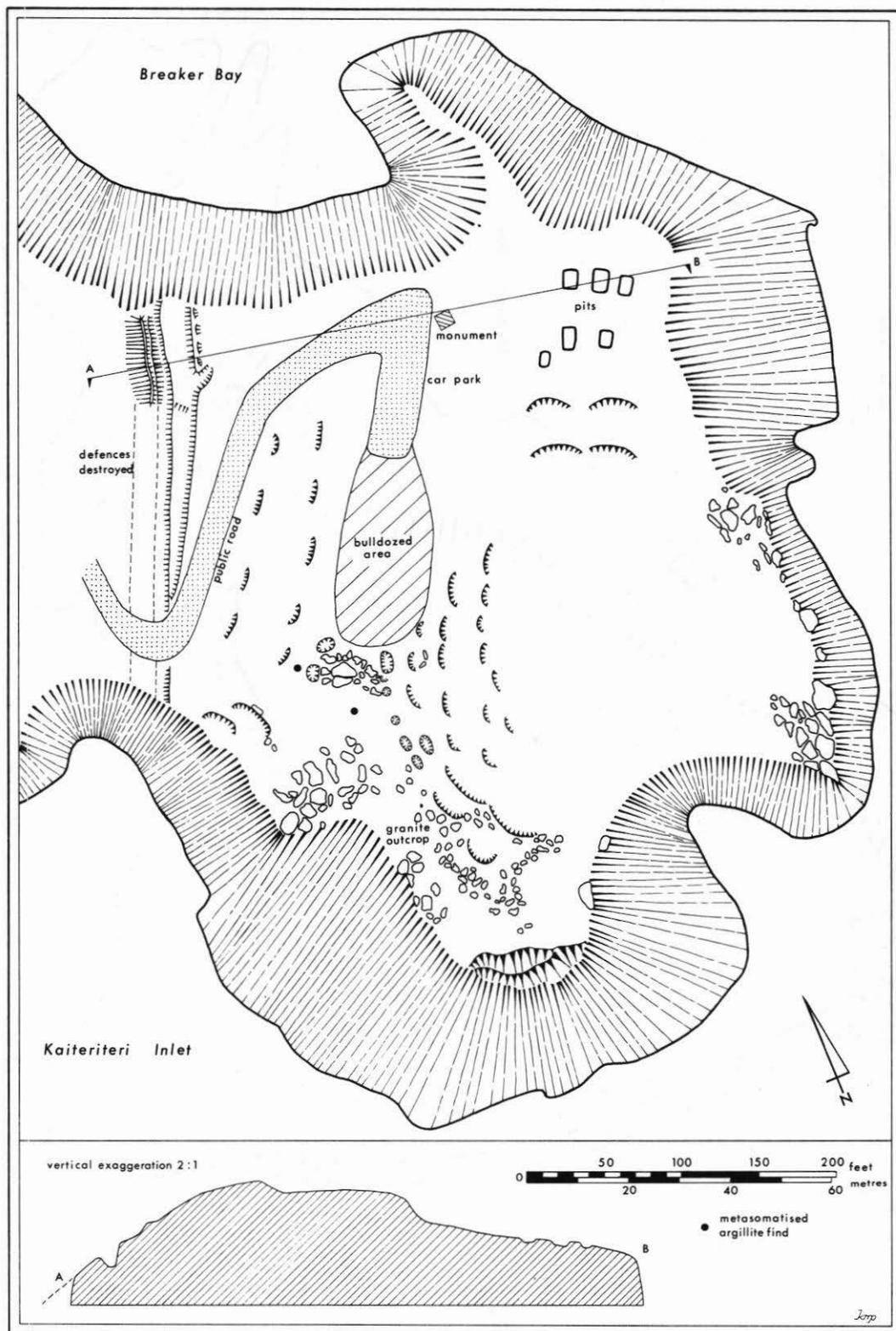
5 Toko Ngawa, S9/62, terraced pa

The possibility of multiple defensive lines in three cases (Kaka Pah, Anawhakau, and Puketawai pa) is significant, since multivallation is thought to have been a late feature in defence development.<sup>16</sup> At Kaka Pah, in addition to the major ditch and slight downslope bank, there is an internal terrace defence (Fig. 7). Unfortunately further defences on the downslope side, if ever present, have been destroyed. A similar situation may have existed at Anawhakau: Samuel Stephens, telling of Anawera in his diary for 25 April 1853, noted that 'on a rocky hill close adjoining there was once a strongly fortified

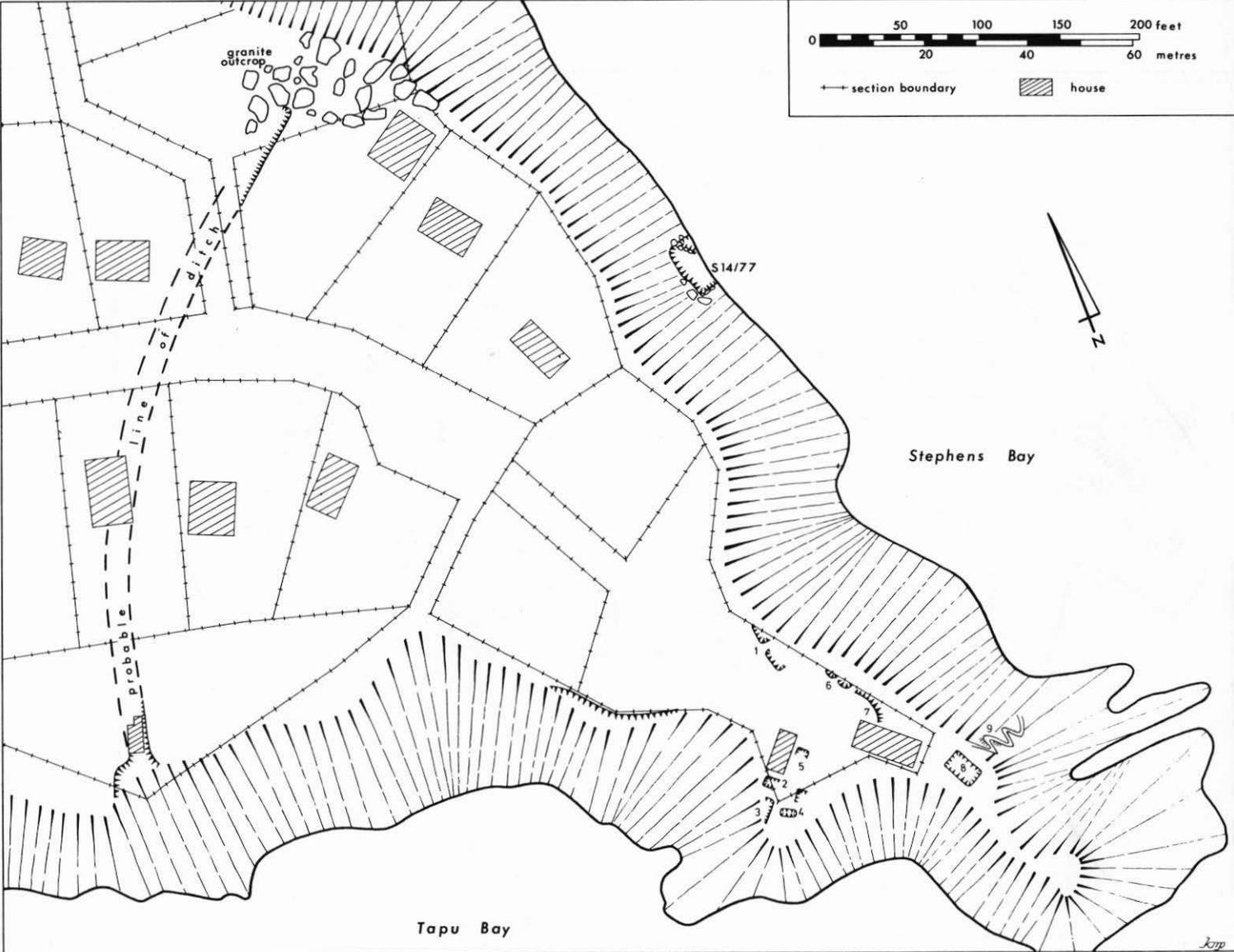
pah, indications of which are distinctly visible in the form of an outer and inner fosse, the former being of considerable depth and breadth. This spot is called Anawhakau.'<sup>17</sup> Here also the surface evidence has been largely destroyed. Puketawai pa differs from all the others in that the site is not a promontory but a hill top. Here the multiple terraces (Fig. 9) may not have been intended entirely as stockaded defensive lines, but may have provided flat ground for building (as on the seaward slopes of Toko Ngawa, Fig. 5).



6 Ngaio, S9/66, ditched pa



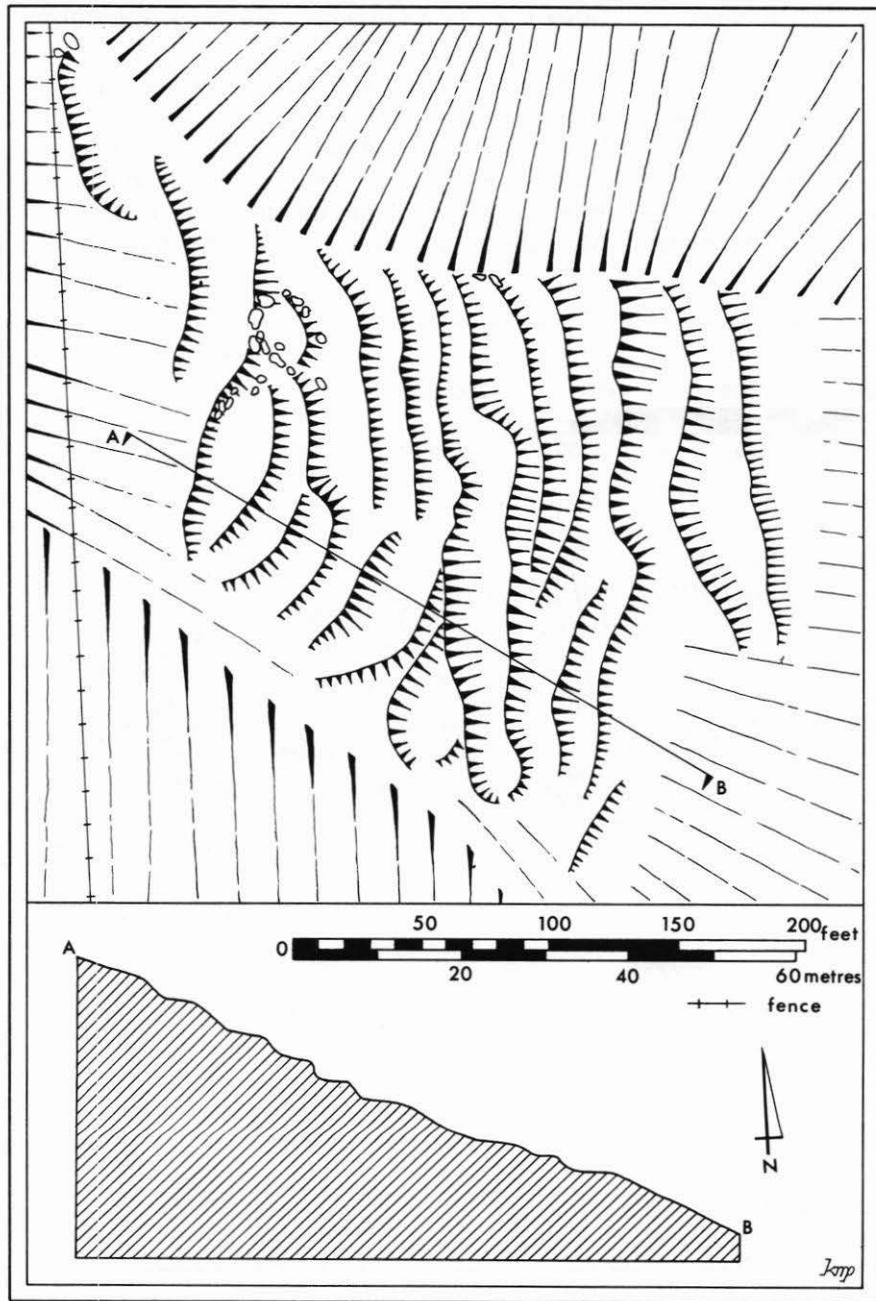
7 Kaka Pah, S14/65, ditched pa



8 Anawhakau (Anawera), S14/76, ditched pa

Access to the interior of pa sites was apparently achieved through narrow gaps in the defences. Generally these gaps in ditches, banks, and terraces were not opposite but offset, so that enemies entering were left open to flank attack.<sup>18</sup> Kaka Pah demonstrates this clearly: the inturned entrance through the interior bank and terrace,

a narrow curving feature, lies opposite the strong surviving northern sector of the main ditch (Fig. 7). Similarly at Tinline an apparently original causeway across the ditch is adjacent to an unbroken internal terrace. Gaps in terrace and palisade defences would probably also have been offset (at Puketawai and Toko Ngawa). At



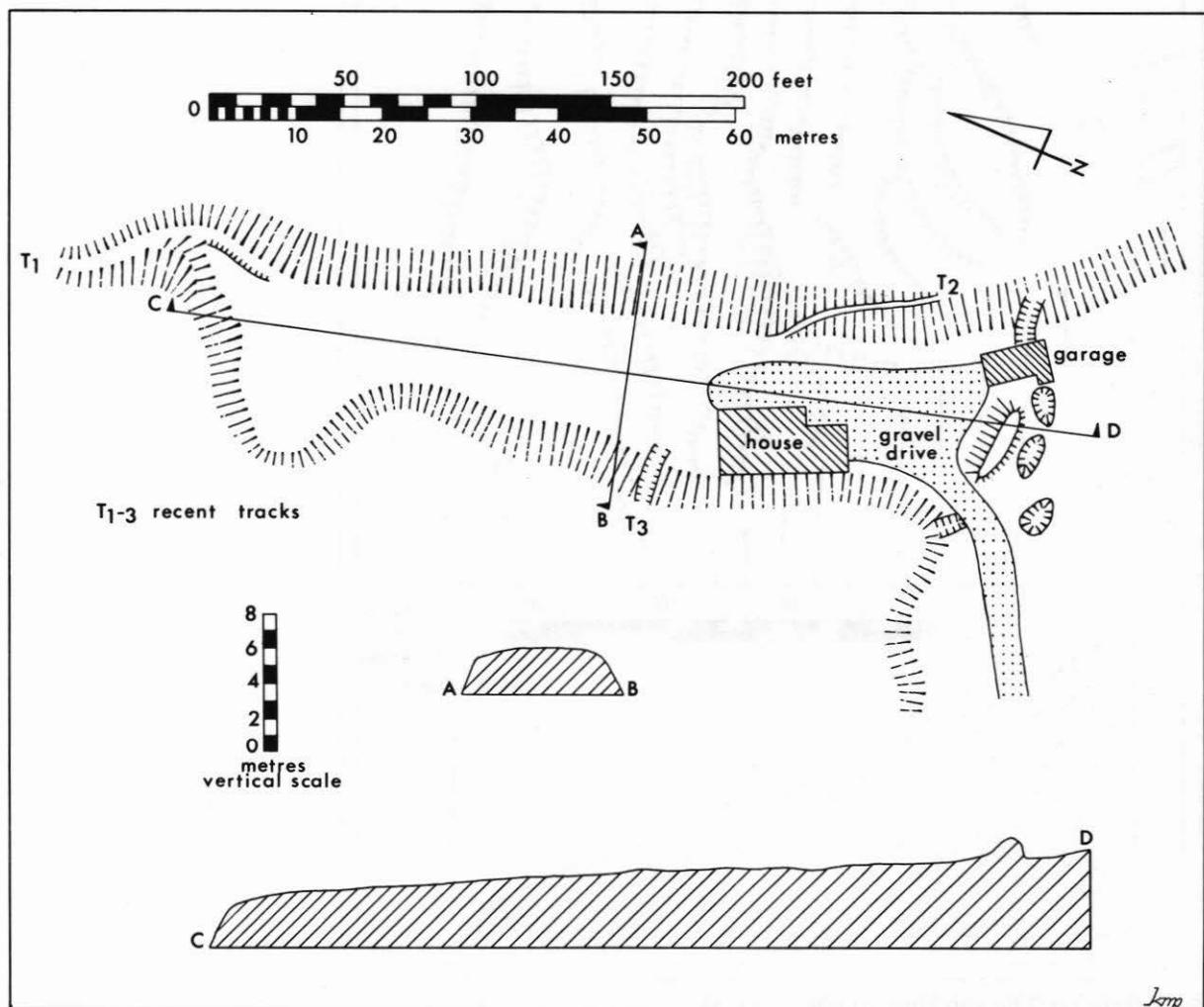
9 Puketawai (Old Pah Hill), S14/86, terraced hillside

smaller pa sites access from the neighbouring beach appears to have been through the ditch terminals (Ngaio, Fig. 6; Te Mamaku, Fig. 10; Moutere Bluffs, Fig. 11). This may be defensively significant since an enemy detected while in the ditch would be extremely vulnerable. At Moutere Bluffs a narrow causeway across the ditch and a break in the bank at the extreme western end allows entry. The ditch at Ngaio appears to be a thoroughfare from which access to the interior was possible at both ends.

A feature sometimes found in North Island pa is the tihī or citadel<sup>19</sup> (the highest point), often behind the innermost fortification. This area was the rallying point of the inhabitants and the residence of the chief and his family.<sup>20</sup> Such may

have been present in the now damaged north-western sector of Kaka Pah (Fig. 7). Certainly at Ngaio (Fig. 6) an artificially scarped platform lies immediately behind the defensive bank, and at the pa of Te Makawawa there are two platforms, one just east of the path up from Marahau (S9/52, Fig. 20). A small platform, partly edged with stones, lies separate from the other features at Otūwhero Inlet (Fig. 4, feature 27).

All pa defences enclose living areas. In cases where the ground is undisturbed, elements of layout can be seen. Buildings probably occupied the terraces (see pages 38 to 39) which are seen in most cases levelled into the slopes. Terraces at Moutere Bluffs (Fig. 11) occupy much of the

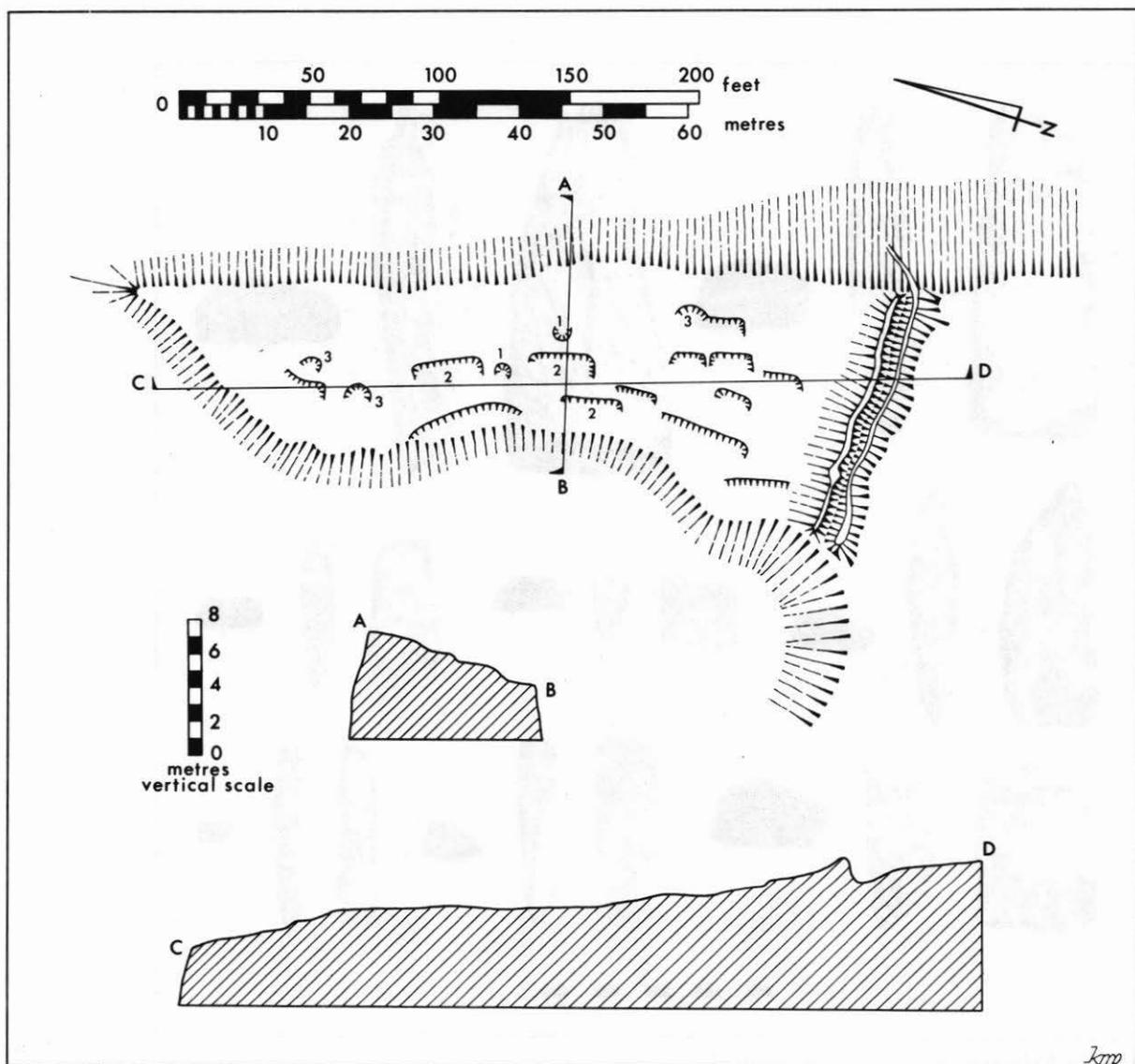


10 Te Mamaku, S14/43, ditched pa

small interior, and at one point their proximity suggests the presence of two phases of building. Specialised functions for different areas are indicated at Kaka Pah (Fig. 7). Groups of storage pits occur in the north-east and were present on a ridge destroyed by the car park. There are many partly disturbed terraces in central and western parts. The amphitheatre of the south-eastern sector has no surface archaeological features; it could have been an open space or marae. Similarly, at Otuwhero Inlet (Fig. 4) storage pits are concentrated to the east, other

features are found in the west, and an apparently open area surrounds the platform in the centre. Such internal divisions may have been demarcated by fences.

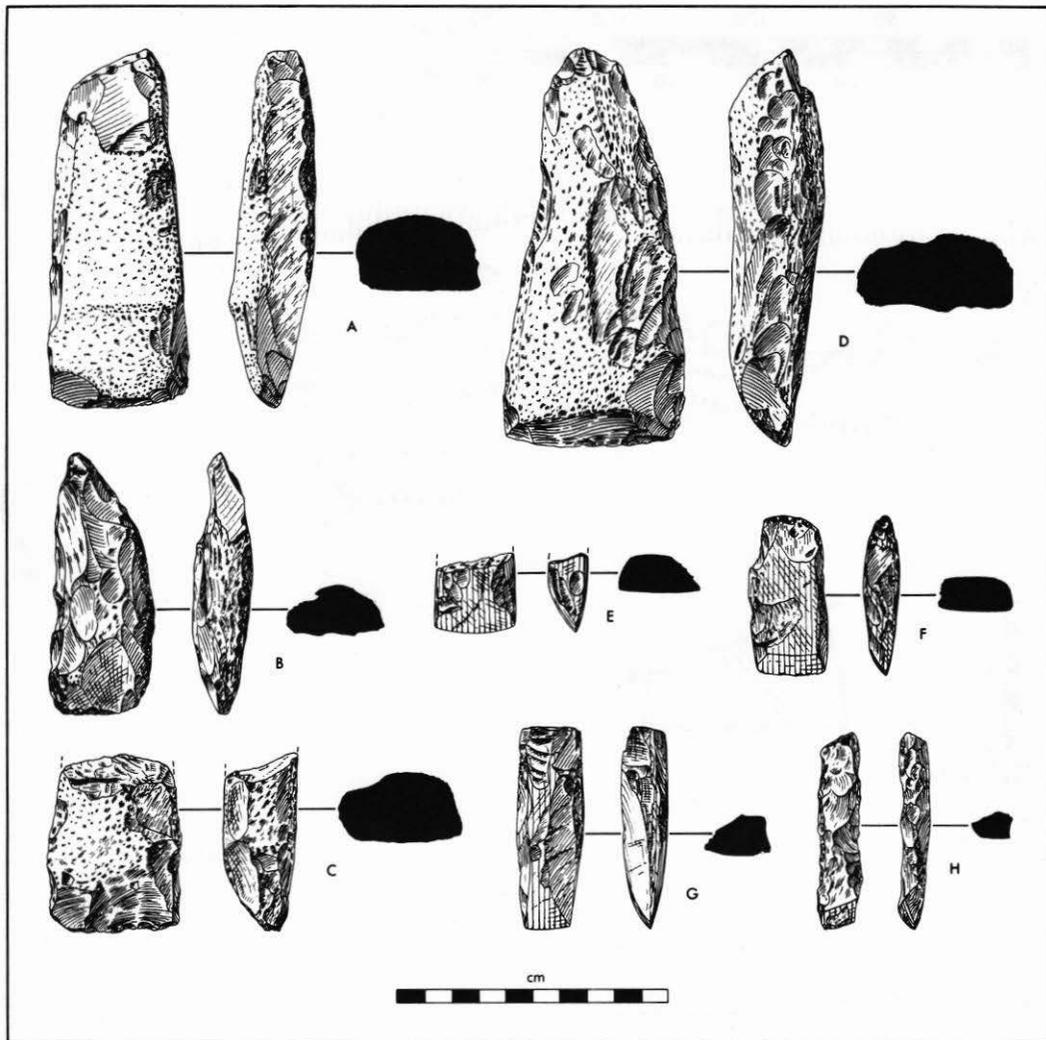
It is often suggested that pa were not permanently inhabited and that the residents occasionally moved to seasonal fishing and gardening camps, so that some of the local population retired to the pa only in times of threat.<sup>21</sup> Nevertheless, the presence of terraces, and of ovens at Te Mamaku and a midden at Anawhakau (Fig. 8, feature 9), emphasises the



II Moutere Bluffs, S14/44, ditched pa

importance of habitation. Pa sizes range widely (Table I) and could have accommodated varying groups. The larger ones (Kaka Pah, Anawhakau, Tinline, Toko Ngawa, and Puketawai), enclosing over 4000 square metres, may have been important hapu or subtribal centres, whereas tiny Ngaio could have been no more than a whanau, or extended family, defence.<sup>22</sup> These pa are situated within easy reach of fresh water, and of food supplies derived from marine, riverine, forested, and cultivated zones (see page 82). The possibility that they were at some time the permanent foci of the settlement pattern should not be discounted.

If pa sites were occupied for any length of time, tools would have been made and repaired there. Metasomatised argillite artefacts, a broken utilised flake, and two small fragments of polished adzes from Kaka Pah suggest the use and possibly the repair of tools. Local residents report that much stone flaking debris was once seen there. The finished, roughout, and fragmentary adzes (Fig. 12) and waste flakes from Te Mamaku suggest the manufacture of tools on the site from water-rolled raw material. Quartz reef deposits in the granite close to Otuwhero Inlet (Fig. 4, feature 3) and Toko Ngawa (S9/63, Fig. 5) appear to have been utilised. (See pages



12 Te Mamaku, S14/43—metasomatised argillite artefacts (scale 10 cm)

41 to 52 for consideration of stone-working sites.)

Whatever the other socioeconomic functions of these pa they performed a role in warfare. Early traditions of Puketawai tell of the arrival of a raiding war party, unobserved, in the evening, and of its members lying in wait till early the following morning to surprise and kill the young local chief.<sup>23</sup> The more limited food and fresh-water resources in the vicinity of the Moutere cliff coast suggest that the Te Mamaku and Moutere Bluffs pa may well have been occupied intermittently and used as refuges in dangerous times. The tradition relating to the conquest of the Te Mamaku pa in the Te Rauparaha raids describes the surprise arrival of the enemy in canoes<sup>24</sup> (a dawn attack?), a common feature of Maori tactics.<sup>25</sup>

These traditional accounts suggest that the pa sites concerned were occupied in later prehistoric times. The evidence of artefacts from Te Mamaku (Fig. 12) supports this conclusion: metasomatised argillite adzes, particularly one bearing a 'chin ridge' feature (Fig. 12A), are apparently late types (see pages 74 to 77). Nevertheless the pa as a settlement form could have spanned a period of several centuries in the Motueka district especially if, as is common elsewhere, individual locations were re-used several times. Also, in the context of overall site distribution, some pa sites appear to be too close together to have been contemporaneous hapu foci. For example Kaka Pah and Anawhakau, the two largest sites, are less than two kilometres apart (Fig. 47). Further south Te Mamaku and Moutere Bluffs occupy the same stretch of cliffs (Fig. 3). Evidently pa went out of use or were declared tapu and had to be replaced. Anawhakau may be one such case: this area 'was the abode of the patu-paiarehe (fairy folk) and kehua (ghosts)', and a tohunga named Tamati Parana once lived on the promontory.<sup>26</sup>

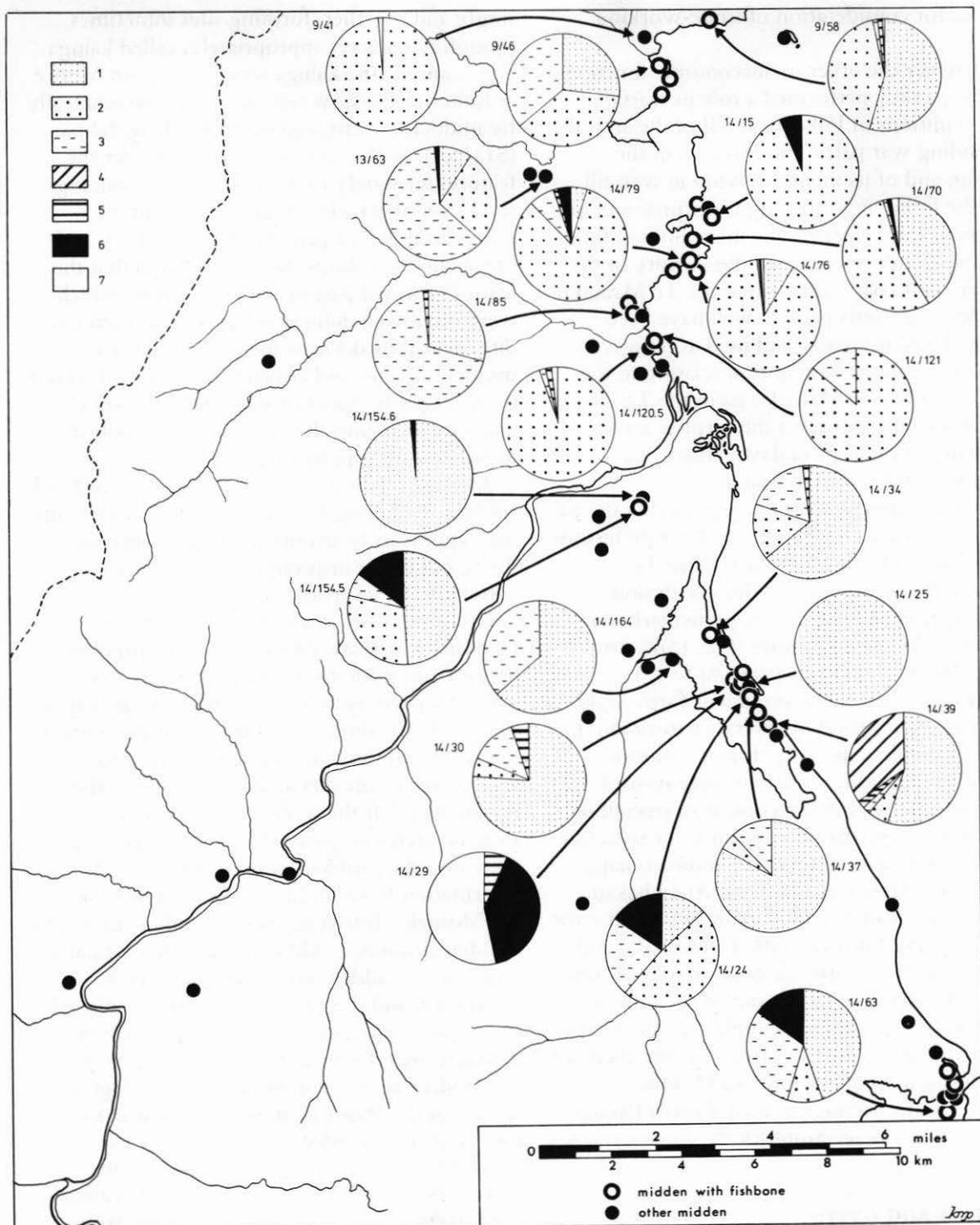
### Middens and ovens

Less than four per cent of the archaeological sites in the Motueka district are fortified. The majority have no earthwork defences and are recognised by the presence of other features. Middens, ovens, pits, and terraces occur both

singly and together, forming sites sometimes, though not always appropriately, called kainga. For example, the kainga seen by Captain Moore at Kaiteriteri<sup>1</sup> is now represented archaeologically by middens, ovens, and stone-working debris (SI14/70?). In this section we will consider the features separately rather than in site groupings, since even when close together they may represent different periods of occupation. Nevertheless it should be remembered that the features formed part of settlement units which were often well defined at the time of their use. Sites near Riwaka now identified mainly by middens, ovens, and artefact finds were observed in the 1840s as 'enclosed with strong stakes or palisades sunk into the ground . . . well lashed together with supplejack and flax'.<sup>2</sup>

Middens are refuse deposits, generally of food rubbish remaining from meals. Characteristically they appear to be mainly made up of marine shells, but closer inspection often reveals vertebrate bones (particularly of fish), charcoal, ovenstones, waste stone, and broken tools. Deposits which are almost entirely composed of debris from stone-tool manufacture are considered separately as stone-working areas (pages 41-52). Thus, although middens usually contain few artefacts, they can contribute much to a knowledge of the diet and ways of life of the people who left them. A great deal of New Zealand archaeological effort and thought has gone into the problem of extracting reliable information from middens. Previous work in the Motueka district has been mainly confined to midden sampling.<sup>3</sup> Although not often visually impressive, middens are scientifically very significant, and it is unfortunate that because of their typically coastal location they are often damaged by erosion and construction activity.

Middens are the commonest archaeological feature in the Motueka district (present at 61 sites) and are exceeded in number only by artefact finds. They are often present on the same sites as other evidence of open settlement: with ovens (on 29 sites), stone-working areas (18), and pits (10). Situations (see Fig. 13) are usually coastal (20), on islands (11, particularly Jacketts Island), and on flat land close to a once navigable water channel (13). An important general impression gained is that of the small size of most of the middens. The average



13 Middens—distribution and contents. 1 cockle; 2 pipi; 3 mud snail; 4 speckled whelk; 5 large ostrich foot; 6 mussel; 7 other

apparent thickness is 24 cm. Only six seem large by local standards, and even these are small compared with the massive deposits found on the shores of the major North Island harbours.

There are great internal differences within middens. This means that it is not possible to predict their total composition from surface indications. Since the range of variations between different areas of a single midden has been found to be as great as that between different middens,<sup>4</sup> comparisons between middens on the basis of small samples is also unreliable. In fact some have concluded that no sampling procedure is ever representative,<sup>5</sup> complete excavation being the only answer if conclusions about total composition and absent species are to be drawn. Details of depth and stratification cannot be obtained from surface examination. What a surface survey can achieve, however, is to define some of the marine shell, fish, and other species that are present and which were therefore eaten by the people, although it should be remembered that species not noted in this survey may also have been exploited. Thus, where middens were found to be actively eroding or affected by ploughing or construction, one kilogram samples were taken from the exposed parts and were examined. Some of the results are shown in Figure 13.

The present day shellfish resources of the Motueka district intertidal zone are good. For example, the Tapu Bay sand flats support dense populations of medium and large size cockles<sup>6</sup> and pipis, providing apparently excellent eating.<sup>7</sup> Captain Moore in the early 1840s noted 'a great abundance of mussels and other shellfish' along the coast between Kaiteriteri and Riwaka, and described how boys of a native village near the mouth of the Motueka River were directed by an elder to gather pipis.<sup>8</sup> Judging by the small size of many shells in the middens (e.g. mud snail specimens 6 mm across<sup>9</sup>) it may be that the resources of the intertidal environment were heavily used from time to time by the Maori people.

Tidal estuarine muddy-, and sandy-flat shellfish species monopolise the results of this survey (see Fig. 13). Pipi dominates on Goodalls Island (S14/120.5 and 121), at Kaiteriteri (S14/15 and 70), at Anawera (S14/76 and 79), and at Kaingaroa, Jacketts Island (S14/24), and is present

in many other middens where natural beds are close at hand. The mud snail is dominant in two middens close to pit sites (S13/63 and S14/85), and frequently forms a substantial proportion of midden content throughout the district. Cockle is the main element in Moutere Inlet and Grossi's Point middens (S14/25, 30, 34, 37, 39, 63, and 164), in one case at Sandy Bay (S9/58), and in European contact middens in Motueka (S14/154.5 and 154.6; see page 26). The speckled whelk is found in middens located close to flats where rocks and shingle are present (e.g. S14/39). Oyster is represented especially around the Moutere (S14/163, Fig. 49) and Mapua (S14/48 and 51, Fig. 51) Inlets where oyster beds are present on the tidal flats. Of the sandy beach species the southern volute is significant on Goodalls Island (S14/120.5). New Zealand dosinula is a major constituent at S14/29, Jacketts Island. Large ostrich foot shell is persistently present, particularly in middens around the Moutere Inlet.

Rocky-shore shellfish are represented less consistently. Mussel is frequently found in the granite coast middens of the north (S14/15, 70, 76, and 79), having presumably been harvested from adjacent rocks. It is also present in middens further south (S14/24, 29, and 63) near the mussel beds of the rocks and coarse shingle of the Moutere coast. Other rocky-shore species such as white rock shell (S9/41), the similar *Lepsithais Lacunosus* (S14/70), and cat's eye (S9/58) are present in granite coast middens.

Thus in no case are marine shell species present in coastal middens far from their likely natural source. The distribution of mussel and oyster middens suggests the possibility of preference for locally-available species. The apparent dominance of cockle in the Moutere Inlet middens and in Motueka middens of the European contact period, and of pipi in middens to the north, suggests some preferential gathering. Inland middens (S13/63 and 64, see also Fig. 19) contain a variety of species: cockle, mud snail, mussel, and pipi.

The twenty-four middens in which fish bones were observed were almost always situated close to open water (see Fig. 13). Snapper is the dominant fish (S9/46 and 47; S14/24, 28, 29, 30, 32, 39, 56, 57, 63, 86 and 154.5; see also Figs 46, 48, 50, and 51). Few other species could be

positively identified since bones are usually post-cranial and small, but red rock cod (jaw fragments present at S9/46), *elasmobranch* species<sup>10</sup> such as dogfish and sting ray (vertebrae at S14/34 and 154.5), and several types of small bony fish (at S14/29, 30, 34, 56, 70, and 79) are represented. Captain Moore remarked that the fish in Tasman Bay were very plentiful 'all the year round... the hapuku, the snapper, and a variety of other good sorts of fish; but from November to March and April... alive with herrings and pilchards... numerous barracouta'.<sup>11</sup> Archaeological sites elsewhere in Tasman Bay have demonstrated the importance of fishing: at The Glen<sup>12</sup> the bone was mostly snapper, and at Tahunanui<sup>13</sup> snapper, barracouta, and kahawai formed the majority. Fishing equipment is important in the artefactual material from Motueka district coastal sites (see pages 65 to 66).

Bird bones seem very rare in the middens. They are said to have been present in a Motueka Valley midden (S13/2, Fig. 52); unfortunately the identification was not positive and the site is apparently destroyed. Moa bones (small *Dinornis* or larger *Euryapteryx*, and smaller moa species) found in the marble country west of the South Branch of the Riwaka River (S13/49, see page 65) may be a sub-fossil rather than a midden deposit. However, the importance of birds in the prehistoric diet is suggested by nineteenth century references to the spearing and snaring of birds (see pages 8 and 65<sup>14</sup>), and by the spear point (for bird hunting?) from Kaingaroa (S14/24<sup>15</sup>). A wide variety of bird species is often found in excavated sites of Archaic context. Tahunanui is no exception (at least ten species including mutton bird, pigeon, parakeet, tui, weka, and two types of moa<sup>16</sup>).

Various other resources could have formed part of the diet in Motueka district prehistory. Seal and polynesian dog bones were found in middens at Tahunanui, The Glen, and Rotokura.<sup>17</sup> Land invertebrates such as huhu grub, beetles, caterpillars, worms, and landsnails could have been utilised. Other seashore foods such as starfish, sea eggs, seaweeds, and crabs were doubtless available. For some of these, evidence of exploitation may never be forthcoming. Nevertheless the midden evidence from the district emphasises the importance of hunting and gathering activities in the marine zone.

Besides demonstrating aspects of diet, middens often contain indications of other characteristics of occupation. If much of the shell is crushed, then movement, if not actual dwelling, took place over the midden area. Such is often the case on Jacketts Island (S14/25, 30, 32, and 34, Fig. 50) where the area available for settlement is limited. Stone-working debris, of metasomatised argillite (17 cases) and quartz (13 cases, see page 54), is often found in small quantities, suggesting the presence of stone-working areas nearby. A midden excavation programme could provide much more information, for example about the seasonality, duration, and date of the occupation.

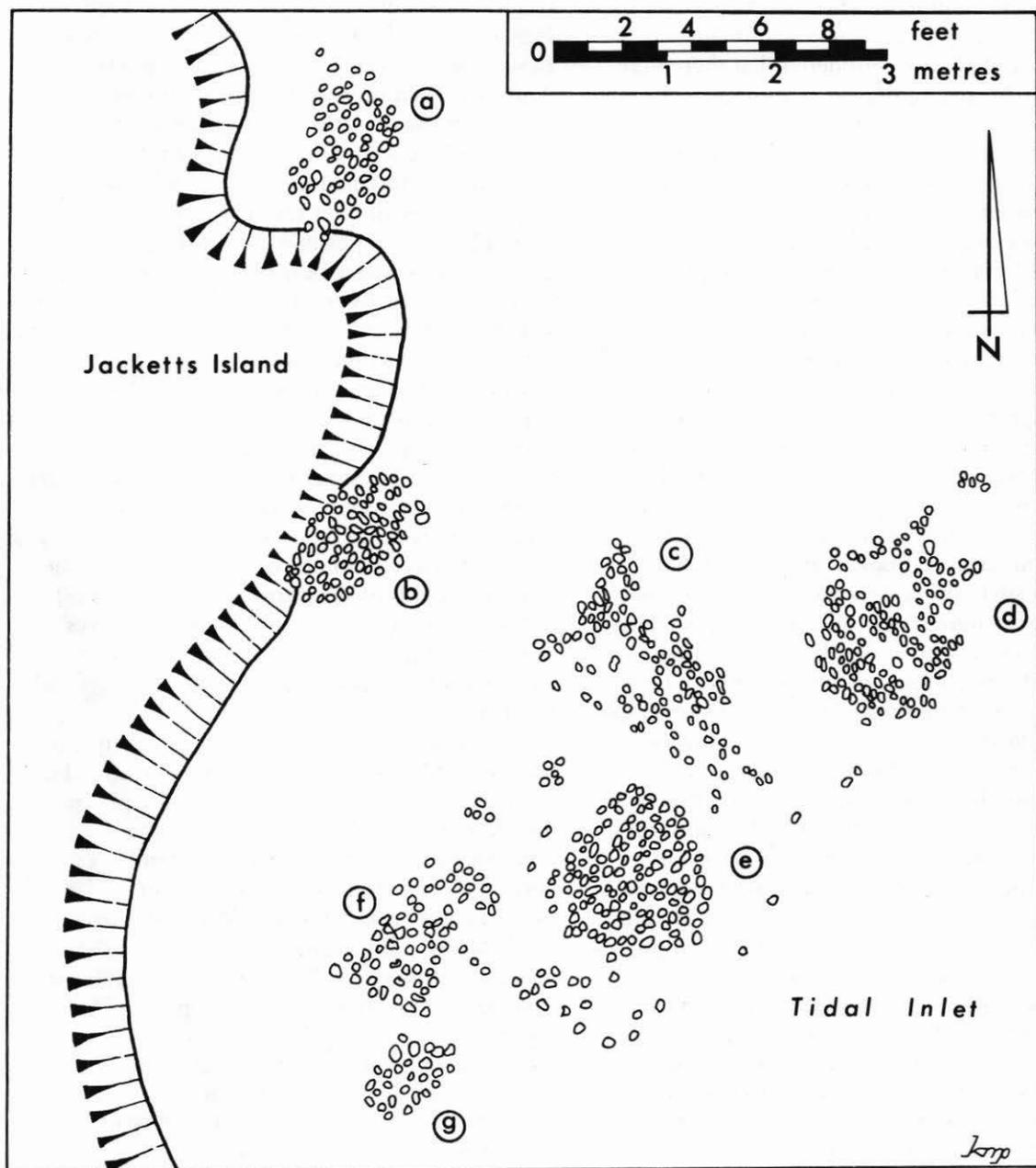
The presence of European material in several middens is of interest. Those exposed by farming operations at the site of the nineteenth century Maori settlement of Awamate<sup>18</sup> in Motueka (S14/154) produced clay pipe stems, glass, earthenware, and china fragments (midden 6), and sheep and ox bones (midden 5). Another midden near Chamberlain Street (S14/157) included four pieces of clay pipe, a broken iron knife, and hand-wrought iron nails. This midden, of cockle, pipi, and mud snail shells, was a dense concentration filling a cobblestone-lined cylindrical pit one metre wide and more than two metres deep, possibly a well.

Over half the middens in the Motueka district incorporate or lie adjacent to deposits of charcoal or ovenstones (umu or hangi stones), indicative of cooking activities nearby. Such proximity is hardly surprising, since cooking would have been a common factor in settlement. After middens, ovens represented by stones are the next most frequent archaeological feature, present on 53 sites (20 per cent of the total).

Since ovens were usually made in pits, surface evidence of their structure is uncommon. However, at two locations on Jacketts Island (S14/26 and 33, Fig. 50) coastal erosion has scoured out areas of ovens leaving ovenstones exposed in discrete heaps (e.g. Fig. 14, a to g) on the sandy beach. It appears that, as the tidal and wave energy is low in these sheltered inlet sites, the stones have been moved little laterally by the water but have fallen vertically from their original position. The stones are generally grey-wacke river or beach cobbles, commonly 5 to 12 cm across, probably selected from local

beach deposits derived from the Moutere Gravels. They are often split by heat, and when remaining in an uneroded position (some in groups a and b) are set in a blackened greasy sand deposit. The heaps of stones are about one and a

half metres across. Other ovens, middens, and a working area are present in the vicinity (Fig. 50), which is known as an old village site named Kaingaroa.<sup>19</sup>



14 Jacketts Island, S14/26—ovenstone clusters

## Cultivation sites

Until recently it was thought that the earliest prehistoric inhabitants of New Zealand, the tangata whenua, did not grow crops, and that they were therefore easily overrun by the Maori of a later immigration whose horticultural abilities gave them economic dominance.<sup>1</sup> However, it is now considered that there may not have been a significant second immigration of Maoris, and that tropical food plants such as kumara, gourd, taro, and yam were brought at the time of the initial settlement of New Zealand from Eastern Polynesia.<sup>2</sup> The environment of temperate New Zealand is marginal for these tropical frost-tender species which require warmth in soil and atmosphere, and high soil-moisture content.<sup>3</sup> Nevertheless, that they were successfully grown is demonstrated by their survival here. Certainly the kumara and the gourd, probably the taro, and possibly the yam, could have been grown under prehistoric conditions in favourable parts of the Motueka district.

The archaeological evidence of prehistoric cultivation in New Zealand includes garden walls and terraces, implements such as the digging stick or ko, structures for the storage and overwintering of crops, and modified horticultural soils. A great deal has been written about Maori garden soils (made soils).<sup>4</sup> These can often be distinguished from their surroundings by their different, usually darker, colour and the apparent addition of sand, gravel, or sometimes shell. It has been suggested that large quantities of vegetable matter had been burnt on the surface, giving the darker colour and a greatly increased fertility, and also that gravel and sand had been quarried from pits and spread on the soil as a mulch, often leading to improvements in soil drainage, warmth, and moisture retention.<sup>5</sup> These soils have been interpreted as showing that the Maori method of soil improvement was designed to assist the growth of the tropical kumara in a temperate environment. The best-known major areas of made soils are on the Waimea Plains and in the Waikato. Evidence that these were used in the nineteenth century has suggested that they were created then.<sup>6</sup> However, excavation has demonstrated other cases, where such soil modifications were undertaken in the prehistoric period.<sup>7</sup>

Substantial areas of Maori made soils of both gravelly and sandy types exist in the Motueka district.<sup>8</sup> Almost all of the thirty-three areas recorded are located on the Marahau, Riwaka, and Motueka alluvial flats, where modern ploughing regularly reveals the soil surface, facilitating identification (see sectional maps, Figs 46, 48, and 49). The garden soils are on land raised slightly above flood and swamp level. They are often (in eighty per cent of cases) separate from any other field evidence of settlement, and are sometimes up to five kilometres from major identified living sites. Most lie close to past or present river channels, so canoe access would have been possible. The distribution of garden soils shows a clear preference for raised coastal beach or river terrace soil types: the fully stabilised sandy areas within the Tahunanui Sand soils, and the medium and fine sandy loam soils within the Riwaka Silt Loam series.<sup>9</sup> Other types of soil, such as wet-phase silt loams of former swamps, the Sherry soils of the granite fans, and the Hau stony soils of the southern part of Motueka Borough, were avoided. Thus, a large proportion of the available flat land area appears to have been utilised, particularly in the Marahau and Riwaka districts (Figs 46 and 48). A total of about 115 hectares (about 290 acres) of made soil has now been identified (Marahau: 14; Riwaka: 48; Motueka: 53; Mapua: 0.5; and Stephens Bay: 0.75 hectares).

It is quite clear, however, that not all areas of Maori garden cultivation have been identified in this survey. The distribution of storage pits on the granite coastal hills between Marahau and Riwaka indicates that garden areas remain unnoticed there in the scrub and heavy bush (see pages 35 and 82 and Fig. 47). Warm sheltered north-facing hillsides, like the location of the made soil at Stephens Bay (S14/78, Fig. 47), may have been cultivated. Similarly, reports of hill-top pits (S14/165) and the finding of a digging stick (S14/167, Fig. 36A) at Lower Moutere suggest the presence of agriculture in a part of the district where no made soil evidence of cultivation has been identified.

Although almost certainly an underestimate, the figure of 115 hectares of known Maori cultivation soil is useful because it allows a calculation of the possible maximum prehistoric population of the district. Various methods have

been suggested of estimating population size from assumed variables such as the maximum available cultivable land, the cropping period and duration of the shifting cultivation cycle, crop yields, storage losses, and the proportion of diet represented by the harvest. Using two recent computation systems,<sup>10</sup> the maximum size of the population which could be supported by a pre-European economy in the Motueka district could be between 480 and 490 people. This result is to be viewed with caution: 300 to 500 people may be considered a likely maximum range.

The gravelly type of Maori made soil is found on terraces south of the Motueka river (S14/16, 154, 155, and 156, Fig. 49), on a sloping site north of the Riwaka river (S14/96, Fig. 3), and at Grossi's Point, Mapua (S14/59, Fig. 51). At the last site a natural gravel beach ridge has been utilised, so the garden area can be recognised only because of its very dark soil colour. Evidently the Maori used existing soils already of a gravelly nature. In the other cases, however, the gravel has been carried from adjacent river courses (S14/96) or quarry pits, and added to the soil. Test pits dug in an important complex of made soils at Whakarewa Street, Motueka (S14/16) showed interesting details.<sup>11</sup> Modified and unmodified soils were examined. Three profiles, to which the following horizon descriptions apply,<sup>12</sup> are illustrated (Fig. 15).

#### Test pit 3: modified soil in ploughed area

Ap	34 cm	Dark brown (10YR3/3 <sup>13</sup> ), friable, gravelly sandy loam with coarse sand and gravel
B <sub>2</sub>	51 cm	Dull yellowish-brown (10YR4/3), compact, sticky sandy loam
C <sub>2</sub>	51 + cm	Layers of light brown sandy silt, and fine, medium, and coarse sand

#### Test pit 5: unmodified soil in ploughed area

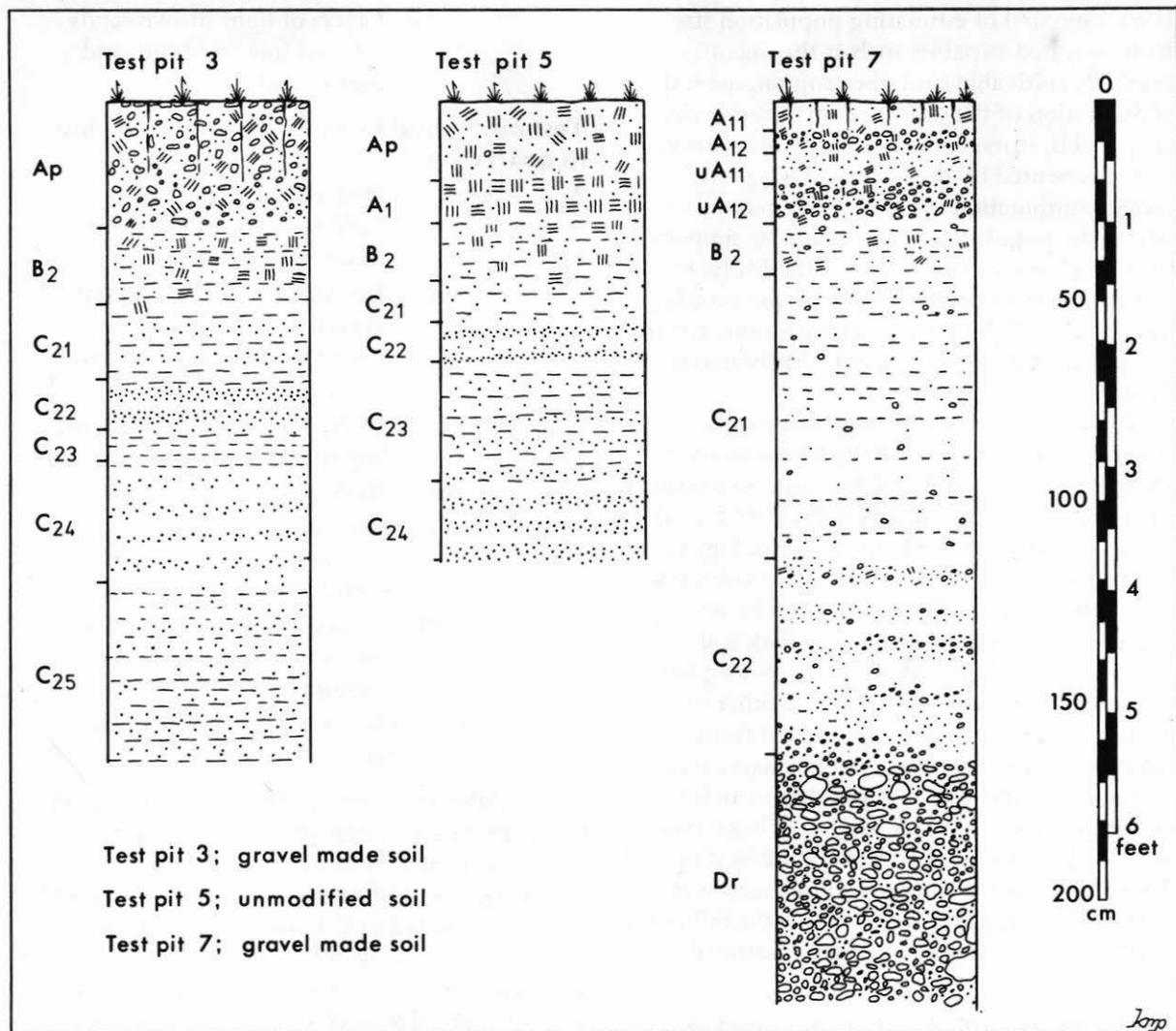
Ap	20 cm	Dull yellowish-brown (10YR4/3), slightly sticky, and plastic fine sandy loam
A <sub>1</sub>	30 cm	As Ap but unploughed
B <sub>2</sub>	45 cm	Dull yellow-orange (10YR6/4), firm, slightly plastic sandy loam

C <sub>2</sub>	45 + cm	Layers of light brown sandy silt, and fine, medium, and coarse sand
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#### Test pit 7: modified soils (two layers) close to quarry pit

A <sub>11</sub>	7 cm	Dull yellowish-brown (10YR4/3) sandy silt loam, friable, granular structure
A <sub>12</sub>	13 cm	Brownish-black (10YR3/2) gravelly sandy loam with coarse sand, gravel, and small stones
uA <sub>11</sub>	21 cm	As A <sub>11</sub> but without roots and humus
uA <sub>12</sub>	32 cm	As A <sub>12</sub>
B <sub>2</sub>	43 cm	Greyish yellow-brown (10YR5/2) sandy silt loam with few stones
C <sub>2</sub>	163 cm	Layers of light brown sandy silt, and fine, coarse, and medium sand
Dr	163 + cm	All (particle) sizes of sands, gravels, and stones

The difference between the modified (test pit 3) and unmodified (test pit 5) A horizons is clear. The former is darker in colour and contains gravel and coarse sand which the latter does not. The B and C horizons are comparable and give no cause for this difference in A horizons. The sand and gravel have been deliberately added by cultivators, and have been quarried from nearby pits dug into river gravel beds. These quarry pits are still visible (Fig. 49).

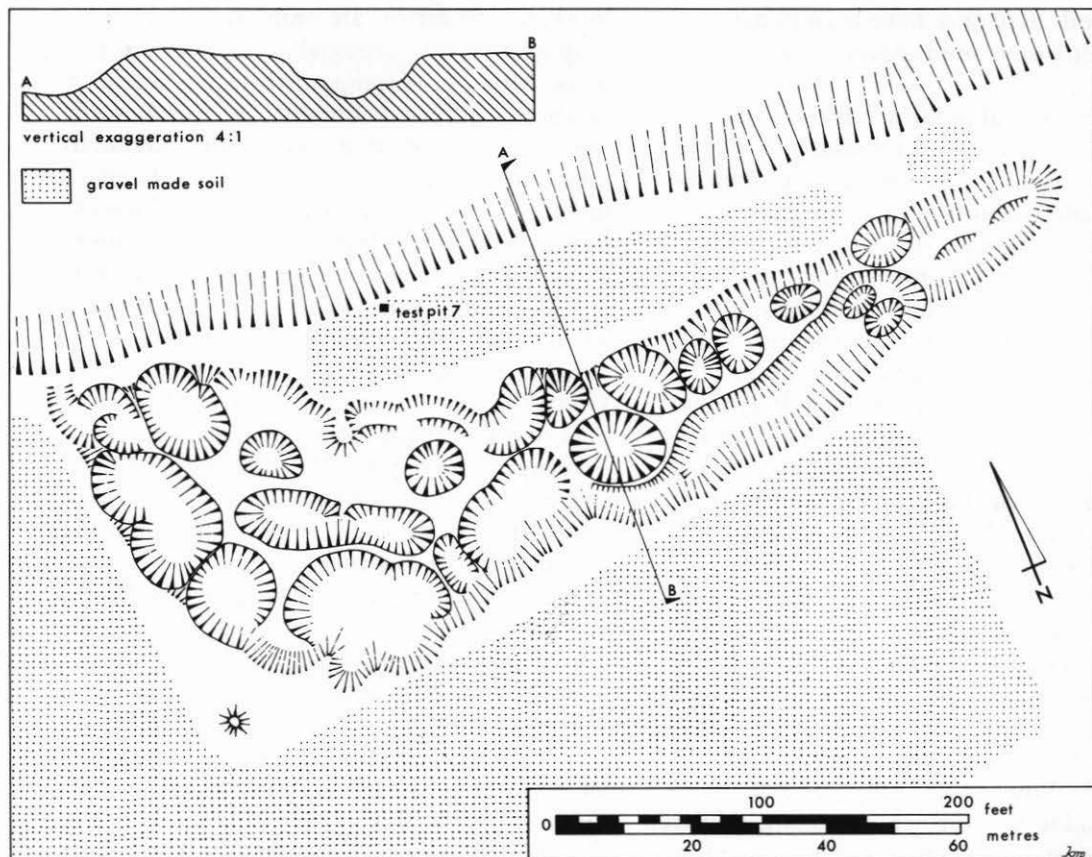


15 Whakarewa Street, S14/16—test pit soil profiles

One pit (Fig. 16) is 150 metres long and up to 1.5 metres deep. Made soils surround it, and are laid out in apparently rectangular areas between 10 and 50 metres wide. Test pit 7 (Fig. 15), dug to the north of the quarry pit (Fig. 16), shows the river gravel deposit (horizon Dr) into which the quarry pit has been dug. (The overlying silt layers, the C horizons, are much thinner on the quarry margins.) This Dr horizon contains the whole range of sand, gravel, and stone particle sizes. In contrast, only smaller gravel and sand particle sizes, less than seven centimetres across, are present in the made soil, and only the larger stones and boulders can be seen remaining in the bottoms of the quarry pits. Thus, smaller gravel

and sand sizes were selected from the quarries for spreading on the garden soil.

Further conclusions can be derived from test pit 7 (Fig. 15). There are two layers of gravel soil,  $A_{12}$  and  $uA_{12}$ , buried and separated by  $A_{11}$  and  $uA_{11}$  layers which may have been built up from wind-blown or river flood silt. The existence of two layers indicates two periods of made soil use separated by a time of abandonment during which eight centimetres of silt ( $uA_{11}$ ) accumulated. The gravel soil layers are narrow:  $A_{12}$  is 6 cm thick and  $uA_{12}$  is 10 cm thick. This is less than the depth of soil likely to have been affected by gardening techniques using digging sticks which would probably have



16 Whakarewa Street, S14/16—quarry pit for soil mulch material

penetrated to about 30 cm. Here is evidence, therefore, that the gravel and sand were not deliberately mixed to form a homogeneous A horizon 30 cm deep of even texture, but that they were laid superficially as a mulch, only gradually working downwards during cultivation and natural processes (e.g. in test pit 3 horizon Ap: thoroughly mixed by ploughing).

Not all Maori garden soils in the Motueka district have had gravel added; most are of sandy type. The addition of sand is best seen at Stephens Bay (S14/78) where the normal dark greyish-yellow (2.5YR 5/2), coarsely granular, sandy clay loam has been modified to a brownish-black (2.5YR 3/2), light, fine sandy loam. On the large areas of sandy soil of the Marahau and Riwaka flats (Figs 46 and 48) sand addition is not clearly apparent because the soil texture is naturally sandy. The made soils have to be recognised by their different colour, still

very evident in most cases: much darker (between 2 and 2.5 points in value) and duller (up to 5 points in chroma<sup>14</sup>). However, Rigg in 1926<sup>15</sup> remarked on 'pits from which the sand was dug' in Riwaka (S14/107?), presumably to be laid as a mulch on nearby soils (S14/108?—see Fig. 48). Similar pits once existed in Marahau (S9/51).

It has been concluded that 'Maori-treated land is dark in colour due to the presence of charcoal, and is well supplied with both phosphate and potash. This presence proves that large quantities of wood or vegetable matter have been burnt on the land.'<sup>16</sup> Charcoal from the made soil at S14/16 has been identified as rimu.<sup>17</sup> Increased fertility was proved by analyses of the made soils of Waimea carried out in 1923.<sup>18</sup> More recent study has produced even higher values for potassium and phosphorus.<sup>19</sup> However, chemical results from soils at S14/16 suggest that, although

the made soils may once have been richer, modern cultivation and topdressing are masking these differences.<sup>20</sup>

Several beneficial physical effects of the addition of a gravel or sand mulch to a soil can be expected. Besides promoting good drainage and increasing friability,<sup>21</sup> an improvement in water retention characteristics may be most pronounced. A surface gravel mulch acts as a one-way valve on moisture, allowing infiltration of rainwater but inhibiting evaporation. This result may have been intentional, since indigenous peoples in tropical Eastern Polynesia knew of moisture retention practices.<sup>22</sup> Such control would probably have been necessary in the Motueka district because of the marked summer deficit in the local water balance<sup>23</sup> (the balance between evaporation and rainfall). Although the kumara can survive relatively dry conditions once growth is well advanced, tuber formation and quality will suffer.<sup>24</sup>

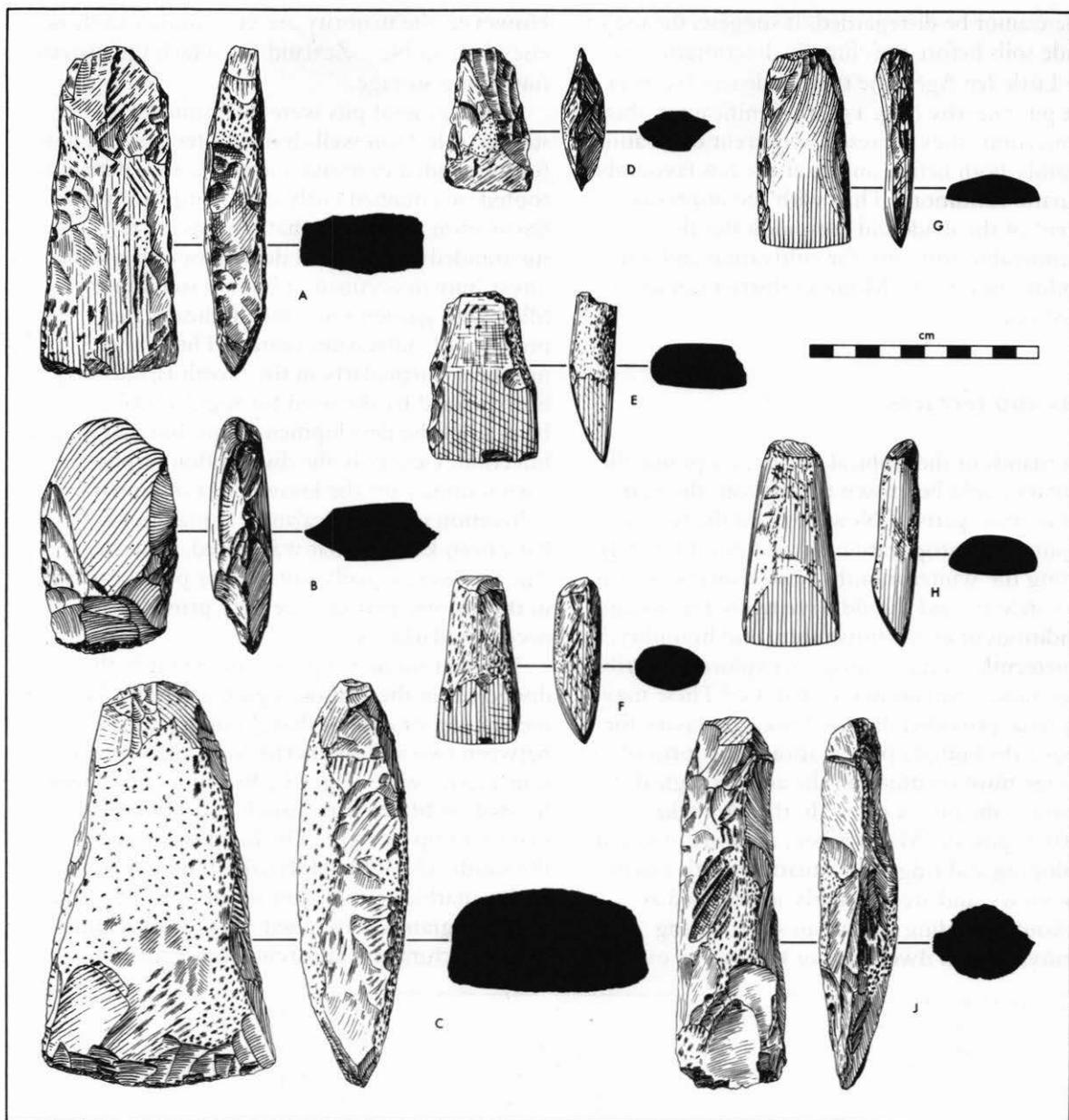
The effect of the mulch on soil-temperature conditions may have been even more significant. Observations of the Whakarewa Street gravel soil (S14/16) showed that compared with unmodified soil it was warmer, providing a thirteen per cent increase in effective heat and an extension by up to a week of the beginning of the growing season.<sup>25</sup> (These figures were derived from a mixed A horizon gravel soil, similar to test pit 3, Fig. 15, and not from a mulched soil in which conditions may have been different.) Perhaps additional benefit was achieved by planting the kumara on small mounds (puke).<sup>26</sup> Modern kumara crops in Nelson develop more quickly if planted out on ridges in which the soil warms up faster in early summer.<sup>27</sup> These practices may have been critical for the successful growth of tropical crops in the Motueka district because of the climatic characteristics of the area.

Although generally the whole of the South Island is marginal for kumara cultivation,<sup>28</sup> the coastlands of the Nelson and Marlborough regions have been compared with inland areas of North Auckland and the Waikato, and with Bay of Plenty and East Cape coastlands, as being similarly suitable.<sup>29</sup> However, the ground, and screen frost variations within the coastal zone of the Motueka district span the whole range of all North Island kumara-growing climates.<sup>30</sup> Such

local climatic factors are more significant for crop growth than regional averages of temperatures. Although sloping north-facing coastal locations are very favourable, the frostiness of the lowlands more than two or three kilometres inland makes growing kumara very difficult. At the present time the crop does well at Grossi's Point and Stephens Bay, but is prone to failure away from the coast on the major river flats. It is precisely in the latter situation that some of the Maori garden soil, and particularly the Whakarewa Street complex, is located (Fig. 49). Given that climatic conditions in the Little Ice Age of the later part of the prehistoric period (see page 7) were probably even more severe, the question arises whether the kumara, much less the taro or the yam, could have been grown in these areas at that time.

An explanation recently suggested is that these made soils might not be prehistoric, but might have been formed in the first half of the nineteenth century and been used chiefly for European crops such as white potato and sweet corn.<sup>31</sup> Samuel Stephens in his diary of 15 January 1843 recorded that Maoris in the Maatu south of the Motueka River had 'a large potato clearing where they grow annually some hundreds of tons of potatoes'.<sup>32</sup> J.W. Barnicoat, who visited the Riwaka Valley on 17 August 1842, wrote that 'the lower part of the valley contains several native potato grounds and is very rich in soil'.<sup>33</sup> Captain Moore, on one of his several visits to Riwaka in the early 1840s, saw 'an abundance of potatoes. . . large plantations of Indian corn. . . also an abundance of pumpkins, kumaras, water melons'.<sup>34</sup> However, these cultivations may not have been on the areas of made soil described here, and may not have involved the techniques which led to the soil modifications.

Some archaeological material apparently associated with made soils suggests that they were used at a late stage in prehistory and possibly in the nineteenth century. The major area of made soils near Awamate, Motueka (S14/154, Fig. 49), lies adjacent to middens of the European contact period (see page 26). Perhaps this was the clearing seen by Stephens. Metasomatised argillite adzes collected from a made soil area at Dehra Doon, Riwaka (S14/102, Fig. 44E,



17 Whakarewa Street, S14/16—metasomatised argillite artefacts (scale 10 cm)

F, G) are of forms thought to be late in pre-history (adze types 2B, 4Aii, and 6ii; see pages 74 to 77).

However, evidence from the Whakarewa Street gravel soil suggests an alternative hypothesis. Metasomatised argillite adzes from the area represent a considerable period of time. Agricultural adzes of both the later 2B (Fig. 17C) and the earlier 2Ai type (Fig. 17A, see page 66) have been found. Although most of the other

tools are of the typically Classic 2B adze form (Fig. 17H), a chopper (Fig. 17B) and a smaller adze (Fig. 17D) are similar to artefacts from the Archaic site at Kaingaroa, Jacketts Island.<sup>35</sup> A charcoal sample from the gravel soil (test pit 1, horizon A<sub>12</sub>) gave a date of  $1120 \pm 60$  radiocarbon years a.d.<sup>36</sup> This is a maximum likely age for the soil. The charcoal may not have been associated with it but derived from roots remaining from an early bush fire. However, the

date cannot be disregarded. It suggests the use of made soils before the climatic deterioration of the Little Ice Age. The two made soil layers in test pit 7 nearby (Fig. 15) are significant in this connection: they represent recurrent cultivation, possibly both before and after the less favourable climatic conditions. This, with the impressive extent of the made soil area, indicates that a considerable antiquity for cultivation and soil modification in the Motueka district cannot be ruled out.

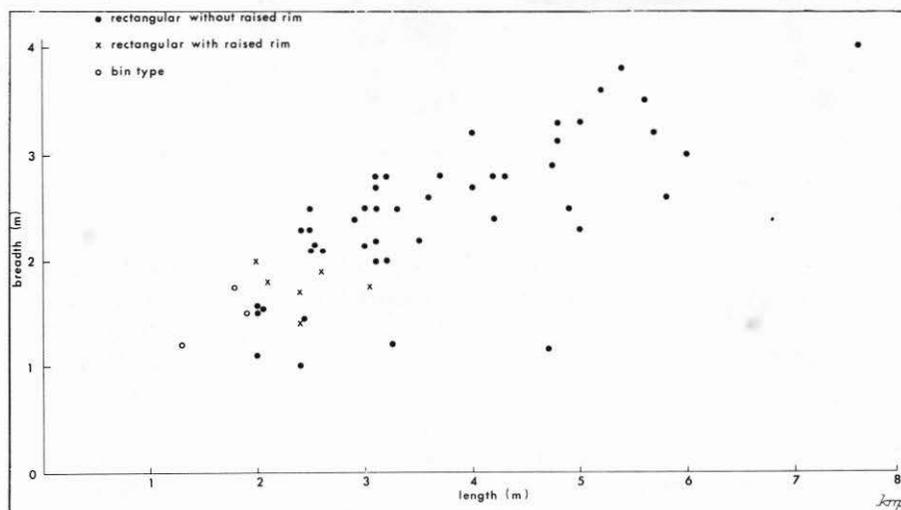
### Pits and terraces

On islands of the tropical Pacific, crops like the kumara could be grown throughout the year, but in most parts of New Zealand the tubers required for propagation needed careful storage during the winter months. The kumara tuber is very delicate and should have frost-free storage conditions of even temperature and humidity.<sup>1</sup> Nineteenth century European explorers described large raised storehouses, or pataka.<sup>2</sup> These may not have provided the conditions necessary for long-term kumara preservation. The form of storage most common in the archaeological record is the pit, or cellar. In the Motueka district, pits, or 'Maori holes', are usually found in sloping and ridge-top situations with extensive views, and are popularly interpreted as lookouts guarding against an approaching enemy, sunken dwellings, or the sites of ovens.

However, the majority are very similar to those elsewhere in New Zealand for which the proven function is storage.

Underground pits were well suited to a storage role.<sup>3</sup> On well-drained sites they successfully excluded excessive moisture, and, if heavily roofed, maintained fairly even temperatures. Excavation has shown that the pits are not surrounded by the usual debris associated with direct human occupation but are sometimes filled with garden soil which indicates the presence of cultivation nearby. Their large numbers, particularly in the North Island, may be explained by the need for regular replacement because of the development of mould and fungal infection. Generally the distribution of pits corresponds with the known area of kumara cultivation in New Zealand.<sup>4</sup> It may not always have been kumara that was stored, however. The pits were equally suitable for potato storage in the historic period since they provided the necessary darkness.

The commonest type of storage pit in the district, as in the Nelson region generally,<sup>5</sup> is rectangular or oval in shape, ranging in size between two and six metres long and one and four metres wide (Fig. 18). Examples have been located on fifteen sites, usually occurring in groups of up to eight. The finest series lies on the south side of the Holyoake Valley (Fig. 19), in dry marble country just south of its boundary with the granite. No raised rims or other superficial structures are apparent from a surface



18 Dimensions of pits of storage type

examination of this type of pit. Excavations elsewhere<sup>6</sup> have shown that they had pitched rooves supported on rows of central uprights. Access was by ladder or steps. Common features were drains to exclude surface water and linings to prevent moisture seepage.

A second type of pit, also rectangular or nearly square, has a raised rim presumably designed to more effectively exclude water. Apart from reported destroyed examples (S9/40) only one series has been identified (Otuwhero Inlet pa, Fig. 4, features 28 to 33). The pits are small compared with those without raised rims (Fig. 18), but this may be due to their situation on a particularly narrow ridge. Raised-rim pits are distributed in eastern coastal districts of New Zealand, from Banks Peninsula to beyond Gisborne, and are especially common in Hawkes Bay.<sup>7</sup> Closer to Motueka there are examples around the Marlborough Sounds and on D'Urville Island.<sup>8</sup> The chronological and cultural implications of this distinctive type are not clear.

Two further types of surface feature may be tentatively interpreted as storage structures. At Otuwhero Inlet (Fig. 4, features 19 and 20) deep terraces have been cut into the steep slope of the ridge (e.g. Fig. 4, feature 20: 4 m long, 3.6 m wide, and with a southern backwall 2.2 m high). These could have been simply roofed over, lined, and provided with a door. A simpler form, a square hole probably covered by a wooden lid, known as a 'bin pit',<sup>9</sup> may be present on two other pa sites: Moutere Bluffs (Fig. 11, features marked 1) and Ngaio (Fig. 6, eastern end). These pits are smaller than the other types (Fig. 18). Excavation might demonstrate alternative functions.

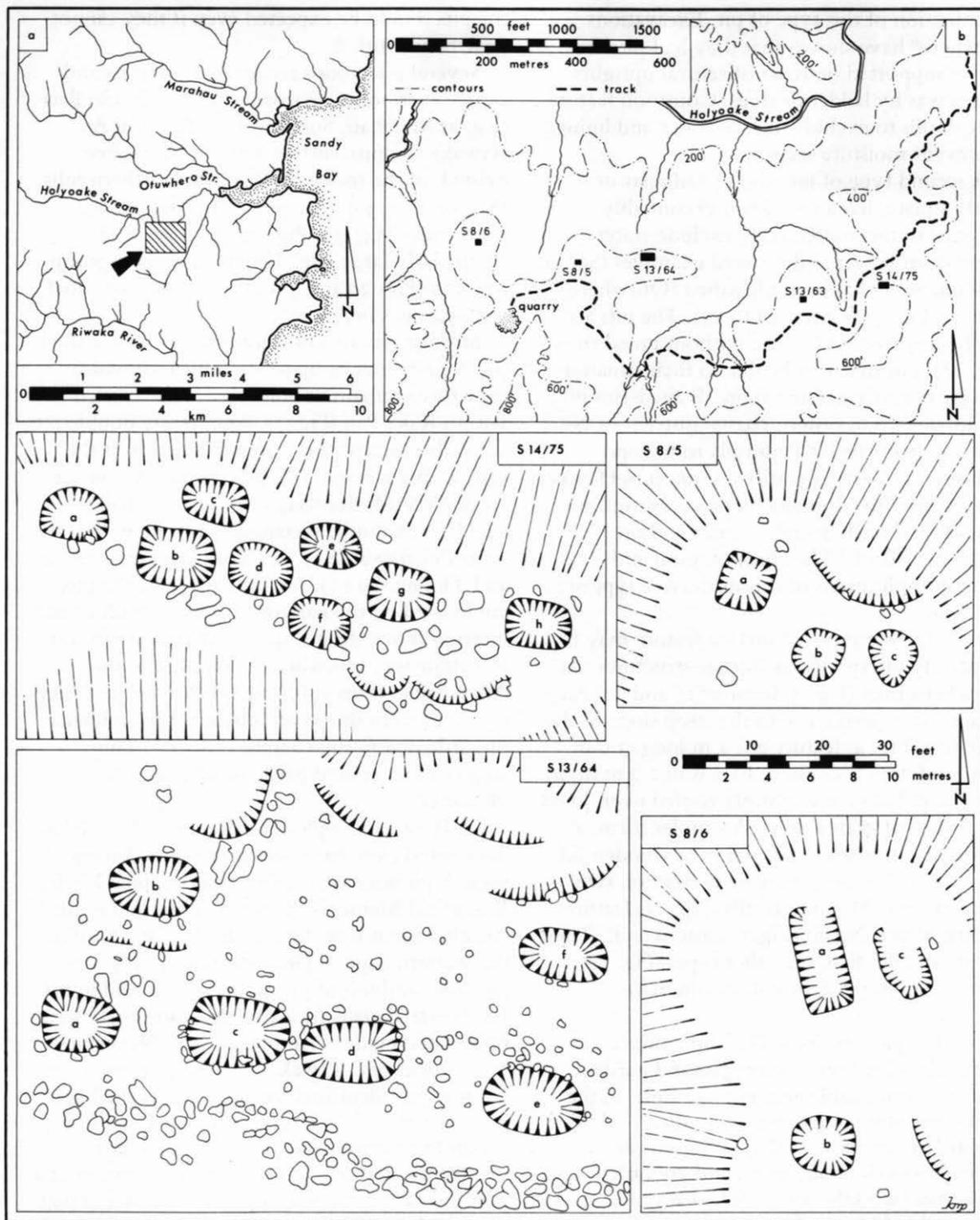
In other parts of New Zealand a direct relationship between storage pits and garden areas has been established. For example, in the Wairarapa, storage pits are either directly beside the gardens, in coastal villages close to them, or on ridges overlooking them, and are only found more than two kilometres distant if canoe access was possible.<sup>10</sup> In the Motueka district some pit groups may fall into this last category. Those at Otuwhero Inlet pa (Fig. 4) and on the southern side of the Otuwhero harbour entrance (S9/61, Fig. 47) would have had easy canoe access. Otherwise the presence of garden areas close to

the pits should be expected even if they cannot now be identified.

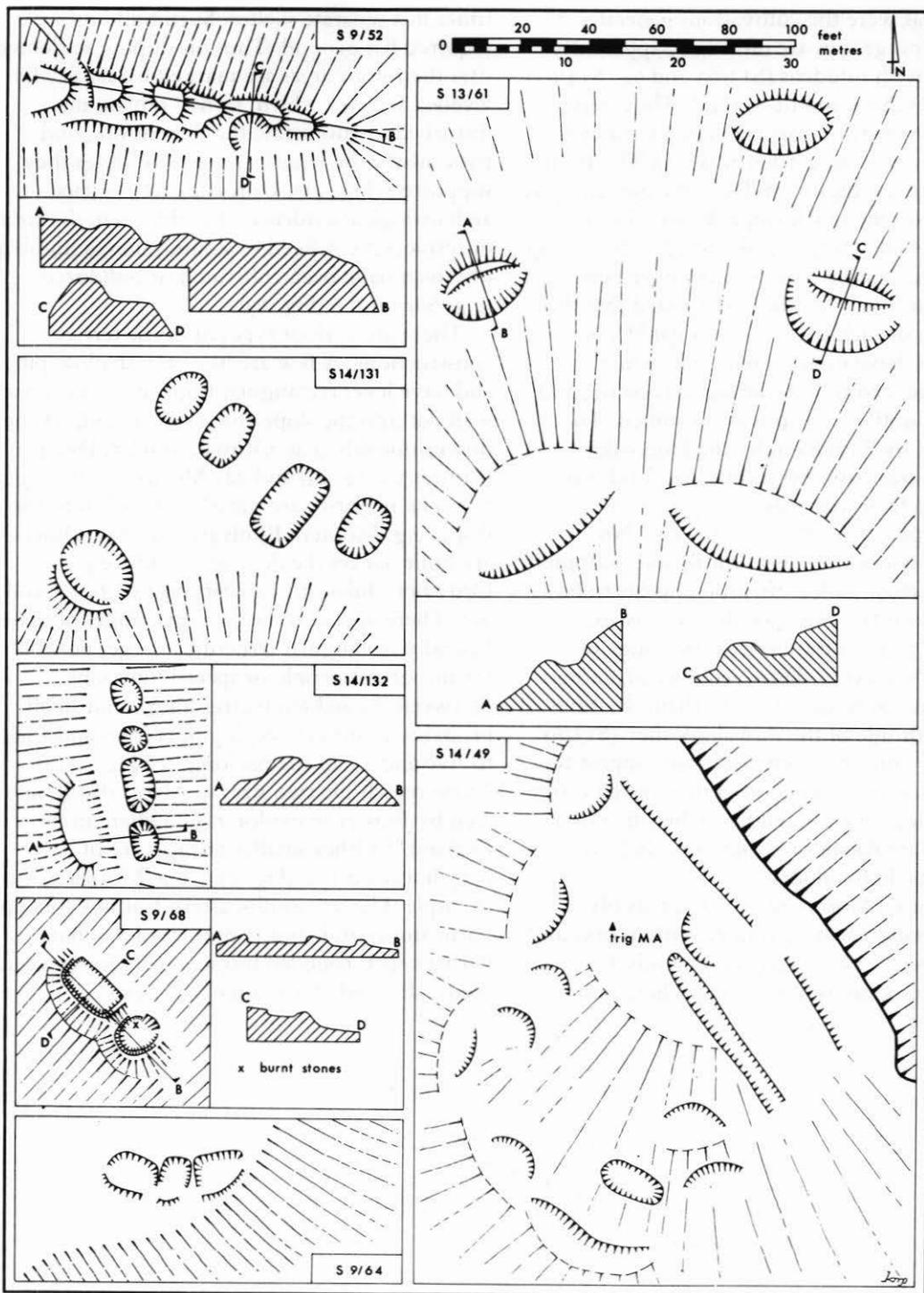
Several pit groups are located on spurs and ridges overlooking garden areas on alluvial flats (e.g. at Marahau, S9/40 and 42, Fig. 46). At Riwaka an apparently extensive series once existed on the rocky slopes of the northern hills (S14/94, Fig. 48). The pits of a group on the south side (S14/131, Figs 20 and 48) are of particularly large size. The ridge-top pit group S14/132 (Figs 20 and 48) may also be associated with gardens below.

Storage pits are commonly found in fortified pa. A fine series of up to seventeen, of which only three remain unbulldozed, once existed within Kaka Pah (Fig. 7). Apparently double pits were also present there, joined laterally at the central division. Double pits are known on sites around the Marlborough Sounds.<sup>11</sup> Small numbers of simple rectangular pits lie within the pa at Puketawai (S14/86), Toko Ngawa (Fig. 5), and Tinline (S9/67). At three other pa the pits are located on the narrowest, eastern ends of the interior above steep slopes in situations of most free drainage: Otuwhero Inlet, Ngaio, and Anawhakau (Figs 4, 6, and 8). Only in the latter case are pits in the pa accompanied by evidence of gardening in the vicinity (Fig. 47). This suggests that related gardens remain to be identified.

Only two examples of storage pits have been discovered close to major lowland settlement sites. A pit once lay on the land occupied by the Wakefield Memorial (S14/85) above Pah Point.<sup>12</sup> Another is cut into the sheltered coastal bluff of the western edge of Goodalls Island (S14/120, Fig. 48). Infilling of pits in prehistory and in the last hundred years (due to cultivation) may have obliterated evidence in many areas. Nevertheless in Motueka and Riwaka the storage capacity of the few pits identified hardly matches the likely productivity of the large garden areas. Above-ground structures were certainly used in the nineteenth century. Captain Moore, writing of a visit in 1842 to the Maori at Riwaka, stated that 'they had erected several large and commodious store houses, ten feet from the ground, with one log notched in steps to form a ladder to the roofed watty [whata, or raised storehouse]. Secure from rains or animals, particularly from numerous rats... these storehouses were well



19 Holyoake Valley south side, S8/5, S8/6, S13/63, S13/64, and S14/75—pit group series



20 Pits, platforms, and terraces—pa of Te Makawawa, S9/52; Dehra Doon, S14/131 and S14/132; Motuarero-iti, S9/68; Towers Bay, S9/64; Bottom Gully, S13/61; The Bluffs, Mapua, S14/49

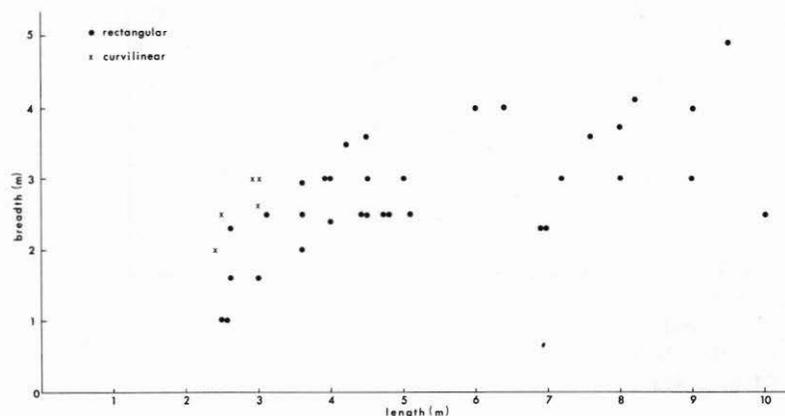
Several pit groups are on ridges, apparently associated with middens (S13/63 and 64; S14/67) and terraces (S8/5 and 6; S14/49). They may have formed part of dispersed open settlements, presumably close to garden areas. At The Bluffs, Mapua (S14/49, Figs 20 and 51), the gardens may have been on the beach ridges below. In the Holyoake Valley (Fig. 19) sheltered north-facing slopes in the marble country may have been used for gardens. It has been suggested that the occupation of such sites was seasonal.<sup>14</sup> The people may have been present only when planting the seed tubers, during harvesting, and afterwards until the crop was consumed. The presence of shell middens by the Holyoake Valley pits (see page 25) shows that food was brought up from the coast.

Not all pits are of the storage type. No gardening association exists for inland examples: one in a narrow valley situation appears to be a European construction, possibly for sawing timber (S13/51), and other reported sites are damaged (S13/35) or destroyed (S13/2), and no conclusions can be drawn from them. Features on the south side of the Riwaka Valley (S13/61 and 62) are entirely enigmatic. They appear too damp for a storage function as they have no rim on the upslope side. (Could they be rifle pits?) Other pits are flat-floored and very shallow; they may be house floors.

Prehistoric Maori houses were probably mostly rectangular with timber frameworks and gable rooves.<sup>15</sup> They were used mainly for sleeping; cooking took place elsewhere, some-

times in a separate shelter. Such buildings required flat ground. Thus on sloping settlement sites their floor areas are marked by artificially levelled terraces which, if they remain undisturbed, demonstrate the dimensions, and particularly the lengths, of the buildings they supported (Fig. 21). Unfortunately surface archaeological evidence of buildings in the form of terraces is confined to sloping sites, a number of which have been cultivated or bulldozed (e.g. S8/5 and 6, Fig. 19).

There are various types of house terrace constructions. A few are like very shallow pits, and have level rectangular floors between a back wall cut into the slope and a raised bank on the downslope side (e.g. Otuwhero Inlet, Fig. 4, features 13, 14, 23, and 24; Motuarero-iti, Fig. 20). The majority are simply cut back into the slope (e.g. Moutere Bluffs pa, Fig. 11). Others are built out on the downslope side (e.g. Otuwhero Inlet, Fig. 4, features 15, 16, 17, and 22). There appear to be two size ranges of these basically rectangular structures: large, possibly for important people or special functions (between six and ten metres long); and small, probably domestic sleeping huts (two and a half to five and a half metres long, see Fig. 21). These match the two sizes of Maori dwellings seen by European explorers elsewhere in New Zealand.<sup>16</sup> Other smaller terraces are of curvilinear outline (Fig. 21). The Motuarero-iti example (Fig. 20, south-eastern feature) contains burnt stones and abuts a presumed dwelling. Perhaps such rounded terraces were for cooking sheds, alongside the main dwellings.



21 Dimensions of terraces of building floor type

Terraces are often found in pa sites. In some cases much of the surface evidence has been damaged (Kaka Pah and Anawhakau, Figs 7 and 8). In others the terraces are cut into steep seaward slopes (the pa of Te Makawawa, Toko Ngawa, Puketawai, and Tinline, Figs 20, 5, and 9). In two pa the terraces demonstrate the layout of buildings within the defences. At Moutere Bluffs there are rectangular terraces for buildings, three large (Fig. 11, features marked 2) and seven small, and three rounded areas, possibly sheds for cooking (features marked 3). At Otuwhero Inlet different terrace types lie in the western sector (Fig. 4). One large example (feature 7) lies apart on a level summit of the ridge.

Terraces also formed part of apparently open settlements. (Although undefended they would probably have been fenced.) Some are associated with storage pits or other pit-like structures (S8/5 and 6, S14/49, S13/61; see Figs 19 and 20). Those close to a source site where quartz was obtained (S9/63, Fig. 5) are noteworthy. Other small terrace settlements lie on islands (e.g. Motuarero-iti, Fig. 20), above cliffs (e.g. Towers Bay, Fig. 20), and sometimes in very isolated inland situations (Riwaka Valley, S13/49, Fig. 3).

Some isolated terraces may have been constructed by European settlers. Coastal examples may be nineteenth century seaside dwellings (e.g. Stephens Bay, S14/77, Fig. 8; and Towers Bay, S9/65, a site with a prominent drain structure, location Fig. 47). Others (possibly Lower Moutere, S14/165) may have been made in 1843 and 1844 by road-building parties, whose methods were to dig 'into the side of the hill . . . thus forming three sides of a house, while the fourth side . . . was built up with sods, the roof thatched with toi-toi . . . in the back wall a fireplace was excavated'.<sup>17</sup>

Maori buildings varied in quality and atmosphere. Captain Moore in 1841 in Riwaka 'was led into a large assembly whare, about 30 feet in length by 16 in breadth with walls 10 feet high. These were lined carefully with long reeds of the toi-toi, some stained black, some in bright natural yellow. . . . The gable roof was high and supported by carved posts and planks. The inside of the roof was ornamented with plaited nikau branches; there were also carved doors and verandah posts. . . . The floor was of rammed clay, smooth, hard, and clean, covered with well

made flax mats. . . the whare was . . . well thatched and weather proof.'<sup>18</sup> On the other hand, Dumont d'Urville, in Tasman Bay in January 1827, commented on the 'vermin, bad smells, and filth' of the village huts which three of his young officers, 'more gallant or more courageous' than he, had visited.<sup>19</sup>

## Burials

In many parts of the world the aspect of archaeology which attracts most public attention is the investigation of religious and burial sites. Often the remains discovered are from the very remote past and are not directly associated with any living community of the twentieth century. In New Zealand the situation is different. Many present-day Maori people retain the deep religious and social values of their predecessors and hold in great reverence the burial sites of their ancestors, some of which were used in quite recent times. Therefore the archaeologist must give priority to the feelings of the Maori community. However, cooperative policies are possible which allow the archaeologist essential information without infringing on Maori sentiment.

Maori burial sites are not usually marked by above-ground structures and cannot be located by surface survey under normal circumstances. They should never be wantonly disturbed, especially when discovered by accident. Much of the evidence considered here has accumulated through chance discovery, where the ground has been worked or eroded, or has been described in traditional and historic accounts. The author has no first-hand knowledge of the locations mentioned in these sources of information, but on the basis of these sources seventeen burial sites have been recorded. Three are on islands and eleven are close to the coast. In three cases caves or clints in the rock have apparently been used, but more frequently burial has been made in level sandy or gravelly situations (ten examples). Seven sites have been to some extent destroyed by the sea under the prevailing conditions of coastal erosion.

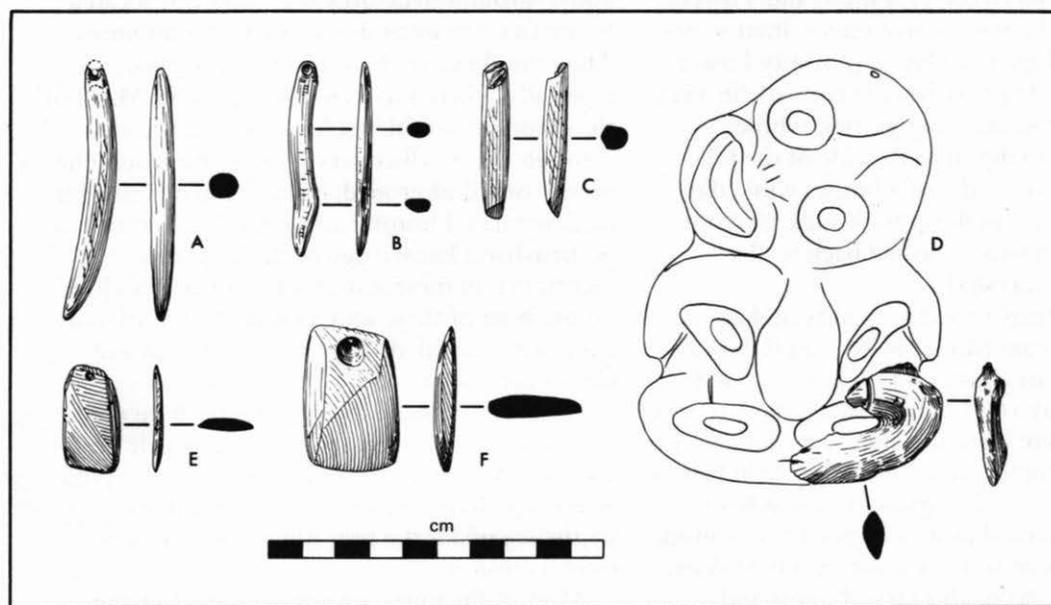
Most of the burial grounds appear to have been at some distance from settlement areas. Sandspit locations at Marahau (S9/44) and

Riwaka were significant. In the early years of this century skeletons in crouched positions, buried without artefacts, were washed out by the sea from the northern end of Goodalls Island (S14/87) and from a part of Outer Island now entirely eroded away (S14/88). The sea has also destroyed burials in a sandy bank south of the Riwaka Wharf (S14/113 and 114). Gravel digging disturbed another burial, at a depth of four feet, in a gravel bank south of the Riwaka River (S14/122), an area which may once have been surrounded by tidal conditions. Offshore islands such as Motuarero-iti (S9/69) were apparently used. Secluded caves were sometimes chosen (Moutere Bluffs, S14/46).

Two possible examples suggest the use of situations far inland. Several dozen metasomatised argillite adzes (Fig. 43A, B) were apparently found near Wratt's Whare in the valley of the South Branch of the Riwaka River (S13/44). The site is close to a large tree stump, beneath a marble outcrop which obscures it from the main valley. It was not a quarry or a stone-working site, so perhaps it was a burial accompanied by a kit of adzes. Similarly on a hillside south of the Orinoco Creek in Ngatimoti (S13/21) a large log of wood, possibly a canoe, and many stone tools were found; at the time

this was thought to have been the remains of a burial.

Contrary to this apparent trend of isolated situation, two burial areas for which Maoris still feel particular reverence lie among other evidence of prehistoric occupation. Several skeletons have been observed in the eastern side of Grossi's Point, Mapua (S14/62 and 63), an area rich in settlement evidence (Fig. 51). Whether the burials were contemporary with the occupation or later is not known. Also there is abundant evidence of burials at Pah Point, Riwaka,<sup>1</sup> the site of a Maori village occupied until about 1842. There are two accounts of remains observed eroding out of the beach front. In one case an extended skeleton was seen, with its skull fractured and the bones of the hands and feet missing, in the centre of an oval arrangement of ovenstones. Perhaps this was a case of cannibalism. A chisel of nephrite (Fig. 22C) was found in the area. Other nephrite finds at Pah Point, a complete hei-tiki, a fragment of another (Fig. 22D), and four pendants (Fig. 22A, B, E, F), are not the kind of material to have been lost or discarded in such quantity. They may have been grave goods with burials now eroded away. There is also a report of the finding of two burials, in a crouched position beneath capstones,



22 Pah Point, S14/12—nephrite artefacts (scale 10 cm)

in clints or narrow caves in the rocks at the eastern tip of Pah Point. The remains of a young chief killed by a raiding war party (see page 23) may lie in the vicinity.

Traditions often attribute burial grounds to the aftermath of war. Apparently in 1843 the Riwaka pioneers found a number of human bones bearing evidence of slaughter at the foot of the granite slopes behind the Wai-atua Stream (S14/93). The deaths were said to have resulted from a raid by the men of Te Rauparaha. A survivor of this raid said, 'I heard my children calling for me and from where I stood on the hillside I saw them and their mother foully slain with the others'.<sup>2</sup> Another burial ground is believed to have existed in the sand dunes at Mapua (S14/55), where, during the 1930s several dozen damaged skeletons and a number of weapons were seen.

Some burial sites were used little more than a hundred years ago. For example, Maori people known to European settlers as Lydia and Mary Ann were buried in Maori cemeteries 'on the hill at Marahau Heads' (S9/43) and on the sandspit at Marahau 'with the sea on both sides' (S9/44).<sup>3</sup> Use of the rangatira burial ground on Kaka Island (S14/15) also continued into the historic period. These and other sites relate to the resident Maori community. They should not be visited without their consent. Nor should burials anywhere be disturbed if discovered or removed without official authority, for apart from the moral considerations and the need for concurrence with the local Maori community, to do so would be against the law.<sup>4</sup>

## Stone-working areas

A stone-working area is a location where the prehistoric Maori people manufactured their weapons, tools, and ornaments. Thirty-four have been identified in the Motueka district (fourteen per cent of known sites). Such locations can be recognised by deposits of discarded and partly-made tools and the debris or by-products of tool production in the form of flakes or chippings. In all cases metasomatised argillite (see page 2) was apparently the dominant material utilised. Thus, remarks in this section apply particularly to the use of this stone.

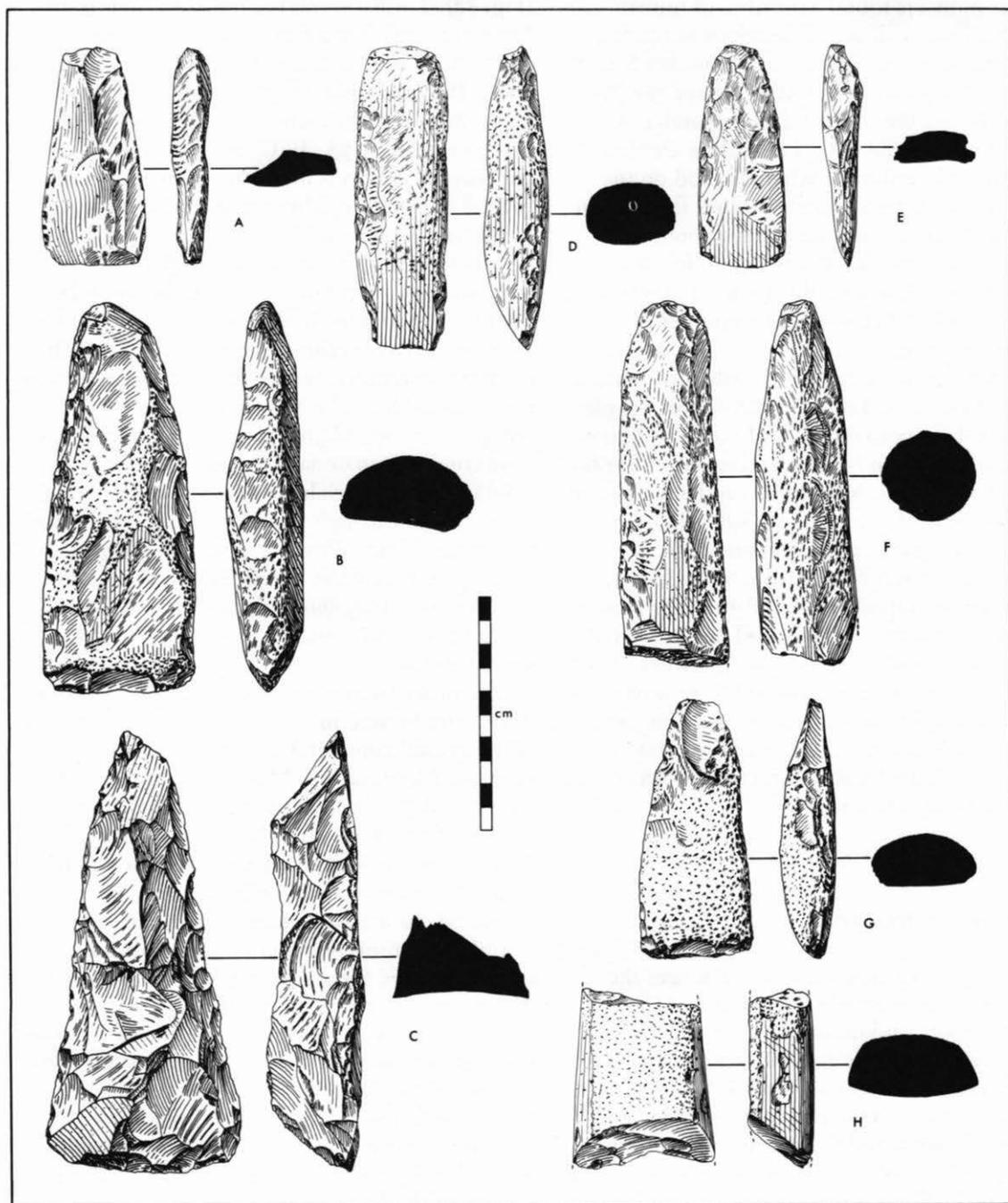
Fourteen of the stone-working sites identified lie close to the Motueka River. They are distributed from its mouth (S14/146), across the alluvial plains (S14/148), and up the valley (S19/3) and beyond, but half of them lie on the terraces of the west bank around Pokororo (Fig. 52). Tools among the discarded debris on these sites are often adzes in roughout (unfinished) or broken state. A selection from the site at Pokororo East (S13/7, Fig. 52) typifies a most important characteristic: many of the pieces (e.g. Fig. 23A, B, C) have water-rolled cortices. (A cortex is the naturally weathered surface of the rock. These examples were river stones and boulders.) This, together with the distribution of sites, demonstrates that selected river stones of metasomatised argillite furnished the raw material for tool manufacture. The sites are therefore collecting stations for rock which the river system has eroded and transported from the Nelson Mineral Belt far upstream. Such redeposited rock fragments are termed secondary or detrital raw material, in contrast to the primary form which lies where it was structurally formed as in the high country of east Nelson and D'Urville Island.<sup>1</sup> Primary raw material was often quarried by the Maori, but there are no metasomatised argillite quarries in the Motueka district because the rock is not present in the solid geology.

The other twenty stone-working areas in the district are located in the pa and open settlements of the coastal zones of Marahau, Kaiteriteri, Riwaka, Moutere, and Mapua (see Figs 46, 47, 48, 50, and 51). Stone debris taken from the surface of two such sites, Pah Point, Riwaka<sup>2</sup> (S14/12), and Kaingarua, Jacketts Island South<sup>3</sup> (S14/24), has been analysed and the results published elsewhere. Evidently stone artefact manufacture took place on most prehistoric settlement sites. Since (apart from the Motueka River deposits) the nearest sources of metasomatised argillite lie on the eastern side of Tasman Bay, the raw material had to be transported some distance. At all sites where cortical flakes have been found, water-rolled cortices predominate. This shows the use of secondary raw material sources, and possibly stone from the collecting stations of the Motueka River valley.

Analysis of the Pah Point material demonstrated four main stages in the processing of metasomatised argillite.<sup>4</sup> (1) Primary processing

which involved the initial breaking down of the raw material by heavy blows which formed suitably sized and shaped pieces and detached large angular debris flakes. (2) In intermediate processing these suitable pieces were further

reduced by removing flakes to form the outlines of tools. (3) Flaking was completed in the secondary processing stage when tiny flakes were trimmed away. (4) Final processing often included hammerdressing (a process of bruising

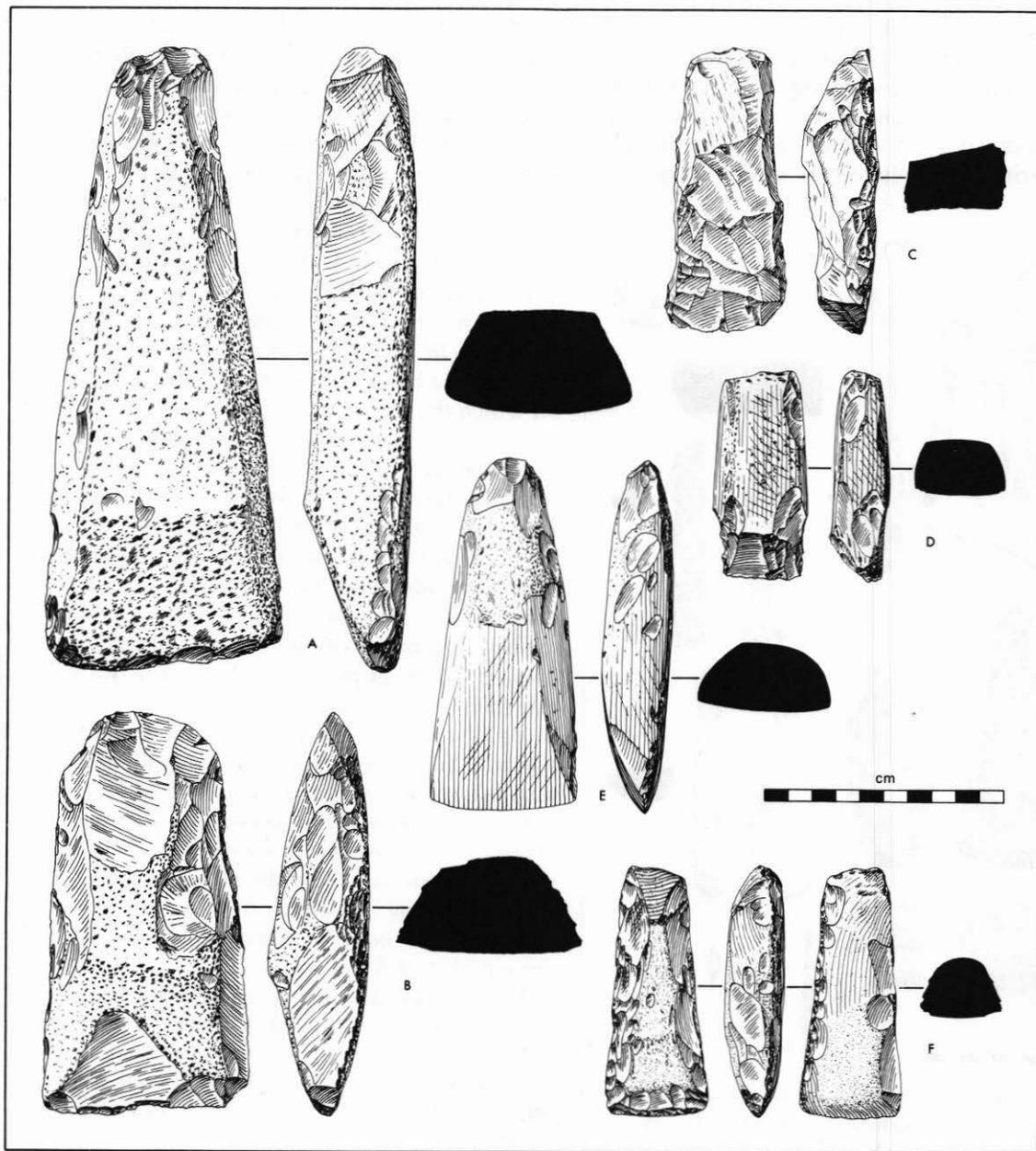


23 Pokororo East, S13/7—metasomatised argillite artefacts (scale 10 cm)

with a stone hammer) which could produce a reasonably even surface. Grinding and polishing completed the procedure. Also, when a tool had been damaged through use it would usually be reprocessed to lengthen its life or to produce smaller tools.

Stone adzes in various stages of processing have been found at an oven site on an old bank

of the Little Sydney Stream, Brooklyn (S14/135, Fig. 24, location Fig. 48). The basic adze shape, created by intermediate flaking, was carefully trimmed down the sides and at the blade by secondary flaking (Fig. 24C). The shape was then regularised by hammerdressing (Fig. 24F, an example with large water-rolled cortices). Often hammerdressing was extensive, thus reducing



24 Little Sydney Stream, Brooklyn, S14/135—metasomatised argillite artefacts (scale 10 cm)

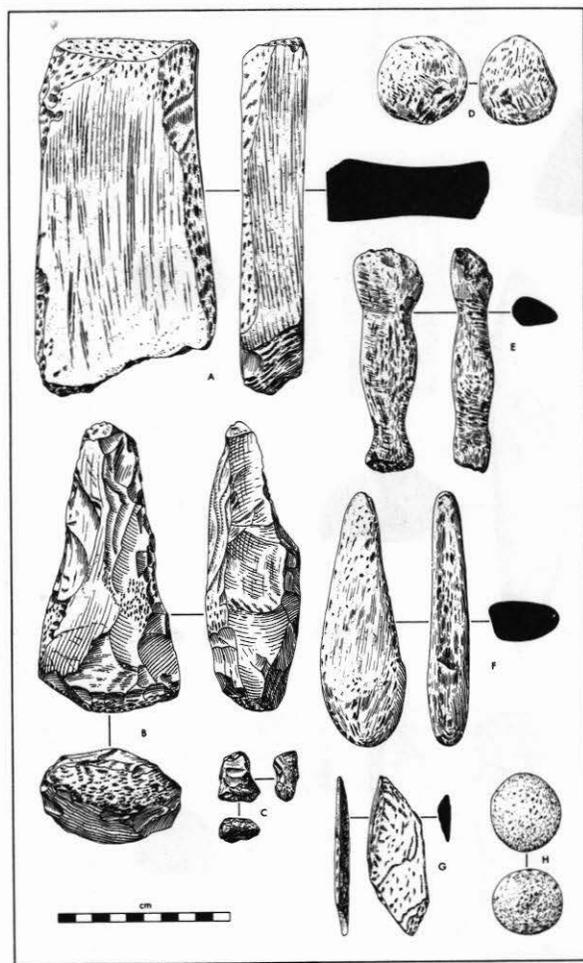
the effort required in subsequent grinding (e.g. Fig. 24A, B). Grinding and polishing produced the sharp, finished lines of a powerful tool (Fig. 24E) which still bears evidence on its upper parts of the earlier stages of flaking and hammer-dressing. Damaged adzes were remodelled by trimming their blades (Fig. 24D).

Various tools were used in the working of stone. On quarry sites in the Nelson Mineral Belt massive hammerstones of granodiorite weighing up to 54 kilograms have been found.<sup>5</sup> These were used for primary processing. Intermediate and secondary flaking required smaller hammerstones of granodiorite or sandstone (Fig. 25H). Golf ball sized stones of rodingite (hydrogrossularite), a very hard rock with a sharp

crystalline structure, were used for hammer-dressing (Fig. 25D; and at Mount Thomas Spur, S13/1). Small hammerstones of chert are also known (Fig. 25C). Sandstone blocks 20 to 25 cm long on which adzes were ground are not uncommon<sup>6</sup> (e.g. Fig. 25A; others from Green Tree Road Wharf, S14/115, and Pah Point, S14/12). Smaller hand-held schistose sandstone hones and files were used (Fig. 25E, F). Of these materials, sandstone and its schistose variety are available in the Cobb Valley area (and in small sizes in beach deposits in the Moutere Inlet). Granodiorite and rodingite are present on the eastern side of Tasman Bay. Apparently adzes were polished with fine stone or with wood which was sometimes soaked in shark oil.<sup>7</sup>

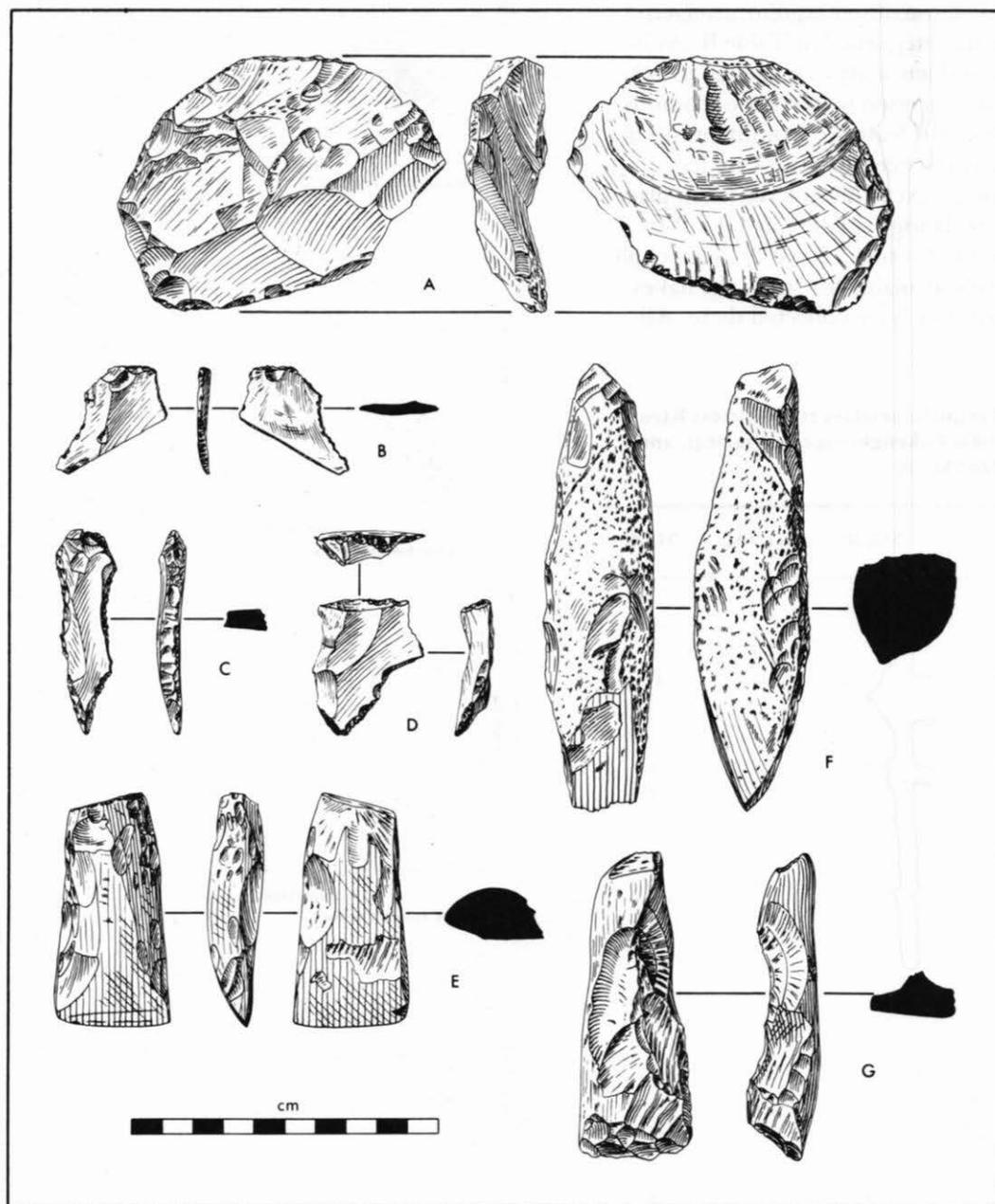
In order to aid in the understanding of what follows, several terms will now be defined and illustrated by examples from stone-working sites in the district.<sup>8</sup> Only certain fine-grained rocks (such as metasomatised argillite, obsidian, and chert) can be shaped by flaking. In detaching a flake from a block, a projecting angle is chosen on which the blow can be delivered. This edge is known as the striking platform, and is often seen as a flat surface at the top (proximal end) of the resulting flake (Fig. 26A, B, central view). The angle and thickness of this striking platform can be significant features in stone-working technology. One side of the detached flake, its back or dorsal surface (Fig. 26A, B, left view), is part of the original surface of the parent block and often shows the scars of previous flaking. The other side, the ventral or main flake surface (Fig. 26A, B, right view), is formed by the fracture and typically bears marks known as the bulb, bulbar scar, fissures, and waves. Flakes with these features are known as conchoidal (i.e. like a bivalve, e.g. mussel shell). Chips and other silvers of stone caused by the blows, but not usually deriving directly from the points of impact, do not have these features and are termed 'shatter flakes'.

In some cases the desired end product of stone-working was the flakes themselves. From them small adzes (Fig. 26E), drill points<sup>9</sup> (Fig. 26C), and edge tools, used as knives and scrapers (Fig. 26A, D), were often made by the removal of small secondary flakes. In contrast, many artefacts belong to the separate category of core tools, which are in all respects parent blocks or



25 Tools for the manufacture of artefacts—**A**, Mount Thomas gully, S13/12; **B**, Tapu Bay, S14/81; **C, D, G, H**, Pah Point, S14/12; **E**, Hui Te Rangiora, S14/107(?); **F**, Marahau Beach, S9/48 (scale 10 cm)

nuclei, having had flakes detached from most if not all sides in their construction. Many adzes are core tools (e.g. Fig. 26F). Inaccurate flaking often led to the rejection of tools while still in the roughout stage (e.g. Fig. 26G).



**26** Core tools and flake tools—**A**, Motueka area; **B**, Baigent Memorial Domain, S14/39; **C**, Pah Point, S14/12; **D**, Little Kaiteriteri, S14/70; **E**, Awamate, S14/154; **F**, Wai-atua, S14/91; **G**, Poole Street, S14/148 (scale 10 cm)

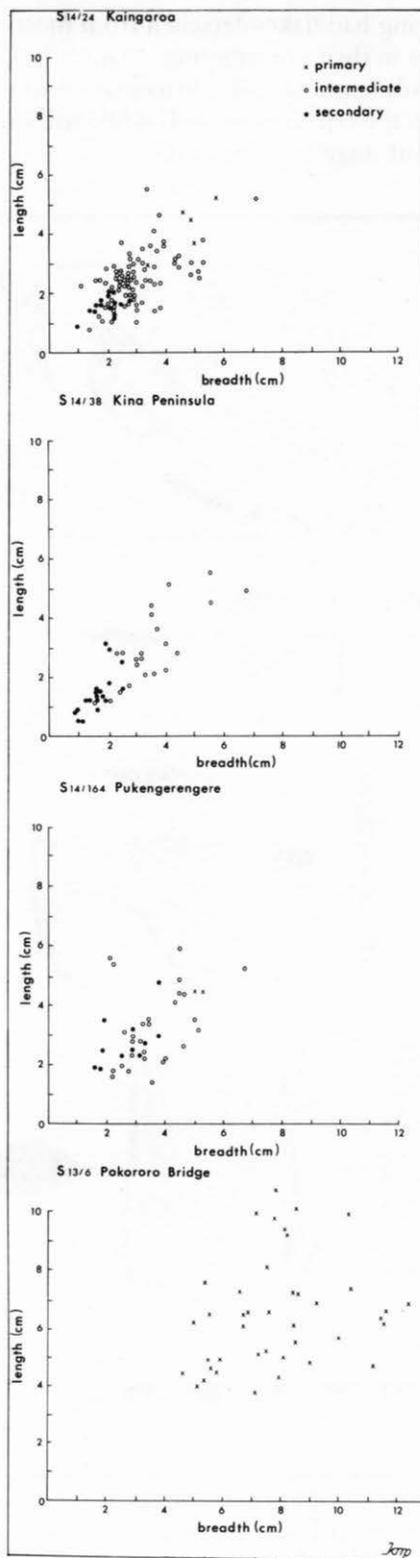
The evidence from three stone-working areas will now be considered in more detail: Kina Peninsula (S14/38) and Pukengerengere<sup>10</sup> (Mariri Bluffs, S14/164) around the Moutere Inlet (location map Fig. 50), and Pokororo Bridge (S13/6) in the Motueka Valley. The surface collections of metasomatised argillite artefacts from each site are categorised in Table II. As in the case of the midden analysis (pages 23 to 26), this evidence may be used to derive conclusions about the presence of features. Comments on the basis of apparent absence of features are less reliable, because no excavations have taken place.

The Pokororo Bridge site lies on a flood-free terrace close to the Motueka River. Local people have kindly made available for study the flakes and adzes which they have collected there. All

Table II

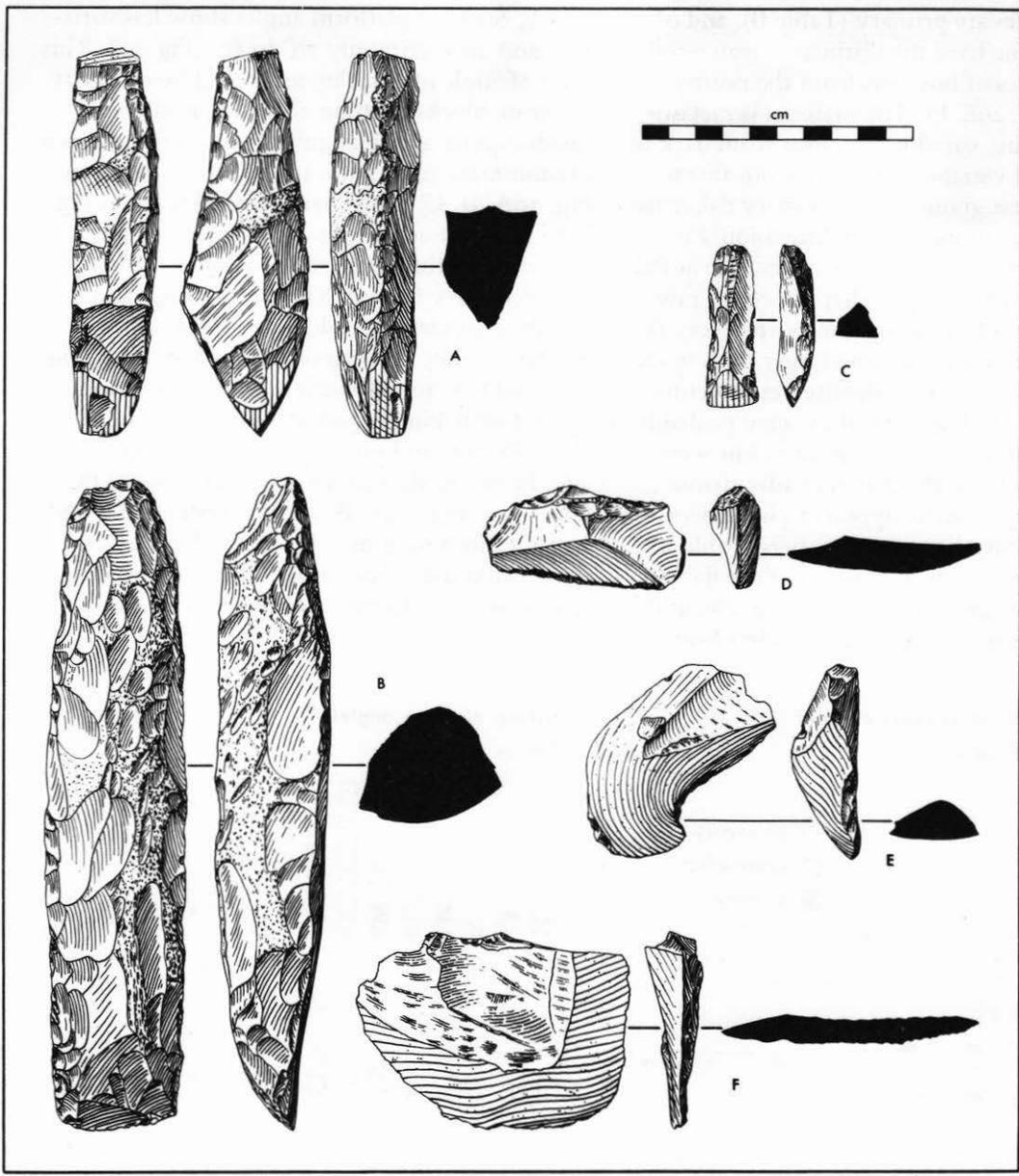
**Metasomatised argillite artefact frequencies: Kina Peninsula (S14/38), Pukengerengere (S14/164), and Pokororo Bridge (S13/6)**

	S14/38	S14/164	S13/6
<i>Waste products</i>			
Primary:			
Conchoidal	0	2	41
Shatter	2	3	7
Intermediate:			
Conchoidal	22	28	0
Shatter	26	16	0
Secondary:			
Conchoidal	19	11	0
Shatter	29	0	0
Reprocessing:			
Conchoidal	2	9	0
Shatter	0	5	0
<i>Tools</i>			
Flake tools:			
Points	2	1	0
Adzes	1	4	15
Edge tools	9	0	6
Core tools:			
Adzes, finished	0	0	4
Adzes, roughout or fragmentary	0	6	34
<b>Totals</b>	<b>112</b>	<b>85</b>	<b>107</b>

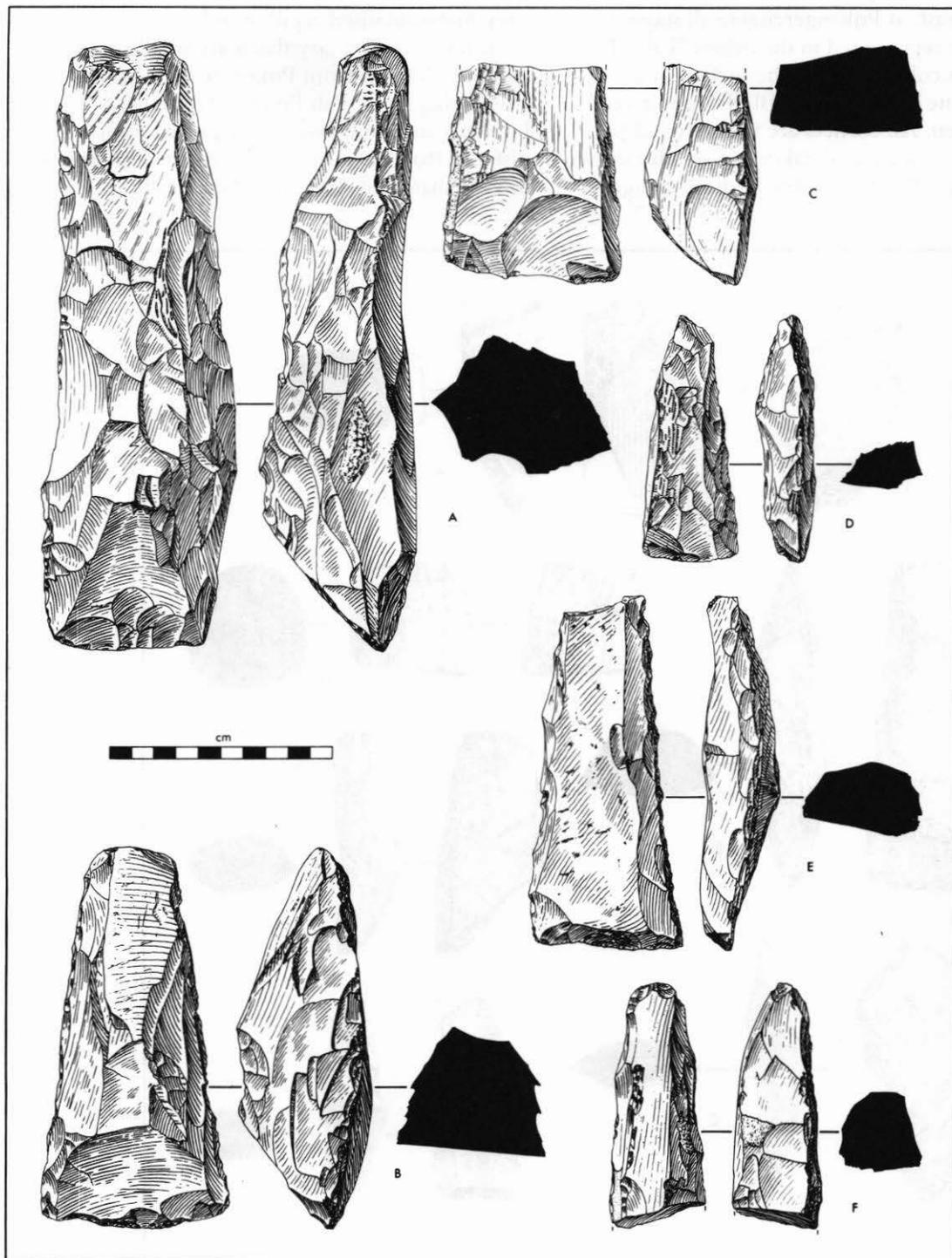


27 Metasomatised argillite waste conchoidal flake dimensions





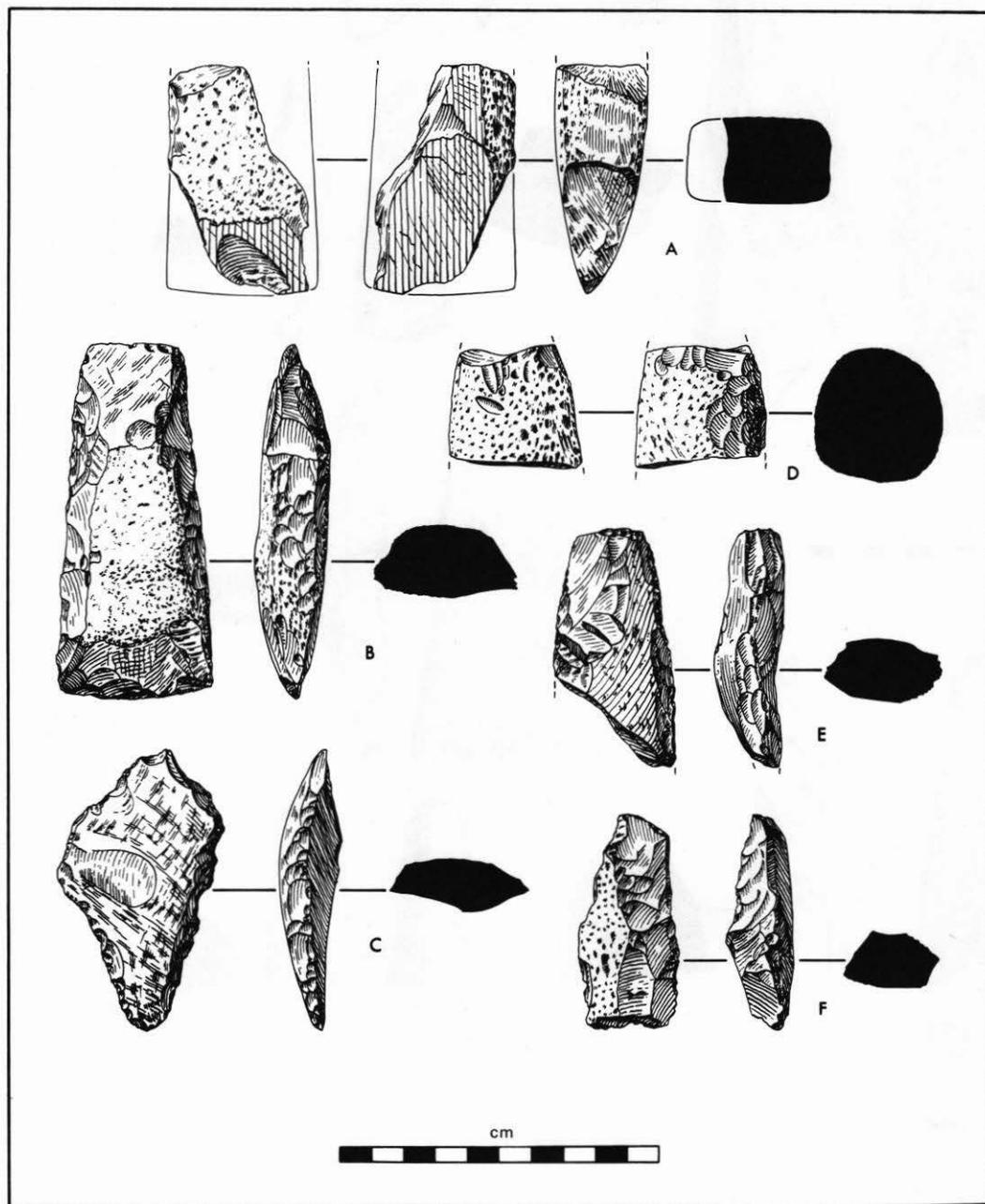
29 Pokororo Bridge, S13/6—metasomatised argillite artefacts (scale 10 cm)



30 Pokororo Bridge, S13/6—metasomatised argillite artefacts (scale 10 cm)

In contrast, at Pukengerengere all stages of flaking are represented in the debris (Table II), which was collected from the surface of a sheltered site on the Mariri Bluffs, now a vegetable garden. All cortices are water-rolled (seen on primary conchoidal flakes and an adze shown in Fig. 31E). The material is medium to light

grey metasomatised argillite and shows little variation. The primary flakes are small compared with those from Pokororo Bridge (Fig. 27); perhaps as at Pah Point only smaller boulders and stones were transported some distance from their source of supply. The sizes of intermediate and secondary flakes at Puken-

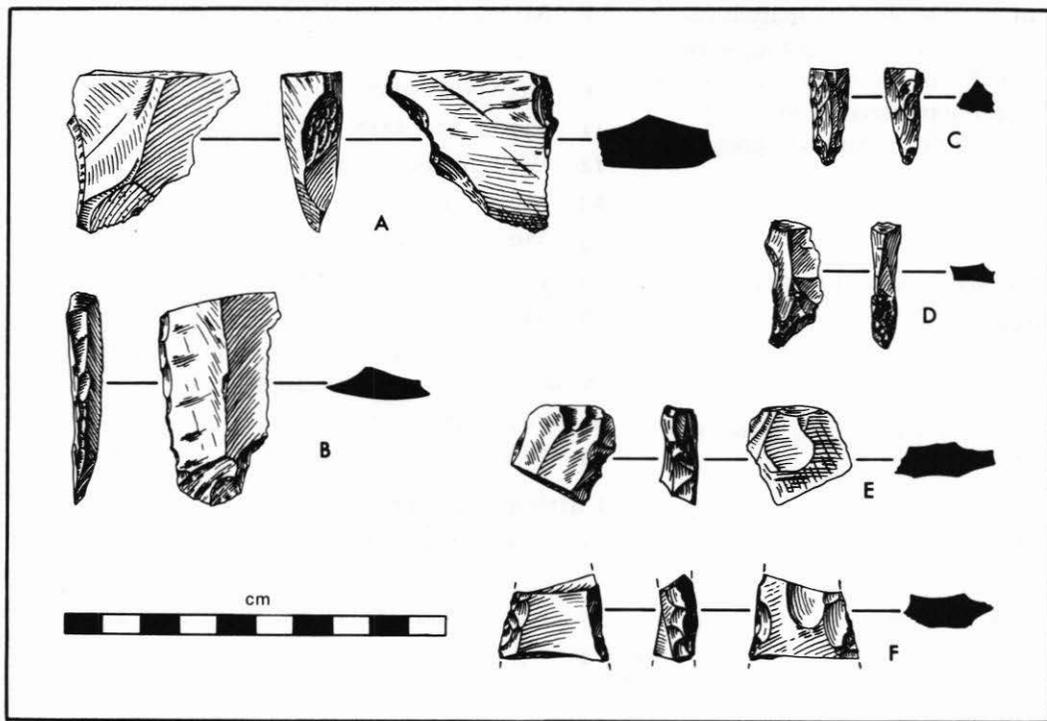


31 Pukengerengere, S14/164—metasomatised argillite artefacts (scale 10 cm)

gerengere are within the ranges defined by the types at Pah Point<sup>12</sup> (Fig. 27). Striking platform thicknesses, 15 mm at maximum (Fig. 28), are also similar, but the marked peak of striking platform angles at  $85^\circ$  is significant. It suggests the shaping of near-quadrangular nuclei, possibly for adzes, in the intermediate processing stage. Some of the flakes have a concave lengthways curvature and may be from the flaking of rounded adze shapes. In fact, apart from a large point (Fig. 31C), the only tools found on the site are adzes. There are a number of flakes with hammerdressed backs; these are probably from the reprocessing of adzes which broke in the making (e.g. Fig. 31A, D, E). In one case a small adze seems to be made from reprocessed material, its length being formed out of the width of an old tool (Fig. 31F). This site may belong to a period in later prehistory. Such is indicated by the generally rounded adze cross-sections (types 2B and 6iii), the extensive use of hammerdressing, and the chin ridge feature (see pages 74 to 77).

The flake material from the coastal site at Kina Peninsula includes many pieces even smaller in size than those from Pukengerengere (Fig.

27). This may be explained at least in part by the fact that the flakes were exposed on a wind-deflated surface. Twelve fragments with water-rolled cortices suggest that raw material was broken up on the site. The wide range of colours and textures shows that many raw material sources were utilised. Flake tools are present: two small drill points (Fig. 32C, D), a butt section of a small flake adze (Fig. 32F), and edge tools from the lower parts of larger flakes (e.g. Fig. 32A, B). There are trimmed edge tools made from flakes with quadrilateral or triangular cross-sections (e.g. Fig. 32A, B, E) which suggest, as at Pah Point,<sup>13</sup> the deliberate striking of blanks from cores to form flake tools. Apart from the adze, these small flake tools are thought to have been used in the manufacture of fishing equipment (pages 65 to 66). Characteristics in the debris indicate adze manufacture. Striking platform angles are commonly  $80^\circ$  and above (Fig. 28). Secondary flakes often have straight or slightly concave curvatures, faceted striking platforms, and reticulate scar patterns on main flake surfaces, which are characteristic of the trimming of adzes. Pre-polished reprocessed



32 Kina Peninsula, S14/38—metasomatised argillite artefacts (scale 10 cm)

flakes suggest adze blade renovation. Thus a variety of tools was processed at Kina Peninsula. In many respects the evidence from the apparently Archaic site at Kaingaroa leads to the same conclusions.<sup>14</sup>

Thus, at Pokororo Bridge and other collecting-station working areas in the Motueka Valley, specialised adze-making was carried out close to supplies of metasomatised argillite in the river. Judging from the early characteristics of adzes from Pokororo Bridge, and apparently later styles among those from Pokororo East (Fig. 23; see pages 71 to 77 and 95), this activity went on for several centuries at least. On the coast, Pukengerengere, a later site, was a processing station where smaller adzes and other artefacts were worked at a distance from the raw material source. Kaingaroa is an apparently Archaic site at which stone-working was geared especially to fishing activities. As at Kina Peninsula, metasomatised argillite was obtained from several sources. Evidence from Pah Point shows that in later prehistory the manufacture of adzes, drill points, and flake tools, possibly from Motueka River raw material, was an important activity on major coastal settlement sites.<sup>15</sup> Only a major programme of geological analysis could prove the extent to which the collecting stations on the banks of the Motueka River supplied metasomatised argillite material to the coastal sites of the district at different times in prehistory.

#### Notes

(For full references see pages 111 to 113)

#### Fortified pa sites

- 1 Best 1927.
- 2 Fox 1976.
- 3 Fox 1976: 27-29; Groube 1970: 156-157.
- 4 Fox 1976: 16.
- 5 Peart 1937: 67.
- 6 Wilkes 1961: 26-28.
- 7 Trotter 1975: 14, 16.
- 8 Fomison 1960: 7, site 6.
- 9 Daniels 1965: 96-98.
- 10 Wilkes 1961: 26.
- 11 Prickett and Prickett 1975: 124.
- 12 Groube 1970: Fig. 7.

- 13 Hodder 1924: 37.
- 14 Fox 1976: 28.
- 15 Hodder 1924: 37-38.
- 16 Fox 1976: 29.
- 17 Stephens 1841-1854: 644.
- 18 Vayda 1960: 10.
- 19 Fox 1976: 45.
- 20 Vayda 1960: 10.
- 21 Law 1970: 101; Vayda 1960: 10.
- 22 Fox 1976: 11.
- 23 Peart 1937: 67.
- 24 Peart 1937: 51.
- 25 Vayda 1960: 15, 50.
- 26 Peart 1937: 62-63.

#### Middens and ovens

- 1 Moore 28.4.1888.
- 2 Broad 1892: 71.
- 3 Anderson 1966.
- 4 Davidson 1964.
- 5 Anderson 1973: 124.
- 6 For all scientific names see Appendix 2.
- 7 Westcott 1975.
- 8 Moore 28.4.1888 and 1.12.1888.
- 9 Challis 1976a: 136.
- 10 Shawcross 1967: 111, Fig. 4b.
- 11 Moore 12.5.1888.
- 12 Walls forthcoming.
- 13 Millar 1971: 162.
- 14 Moore 1.12.1888.
- 15 Challis 1976a: Fig. 2A.
- 16 Millar 1971: 169.
- 17 Millar 1971: 169; Millar 1967: 11; J.Y. Walls: private communication.
- 18 Peart 1937: 133.
- 19 Peart 1937: 132.

#### Cultivation sites

- 1 Cumberland 1965: 22.
- 2 Green 1974: 20.
- 3 E.g. the kumara; Coleman 1972: 7, 21.
- 4 E.g. Best 1925.
- 5 Rigg and Bruce 1923; Challis 1976b.
- 6 Cassels 1972: 226; Leach H.M. 1974: 5.
- 7 Law 1975.

- 8 Noted by Chittenden *et al.* 1966: 16-17.
- 9 For soil types see Rigg and Chittenden n.d.
- 10 Groube 1970: 159; Leach H.M. 1976: 180-182.
- 11 Challis 1976b.
- 12 Terminology according to Taylor and Pohlen 1970.
- 13 The Munsell Soil Colour system is described in Taylor and Pohlen 1970: 76.
- 14 Taylor and Pohlen 1970: 76.
- 15 Rigg 1926: 4.
- 16 Rigg 1926: 4.
- 17 Challis 1976b: 252.
- 18 Rigg and Bruce 1923.
- 19 Chittenden *et al.* 1966: 16, 50; see Challis 1976b: 253.
- 20 Challis 1976b: 253.
- 21 Challis 1976b: 252.
- 22 Leach H.M. 1976: 184.
- 23 Ministry of Works 1965: 49.
- 24 Coleman 1972: 7, 21.
- 25 Challis 1976b: 254.
- 26 Leach H.M. 1976: 183.
- 27 Department of Agriculture 1971.
- 28 Law 1969: 240.
- 29 Groube 1970: Fig. 15.
- 30 Ministry of Transport 1973: 47, Riwaka; 48, Appleby; and 49, Moutere Hills.
- 31 Leach H.M. 1974: 5.
- 32 Stephens 1841-1854: 90-91.
- 33 Barnicoat 1841-1844: 66.
- 34 Moore 9.3.1889.
- 35 Challis 1976a: Fig. 4A, D, E.
- 36 Challis 1976b: 252. In accordance with usual practice, radiocarbon dates are quoted in terms of the Libby half-life. The conversion of these dates into calendar years remains fraught with difficulties. Thus radiocarbon dates are suffixed a.d. and calendar years prefixed A.D.

#### Pits and terraces

- 1 Fox 1976: 39.
- 2 Fox 1976: 39.
- 3 Groube 1965: 80-102.
- 4 Law 1969: 242.
- 5 Law 1969: 232.

- 6 Fox 1976: 39-43.
- 7 Leach H.M. 1976: 132.
- 8 Trotter 1975: 10-17; Prickett N.J.: private communication.
- 9 Fox 1976: 39.
- 10 Leach H.M. 1976: 132.
- 11 Law 1969: 232.
- 12 For information on Pah Point see Challis 1976c.
- 13 Moore 9.3.1889.
- 14 Law 1970: 101.
- 15 Fox 1976: 32-36.
- 16 Fox 1976: 32.
- 17 Pratt 1877: 36.
- 18 Moore 24.11.1888.
- 19 d'Urville 21.1.1827; translated in Wright 1950: 84.

#### Burials

- 1 For site plan and full description of other features see Challis 1976c.
- 2 Pattie 1928.
- 3 Murray 1966: Part 3.
- 4 New Zealand *Historic Places Amendment Act* 1975.

#### Stone-working areas

- 1 Walls 1974.
- 2 Challis 1976c.
- 3 Challis 1976a.
- 4 Challis 1976c.
- 5 Walls 1974: 38.
- 6 For descriptions of their use see Best 1912: 99.
- 7 Best 1912: 46.
- 8 For more detailed explanations of stone flake terminology see Leach B.F. 1969: Figs 12-17; Oakley 1968: 25-30.
- 9 Best 1912: 72-98.
- 10 Peart 1937: 132.
- 11 Challis 1976c: 475, Fig. 6.
- 12 Challis 1976c: Fig. 6.
- 13 Challis 1976c: 472-474.
- 14 Challis 1976a: 134-136.
- 15 Challis 1976c.

## Chapter three

# Artefacts and chronology

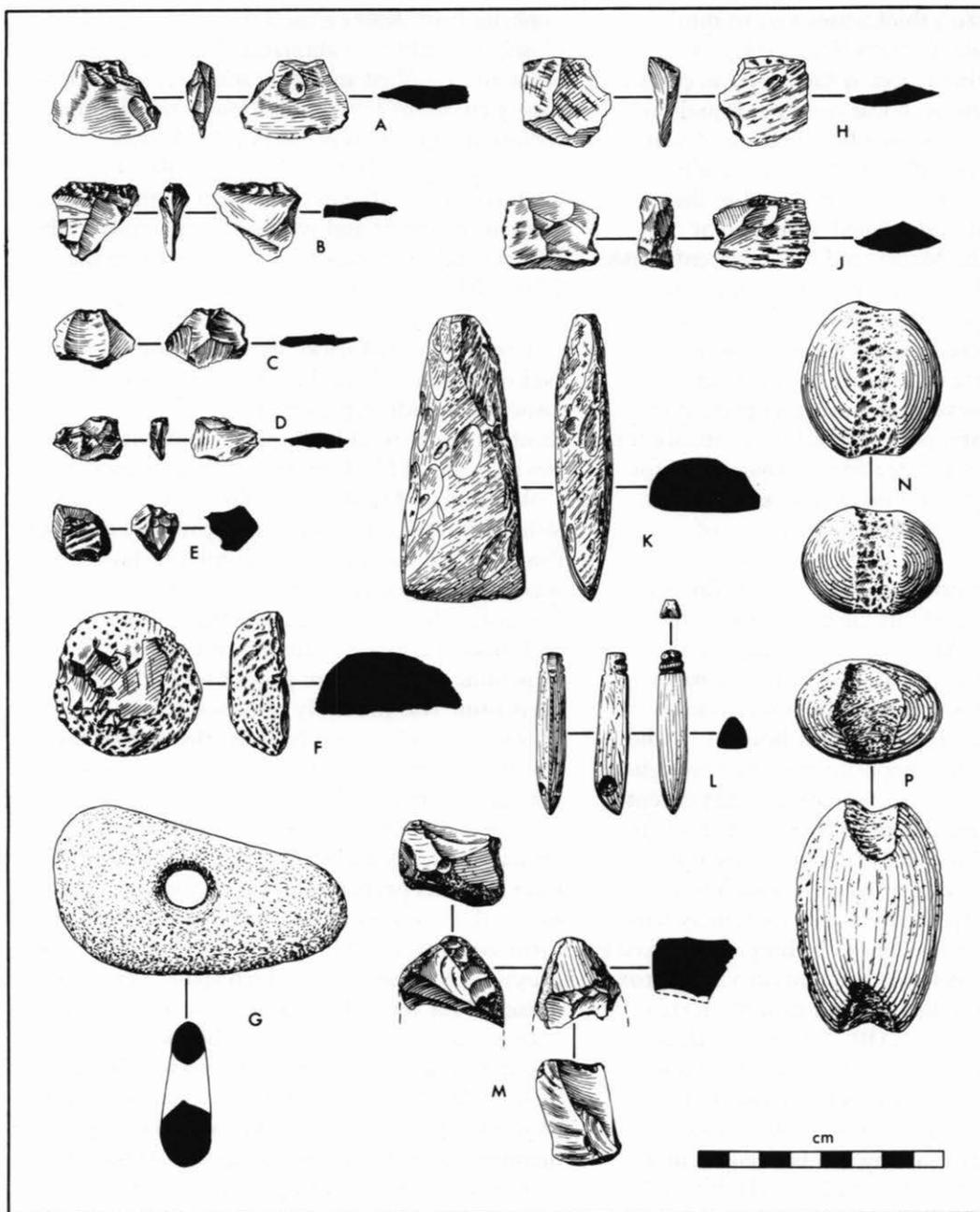
### The materials used

Although surface investigations suggest that metasomatised argillite was the stone most commonly worked by the Maori in the Motueka district throughout prehistory, the contents of local artefact collections confirm that a great variety of other geological and biological materials was used for personal items such as tools and ornaments. Many of these materials could be obtained locally or within the Nelson region, but the origins of others were more distant. Extensive inter-tribal exchanges and on occasion regular trade in valuable stone resources such as obsidian (volcanic glass) and nephrite were characteristic of New Zealand prehistory.

Obsidian, usually referred to as *mata tuhua*, was obtained from major source regions in Northland, on Great Barrier Island and the Coromandel Peninsula, in the Bay of Plenty, and on the Volcanic Plateau of the central North Island.<sup>1</sup> It was commonly used for small cutting tools, the sharp if somewhat brittle edges of which were effective in working wood, fibre, or flesh. A 1.4 kilogram core of what is probably Mayor Island obsidian was found at Tahunanui.<sup>2</sup> This suggests that the material was brought to Tasman Bay in large pieces and was broken up on the settlement sites. Obsidian from some of the major sources often has distinctive colouration: for example, banded grey-black from Whangamata Fault, Taupo; green from Mayor Island.<sup>3</sup> Unfortunately obsidian cannot be reliably sourced by colour only; firm interpretations of trade movements must be based on rock chemistry. However, the presence of both bright green and grey banded obsidians at Pah Point (S14/12) and Kaingaroa (S14/24) in the Motueka district, and at Tahunanui and The Glen,<sup>4</sup> shows that individual sites probably drew

supplies from several sources. Flakes with sharp projecting edges may have been used for fish-dressing (Kaingaroa<sup>5</sup> and Pah Point, Fig. 33B). Straight or slightly convex edges were probably employed as knives (Pah Point, Fig. 33A<sup>6</sup>). Tools with concave edge curvature (Fig. 33C, D) are thought to have been used in the working of wooden shafts needed for fishing and other equipment. A small scraper, possibly for light woodworking, has been found north of Whakarewa Street (S14/16, Fig. 33E). Other obsidian fragments have been reported from the coasts of Sandy Bay (S9/48 and 54).

Conversely, clear quartz, a stone commonly used in the Motueka district, is locally available in reefs in the Separation Point Granite. Such reef outcrops, apparently source sites for the material since they are surrounded by quantities of flake debris and waste pieces, have been located at Otuwhero Inlet (S9/59, Fig. 4, feature 3), at Toko Ngawa (S9/63, Fig. 5), on a hillside behind Ngatimoti (S13/35), and possibly also at Puketawai (S14/86). Significantly, three of these four occurrences lie within, or are adjacent to, pa sites, indicating a preference for sources close at hand. Clear quartz fragments are present in middens on the granite coast, at Riwaka (S14/120, midden 6; and S14/12), Anawera (S14/79), Kaiteriteri (S14/65 and 70), Marahau (S9/48), and in the Abel Tasman National Park to the north.<sup>7</sup> They are also found at a distance from the granite on sites to which the material had to be transported (Jacketts Island and Kina Peninsula: S14/24, 30, 32, and 39; and also at Tahunanui<sup>8</sup>). At Pah Point a large core 22 cm across, and over 1000 pieces of waste material have been recovered. The majority of these have fresh sharp edges and are not the naturally water-rolled fragments found in the beach deposits. Some appear to have striking platforms



33 The variety of stone resources. *Obsidian*—A, B, C, D, Pah Point, S14/12; E, Whakarewa Street, S14/16. *Chert*—F, Pah Point, S14/12; M, Mapua, S14/58. *Sandstone*—G, Riwaka area. *Quartz*—H, J, Pah Point, S14/12. *Corundum*—K, Marahau, S9/45. *Schistose sandstone*—L, Grossi's Point, S14/61. *Greywacke*—N, Riwaka area; P, Pah Point, S14/12 (scale 8 cm)

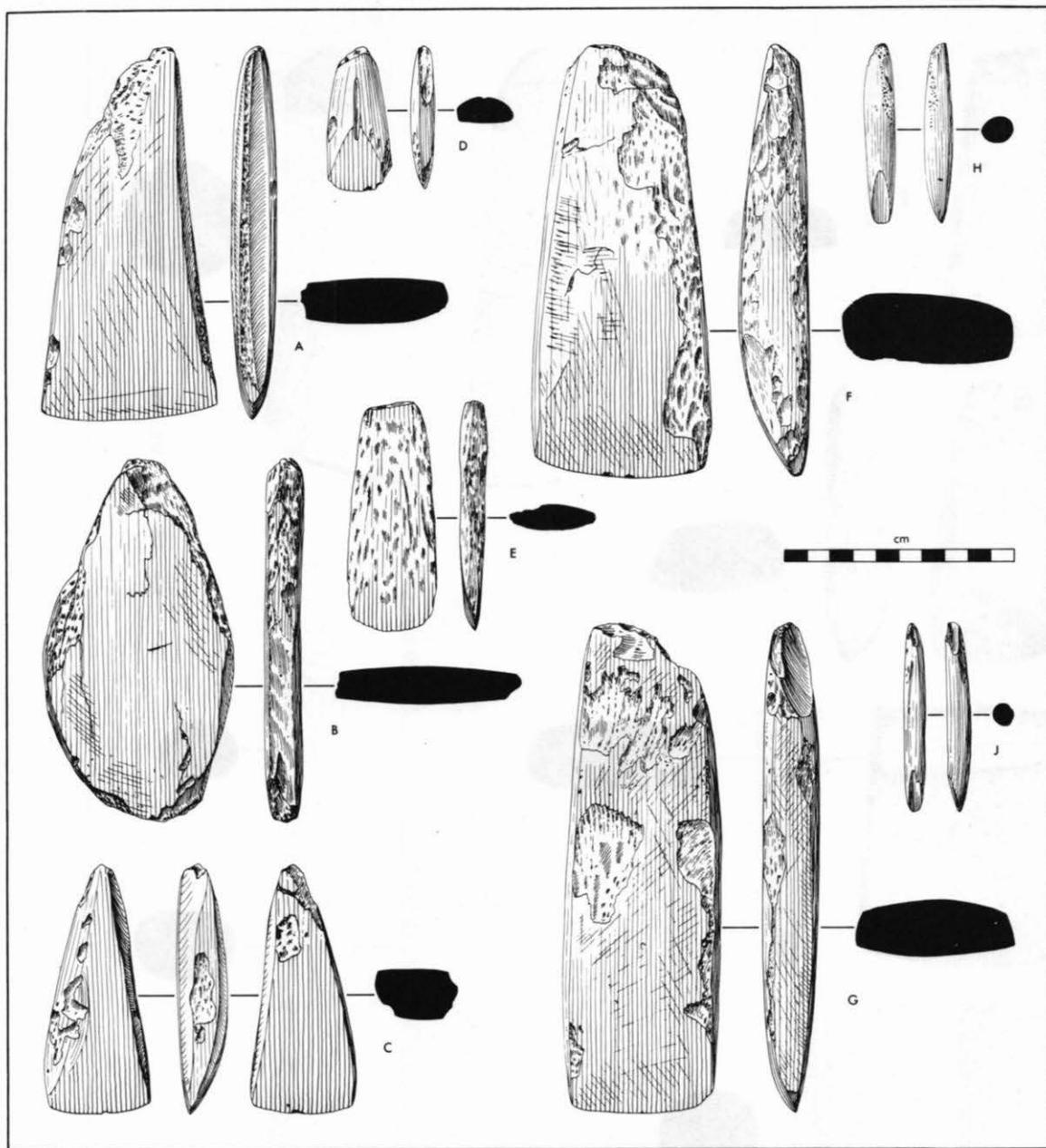
(angles  $75^{\circ}$  to  $80^{\circ}$ , thicknesses 3 to 10 mm) and other conchoidal features (Fig. 33H, J), suggesting that they have been detached from cores by a flaking technique. Clear quartz is found on archaeological sites elsewhere in New Zealand, as on Stewart Island<sup>9</sup> (an area geologically similar to the Motueka district) and in the Wairarapa.<sup>10</sup> It was termed 'kiripaka' or 'takawai' by the Maori, and was apparently used in a variety of drilling, chipping, hammering, and cutting operations.<sup>11</sup> Heavy use in stone-working is unlikely to have been common, because a quartz edge is brittle and tends to crumble. However, the quantities present on Tasman Bay sites prove its utility, probably for scrapers and knives (for fibrous materials), for sinkers (when fishing for warehou<sup>12</sup>), and as sand ground up for use in the sawing of nephrite.

The main primary sources of nephrite, the pounamu of the Maori, lie in small lenses adjacent to the Alpine Fault in central and southern parts of the South Island. Probably most nephrite was collected from secondary deposits such as stream beds or beaches.<sup>13</sup> The distribution of fine nephrite artefacts throughout New Zealand, the Motueka district not excepted, demonstrates the extent of prehistoric trade in the material. An elaborate technology was required to produce intricate ornaments and impressive weapons from such extremely hard stone.<sup>14</sup> Since it could not be chipped or flaked it was hammerdressed or battered into an approximate shape and then ground smooth in slabs (e.g. Pah Point, Fig. 34B). These were then divided by a process known as scarf sawing: grooves were cut from both sides until the narrowed division could be broken across. Evidence of scarf sawing can be seen on most nephrite adzes (e.g. Fig. 34A, C, D). If an adze was being made the blade edge was the last area to be finished by grinding (e.g. Fig. 34F, which is unfinished). Archaic sites in Nelson Province have produced nephrite artefacts. At the Heaphy River site (S7/I, dated to the fourteenth century a.d.) there were many fragments, although little knowledge of the techniques developed to work the material was displayed.<sup>15</sup> At Tahunanui (at a similar date) the nephrite artefacts were of better quality but were simple and small.<sup>16</sup> Within the Motueka district an adze and a pendant in

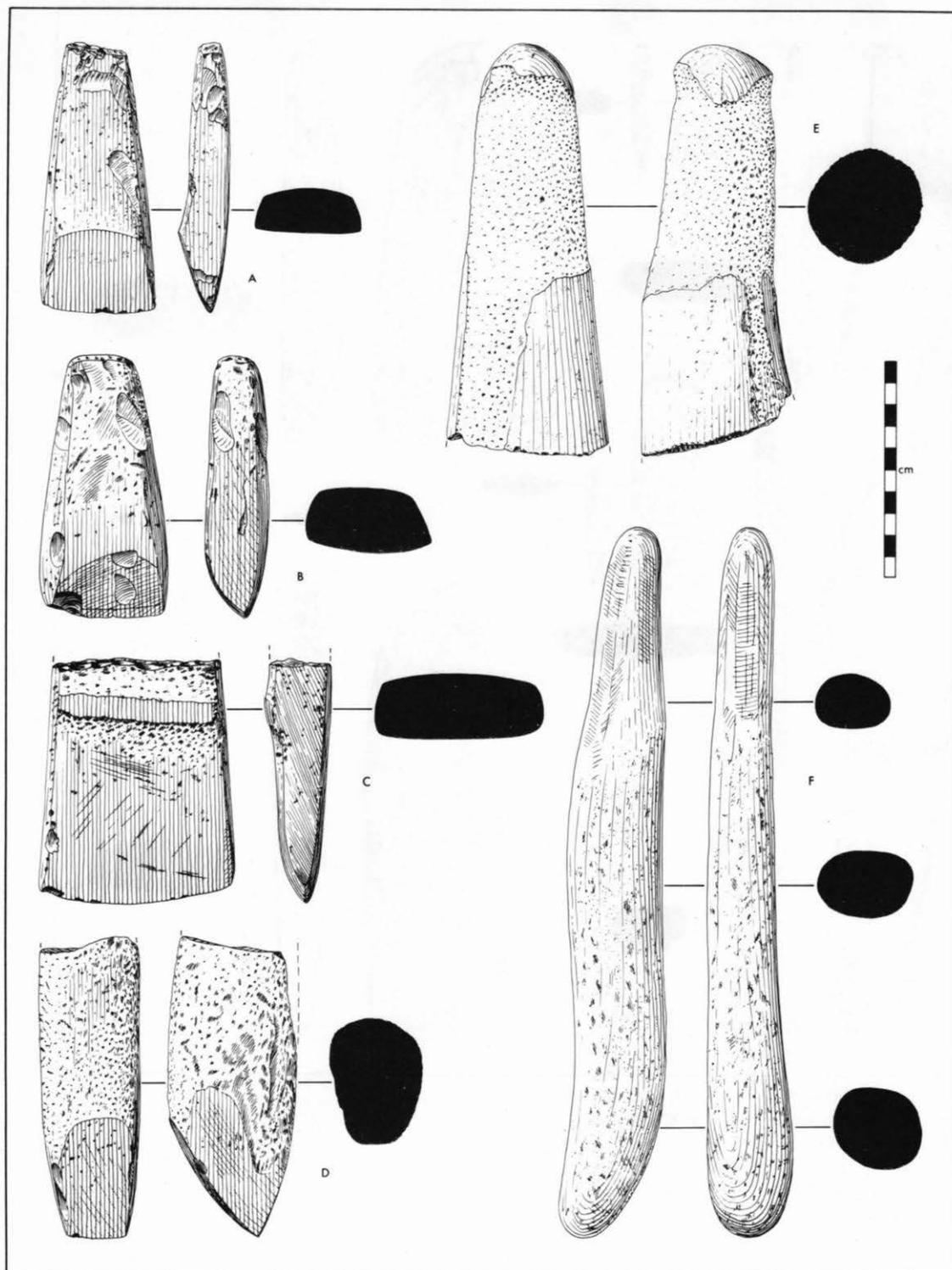
nephrite from Kaingaroa, a site artefactually closely resembling Tahunanui, had been scarf sawn and polished and were similarly small (less than 5 cm long).<sup>17</sup> Archaeologists consider that although nephrite was used in the Archaic period, particularly for adzes, the bulk of its exploitation and the development of the well-known ornament and weapon forms, such as the hei-tiki and mere pounamu, took place in the Classic Maori period of later prehistory<sup>18</sup> (see pages 61 to 63).

Green-coloured rocks are also found in the Nelson region where they have been formed in association with serpentine belts. A distinctive mottled nephrite of high quality but with obvious round black spots is known from the Cobb Valley. An adze from Green Tree Road Wharf, Riwaka (Fig. 34F), is apparently made of this material. Sawing and polishing techniques were used on softer green-coloured rocks: bowenite, the tangiwai of the Maori (Fig. 37G, and small fragments from Pah Point), and serpentine (Fig. 37F, see pages 61 to 63). Serpentine was probably obtained from the Ultramafic Belt of east Nelson. Bowenite may also be present there although sources have not yet been located.

A wide variety of coarser grained, abrasive, or crystalline rocks was utilised. Local beach and river deposits probably provided some of this material. Coarse sandstone pebbles drilled to form weights (e.g. Fig. 33G) and schistose greywacke stones, from which spalls were detached for use as knives (e.g. Pah Point and Kaingaroa<sup>19</sup>), may have been obtained from the Moutere Inlet area. Greywacke derived from the main South Island mountain axis is present in the Motueka River. It was used in apparently small quantities in the stone-working sites of the valley (e.g. S13/I and 7) and the coast (S14/79), and provided conveniently shaped water-rolled stones which with little modification formed artefacts: pounders (Fig. 35E, F; the former probably for flax), fishing sinkers (Fig. 33N, P), and large canoe anchor-stones. Coarser abrasive sandstones used for grinding stones (Fig. 25A) and grooved fishing sinkers (e.g. from Kaingaroa<sup>20</sup>), and finer schists and sandstones used for hones and files (Fig. 25E, F, G) and fish hook shanks (Fig. 33L, and from Kaingaroa<sup>21</sup>), may have been obtained from the mountains of



34 Nephrite artefacts—**A**, The Island, Graham Valley, S13/16; **B**, Pah Point, S14/12; **C**, Woodstock, S19/5; **D**, Scott's River, Riwaka, S14/140; **E**, Woodstock, S19/2; **F**, Green Tree Road Wharf, S14/115; **G**, Kina area; **H**, Riwaka Wharf, S14/109; **J**, Goodalls Island, S14/120 (scale 10 cm)



35 Greywacke artefacts—**A**, Marahau, S9/45; **B**, Orinoco, S13/42; **C**, Hui Te Rangiora, S14/107(?); **D**, Marahau, S9/48 or 60; **E**, Pah Point, S14/12; **F**, ridge of Brown Acre, S13/46 (scale 10 cm)

west Nelson and Golden Bay where there are many possible sources. One artefactual material appears unique: an adze has been made of extremely abrasive fine crystalline rock, perhaps a corundum derived from the metamorphosed margins of the Takaka marble<sup>22</sup> (Fig. 33K). Greywacke adzes (Fig. 35A, B, C) and patu (Fig. 38A, B) sometimes found in the district may not be of local materials; indeed they could be considered to be North Island types (see page 99).

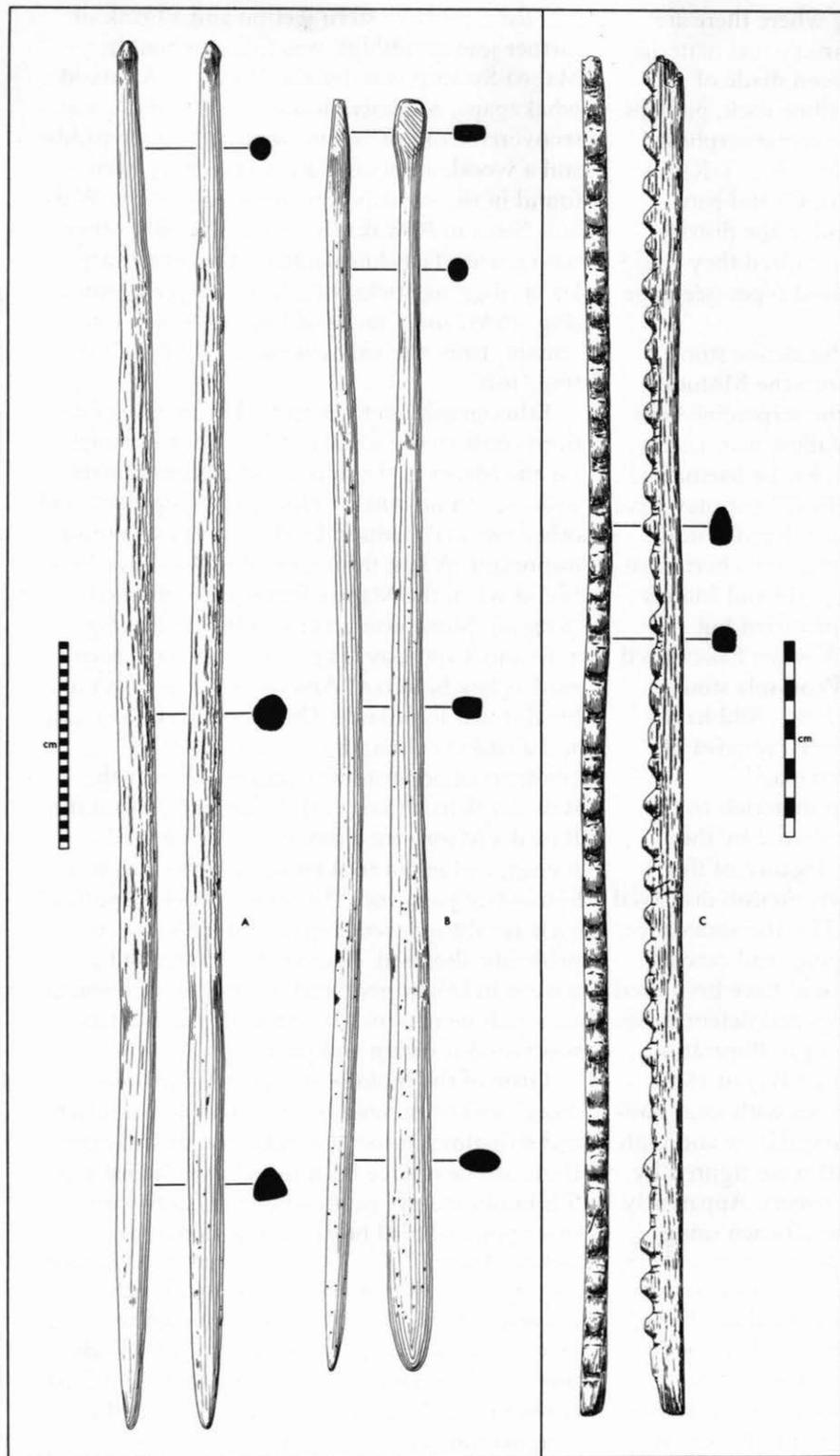
Small quantities of other distinctive stone materials were also brought into the Motueka district. Talc, possibly from the serpentine belts of east Nelson or the Cobb Valley, was used at Kaingaroa.<sup>23</sup> Kokowai (red ochre or haematite) from the same site and from Pah Point may have been acquired from the residual deposits near Parapara in Golden Bay. Artefacts of chert have been found at Pah Point (Fig. 33F) and Mapua (Fig. 33M). These pieces are of varied but predominantly grey colour. A waste flake of red chert was found in the Kina Peninsula stone-working area (S14/38). The chert could have come from either the Clarence River area of Kaikoura or the eastern Wairarapa.<sup>24</sup>

The importance of wooden materials to the Maori in prehistory is demonstrated by the magnificence and functional elegance of the buildings, canoes, and domestic utensils displayed in major museums today, and by the abundance of stone tools for felling, shaping, and carving. Large quantities of timber would have been used in the construction of buildings and defences (see pages 12 to 21 and pages 38 to 39). Illustrations from d'Urville's visit to Tasman Bay in 1827 show impressive seagoing canoes with sails, gunwale strakes, and elaborate carved bow and high stern pieces.<sup>25</sup> Less ornate craft were figured by Sir William Fox in 1846 (see cover). Apparently in early historic times Maori craftsmen using steel-bladed adzes continued to construct canoes from totara logs in the Motueka Valley, and to float them down the river for coastal use.<sup>26</sup> At Raumanuka (S14/64) European settlers saw parts of old canoes lying about and carved figureheads, tailpieces, and bailers strewn along the foreshore.<sup>27</sup> The hollowed hull of a canoe still lies beside the Motueka Maori Church. A three metre section of another, which from an early photograph appears to have a straight butt

join for a prow or stern section and a break or further join amidships, was found when the Mapua Swamp was drained (S14/50). A carved whakapapa, or generation stick (Fig. 36C), was recovered from the same swamp. A canoe paddle and a wooden pounder are said to have been found in the swamp near the mouth of the Waitatua Stream, Riwaka (S14/89). The only other wooden artefacts known from the district are ko, or digging sticks: one from Lower Moutere (Fig. 36A), and a cache of four, of which two remain, from the valley west of Old Pah Hill (Fig. 36B).

Ethnographic references and museum collections confirm the value of fibre-plant material for the Maori in the making of clothing, mats, baskets, fishing and bird hunting equipment, and other essential items.<sup>28</sup> Evidently flax was most important. A flax fishing net is said to have been found when the Mapua Swamp was drained (S14/50). Stone artefacts from Pah Point (Fig. 35E) and Tapu Bay (Fig. 25B) may have been used as flax beaters.<sup>29</sup> An eel basket (possibly a hinaki) was found near Orinoco Creek (S13/42), and a basket containing an adze and two pendants of nephrite was discovered near the Riwaka Wharf (S14/111). In the early 1840s the Riwaka Maoris used flax mats, toetoe wall linings, and nikau roof linings in their meeting houses (see page 39). The leaves of other species such as cabbage tree, raupo, and kie kie were probably also used. Plaited, decorated, and woven in bright geometrical designs, fibre-plant materials were as much a part of Maori art as was wood (carving and painting).

Little of the biological material, the bone, wood, and fibre, used by the Maori for artefacts and structures in the Motueka district still exists. Bone artefacts have been found at only one site: fish hooks mainly of moa bone and a barbed spear point of bird bone from Kaingaroa, Jacketts Island.<sup>30</sup> Controlled scientific excavation might recover significant examples of such material, although wood and fibre usually survive undecayed only in waterlogged conditions. In the present state of knowledge the gaps in the material record have to be filled in the imagination, by drawing analogies with ethnological accounts from other parts of New Zealand.



36 Wooden artefacts. *Kō*—**A**, Lower Moutere, S14/167; **B**, Riwaka, S14/92 (scale 30 cm).  
*Whakapapa*—**C**, Mapua Swamp, S14/50 (scale 10 cm)

## Ornaments and weapons

Maori ornaments (sometimes called amulets) were not mere chattels. They had considerable spiritual significance and mana deriving from their form, the materials of which they were made, and the individuals who wore them. Personal decoration with tattooing and ear pendants was apparently characteristic of the Tasman Bay people whom d'Urville met in 1827.<sup>1</sup> Such adornment was just as typical of life earlier in prehistory: a wide variety of necklaces and pendants was found with the famous moa-hunter burials at Wairau Bar in Marlborough.<sup>2</sup> The ornamental artefacts found in the Motueka district (Figs 22 and 37) are thus of great interest not only because of their beauty and technical qualities but also because they embody the values and beliefs of the Maori people.

Two of the best-known forms of ornament thought to be of early type have been found near Motueka. A tooth of the carcharodon shark was found at the Archaic site of Kaingaroa, Jacketts Island.<sup>3</sup> These shark teeth, perforated through the roots, formed necklaces, examples of which have been found with Archaic burials elsewhere in the South Island.<sup>4</sup> A breast ornament in serpentine, dug up in a shingle pit in Motueka, has been illustrated by Dr. Skinner.<sup>5</sup> It is a sub-circular disc, almost flat, with its edges notched (apart from along the upper margin which has four perforations, probably for suspension). The form is thought to be Archaic, deriving from the pearl shell pectoral amulet of tropical Polynesia,<sup>6</sup> or from the 'ulu', a type of stone meat knife or skin cleaner often found in the South Island.<sup>7</sup> Other similar artefacts of serpentine have been found at The Glen, a fourteenth or fifteenth century site, at Rimu Bay in Pelorus Sound, and at Port Underwood.<sup>8</sup> Perhaps the shark-tooth necklace and the serpentine notched-disc breast pendant were typical of the Archaic period of Maori culture in Motueka and the Nelson region.

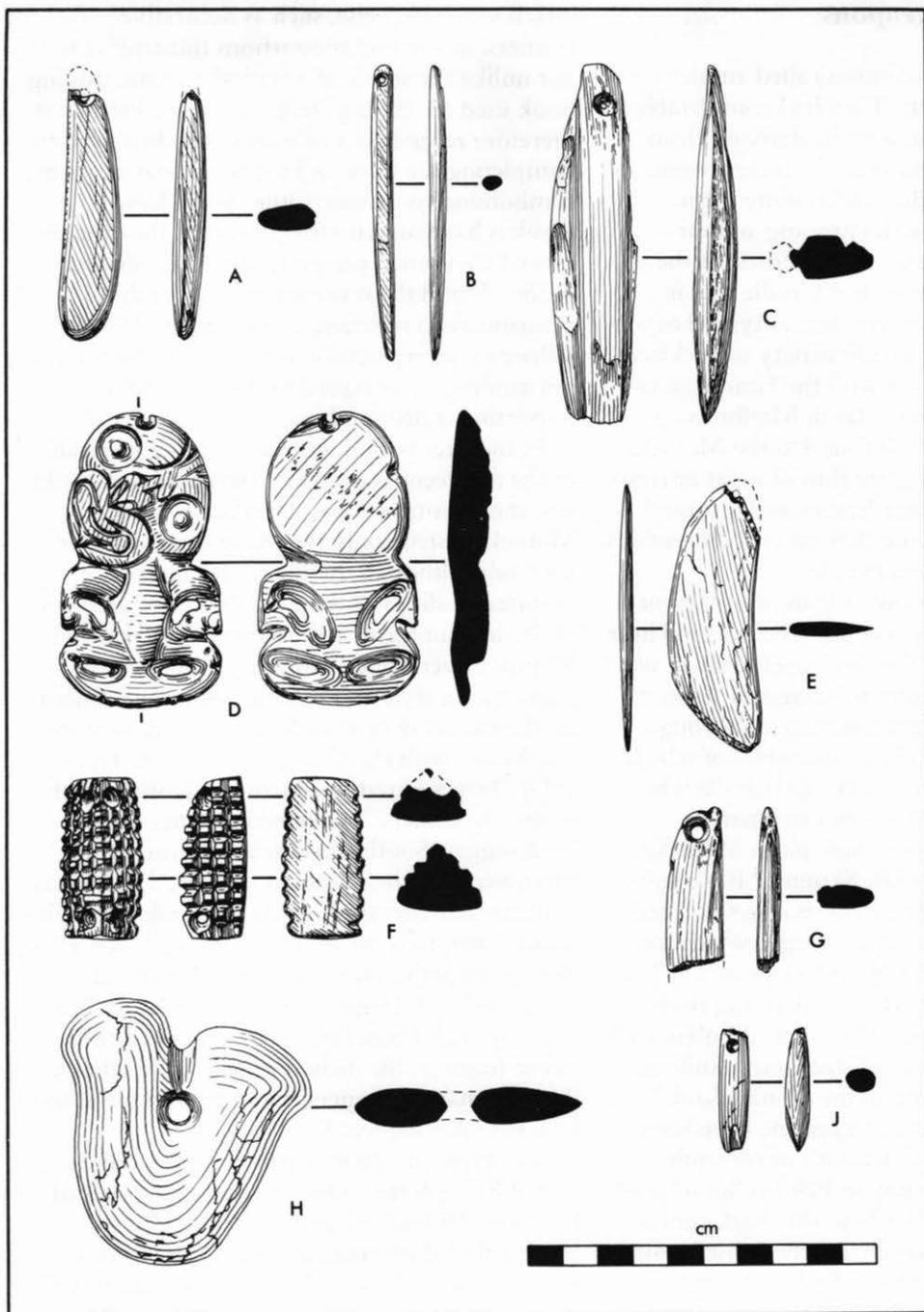
In contrast, a serpentine ornament from Goodalls Island (S14/120, Fig. 37F) is apparently unique. It is of triangular cross-section, and has its surface divided into square bosses by linear grooving probably cut with a schist knife. The hourglass perforation at the broader end is slightly worn from suspension, but that at the narrower end is not, and may have been used to

attach something else, such as decorative feathers. In size and proportions this amulet is not unlike the shank of a typical Archaic trolling hook used for fishing<sup>9</sup> (e.g. Fig. 33L). Perhaps it therefore represents a fishhook, attached feathers completing the form and the rectilinear grooving symbolising fish scales. Other pre-Classical amulets have similar characteristics: the ornately carved chevroned pendants of tongue-shaped outline,<sup>10</sup> and the imitation whale-tooth pendants with notching and grooving.<sup>11</sup> Whatever interpretation is preferred, this is an outstanding and original example of early serpentine craftsmanship.

In the later period, especially in the first half of the nineteenth century,<sup>12</sup> the nephrite hei-tiki was the dominant breast ornament. In the Motueka district only two have been available for study, although there have been other reported findings of these distinctive renderings of the human form at Kaiteriteri, Riwaka, and Mapua. A very fine example, genuinely pre-European in style and workmanship, was found on the east bank of the Motueka River near its confluence with the Wangapeka (S19/6, Fig. 37D). Traces of reddish-brown deposits remain in the eye sockets. Two characteristics of the head suggest South Island manufacture: it is narrower than the shoulders or base,<sup>13</sup> and it has a subcircular curvature unlike Taranaki examples which often have an angular outline.<sup>14</sup> Generally its closest parallels seem to be in Otago and Southland.<sup>15</sup> A fragment of another larger hei-tiki from Pah Point (Fig. 22D) also has South Island features: the incised groove across the thigh to mark to fingers,<sup>16</sup> and the dimple at the base between the feet.<sup>17</sup>

Late types of Maori ornament often represented living forms. One, known as the kinked pendant,<sup>18</sup> is said to have developed from a portrayal of the human leg. Examples from Kaikoura actually have knees, calves, and feet.<sup>19</sup> A very delicate ornament, of beautiful light green nephrite, from Pah Point (Fig. 22B) is of this type. The bird-headed ear pendant is also represented by a specimen in bowenite from Motuarero-iti (Fig. 37G). The beak features are smoothly notched. Traces of kokowai suggest that the surface may have been painted.

Other nephrite pendants, apparently restricted to later periods of prehistory, were made in the



37 Ornaments—A, Awamate, S14/154(?); B, Sandy Bay, S9/55; C, Whakarewa Street, S14/16; D, Hinetai Road, S19/6; E, Motueka Valley, S13/37; F, Goodalls Island, S14/120; G, Motuarero-iti, S9/69; H, Motueka River, S14/147; J, Mapua area (scale 10 cm)

form of common tools. A fine hei-matau, or fishhook amulet, was found on the north bank of the Motueka River near its mouth (Fig. 37H, location S14/147, Fig. 48). It is smoothly polished and has a carefully drilled hourglass perforation with a groove above. Although probably worn as a breast ornament in this state, it appears unfinished: the hole would have been enlarged and the grooved area cut through to form a hook shape, and a new perforation for suspension would have been drilled in the upper left shank. It may then have resembled examples from Southland and Otago.<sup>20</sup> Pendants also took the form of adzes. Two of these, suitably small and thin to allow for comfortable wearing, were found on the beach at Pah Point (Fig. 22E, F). Their style, though simple, is satisfying and typical of pre-European craftsmanship. Two unfinished pendants are of chisel form: one with an incomplete hourglass perforation is from the Mapua area (Fig. 37J), and another was found north of Whakarewa Street, Motueka (Fig. 37C). The latter, like the hei-matau from the river, was probably worn in its present state, but scarf sawing was in process to complete the slender design. A broad but thin and sharp-edged pendant, found on a ridge between the Pearse and Baton Rivers in the Motueka Valley (Fig. 37E), could be considered a stylised bird or seal form,<sup>21</sup> but it is perhaps better to regard it as a knife pendant, another example of a simple tool shape adapted as an ornament.

It has been argued that many nephrite pendants, particularly those of chisel type, were made from the material of adzes in the European contact period when, whereas metal tools were superseding those of stone, ornaments were still of great value.<sup>22</sup> The two chisel pendants from the Motueka district (Fig. 37C, J) could well have been tools, an adze and a chisel, undergoing such modification. Perhaps a change in the nature of simple ear pendants might also be attributed to this period. Prehistoric kuru were delightfully slender (Figs 22A and 37B, especially the latter) and may have been used as needles. Later, in the nineteenth century as nephrite became more plentiful, perhaps the forms became bulbous and less aesthetically pleasing (e.g. Fig. 37A, possibly from Awamate, the site of a Maori settlement of the 1840s).

Thus, although most amulets from the

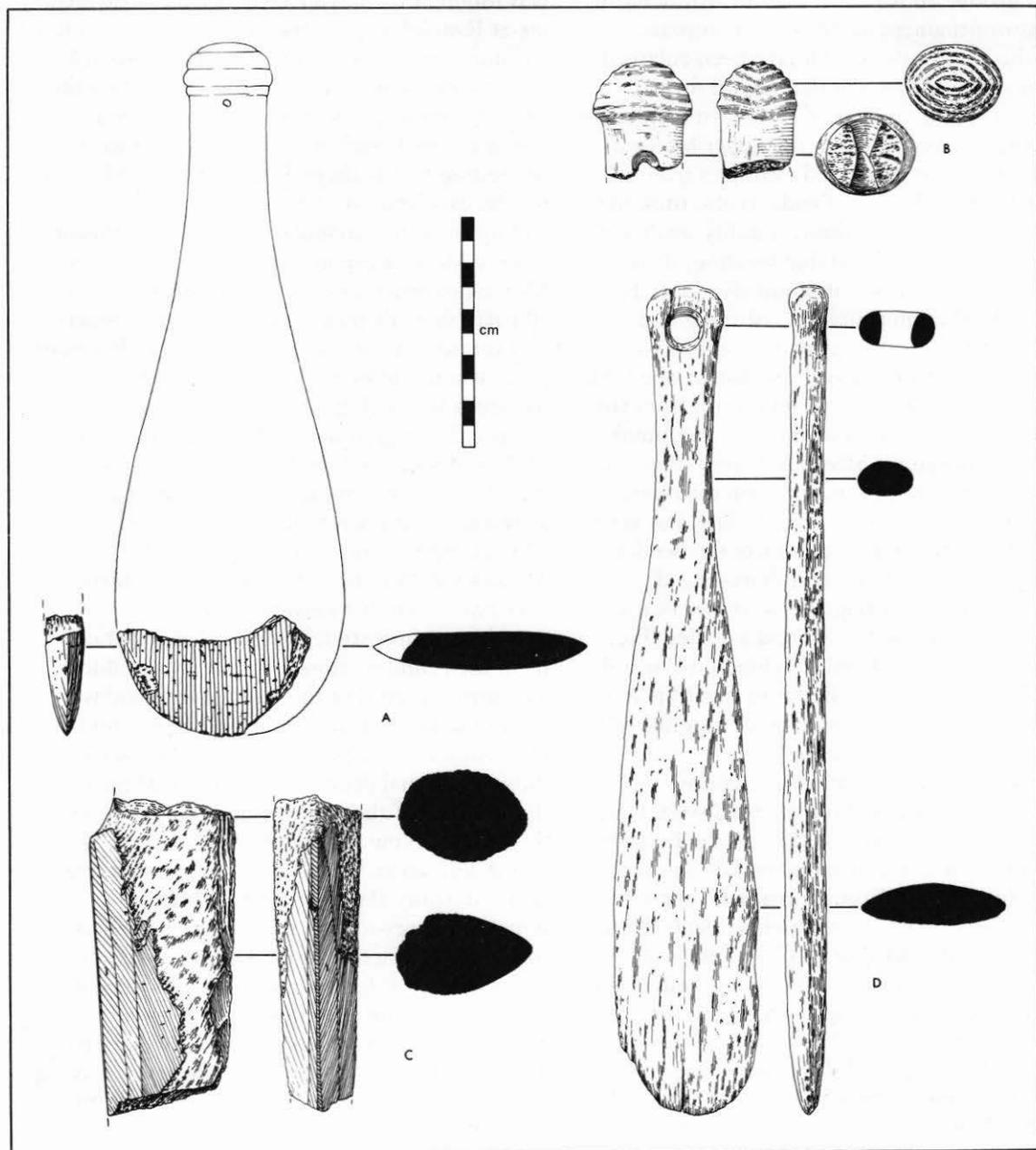
Motueka district, of both Classic and Archaic type, may be considered typical of South Island forms, one in serpentine from Goodalls Island has no direct parallel. A fragment of a serpentine amulet, possibly broken during manufacture, was found in the Classic layers of the excavated site at Rotokura. This also appears unique: it has a feature similar to a hei-tiki eye but bears relief and openwork carving.<sup>23</sup> In this connection the five serpentine ornaments, three unfinished, found at The Glen<sup>24</sup> may have significance in suggesting that perhaps Tasman Bay was known for the exploitation of east Nelson serpentine, and for ornament manufacture during prehistory.

Few Maori weapons have been found in the Motueka district, but those available for study, all patu (short thrusting clubs), are of considerable interest. A complete patu paraoa (whalebone patu) was found on the south bank of the Motueka River (Fig. 38D; from S14/143, location Fig. 49). It has a lenticular-sectioned blade and a squared, perforated handle butt (reke). A broken, discarded fragment of a greywacke patu was found on the Mount Thomas Spur stone-working area in the Motueka Valley (Fig. 38C). Its original form may have been that known as a miti: a spatulate, almost straight-sided blade separated from the round-sectioned handle by shoulders. The miti is typical of the South Island and is rarely found in the north.<sup>25</sup> Two fragments of patu onewa (stone patu—these are greywacke) show additional details. A butt from Mapua (Fig. 38B) is of the typical ridged form found throughout New Zealand but possibly of North Island derivation.<sup>26</sup> A blade from the northern shore of Sandy Bay (Fig. 38A) has the asymmetrical cross-section which may have been a common feature of patu.<sup>27</sup> A broken section of a patu onewa was found in the Classic layers of the excavated site at Rotokura.<sup>28</sup> Such stone weapons are thought to date from the later part of the New Zealand prehistoric sequence, having developed from earlier East Polynesian forms made of whale bone and wood.<sup>29</sup>

Other Maori weapons typical of the later period, such as spears, taiaha, and other types of short club such as the mere pounamu and the kotiate, were doubtless used in the Motueka district although no examples are available for study. In Golden Bay in 1642 Abel Tasman's

men were set upon with 'a long blunt pike' and 'short thick wooden clubs'.<sup>30</sup> Maori tradition of the fall of the Te Mamaku pa in the Te Rauparaha raids of the late 1820s ends with this

detail: a leading chief of the Motueka district, Pakipaki, was captured, and at his request was killed with his own mere pounamu, a very famous weapon named Kokopu.<sup>31</sup>



38 Patu—A, Sandy Bay, S9/57; B, Mapua area; C, Mount Thomas Spur, S13/1; D, Motueka River, S14/143 (scale 10 cm)

## Food-producing equipment

Few of the artefacts used by the pre-European Maori in their day to day subsistence activities have been found in the Motueka district. Many of them would have been made of perishable materials, so their existence must be inferred from the more durable survivals of occupation such as storage pits and midden heaps. However, the extant artefacts and early historic descriptions give an insight into the methods used in agriculture, fishing, and bird hunting.

Birds were taken by spearing and snaring. Barbed bone points have been found at Kaingaroa, Jacketts Island,<sup>1</sup> and in Archaic layers 2B and 4 at the site at Rotokura.<sup>2</sup> They are of the type usually thought to have been attached to wooden shafts up to ten metres long and used for spearing birds such as pigeons.<sup>3</sup> Captain Moore described how on his visit to the Motueka district in 1842 he saw perch snares being used to capture kakas. 'A clever youth and his sister. . . had brought from the pah a tamed bird. With a few flax leaves and some toi grass they constructed a little whare to hide one of them. . . . The boy's sister then handed him the tame kaka on a wooden perch like a little gallows, with a string of flax trained along the top like a running bow line or loop. One end of this was held by the boy ready to snare the first bird; then he teased the tame bird until it began its native cry, at which sundry other kakas were attracted and came flying down from the trees. . . . As soon as they were fairly lodged on the perch, the boy pulled the snare and some three or four birds were caught by the legs and drawn tight to prevent them getting free. The boy and girl then caught them and wrung their necks, after which the snare was placed ready for others.'<sup>4</sup>

Elsewhere in New Zealand Europeans reported the use of noose snares set beside drinking-water sources such as streams or pools to catch pigeons. Snares were also set on each side of wooden troughs which were placed in trees on ridge tops and filled with water from the streams below.<sup>5</sup> On the ridge-top of Mount Buggery, between the South Branch of the Riwaka River and Flat Creek (S13/49, Fig. 3), is a stone structure which may have been filled with water and surrounded by snares. The site lies in dry

Mount Arthur marble country where there is extensive surface rock. The nearest streams are in the valleys 1000 feet below. In the top of a prominent, rounded marble outcrop is a flat-bottomed basin-shaped hollow, almost circular, 61 by 56 cm across its rim, 63 by 59 cm across the base, and with sides 15 to 20 cm high. The erosion of rock as hard as marble requires running water, and shapes such as clints and sink holes are formed. This basin has slightly fluted sides but has no water outlet, so it is probably not a natural form. Beneath boulders in a deep narrow clint down the west side of the same marble outcrop were found moa bones (see page 26). Such a small crevice is unlikely to have trapped moas. Six metres south-east of the basin is a shallow rectangular terrace 3.0 by 1.6 metres, partly stone-lined and cut into a slight slope. It is of the type thought to have supported a building (see pages 38 to 39). In view of the proximity of these other features in an area otherwise devoid of archaeological evidence, it seems likely that the basin, known locally as the 'pigeon drinking hollow', was artificially deepened and used for bird snaring.

Fishing techniques were well developed in prehistoric New Zealand. Although the nets and lines, probably mainly made of flax, have not survived, a little of the associated bone and stone equipment is available for study. Net and line sinkers were made from conveniently shaped beach stones, which were either perforated by hourglass drilling (Fig. 33G) or grooved by pecking (Fig. 33N, P) so that they could be firmly fastened to the fibres. Unusual chert artefacts flaked into domed rounded or rectangular shapes (Fig. 33F, M) may have been used as sinkers attached to the base of wooden line-fishing floats.<sup>6</sup> Hooks used in line fishing have been found at Kaingaroa.<sup>7</sup> They are all composite hooks (separate shank and hook limbs were lashed together at the bend), mostly made from moa bone, and are very similar to those from the Archaic occupation sites of Tahunanui and Rotokura layers 2B and 4.<sup>8</sup> The later Classic forms of line hook, serrated and barbed types, were found in layer 2A at Rotokura but have not yet been recorded in the Motueka district.

Offshore trolling, from canoes, for surface-feeding fish was common in prehistoric East Polynesia.<sup>9</sup> The typical late Classic Maori or

early historic kahawai trolling hook was seen by Captain Moore in Tasman Bay. 'A hook is formed by lashing a barbed piece of bone to a curved piece of wood three inches in length. To the inner side of this hook is fastened a bright piece of paua shell; then to the hook is fastened about six feet of flax-made strong fishing line. The other end is fastened to a rod about eight feet [long]. With this the fisherman makes his hook describe a circle on the surface. . . the shining shell on the hook is mistaken for a small fish and is grabbed by the barracouta.'<sup>10</sup> This late form of trolling hook replaced the earlier Archaic types which were similar to tropical Polynesian antecedents. A fine example of a typical Archaic minnow shank has been found at Grossi's Point (Fig. 33L). It is of smoothly ground sandstone, and has a steep triangular cross-section, an hourglass perforation at the thicker end for the main line fastening, and a small platform and basal grooves at the narrow end where a bone point would have been attached. Unfinished pieces thought to be minnow shanks, of schist, sandstone, and talc, have been found at Kaingaroa.<sup>11</sup>

The presence of unfinished moa-bone fish-hooks and stone minnow shanks at Kaingaroa<sup>12</sup> indicates that fishing equipment was manufactured on the site. Bone hooks were probably shaped with schist files (Fig. 25G<sup>13</sup>). Coarser abrasers may have been used to grind the stone shanks. Knives for cutting bone and soft stone, and drill points to make the perforations (e.g. Figs 26C, 32C), were made from metasomatised argillite. The Grossi's Point minnow shank perforation has been drilled from each side by both narrow and broader bevelled points. For this, different sizes of drill point were needed, and such have been found at Kaingaroa.<sup>14</sup> One from Pukengerengere (Fig. 31C) is especially large and may have been used for the drilling of wood. Wooden equipment may have been finished with knives and scrapers of obsidian (Fig. 33C, D, E) and metasomatised argillite (Fig. 32A, E). On coastal settlements the manufacture of fishing equipment was evidently an important activity.

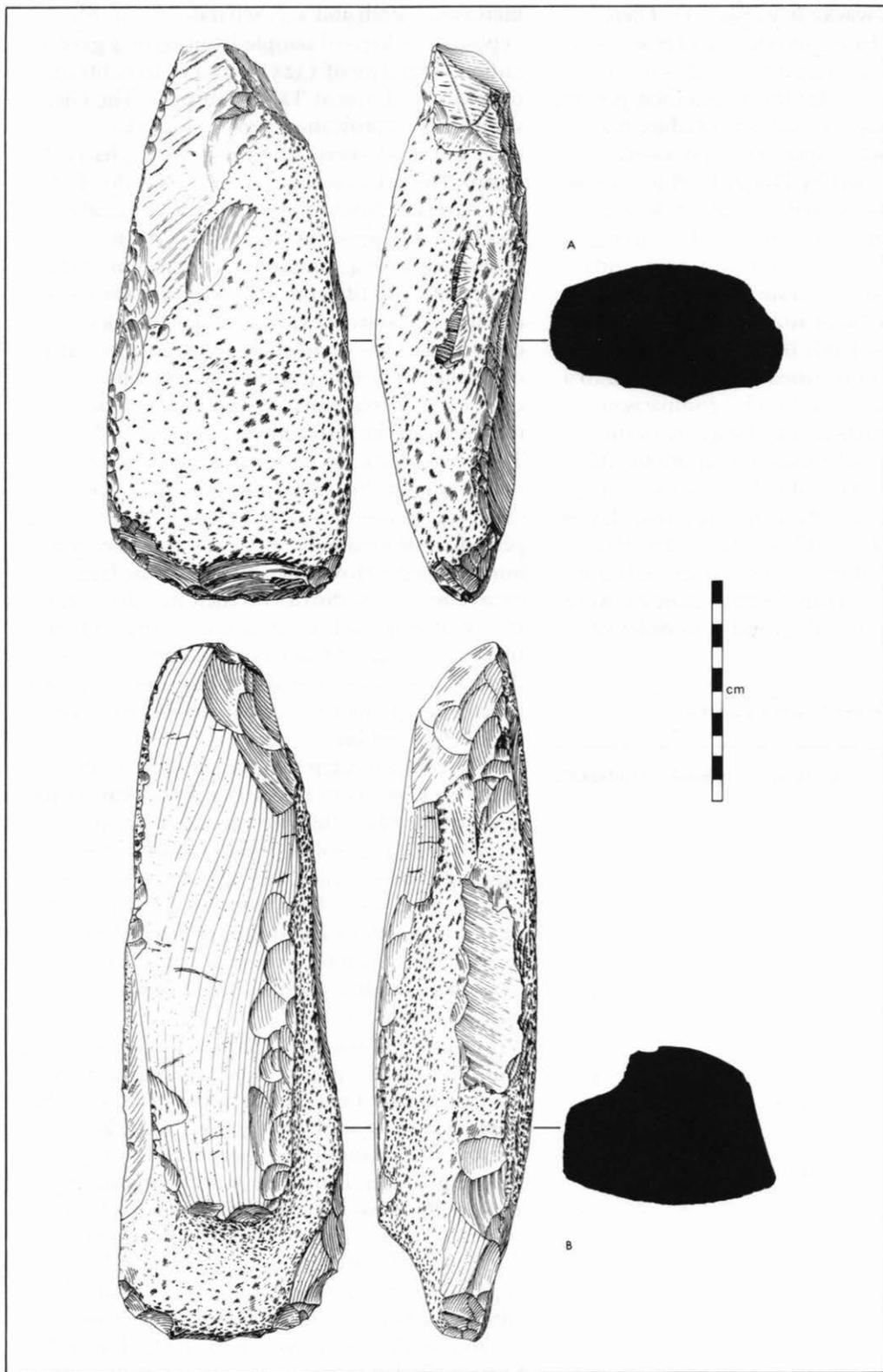
The best-known form of horticultural implement used by the Maori was the ko, or digging stick. Of the five recovered from swamps in the district, three are available for study. The one

from Lower Moutere (Fig. 36A) is made of a coarse grained wood, possibly manuka, and shows wear from a footrest attachment at 51 cm from the point of the blade. The complete example from the Wai-atua cache (Fig. 36B) is of either manuka or akeake, and has binding wear from the double lashings of a footrest at 54 cm and 62 cm from the point. A broken lower portion from the same place is made from wood with a finer, straighter grain, possibly totara, and has a carefully adzed lenticular blade cross-section. Presumably large flax bags or baskets were used to carry the sand and coarse gravel (which was spread over the cultivated ground, see pages 29 to 31) from the quarry pits and river banks, as in the Waikato.<sup>15</sup>

Hafted stone adzes were also used in agricultural operations. Two heavy unpolished tools from Marahau (Fig. 39) may have been used for breaking up ground and for digging ditches and pits. Their blades are blunt and worn. Lighter wide-bladed gardening hoes, known as toki kaheru or toki hengahenga, were sometimes given stone rather than wooden blades.<sup>16</sup> Two of the adzes from the area of the Whakarewa Street gravel soils (S14/16) may come into this category. One is a relatively large 2B form (Fig. 17C) and the other is a smaller 2Ai type (Fig. 17A; for definitions of adze types see pages 68 to 74). Both show evidence of the chafing of a haft binding, and have blunt and bruised blades (especially Fig. 17A) suggesting heavy use in rough soil work. It is suggestive of long use of these soils that both a supposedly early 2Ai form and a later 2B used in this way have been recovered from the made soil area. The polishing on the former (Fig. 17A) indicates that it may originally have been sharpened for wood-working. Perhaps stone adzes were often used for cultivation and earth moving after their blades had become fractured and unsuitable for other purposes.<sup>17</sup>

## Adzes

Adzes are the most common items in local artefact collections in the Motueka district. They were cutting tools of stone, usually hafted in wooden handles. Almost all are made of metasomatised argillite, except those of nephrite (e.g.



39 Agricultural adzes—Marahau Beach, S9/48  
(scale 10 cm)

Fig. 34) and greywacke (e.g. Fig. 35). There is a great variety of shapes and sizes, and from these it is possible to draw tentative conclusions about the development of adze forms and their possible dates. The first stage in such a procedure is a classification of adze types. The best-known system is that devised by Roger Duff to analyse the adzes from the Archaic burials at Wairau Bar, Marlborough.<sup>1</sup> Since it is used by archaeologists in the Nelson region, this system, with modifications to incorporate later adze forms, is followed here. A list of adze types found in the district is given in Table III.

The adze types identified can be assigned to a likely chronological position by comparison with similar artefacts found elsewhere in the Tasman Bay area. The most useful site for this purpose is Rotokura, Cable Bay<sup>2</sup> (location Fig. 1), because there both Archaic and Classic layers were excavated. In the Classic layer, 2A, were found fragments of clay pipes and an 1826 coin demonstrating European contact. Beneath were three Archaic layers, 2B, 4, and 6, in order of

Table III

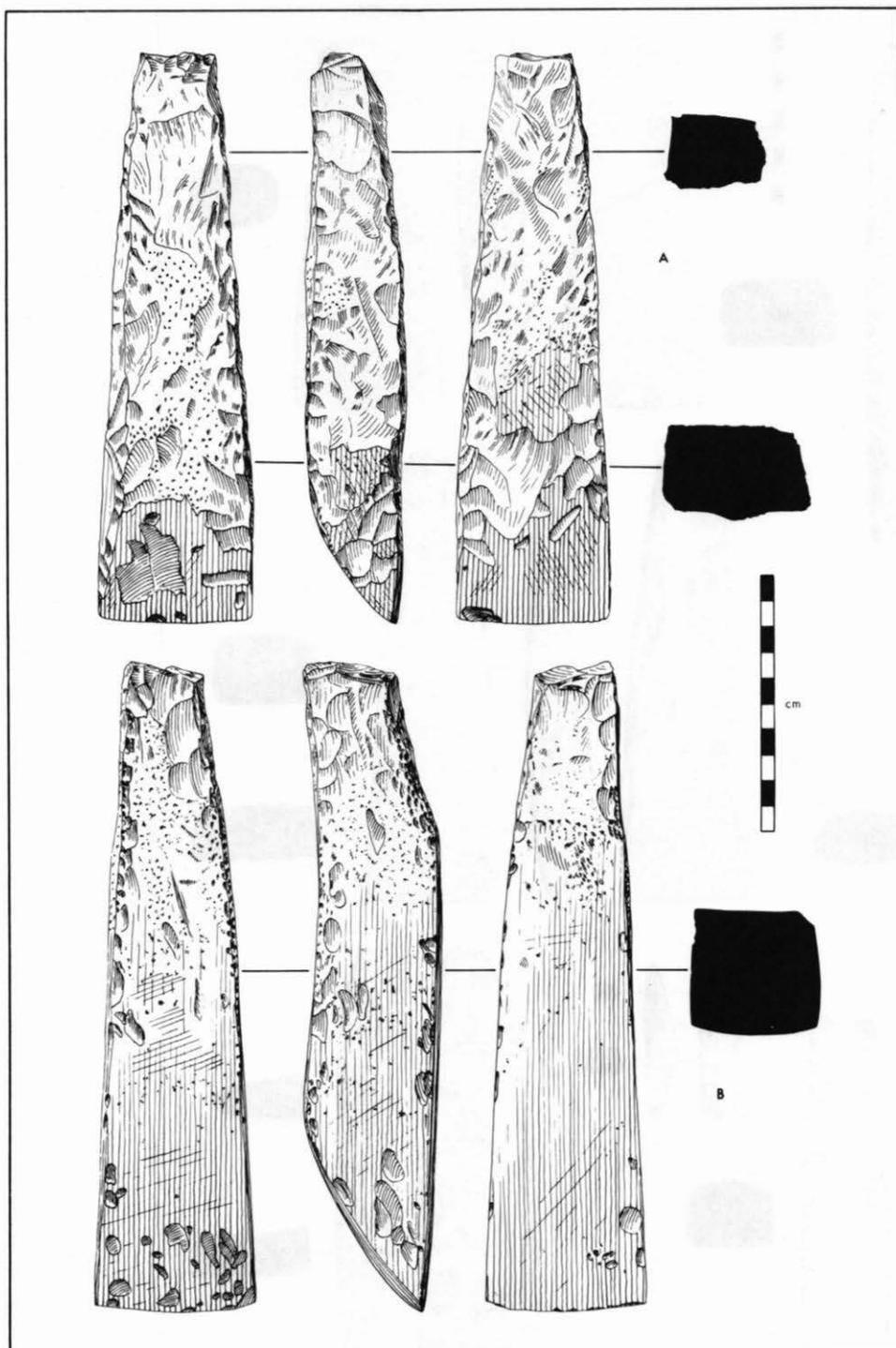
Stone adze types in the Motueka district

	Archaic	Classic	Undatable
1A	30		
1B	5		3
1D	1		
2Ai	15		
2Aii		7	
2B		163	
2C			1
3B			2
3C	1		
3G	2		1
4Ai	7		
4Aii		5	1
5	1	2	
6i		4	
6ii		4	
6iii		4	
Other chisels	3	6	22
Roughouts	11	5	42
<b>Totals</b>	<b>76</b>	<b>200</b>	<b>72</b>

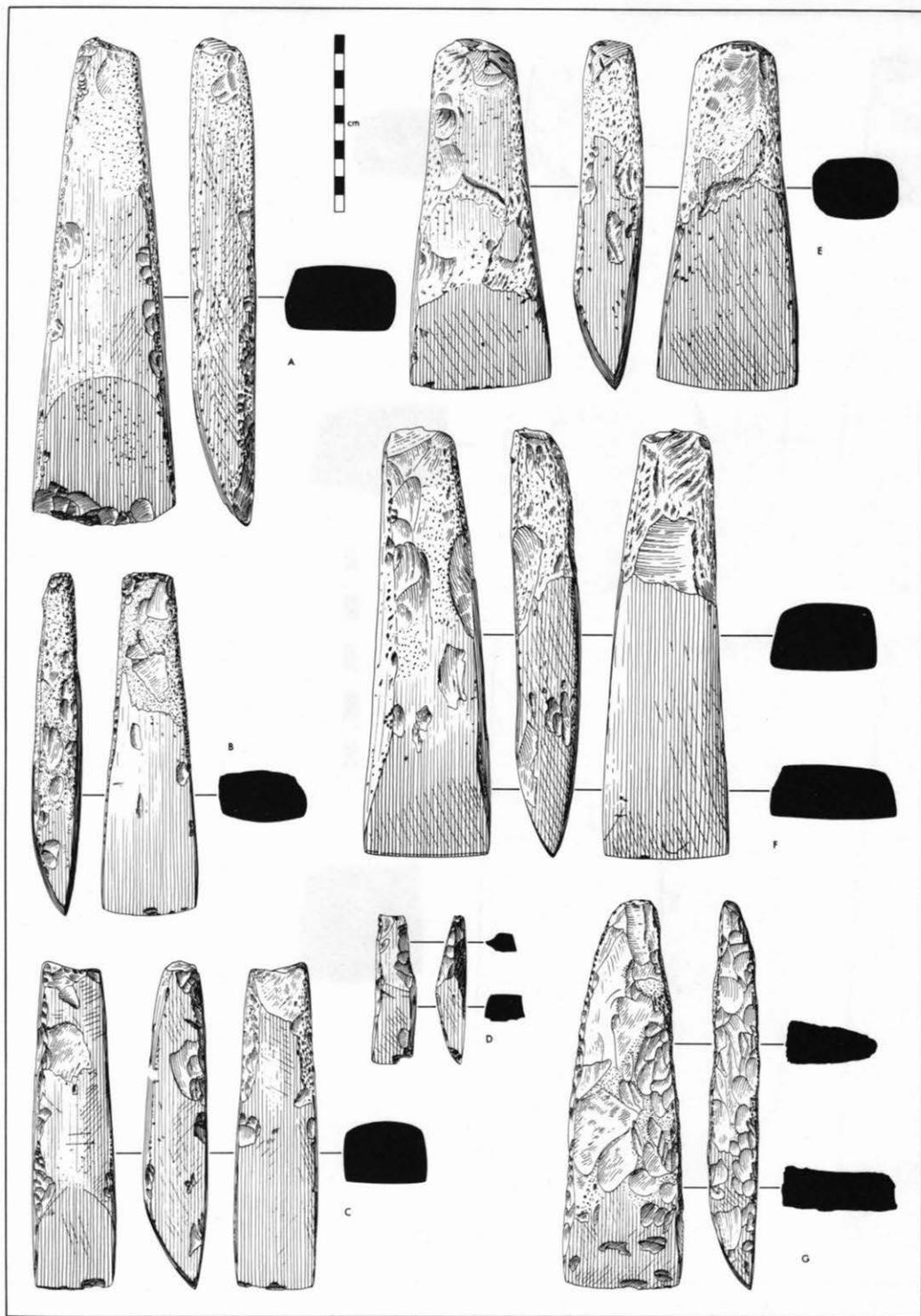
increasing depth and age, separated by sterile deposits. A charcoal sample from layer 4 gave a radiocarbon date of  $1325 \pm 71$  a.d. In contrast, the excavated sites at Tahunanui<sup>3</sup> and The Glen<sup>4</sup> showed no stratification and appeared to represent single-period occupations. A charcoal sample from Tahunanui gave an age  $1361 \pm 70$  a.d. Artefacts from the two sites are virtually identical, and quite similar to those from Rotokura layer 4, suggesting occupation in the fourteenth and fifteenth centuries. On the basis of this comparative evidence, the Motueka district adzes are divided into two groups: earlier or Archaic, possibly prior to the sixteenth century or thereabouts; and later or Classic, maybe from the sixteenth century onwards. These two divisions represent long periods within which changes in adze form may be expected. Simmons has divided the earlier period, as defined here, into early, middle, and intermediate.<sup>5</sup> However, in view of the lack of excavation in the district no such fine division of time is attempted here. It should be remembered that the content of this section is largely hypothetical, not substantiated fact but a set of general statements summarising what is believed to be the likely situation.

In the adze descriptions which follow, the term 'back' refers to the surface which carries the bevel of the blade (left view and left side of centre view, Fig. 40B); 'front' applies to the face (opposite) from which the haft or handle would have pointed away (right view, Fig. 40B). In all cases cross-sections are illustrated front downwards. The butt is the area attached to the haft, and where modified to facilitate lashing is termed a 'grip' or 'tang'.

The best-known type of Archaic adze is Duff's 1A: large, nearly square-sectioned with the front wider than the back, and often with an obvious grip or angled tang. The Motueka district has produced fine specimens in a range of sizes (e.g. at Marahau, Fig. 40B; at Mapua, Fig. 40A; at Riwaka, Fig. 43F). The type has been excavated from Archaic layers at Rotokura, at the Heaphy River site, and at The Glen.<sup>6</sup> It appears significant that some of the largest 1A adzes have been found at some distance from obvious settlement areas (e.g. S14/170, Fig. 41F; S13/54). Perhaps they were used for felling or working timber for canoes. Large adzes thought



40 Archaic adzes, 1A type—A, Grossi's Point, S14/19; B, Marahau, S9/49 (scale 10 cm)



41 Archaic adze types—**A**, Little Kaiteriteri, S14/70; **B**, Green Hill, Ngatimoti, S13/35; **C**, Marahau, S9/51; **D**, Marahau, S9/45; **E**, Thorpe Street, Motueka, S14/153; **F**, Upper Moutere, S14/170; **G**, Mapua, S14/54 (scale 10 cm)

to be of the later Classic period (Type 2Aii, see Fig. 44C) are much shallower in cross-section, are broader bladed, and have no grip. It is therefore to be expected on typological grounds that the Archaic 1A type should undergo change from the early examples (e.g. Fig. 40) to those incorporating by degrees these later features. Thus the 1A adzes shown in Figure 41 may form a typological series representing several centuries (Fig. 41F perhaps the earliest, and Fig. 41A with very little grip perhaps the latest; Figs 41D and G are different types).

The 1D type, with a rounded quadrangular section, a rounded bevelled grip or tang, and a marked upper margin to the blade level on the back, is rare. The only example from the district (Fig. 42A) was one of the cache of three unfinished specimens found near the Graham Road, Pokororo. The other two adzes in the cache were 1A types (e.g. Fig. 42B). The two illustrated have water-rolled cortices demonstrating their origin as river boulders. The cross-sections are rather rounded, and the all-over use of hammerdressing is most remarkable, contrasting with the carefully flaked angularity of the early 1A adzes from Mapua (Fig. 40A, one of two). These features suggest that the Graham Road cache should not be considered the earliest in the Archaic sequence.

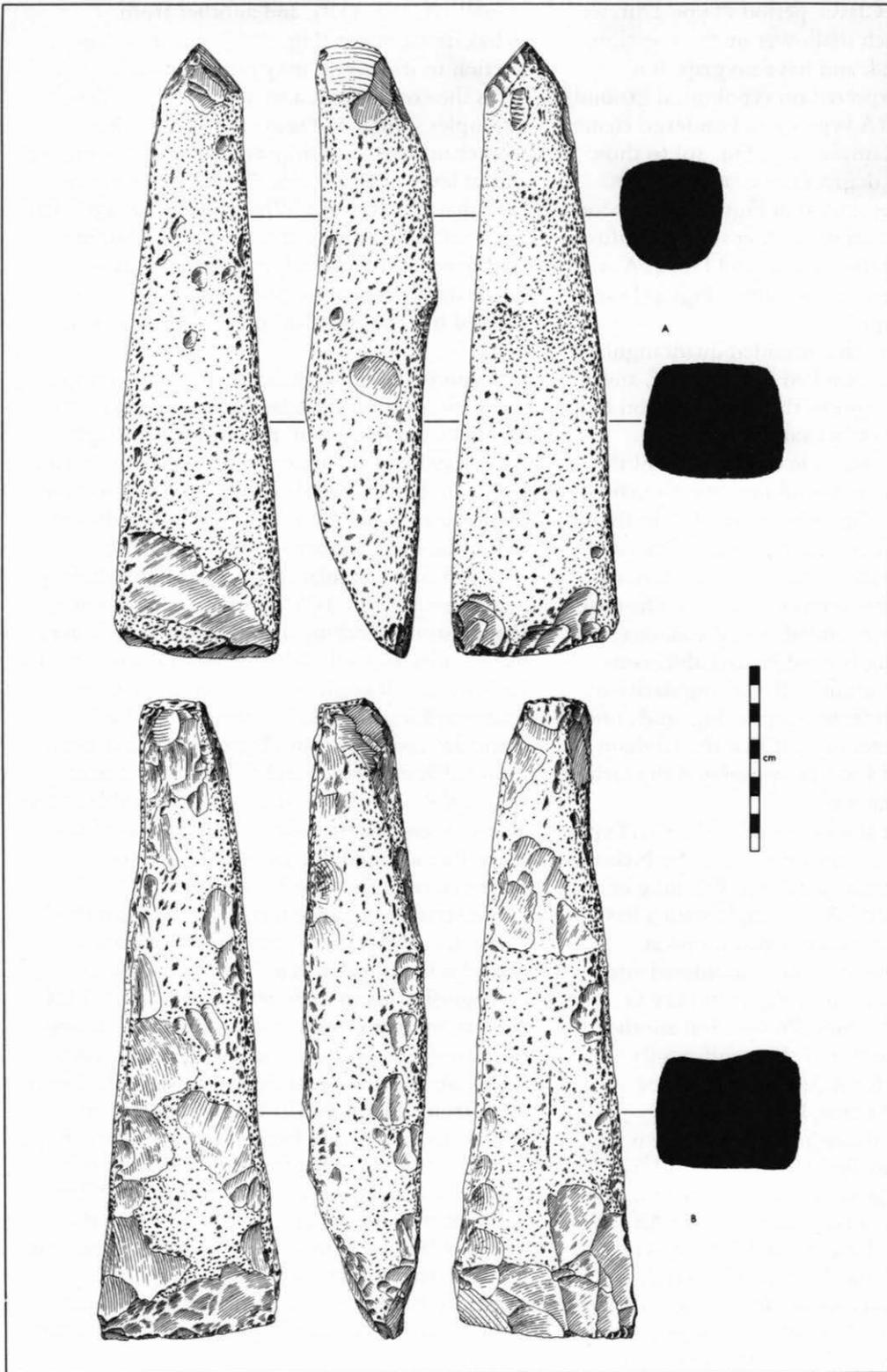
The distinctive spade-shouldered adze, Type 1B (e.g. Fig. 43E), is uncommon in the Nelson region, but on South Island parallels may be considered Archaic.<sup>7</sup> An example with a less pronounced spade shoulder was found at Kaingaroa.<sup>8</sup> A smaller spade-shouldered adze from Whakarewa Street (Fig. 17E) may be intermediate in Simmons' terms, but another from the same site (Fig. 17F) is sufficiently similar to the 2B form (see page 74) to be considered a later example.

Also generally thought to be Archaic is the 2Ai type, often smaller than the 1A and with a shallower rectangular section. (It is here termed 2Ai to distinguish it from the Classic 2Aii form described below.) Fine examples from Riwaka Wharf (Fig. 43C) and Mapua (Fig. 41G), with slightly angled butts and accurate flake working, are probably early. A smaller, less regular one from Wratt's Whare (Fig. 43A, found with

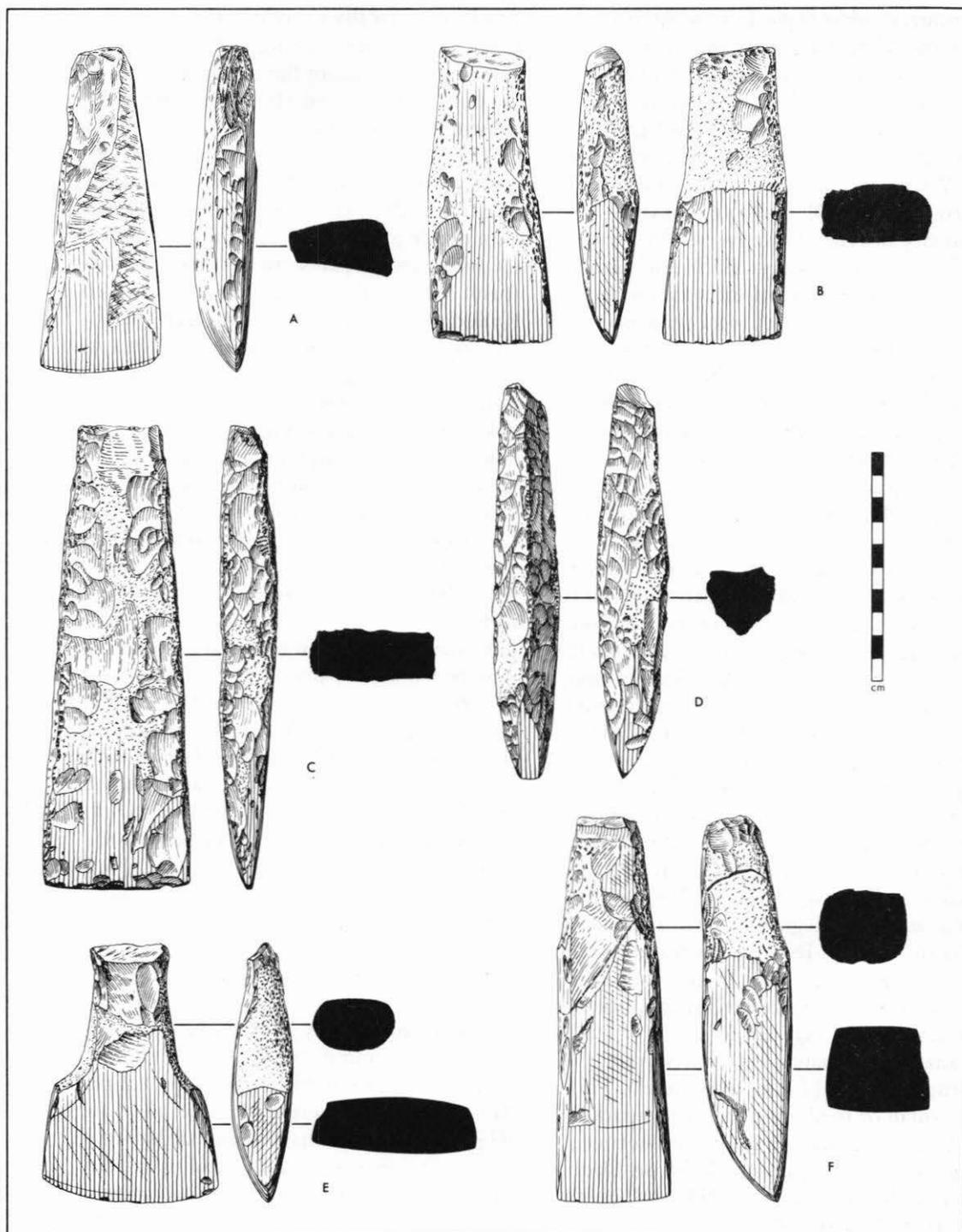
a small 1A, Fig. 43B), and another from Whakarewa Street (Fig. 17A), wider in proportion to its length, may not be so early. The 2A is the commonest adze form at The Glen.<sup>9</sup> Examples similar to Figure 43C, but rather thicker in cross-section, were found at Tahunanui and in layer 4, Rotokura.<sup>10</sup> It is interesting to note that this Riwaka Wharf adze (Fig. 43C) has a deliberately polished 2.5 mm wide blunting facet across the blade edge. It was thus unfinished; the curvature of the blade had been formed but the edge had not yet been ground sharp.<sup>11</sup>

Type 3 adzes, with triangular cross-section, the apex forming the adze back, are rare in the Motueka district. Small flake tools, although they may be of the ungripped 3B type (e.g. Fig. 29C), are better described as flake adzes because the form may not be intentional. More distinctive is the long, narrow-bladed adze with rounded subtriangular cross-section and slightly angled grip (Type 3C) found at the Pokororo Bridge stone-working area (Fig. 29B). It is very like an adze from the lowest Archaic layer, 6, at Rotokura.<sup>12</sup> It could be considered early on stratigraphic grounds. Smaller adzes with lenticular cross-sections (Type 3G<sup>13</sup>) have been found at Kaingaroa<sup>14</sup> and Whakarewa Street (Fig. 17D). This form, not as unmistakable as the 3C, may also be Archaic. These types demonstrate that a rounded cross-section was not a prerogative of the Classic period.

The remaining adze form known from the Motueka district and typical of the Archaic period is the hog-backed, Type 4Ai (4Ai to distinguish it from 4Aii described below). This has a triangular cross-section, the apex forming the adze front, and a particularly narrow blade. Two variations are represented: a shorter, deeper form from Pokororo Bridge (Fig. 29A), and a longer, narrower one from Riwaka Wharf (Fig. 43D). Both these were found at Tahunanui.<sup>15</sup> The 4A was a common adze type at The Glen.<sup>16</sup> A rather more rounded example, extensively hammerdressed, from a stone-working area near the Wai-atua Stream, Riwaka (Fig. 26F), is similar to the triangular-sectioned adzes from layer 2B at Rotokura.<sup>17</sup> It may be a late Archaic variety.



42 Graham Road, Pokororo, S13/14—adze cache  
(scale 10 cm)



43 Archaic adze types—A, B, Wratt's Whare, S13/44; C, D, Riwaka Wharf, S14/112; E, Riwaka area; F, Riwaka, S14/133 (scale 10 cm)

In summary, adzes typical of the Archaic period in the Motueka district are types 1A, 2Ai, and 4Ai. Types 1B, 1D, 3C, and 3G are also present. Different types have been found in close proximity at Riwaka Wharf (2Ai and 4Ai) and Pokororo Bridge (4Ai and 3C), and in caches at Wratt's Whare (1A and 2Ai) and Graham Road, Pokororo (1A and 1D). This suggests contemporaneity of types. Changes in adze styles within the Archaic period probably included an increase in the proportion of the adze surface treated by hammerdressing, and a tendency towards rounder, less angular cross-sections.

The type of large adze described by Duff as typical of the later period in the Nelson region has a broad, relatively thin cross-section with slightly rounded faces, a broad blade, and a prominent chin ridge on the back above the blade bevel<sup>18</sup> (Riwaka examples: Figs 44C and 35C, and another from Strachan's Road, Orinoco, S13/28). Such adzes have been found in southern New Zealand from Farewell Spit to Stewart Island,<sup>19</sup> and are common in Taranaki.<sup>20</sup> The chin ridge feature is present on several adzes from the Classic layer at Rotokura but on only one of the 125 adzes of recognisable form from The Glen.<sup>21</sup> Chin ridges and this type of adze are completely absent from the Archaic assemblages from Tahunanui and the Heaphy River mouth. Although the adze form approximates to the definition of the 2A type it differs sufficiently from the Archaic form already described (compare Fig. 43C with Fig. 44C) to justify the separate category of 2Aii, a distinctive later, Classic, variety. Examples without the chin ridge have been found at Pah Point,<sup>22</sup> at Green Tree Road Wharf, and in the Kina area (the last two are of nephrite: Fig. 34F, G).

The adze type apparently most common in the Motueka district (Table III) is the 2B. This is typically small or medium sized, with a rather rounded and thick quadrangular cross-section, without a grip, and is particularly broad-bladed in relation to length (e.g. Figs 17H, 35B, 44D). Frequently hammerdressing has played a major role in shaping (e.g. Figs 23G, 24E, 44A). Chin ridges are common (e.g. Figs 12A, 31B, 44G). Although not necessarily always a later or Classic form throughout New Zealand, available evidence suggests such a context for it in the Motueka district. Layer 2A at Rotokura

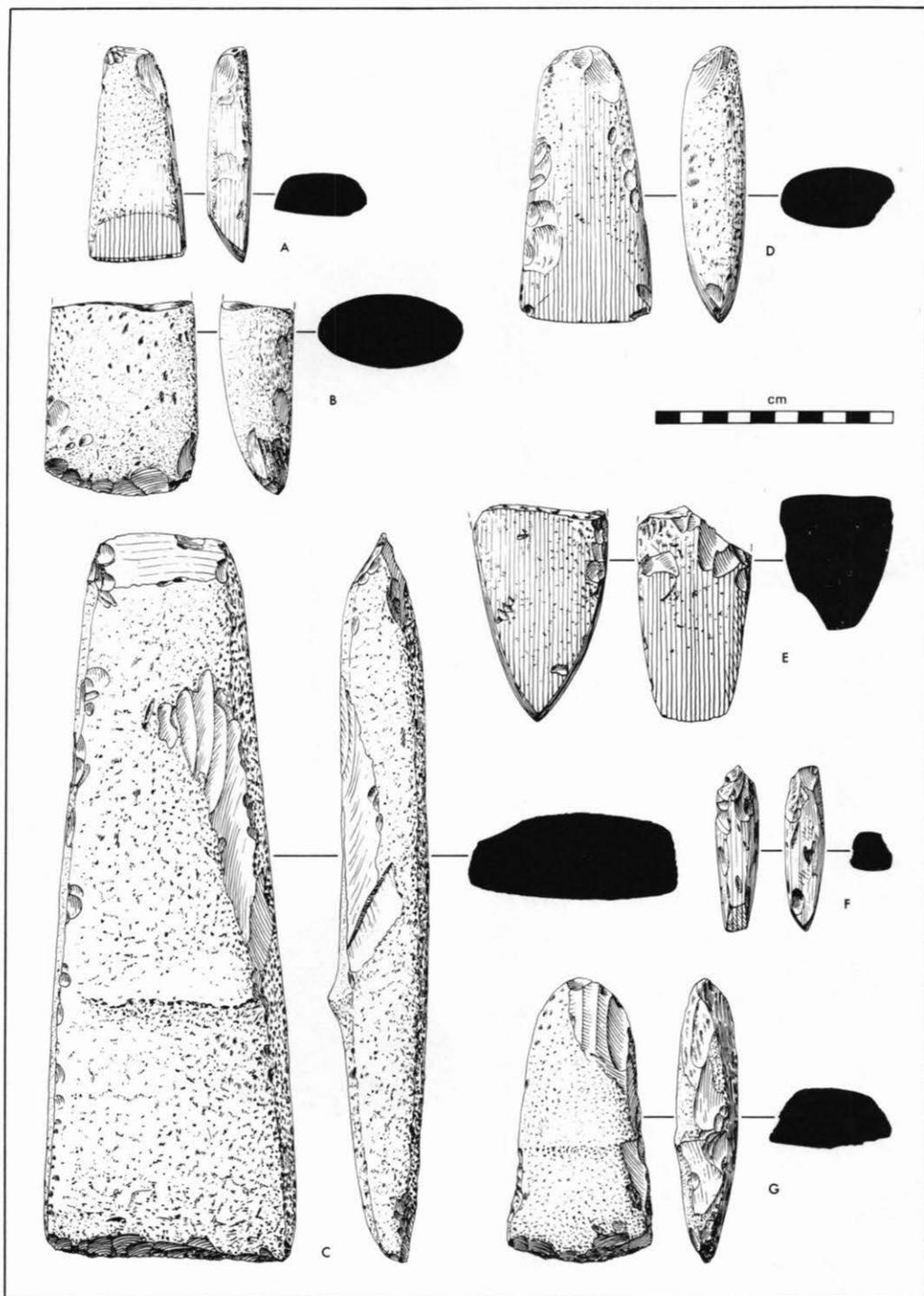
produced typically rounded 2B forms with extensive hammerdressing and clear chin ridges.<sup>23</sup> Only one of the 125 adzes from The Glen could be termed 2B,<sup>24</sup> and none was present at Tahunanui.

There is considerable variation within the 2B form. Some examples have sharp lateral edges (e.g. Figs 23H, 24D, 35A), but most are more rounded (e.g. Figs 12D, 23B, 24F, 31A). Larger examples are deeper-sectioned than the 2Aii form, and usually preserve the typically broad-bladed 2B shape (e.g. Figs 17C, 24B, 39A), although some are longer with distinctive flat back-surfaces (Fig. 24A; also S14/50 and 110). Some 2B adzes, especially those derived from flakes, are less regular (e.g. Figs 12B, 23E, 26E). There are also examples in nephrite (Fig. 34D, E). In some cases a completely rounded cross-section was achieved (e.g. Figs 17F, 44B). Excavations at the Kumara-Kaiamo pa in North Taranaki recovered 2B adzes, one of which, from the late palisade fill, was of very rounded form.<sup>25</sup>

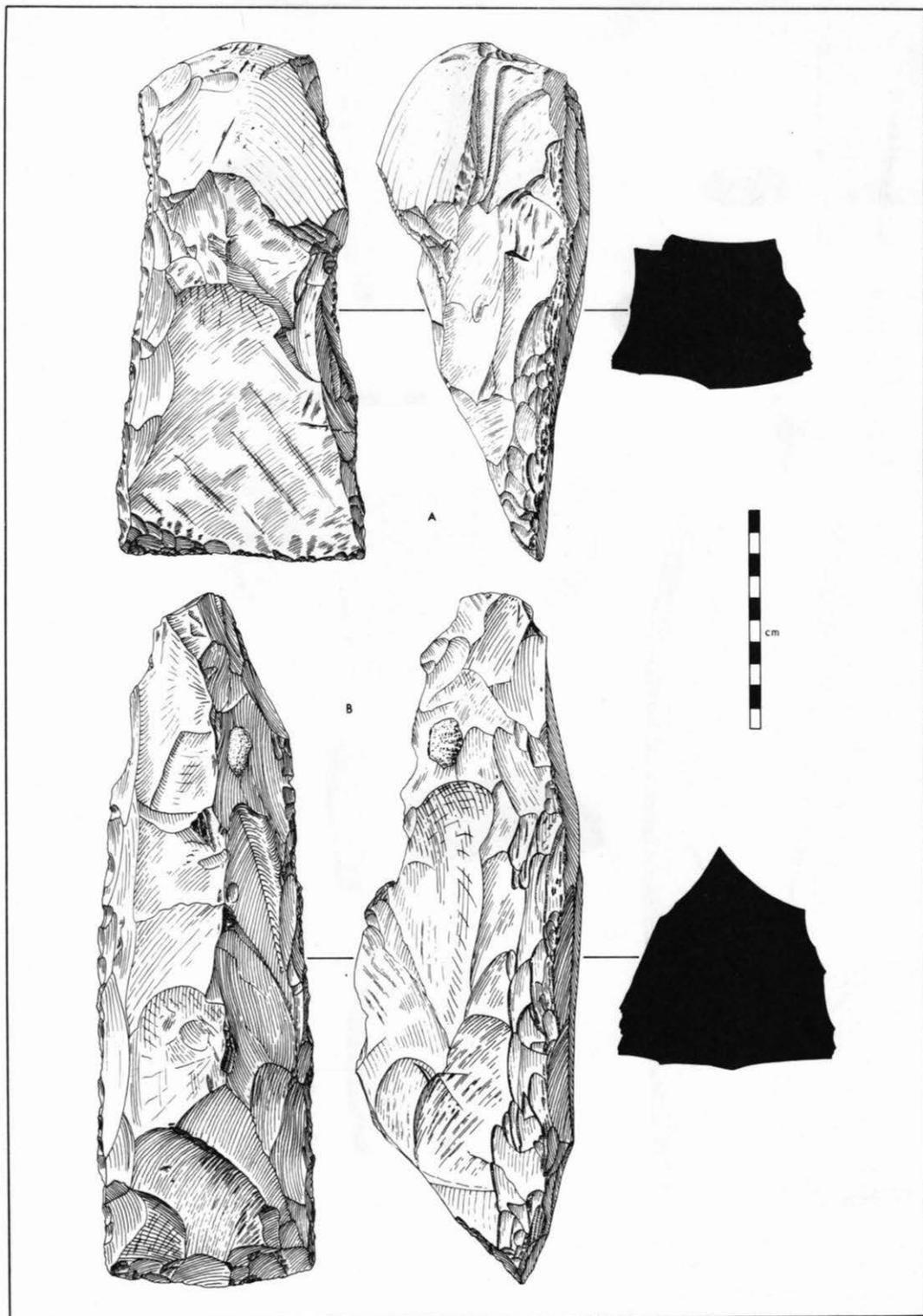
Other adze types of rounded cross-section may be tentatively placed in the Classic period. A narrow-bladed deep-sectioned form, much like the hog-backed 4A, is here termed 4Aii (Figs 35D, 44E). Other narrow-bladed round-sectioned, but not hog-backed, adzes may be called 6iii (Figs 17J, 23D, F, 31D; 6 is Duff's circular-sectioned type). Round-sectioned chisels in nephrite (Type 6i, Fig. 34H, J) and metasomatised argillite (Type 6ii, Fig. 44F), while perhaps late, are of uncertain age.

A very fine example of a side-hafted adze (Type 5) in nephrite was found in the Graham Valley (Fig. 34A). Its battered side grip and almost symmetrically bevelled blade indicate its use as an axe, and its broad, slightly rounded cross-section, not unlike a 2Aii type, suggests a date in the Classic period. Another nephrite adze (Fig. 34C) may also have been side hafted. A small metasomatised argillite example from Marahau (Fig. 41D) is of deep quadrangular cross-section and is probably of earlier date.

Thus it is suggested that adze forms 2Aii, 2B, 4Aii, and probably 6, especially those with the chin ridge feature, and tools of nephrite, were typical of the Classic period in the Motueka district. Adzes of these Classic types occur together on a number of sites: 2B, 4Aii, and 6ii



44 Classic adze types—A, Riwaka, S14/123; B, Pah Point, S14/12; C, Riwaka area; D, Marahau, S9/48 or 60; E, F, G, Dehra Doon, S14/102 (scale 10 cm)



45 Pokororo Hall, S13/13—adze cache (scale 10 cm)

at Dehra Doon (Fig. 44G, E, F); 2B and 6iii at Pokororo East (Fig. 23B, G, H, D, F) and Pukengerengere (Fig. 31A, B, D); and 2Aii and 2B at Pah Point.<sup>26</sup> Some sites have produced a variety of 2B forms (e.g. Te Mamaku, Fig. 12; and Little Sydney Stream, Fig. 24). It is not possible yet to suggest changes in adze style which may have taken place during the Classic period, except to note that a continuation of the typological sequence from the Archaic period would demand that the roundest, broadest 2B forms are the latest.

Small adzes and chisels were often made from conveniently shaped (waste stone) debris, so the forms of such tools cannot be assigned firm chronological significance. It is possible to suggest that in the Archaic period small adzes were of angular squarish cross-section (e.g. from Kaingaroa<sup>27</sup>), whereas in the Classic period they were broader and of thinner cross-section (e.g. from Pah Point<sup>28</sup>). However, thicker sections exist on late sites (Pah Point<sup>29</sup>), and thinner, rounded ones on earlier sites (Kaingaroa<sup>30</sup>). Blades of differing width probably had separate functions.

Similarly, it is not always possible to classify flaked roughout adzes within a chronological sequence, since their intended final form cannot usually be accurately inferred. Some roughouts, from their rectangularity of cross-section (e.g. Figs 30C, 45A) and their narrowness of blade in relation to tool length (e.g. Figs 30A, 45B), may be considered early, designed as blanks for 1A or 2Ai adzes. Others do not appear destined for known Archaic forms and thus could be later (e.g. Fig. 23C). Nevertheless it has been concluded that many primary flaked roughouts are undatable.

A total of 348 more or less complete adzes, all well provenanced within the Motueka district, were examined and drawn in the course of the research. On the basis of this analysis of adze forms they are classified in Table III (page 68). The almost threefold numerical predominance of so-called Classic forms over the Archaic requires explanation, especially since the Archaic period in the district as provisionally defined was probably twice as long as the Classic. It is tentatively inferred that there was a larger population in the later period than in the earlier.

The implications of these provisional conclusions about artefact chronology will be considered in Chapter four, alongside the evidence of archaeological site types, in discussions of the settlement patterns of the various subregions of the Motueka district.

(For full references see pages 111 to 113)

### The materials used

- 1 Ward 1973: 88.
- 2 Millar 1971: 163.
- 3 Ward 1973: 100.
- 4 Millar 1971: 163; Walls forthcoming.
- 5 Challis 1976a: Fig. 3A, C, D.
- 6 Challis 1976c: Fig. 10K.
- 7 Wilkes 1961: 29.
- 8 Millar 1971: 166.
- 9 For example 'The Neck' site: Stewart Island Museum material.
- 10 Prickett K.E. 1975: 41.
- 11 Best 1912: 59-60.
- 12 Williams 1971: 370.
- 13 Ritchie 1976: 245.
- 14 Best 1912: 57-58.
- 15 Wilkes and Scarlett 1967; 1380  $\pm$  60 a.d. from a shell sample.
- 16 Millar 1971: 166, 168, 170; 1361  $\pm$  70 a.d. from a charcoal sample.
- 17 Challis 1976a: Fig. 2N, P.
- 18 Green 1974: 27.
- 19 Challis 1976a: 136.
- 20 Challis 1976a: Fig. 2M.
- 21 Challis 1976a: Fig. 2H, J, K.
- 22 B.S. Bird: private communication.
- 23 Challis 1976a: Fig. 2L.
- 24 Keyes 1972.
- 25 d'Urville 1830: Plate 35; reproduced in Peart 1837: opposite page 64.
- 26 Peart 1937: 66; Brereton 1947: 14.
- 27 Washbourn 1970: 27.
- 28 Goulding 1971.
- 29 Buck 1950: 168.
- 30 Challis 1976a: Fig. 2A, B, C, D, E.

### Ornaments and weapons

- 1 d'Urville 1830: Plate 37; Peart 1937: Plate opposite page 81.
- 2 Duff 1956: 83-138.
- 3 Challis 1976a: 134.
- 4 Duff 1956: 130-131; Skinner 1974: 90.
- 5 Skinner 1974: 71, Fig. 4.98; Auckland Institute and Museum Accession No. 32/29.

- 6 Duff 1956: 127.
- 7 Skinner 1974: 113.
- 8 Walls 1976: 97; Duff 1956: Plate 14B.
- 9 Green 1974: 23.
- 10 Skinner 1974: 76-82.
- 11 Duff 1956: 119-122, Plates 19-20.
- 12 Groube 1967: 453, 454.
- 13 Skinner 1966: Figs 14-17.
- 14 Skinner 1966: 12.
- 15 Skinner 1966: Fig. 6, and front cover.
- 16 Note by D.R. Simmons in Skinner 1966: 29.
- 17 Skinner 1966: Figs 14, 22, and 23.
- 18 Simmons 1973b: 47.
- 19 Skinner 1974: 58, Figs 4.36 and 4.37.
- 20 Skinner 1974: Figs 4.58, 4.121-4.123.
- 21 Skinner 1974: Figs 4.55 and 4.63.
- 22 Groube 1967: 454; Skinner 1974: 47, 92.
- 23 D.G.L. Millar: private communication.
- 24 Walls 1976.
- 25 Skinner 1974: Figs 11.56-11.58, 11.73, 11.87, 11.89, 11.90.
- 26 D.R. Simmons: private communication.
- 27 Taylor 1973.
- 28 D.G.L. Millar: private communication.
- 29 R.C. Green: private communication.
- 30 Allan 1965: 8.
- 31 Peart 1937: 51-52.

### Food-producing equipment

- 1 Challis 1976a: Fig. 2A.
- 2 D.G.L. Millar: private communication.
- 3 Duff 1956: 225-226.
- 4 Moore 1.12.1888.
- 5 Buck 1950: 93.
- 6 R.C. Green suggestion; Koch 1971: abb. 30.
- 7 Challis 1976a: Fig. 2B-E.
- 8 Millar 1971: Fig. 2, 629 and 567; private communication.
- 9 Green 1974: 23, 34.
- 10 Moore 12.5.1888.
- 11 Challis 1976a: Fig. 2G-L.
- 12 Challis 1976a: Fig. 2.
- 13 Challis 1976a: Fig. 2R.

- 14 Challis 1976a: Fig. 3E-N.  
 15 Mrs A. Sullivan: private communication; *Otorohanga Minute Book 4* (Maori Land Court) 1888: 193.  
 16 Best 1912: 26-28.  
 17 Challis 1976c: Fig. 8A, B, page 465.

### Adzes

- 1 Duff 1956: Chapter 5.  
 2 D.G.L. Millar: information generously supplied before publication.  
 3 Millar 1971.  
 4 Walls forthcoming.  
 5 Simmons 1973b: Figs 2-28, page 55.  
 6 D.G.L. Millar: private communication; Wilkes and Scarlett 1967; Walls forthcoming.  
 7 Simmons 1973b: Fig. 5.  
 8 Challis 1976a: Fig. 4J.  
 9 Walls forthcoming.  
 10 Millar 1971: Fig. 1, 727; private communication.  
 11 Challis 1976c: 467.  
 12 D.G.L. Millar: private communication; the only complete finished adze from layer 6.  
 13 Scarlett 1967.  
 14 Challis 1976a: Fig. 4D.  
 15 Millar 1971: Fig. 1, 867 and 623.  
 16 Walls forthcoming.  
 17 D.G.L. Millar: private communication.  
 18 R. Duff in Scarlett 1967: 234.  
 19 The Neck, Stewart Island: Stewart Island Museum display; N. Freeman: private communication.  
 20 D.R. Simmons: private communication.  
 21 Walls forthcoming.  
 22 Challis 1976c: Fig. 7C.  
 23 D.G.L. Millar: private communication.  
 24 Walls forthcoming.  
 25 Buist 1964: Fig. 8.  
 26 Challis 1976c: Figs 7A-F; 8A, B.  
 27 Challis 1976a: Fig. 4B, F.  
 28 Challis 1976c: Figs 7J-M; 8E, F.  
 29 Challis 1976c: Fig. 7G, H.  
 30 Challis 1976a: Figs 2P, 4G, K.

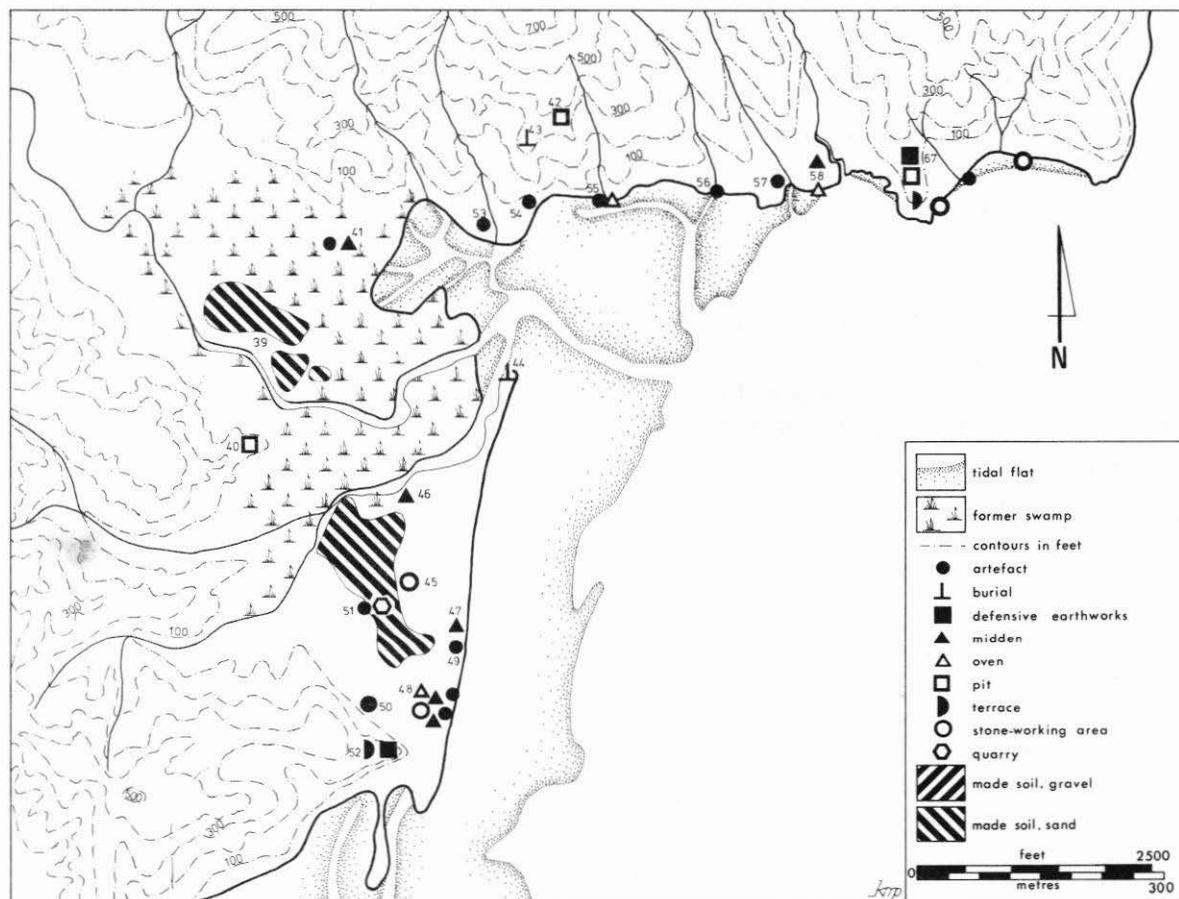
## Chapter four

# Subregional characteristics

### Sandy Bay

The map of archaeological sites in the Sandy Bay area (Fig. 46) shows the apparent distribution of prehistoric occupation. The main focus of lowland settlement was the Marahau Beach frontage (sites S9/45 to 49, middens, ovens, and stone-working areas). On the flats to the west soils were modified by the processes of cultiva-

tion (S9/39 and 51). Storage pits lay on surrounding ridges (S9/40). The major pit series in the Holyoake Valley (Fig. 19) suggests that favourable inland areas were also cultivated (see page 38). The three long steep-sided granite promontories which extend close to tidewater are the sites of defended pa (Tinline, S9/67; pa of Te Makawawa, S9/52, Fig. 20; Otuwhero Inlet, S9/59, Fig. 4). Storage pits can be seen in the



46 Sandy Bay subregion (site numbers S9)

now scrub-covered interior of Tinline Point, which is defended on the seaward side by terraces with a vertical drop of up to 3 metres, and on the landward side by terraces and a discontinuous outer ditch 1.2 metres wide and up to 1.5 metres deep. Evidence of artefact finds, middens, and ovens demonstrates that the northern coast of Sandy Bay was frequented in prehistory (sites S9/53 to 58). Burials were in isolated situations (S9/43 and 44) which, together with part of Motuarero-iti (Fisherman Island), were scheduled in the nineteenth century as Maori reserves.

Besides its outstanding scenic attractions this area was well endowed with resources for prehistoric settlement. The Marahau Valley 'was densely clothed with . . . forest of great beauty where native birds in their hundreds enjoyed undisturbed existence. . . . The timber was mainly rimu with lesser quantities of kahikatea, matai, and totara.'<sup>1</sup> In the early 1860s the first European settlers grew 'good kumara crops for domestic use . . . on the lower land in the valley'.<sup>2</sup> Maori made soils occupy much of the flats raised about two metres above swamp and river level. Within these areas irregular holes in the sand ten to twenty metres across and up to two metres deep were once present but have now been filled in (S9/51). Perhaps these were quarry pits for mulch material. Agricultural adzes have been found in the vicinity (Fig. 39, see page 66). Shellfish are prolific on the sand flats of the bay. Dense midden deposits include pipi, cockle, mud snail, cat's eye, and speckled whelk species (sites S9/41, 46, and 58, see Fig. 13). Fishing is shown by the bones of snapper and red rock cod (see page 26).

Most artefacts from the subregion are probably from the Classic Maori period when the pa sites may have been in use. Sites on the northern shores have produced two small rounded 2B adze fragments, one with a chin ridge (S9/53); a nephrite kuru pendant (S9/55, Fig. 37B) found with a 2B adze; and a patu fragment (S9/57, Fig. 38A). Pendants of bowenite (Fig. 37G) and nephrite have been found at Motuarero-iti (S9/69, Fig. 3). A small

2B adze was picked up from the ploughed surface of the midden near the Marahau Estuary (S9/41). Artefact collections from the areas of sites S9/45 and 48 are almost entirely composed of metasomatised argillite 2B adzes (see Fig. 33K and Fig. 44D). It is tempting to regard the two unusual greywacke examples, a 2B with sharp lateral edges and a chin ridge, and a 4Aii (Fig. 35A, D), as having been brought in from the North Island at some time. However, not all adzes are of this later period. A fine early 1A type from the Marahau Beach front (S9/49, Fig. 40B), a possibly not so early 1A from the made soil area (S9/51, Fig. 41C), a small side-hafted adze (probably S9/45, Fig. 41D), and examples with slight spade shoulders (Type 1B, S9/45 and 50) indicate repeated occupation of the Marahau locality from the early Archaic period. Maori settlement continued there after the Tasman Bay Raids of the late 1820's, when a new kainga was built<sup>3</sup> to which may perhaps be related the shell midden heaps, hearths, and hollows visible before the coastal strip was subdivided and built on.

The population of the Marahau coast was not self-sufficient. Metasomatised argillite, obsidian (a flake from S9/54), greywacke, nephrite, and bowenite do not occur naturally in the vicinity. The water-rolled cortices of a number of metasomatised argillite pieces (e.g. Fig. 39B) suggest the use of boulders which may have come from the Motueka River. The debris flakes of working areas (sites S9/45, 48, and 69) show that raw material was brought into the bay and made into artefacts there. There would have been seasonal movements of people to inland food resources, such as the cultivations likely to have been present in the Holyoake Valley, and regular fishing expeditions. Sites at a little distance from the open coast often lie beside water channels (S9/39, 41, and 46). It may be surmised that the preferred mode of transport was by canoe, an understandable choice in view of the difficulties experienced by early European settlers crossing Pukekoikoi, the hills between Sandy Bay and Riwaka.<sup>4</sup>

## Kaiteriteri

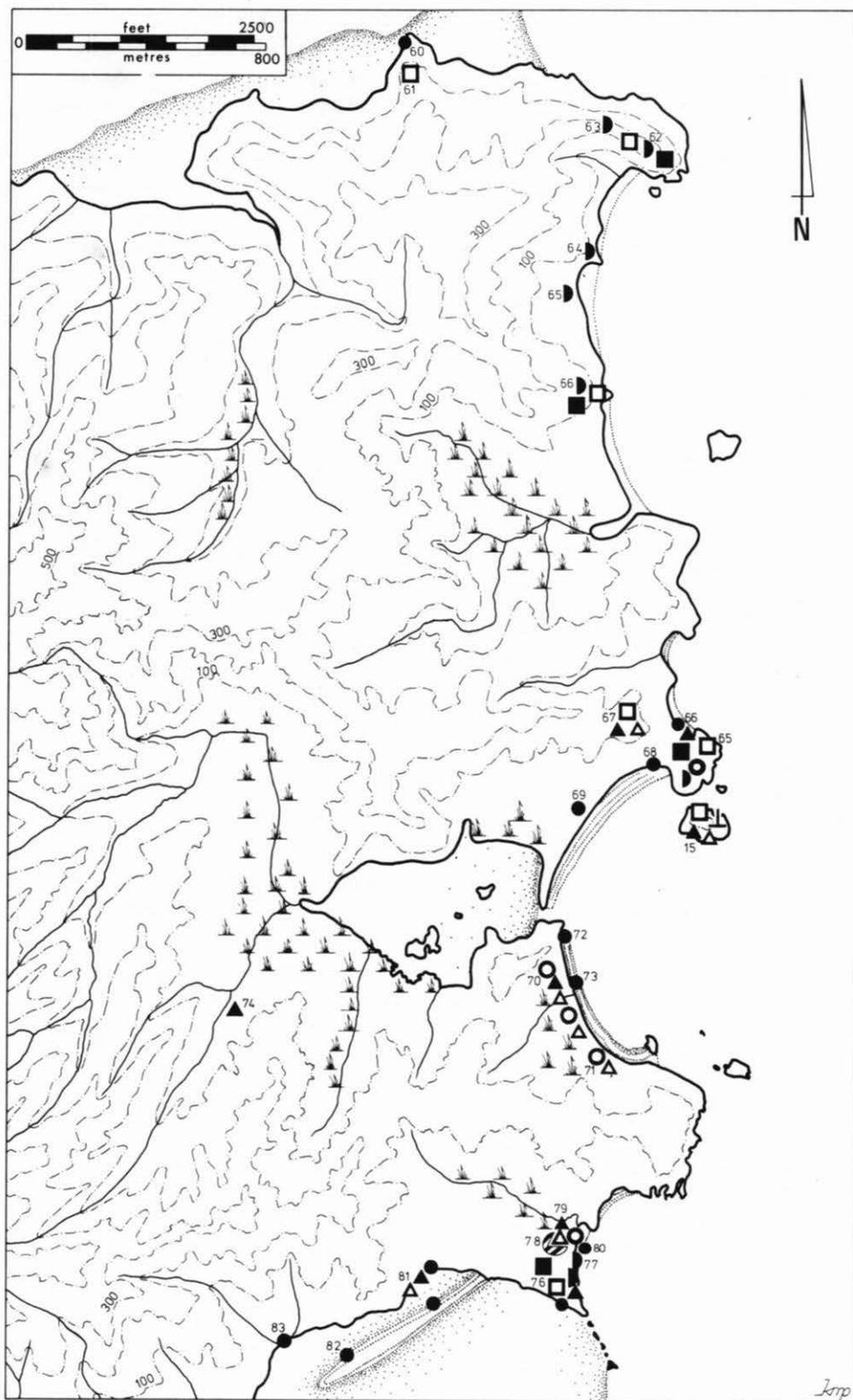
The Kaiteriteri subregion (shown in Fig. 47) is a hilly area fringed by rocky promontories, golden sandy beaches, and small swampy flats (see cover, a view south from Sandy Gibson Rock near S14/82). The distribution of archaeological sites is overwhelmingly coastal; although some may remain undiscovered further inland because of the difficulty of locating sites in heavily scrub-covered and forested country. The settlement pattern is dominated by four defended pa sites on precipitous granite promontories spaced along the coast: Toko Ngawa (S9/62, Fig. 5), Ngaio (S9/66, Fig. 6), Kaka Pah (S14/65, Fig. 7), and Anawhakau (S14/76, Fig. 8). These sites were probably all constructed during the later centuries of prehistory but may not have been contemporaneous (see page 23). Although they vary greatly in internal area (see Table I, page 12) each encloses flat and terraced space for occupation, and pits for food storage. Also, each appears to form the focal point for settlement based on the resources of the adjacent bays, swamps, valleys, and slopes. Thus the inhabitants of the apparently undefended lowland settlements at Tapu Bay and Stephens Bay (S14/81 and 79) could have lived in Anawhakau pa from time to time (assuming that the sites are contemporary). Kaka Pah may have functioned similarly for the population of Kaiteriteri (sites S14/67 to 74). Although no apparently undefended prehistoric sites have been located between Kaiteriteri and Toko Ngawa (apart from a cliff-side terrace group, S9/64, Fig. 20), it may be inferred from the pattern of adjoining settlement units that they existed in both Ngaio Bay and Towers Bay.

The resources of both the land and the sea contributed to the prehistoric food supply. Judging from the food storage pits present on undefended sites (S9/61 and S14/67) and in pa, especially the large series in Kaka Pah (see page 35), gardening was practised in many sheltered locations. One such cultivation area, on the north-facing slopes at Stephens Bay, had sand added to the soil (S14/78, see page 31). Nowadays kumara is successfully grown nearby and individual tubers weighing a kilogram or more are produced. In the shell middens of the area pipi is very common, often accompanied by

cockle, mud snail, and speckled whelk (sites S14/15, 70, 74, 76, and 79, see Fig. 13). The small amount of mussel shell present contrasts with the large colonies which exist on the rocky shorelines and suggests selection of soft-shore species in the seasons when these shell dumps were formed. Fish were also taken (bones found in middens S14/67 and 79).

Although a number of artefacts have been found in the area, few are available for study. Unfortunately a cache of adzes from Anawhakau pa cannot now be traced. Many adzes were taken from a settlement area at Otuwhero Wharf, now largely eroded away (S9/60). Four nephrite finds have been reported: part of an oval-sectioned pendant at Kaiteriteri (S14/69), a hei-tiki at Little Kaiteriteri (S14/73), an adze at Tapu Bay sandspit (S14/81), and a mere pounamu further south (S14/83). Quartz flakes are common in the middens (S14/70 and 79), and a source site for the material has been located at Toko Ngawa (S9/63, Fig. 5). Water-rolled metasomatised argillite boulders were brought into the area and worked on the settlement sites (e.g. S14/70, Fig. 26D: a scraper). As the local rock, granite, was unsuitable for ovenstones, water-rolled stones from the Riwaka and Motueka Rivers were probably used.

The only artefacts found which suggest Archaic occupation are adzes of types 1A and 2Ai from Kaiteriteri now in the Nelson Provincial Museum.<sup>1</sup> A fine large 1A adze from Little Kaiteriteri (Fig. 41A) is not a typologically early example: its rounded rectangular cross-section, broad blade, and narrow, slightly gripped butt suggest a later date. Other adzes from the subregion are later 2B types (S14/72, 81, and 82). Most of the nephrite artefacts probably relate to the Classic period (see pages 61 to 63). Thus, although the extent of early occupation has yet to be determined, the importance of the area in later prehistory is indicated by the impressive pa sites. Coastal settlement continued throughout the nineteenth century. A Maori village was seen by Captain Moore on the southern shore of Kaiteriteri Inlet.<sup>2</sup> Flat-floored hut terraces at Stephens Bay and Towers Bay (S14/77, Fig. 8, and S9/65, see page 39) could have supported European seaside dwellings.



47 Kaiteriteri subregion (key to symbols on Fig. 46; site numbers S<sub>9</sub> in the north, S<sub>14</sub> in the south)

The Riwaka subregion (Fig. 48) is an area of alluvial flats, much of it formerly swampy, bounded to the north and west by granite hills and to the south by the Motueka River. The comparatively high density of archaeological sites (Figs 3 and 48) shows the extent to which the resources of the sea, the intertidal zone, rivers, swamps, lowlands, and hills were used in prehistory. Captain Moore was probably thinking of the Riwaka Maoris when he wrote: 'Tis evident the natives who are settled on the western shore of Tasman Bay have a great preference for it. Probably the sheltered shores not only cause the land to be fertile, but the fishing is plentiful.'<sup>1</sup>

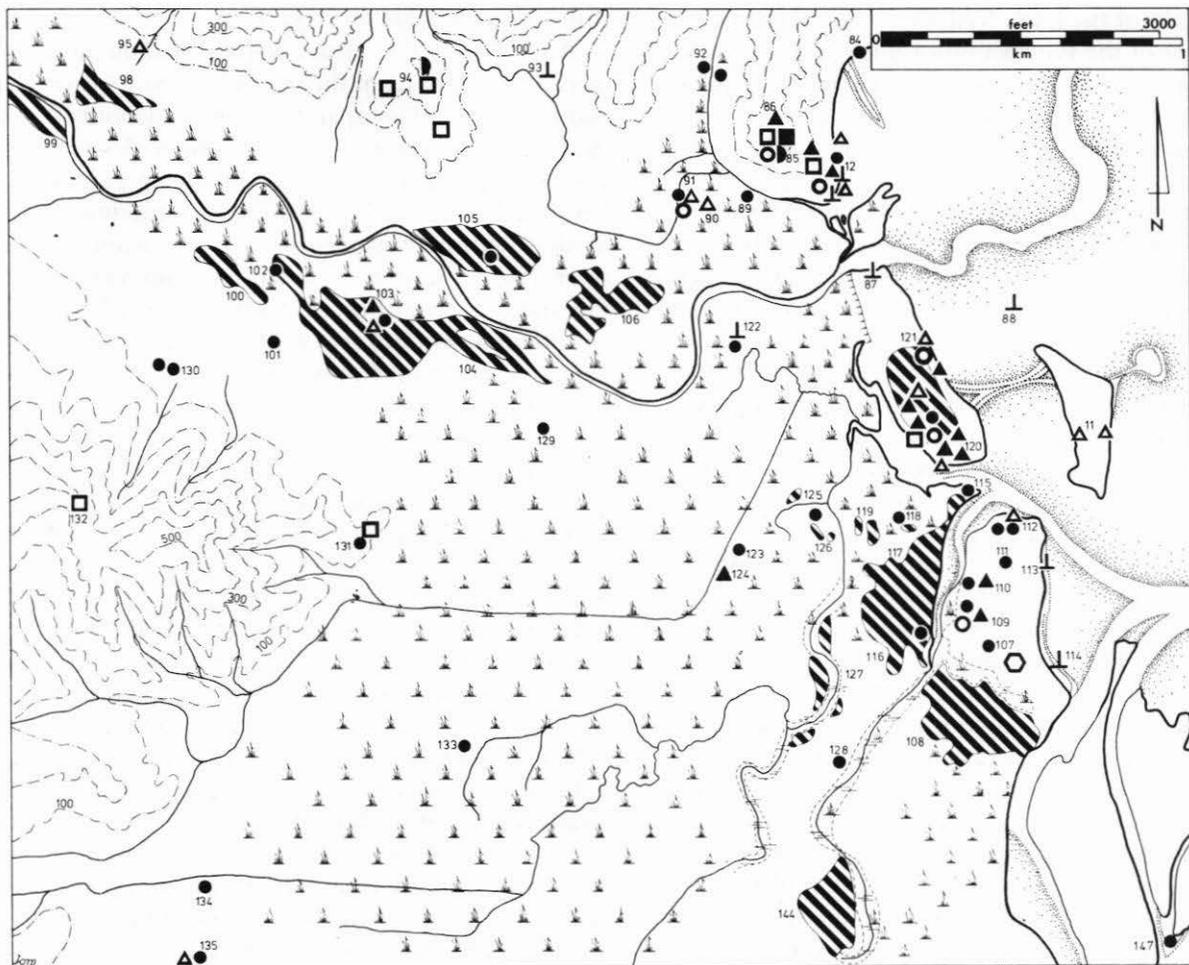
The densest archaeological evidence is to be found on the coastal strip, an area of sandy beach deposits raised above flood levels. River mouths and estuarine conditions divide this strip into four parts: Pah Point, Goodalls Island, Outer Island, and the area south of Riwaka Wharf. Early survey maps<sup>2</sup> showing Maori villages on this coastal strip may be partly correlated with the areas of archaeological concentrations.

At Pah Point (S14/12), a site now partly submerged beneath a carriageway, there were large deposits of ovenstones, middens of pipi, cockle, mud snail, and oyster species, stone-working areas, and evidence of burials.<sup>3</sup> Artefacts in a variety of materials have been recovered (e.g. Figs 22; 25C, D, G, H; 33A-D, F, H, J, P; 34B; and 35E). The adzes are Classic types, various 2B forms predominating and the chin ridge feature being present.<sup>4</sup> A rather thick 2Aii type with slight grip and a smaller rounded 2B adze with angled tang resemble Archaic forms,<sup>5</sup> so it can be suggested on typological grounds that the occupation of Pah Point may have begun early in the Classic period. However, European contact is demonstrated by the bones of cattle and sheep, fragments of clay pipes, and a glazed earthenware bottle stopper marked 'David Storer and Sons Glasgow 1747' found at the site. The village at Pah Point, 'cosily placed in the small piece of flat land just at the end of Old Pah Hill',<sup>6</sup> is the northernmost of those mapped in 1841.<sup>7</sup> It was nearly deserted at that time, and was abandoned shortly afterwards.<sup>8</sup>

South of the Riwaka Wharf are middens

(S14/109 and 110), ovens (S14/112), stone-working areas (S14/109), and extensive made soils (S14/108). Large pits ten metres across and up to five metres deep were once present in the sand and may have been quarry pits for soil mulch material (S14/107). Many artefacts were found when ploughing the land, which is now partly subdivided. A collection of artefacts mainly from this area includes both Archaic 1A, 1B, 2Ai, and 4Ai, and Classic 2B and 2Aii (e.g. Fig. 35C) adze types, the latter group the most numerous. Two fine early Archaic adzes are reliably provenanced to the wharf area (Fig. 43C, D), and a nephrite chisel has been found to the south (S14/109, Fig. 34H). The locality was therefore occupied recurrently in prehistory. The Ngati Rarua tribe, who came and built their village here in the 1830s after the Bay Raids, named the vicinity Hui Te Rangiora.<sup>9</sup> This is likely to have been the site of the elaborate meeting house seen in 1841 by Moore (see page 39). The account of the Captain's visit describes how he walked to the Maori village after leaving his boat on the bank of the Motueka River;<sup>10</sup> he did not need to cross the Riwaka River, so apparently the site lay to the south of it.

One of the villages marked on the early survey maps was on Outer Island which lies between the mouths of the Riwaka and Motueka Rivers. The southern end, where the site was seen, has been eroded away, and little settlement evidence exists on the remainder; only small oven deposits (S14/11) have been seen during many years of surface searching. However, the southern end of Goodalls Island to the west, an area which in the 1840s was detached from the mainland, has provided much archaeological evidence (S14/120 and 121). At least six separate midden deposits, of pipi, mud snail, and large ostrich foot shells (Fig. 13), can still be observed. Ovenstone scatters, metasomatised argillite working areas, and horticultural made soils are present. A large pit 6 by 3 metres and 1.5 metres deep remains in the western bluff. Others were visible in the interior before ploughing. It is said that 'cartloads of artefacts' were taken from the locality in the early years of intensive European cultivation. However many there were, few are now available for study. A nephrite chisel (Fig. 34J) and 2B adzes in metasomatised argillite are Classic types. Only a



48 Riwaka subregion (key to symbols on Fig. 46; site numbers S14)

serpentine amulet (Fig. 37F, see page 61), a possible Archaic artefact, attests to a long period of settlement in this area.

In short, it seems likely that at most if not at all times in prehistory the main lowland focus of Riwaka settlement was located on this easily accessible coastal strip, centrally situated between the resources of land and sea. The impression of early Archaic occupation at Riwaka Wharf, possibly more than one period at Goodalls Island, Classic occupation at Pah Point, and further late settlement at Hui Te Rangiora may be only a vague reflection of the type of succession experienced in this important area. During the 1840s most of the Maori population moved to Motueka; but some also stayed in Riwaka for a while in a small village known as the New Pa

(possibly that named Whakapaetuarā) marked on early surveys near the mouth of the Motueka River.<sup>11</sup> J.W. Barnicoat visited this new settlement 'into which the natives have recently moved' on 18 August 1842.<sup>12</sup>

Smaller settlements were also situated on land raised above swamp and flood levels. One such area, possibly formerly an island in the Wai-atua estuary, has given evidence of metasomatised argillite stone-working and oven deposits (S14/91). Further ovens (S14/90) and wooden artefacts (pounder and canoe paddle S14/89, digging sticks S14/92, Fig. 36B) have been found nearby. At Green Tree Road Wharf a nephrite adze (Fig. 34F), a mere pounamu, and grinding stones of sandstone and granite have been obtained (S14/115). Prehistoric sites lay on the

banks of the Little Sydney Stream, both north-west of the Riwaka Post Office (S14/123 and 124) where adzes (e.g. Fig. 44A) and a midden of cockle and pipi shells have been reported, and further west in Brooklyn (S14/135) where ovens were seen and adzes recovered (Fig. 24). A scatter of artefact finds north of the Motueka River (S14/136 to 141, Figs 49 and 34D) suggests the presence of settlements the structural remains of which lie beneath a considerable depth of silt which has accumulated in the last 150 years. The finding of an adze (S14/133, Fig. 43F) within the great Riwaka Swamp, Tureauraki,<sup>13</sup> suggests that the resources of this zone were exploited, but adze finds are more common beyond the margins of the former swamp (e.g. S14/128 to 130, 134, and 145, see also Fig. 3).

Maori made soils occupy a large proportion of the naturally well-drained terrace land in Riwaka, on the north bank (S13/56; S14/98, 105, and 106; see also Fig. 3) and the south bank (S14/99, 100, 102 to 104) of the Riwaka River and elsewhere close to watercourses (S14/108, 117 to 119, 125 to 127, and 144). There is often evidence of occupation nearby. Many metasomatised argillite artefacts have been found on the made soils (e.g. S14/102, Fig. 44E, F, G; S14/103, 105, and 126). Areas of middens (S14/103), ovenstones (S13/57 and S14/103, see also Fig. 3), and superficial depressions (S14/126) have also been reported, suggesting that people lived in the cultivated zone, as might be expected during the planting and harvesting seasons.

Of the surrounding granite hills only Puketawai (S14/86, Fig. 9), the easternmost, closest to the sea, was utilised as a defended pa. According to tradition the site was a fortified village.<sup>14</sup> Within it scattered middens of fish bones and pipi shells, ovenstones, a storage pit, and flakes of metasomatised argillite and quartz have been seen. Elsewhere the hills are occupied by pit sites, presumably for storage of the produce from the gardening areas of the valley and possibly also the slopes. A pit once lay on the site of the Wakefield Memorial below Puketawai (S14/85) where a midden (see Fig. 13) has been exposed. Thirteen hundred metres to the west a large series of pits in groups of about six, now filled in, was scattered across the hill-sides and hill tops (S14/94). On the southern side of the valley two other ridge-top pit groups are

still visible (S14/131 and 132, Fig. 20).

Archaeological evidence is still common up to three kilometres from the sea. Adzes (S13/55, 58, and 60; S14/97, Fig. 3) and ovenstone deposits (S14/95) have been found on the slopes. A small area of made soil occupies a south-facing granite fan (S14/96, Fig. 3). The soil has been modified by the addition of water-rolled gravels from the river. Further upstream evidence becomes rare. Pits and terraces at Bottom Gully (S13/61, Fig. 20; others at S13/62) are unusual and might be of defensive function. Adzes found on the slopes of the Takaka Hill (S13/59 and S8/4, Fig. 3) and at a height of 900 feet above the Little Sydney Valley (S13/66, Fig. 3) show that the mountains were crossed by the prehistoric Maori. Shell middens seen by high-country shepherds in the interwar years when the land was clearer than at present (S13/45, general area marked on Fig. 3) indicate that seafood was carried far inland. The 'pigeon drinking hollow' on Mount Buggery (S13/49, see page 65) may possibly be associated with bird-hunting activities. Adzes found near Wratt's Whare (S13/44, Fig. 43A, B) may indicate a burial in this isolated situation in the South Branch of the Riwaka Valley.

Burials generally occurred on sandy coastal areas some distance from settlements. Reports of skeletons seen at the northern ends of Outer Island (S14/88) and Goodalls Island (S14/87), in a gravel bank further west (S14/122), and south of the Riwaka Wharf (S14/113 and 114) give examples of this trend. However, evidence from Pah Point (see page 40) shows that sometimes burials were located close to settlements.

Adzes representing the complete chronological range of types suggested on pages 68 to 74 have been found in the Riwaka subregion. Fine early Archaic examples have come from the Riwaka Wharf (Fig. 43C, D), the Tureauraki swamp (Fig. 43F), and a hillside above Dehra Doon (S14/131, a magnificent 1A adze, not proved to be in association with the pit group shown in Fig. 20). Adzes thought to be later in the Archaic sequence have been found at Wratt's Whare (Fig. 43A, B), by the Wai-atua (Fig. 26F), near the Riwaka Post Office (S14/123, 2Ai type), and on the north bank of the Motueka River (S14/141, 1A type, for location see Fig. 40). Classic types are much more numerous, the 2B being especially common.<sup>15</sup> Good examples

have been found at Dehra Doon (Fig. 44E, F, G) and Brooklyn (Fig. 24).

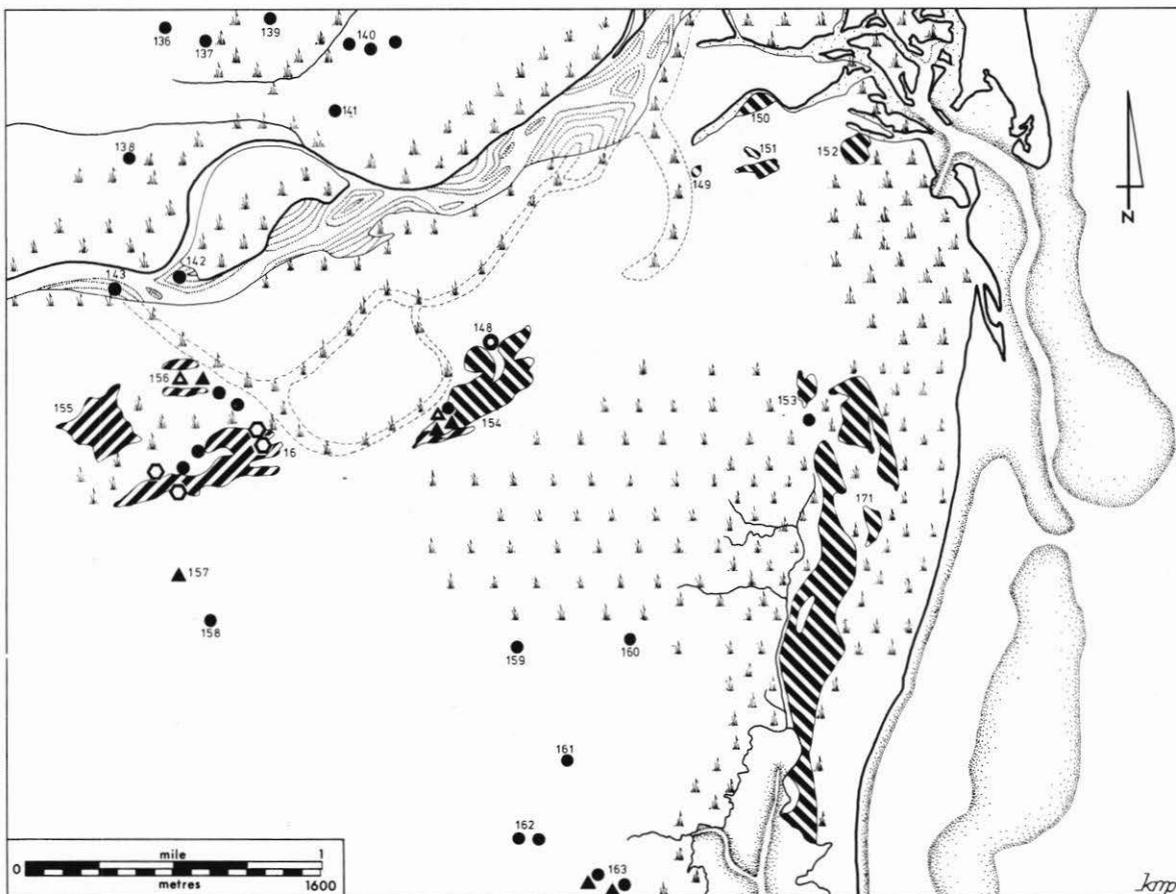
One of the major battles of the Tasman Bay Raids of the late 1820s took place at Te Mamaku pa on the Moutere Bluffs. Most of the Ngati Apa and Ngati Tumatakokiri were found at the pa where they may have congregated for their usual seasonal fishing activities.<sup>16</sup> The people may have moved seasonally (or more regularly, and also in other directions) to the fishing grounds of Astrolabe, to the gardens and storage sites of the Riwaka Valley, and to the upper valley and the hills where birds were hunted. The presence of water-rolled metasomatised argillite in stone-working areas at Riwaka (e.g. S14/12 and 91) suggests that expeditions were mounted to the Motueka Valley or to the eastern shores of Tasman Bay to gather this material. Perhaps almost all of the Motueka district surveyed in this study was incorporated in the

wide-ranging economic activities of the prehistoric Maori people whose major settlements lay on the Riwaka coastal strip.

## Motueka

This subregion, south of the river and centred on the town of Motueka, is a low-lying alluvial area (Fig. 49) composed mainly of riverine sands and gravels, with swamp and estuarine deposits behind the raised beach ridges of the coastal strip. Most archaeological sites are located on terraces adjacent to old river or creek channels (S14/16, 148 to 158). To the south, middens of mussel and oyster shell (S14/163) and a scatter of metasomatised argillite adze finds (S14/158 to 163) have been recorded.

A major feature of the archaeological pattern is the extent of Maori made soils, of gravel



49 Motueka subregion (key to symbols on Fig. 46; site numbers S14)

(S14/16, 154, and 155) and sand types (S14/149 to 154, 171). Settlement evidence lies adjacent to these soils, both to the north of Whakarewa Street (S14/156) where shell middens and charcoal deposits have been seen, and at Awamate (S14/154) where there are shell middens of the European contact period (see page 26). Research on the Whakarewa Street soils (S14/16) has shown that sand and coarse gravel taken from quarry pits were added to the soil (Figs 15 and 16; see pages 29 to 34). Adzes found in the area include both earlier 2Ai and 3G (Fig. 17A, D) and later 2B and 6iii types (Fig. 17C, H, J; see pages 71 to 74). These, together with a twelfth century radiocarbon date (see page 33) and the large size of the soil area, suggest that Maori cultivation continued for a considerable length of time.

Most artefacts from the Motueka River and the Borough are forms thought to be late in prehistory. Adzes of the 2B type are common at Whakarewa Street, having been found at Awamate (Fig. 26E) and elsewhere (S14/142 and 163; other late types at S14/155, 159, and 162). The whalebone patu (S14/143, Fig. 38D) and nephrite hei-matau (S14/147, Fig. 37H, for location see Fig. 48) from the Motueka River are Classic types. Nephrite pendants from Awamate and Whakarewa Street could have been made in the European period (Fig. 37A, C, see page 63). Thus only a few of the tools from Whakarewa Street (Fig. 17A, D), a breast pendant from Motueka (see page 61), and a fine 1A adze from Thorpe Street (Fig. 41E, not the earliest of Archaic adzes because of its relatively broad blade) suggest settlement in earlier times.

Some of the Maori settlement evidence in Motueka may be assigned on traditional grounds to the 1840s. After the Tasman Bay Raids a dispute developed between Te Poa Karoro and Te Tana Pukekowhatu, both of the Ngati Rarua tribe, over the possession of the Maatu (the land south of the Motueka River). Te Tana Pukekowhatu placed a tapu on the area which prevented settlement.<sup>1</sup> The situation was not relaxed until about 1840 when the Maori people began to move south from Riwaka to Motueka where 'they erected their raupo thatched houses near the spots they had chosen for their cultivations'.<sup>2</sup> European crops were grown. The site of the Maori village of these early European

days was in Pah Street, west of Grey Street.<sup>3</sup> The midden evidence at Awamate (S14/154) opposite the Maori church could be considered as part of this settlement because glass and earthenware fragments, clay pipes, and sheep and ox bones have been found there. Dark soil areas north of Staples Street (S14/149 to 152) in an area sometimes called Te Kumara, near Moon Creek, may represent sites of this period. Te Poa Karoro took up residence there at a kainga called Pounamu<sup>4</sup> (possibly S14/151). Other small kainga were apparently scattered around Motueka. One may have been near Chamberlain Street (S14/157) where a shell midden, a well, and European artefacts have been found (see page 26). Handmade blue glass beads picked up nearby are important evidence of early historic period settlement. Each garden area was given a name. The raised area Puketutu<sup>5</sup> lies within the the extensive area of fixed dune sands, thought to be Maori garden soils (S14/171), in the south-east of the subregion. An island at the mouth of the Motueka River, Motukiore, was once cultivated.<sup>6</sup> Metasomatised argillite flakes have been seen in the vicinity (S14/146, Fig. 3).

Stones of metasomatised argillite were apparently selected from the alluvial deposits of the Motueka River and were worked into tools. Fine quality, dark mottled-grey raw material is present in the natural gravels (e.g. at S14/142). A large water-rolled boulder utilised as a core was found north of the main quarry pit at Whakarewa Street (S14/16); three adzes from the made soil area are roughouts, and several have water-rolled cortices (e.g. Fig. 17G). Adzes were made at a working area on the bank of a river channel near Poole Street (S14/148). Useless pieces were discarded (e.g. Fig. 26G).

Compared with the high prehistoric occupation density in Riwaka, relatively few archaeological sites and no major pre-nineteenth century settlements have been located in the Motueka subregion (compare Figs 48 and 49). It may be concluded that the dry living sites of Riwaka which afforded easy access to a wide range of resource zones, including the productive sand flats, were preferred by the pre-European Maori. In contrast the interior of the Maatu, besides being relatively inaccessible, may formerly have been poorly drained and prone to flooding. Most sites lie on the margins of the flats, adjacent to

channels which would have been navigable by canoe from the Motueka River, the Moutere Inlet, or the creeks of Te Kumara (see Fig. 49). It is suggested that in the pre-European period the garden areas of the Motueka subregion may have been used by the Riwaka population and visited seasonally as part of a wide ranging community-based economic system.

After 1842 the European presence forced an end to the traditional social organisation and seasonal movements. In their place native reserve sections were created and beyond their limits the pakeha would not tolerate the typical prehistoric activities of the Maori. Many of these reserve sections were in Motueka; as a result much of the land west of High Street, the sandspit of the south-east, and small pockets in the north-east remain in Maori ownership. Only from 1842 did Motueka become the focus of Maori settlement. Then the system was no longer traditional but was the European dispersed rural pattern of 'small kainga... scattered about Motueka confined to one or two families'.<sup>7</sup>

## Moutere

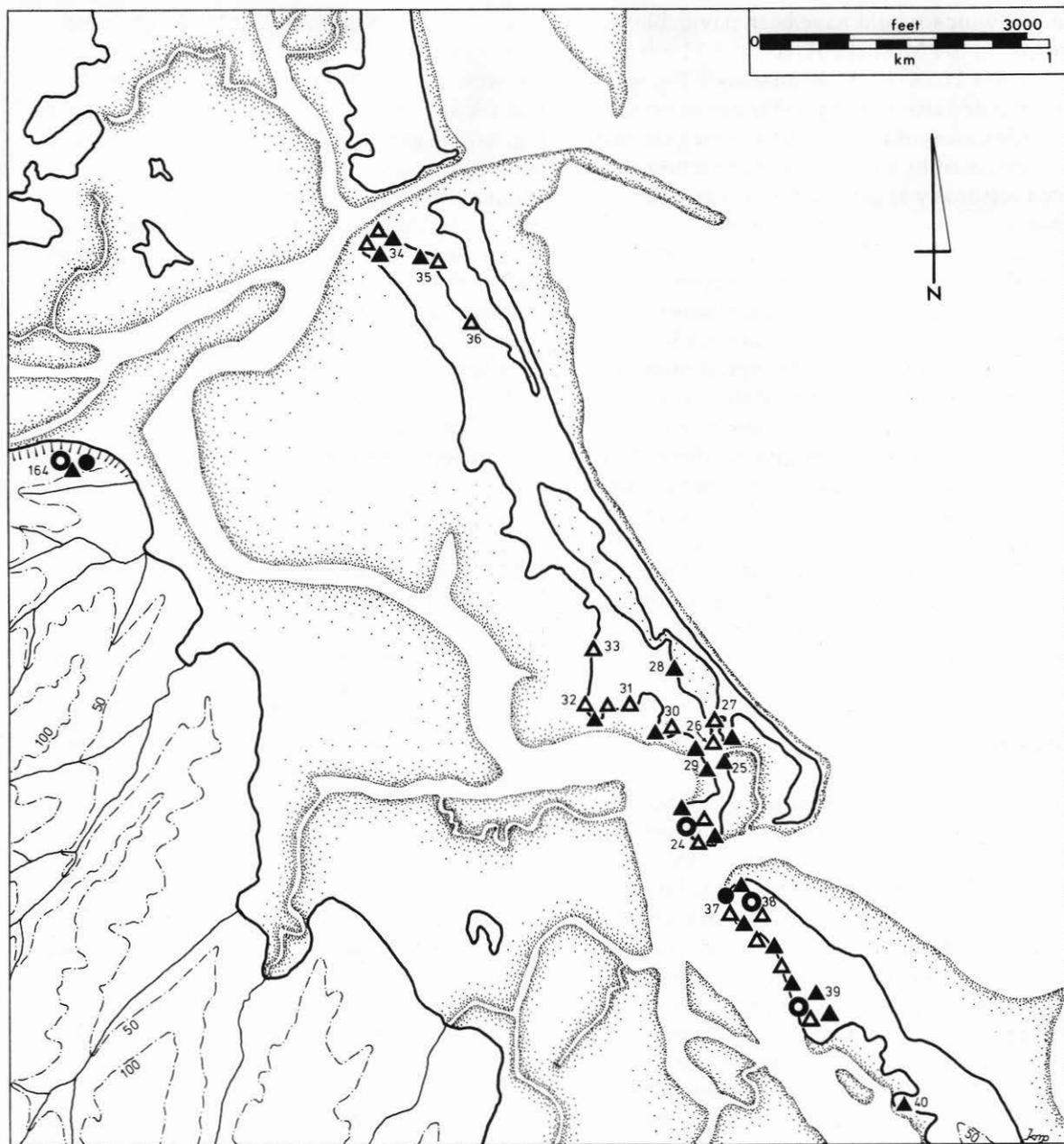
European visitors to the Moutere Hills, the Moutere Valley, and the Moutere Inlet in the 1840s agreed about the areas' unsuitability for settlement. In the Moutere Valley 'the bush was so dense and thick with supplejack and undergrowth of all kinds... a winding river running through it... that was no sooner crossed with difficulty in one place than it presented itself unexpectedly again in another'.<sup>1</sup> 'The valley was drained ineffectually... when the floods came... water extended from hill to hill'.<sup>2</sup> The Moutere Hills are steep and have a thin acid soil; they were thought 'almost uniformly sterile'.<sup>3</sup> Away from the coast there was a thick cover of beech forest and on exposed locations in the coastal zone manuka and stunted fern were supported. In the south the Moutere Bluffs, white cliffs up to 200 feet high, form a major landmark. Along the coast to the north 'the land... being low... is covered with fern... there being an arm of the Moutere running behind it for two miles'.<sup>4</sup>

The distribution of archaeological sites in the subregion is generally sparse. Few sites lie far from the sea (Fig. 3). Shell middens (S14/168 and

169) and adzes (S13/50 and 52; S14/168) have been seen in the Moutere Valley and the hills to the west. Perhaps birds were hunted there. A fine 1A adze in metasomatised argillite (S14/170, Fig. 41F) suggests that the area was explored before the Classic Maori period. At Lower Moutere 'the Maoris also came along to catch eels and lighted fires in the grass to cook them'.<sup>5</sup>

In contrast, on the eastern side of the Moutere Inlet evidence is dense. At the northern and southern ends of Jacketts Island (sites S14/34 to 36, and 24 to 33) and at the northern end of Kina Peninsula (S14/37 to 40, see Fig. 50) shell middens, ovens, and stone-working areas have been located where they are exposed by marine erosion and wind deflation. The position of these prehistoric settlements, encountered on the lagoon side of the raised beaches close to deep water channels, conforms to the pattern of other regions. No sites have been found on the open sea coastline or where extensive mud flats deny access by canoe at low tide. Midden contents show that shellfish from the protected soft shores of the inlet were eaten. Cockle appears to have been the main constituent (see Fig. 13 and pages 25 to 26). Pipi and mud snail are common, and large ostrich foot, speckled whelk, and oyster are represented. The resources of the open sea coast were also exploited (mussel, dosinula, and southern volute, e.g. S14/29). Fish bone, often snapper, has been found. Many of the artefacts from Kaingaroa (S14/24<sup>6</sup>) are associated with fishing and the making of associated equipment. Although the resources of the marine zone were of primary importance, agriculture and bird hunting (note the spear point from Kaingaroa<sup>7</sup>) may have been carried out locally, perhaps on the slopes to the south.

It is suggested that these three settlement areas were occupied recurrently. At the northern end of Jacketts Island (S14/34) a finely crushed shell midden exposed on the western side appears to be at a lower level than the large middens of the interior. The moa-bone fishhooks, other fishing equipment, and adzes (types 1B and 3G) from Jacketts Island South (S14/24<sup>8</sup>) are Archaic types (see pages 65 and 66). Archaic occupation at Kina Peninsula is shown by part of a small Type 4Ai hog-backed adze from the foreshore (S14/37) and by metasomatised argillite working debris similar to that from Kaingaroa (S14/38; see



50 The Moutere Inlet (key to symbols on Fig. 46; site numbers S14)

Table II, Figs 27, 28, and 32, and page 51). At least ten areas of ovens and seven separate midden deposits to the south (S14/39) suggest repeated occupation. Despite the superficial nature of most of the archaeological features, the artefacts show that at least some date from earlier periods of prehistory, possibly before the sixteenth century. The evidence of a variety of

activities, shellfishing, fishing, bird hunting, cooking (many ovens, e.g. Fig. 14), and stone-working using imported water-rolled metasomatised argillite material (see page 52), suggests more than short-term occupation. Such low-lying coastal sites, many of them seasonally occupied but others more permanent home-bases, repeatedly reoccupied over longer periods,

are typical of the Archaic phase of New Zealand prehistory.<sup>9</sup>

Known sites on the western side of the inlet lie close to the Moutere River mouth. On the north side cockle middens and ovenstones are present on a stony bank which would have been on the edge of tidal conditions (S14/166, Fig. 3). To the south are prominent bluffs, the eastern end of which is named Pukengerengere (S14/164). Here, in a sheltered depression in the bluffs, is a midden of cockle and mud snail shells and a stone-working area utilising imported water-rolled stones of distinctive medium to light grey, rather coarse metasomatised argillite (see Table II and Figs 27, 28, and 31). Adzes (types 2B and 6iii, see pages 74 to 77), especially a roughout specimen found a little to the east (Fig. 31B), are Classic forms. A flake adze from below the bluffs one kilometre to the west (S14/165, Fig. 3) is of similar material and workmanship; on the hill top above, a scatter of shell midden has been observed and pits were apparently visible before the ground was ploughed. These pits may have been of the storage type (see pages 34 to 38) and, with the digging stick found nearby (S14/167, Fig. 36A, for location see Fig. 3), suggest that there were pre-European Maori gardens in the vicinity.

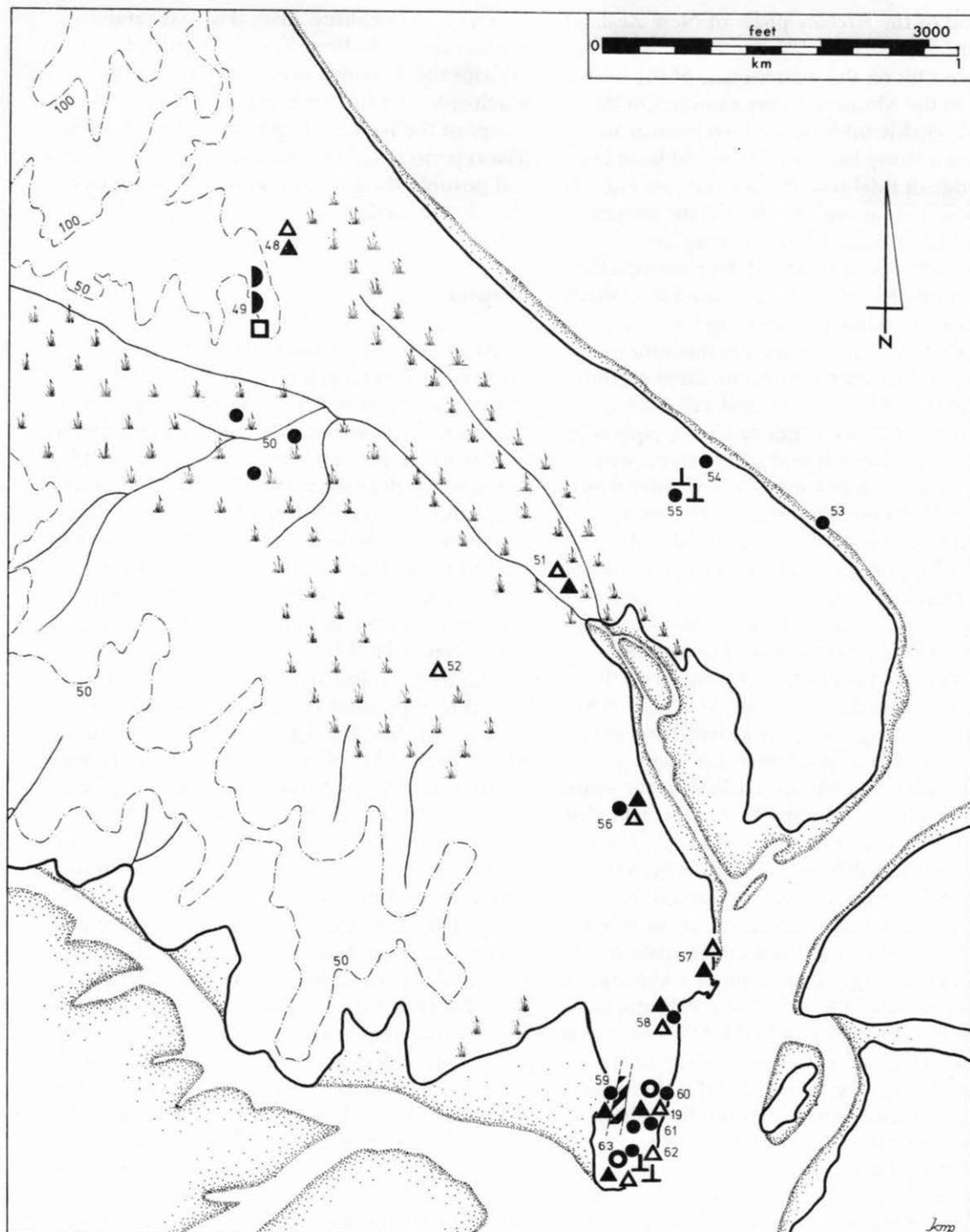
Along the coastal Moutere Bluffs to the south (the Maori name is Te Papa<sup>10</sup>) are two defended pa sites (Figs 10 and 11, location Fig. 3). These pa lie in excellent defensive positions between the cliffs and narrow ravines. Although the interior of one has been damaged, in the other there is clear surface evidence of occupation (Fig. 11 and see pages 20 and 39). Te Mamaku pa was the scene of the defeat of the Motueka Maoris in the Tasman Bay Raids.<sup>11</sup> From it have come adzes (Fig. 12) very similar to those from Pukengerengere. The raw material is the same distinctive metasomatised argillite. Roughout 2B adzes with flaked sides, butt, and blade, and hammerdressed back, with chin ridge, are closely comparable (Figs 12A and 31B). It is tempting to suggest contemporaneity in the Classic period. These hill-top and defended sites thus contrast with the low-lying sites of the sandy spits and bars of the inlet, some of which are Archaic. There is little other evidence from the bluffs coast (Fig. 3). Small middens (S14/41 and 45), reports of ovens (S14/45 and 47) and burials

(S14/46), and nephrite adzes (Fig. 34G and S14/42) do not indicate major settlement. Perhaps the defended sites, and some of the beach-side sites further north, were seasonal camps of the Riwaka population of the Classic Maori period, lived in when the fish, the shellfish, and possibly the garden resources of the locality were being used.

## Mapua

The main concentration of archaeological evidence in this subregion (Fig. 51) is on Grossi's Point, a spit of raised-beach deposits adjacent to the channel of a major tidal inlet. Resources for prehistoric settlement were good. Gravel banks in the beach deposits were cultivated. A gravelly soil, naturally stony (over fifty per cent stone) but markedly blackened, is thought to be a made soil (S14/59). A present-day gardener grows excellent kumara crops on the area but finds watering essential and mulching of the young plants beneficial. Use of shellfish resources is shown by the middens of common species such as cockle, pipi, mud snail, and mussel (S14/59, 60, and 63). Midden deposits are dense around the southern edge of the point where heaps were visible early this century. Fish would have been caught, especially in the tidal channels (the middens, e.g. S14/63, contain fish bone). There are extensive oven deposits around the eastern and southern sides (S14/60, 61, and 63). Metasomatised argillite was worked in at least two areas (S14/60 and 63). Artefacts found include a ground sandstone minnow shank of Archaic form (S14/61, Fig. 33L; and see page 66), two fine metasomatised argillite adzes of early 1A type (S14/19, Fig. 40A), and smaller adzes, one a slightly spade-shouldered 1B type and the others roughout and broken (S14/60). A marine-shell sample from a midden gave a thirteenth century radiocarbon date (S14/63).<sup>1</sup> Thus at least some of the evidence at Grossi's Point belongs to an Archaic settlement similar to other beach-side sites like Kaingaroa and Riwaka Wharf (S14/24 and 112, Figs 48 and 50). The finding of skeletons (S14/62 and 63), and a nephrite hei-tiki after a storm tide (S14/63), suggests use as a burial ground possibly later in prehistory.

Further north, settlement evidence is more



51 Mapua subregion (key to symbols on Fig. 46;  
site numbers S14)

dispersed. Along the western beach ridges ovenstone deposits (S14/48, 52, 56, 57, and 58) are frequently accompanied by shell middens of common mud-flat species (S14/56, 57, and 58). Oyster shell (middens S14/48 and 51) suggests exploitation of the oyster beds which were present in the small estuary to the south at the time of the early European settlement. Worked pieces of metasomatised argillite (S14/56) and chert (S14/58, Fig. 33M) have been found. Above the old cliffline to the north, at The Bluffs (S14/49, Fig. 20), is an oval pit of storage type and surrounding terraces some of which may be partly-filled pits. This may have been a fenced storage site in which was preserved the produce of garden areas located on the slopes or on the beach ridges below. The less stable beach ridges to the east, close to the open sea, have produced less archaeological evidence. Two early Archaic adzes of Type 2Ai (e.g. S14/54, Fig. 41G) have come from the sand hills, and fish-hooks are said to have been found on the beach (S14/53). Reports of damaged skeletons, spears, and mere pounamu still with attached thongs and feathers, indicate a war burial ground of a period late in prehistory (S14/55). A patu butt from Mapua (Fig. 38B) could be from this location.

When the Mapua Swamp was drained many artefacts were found (S14/50). Organic materials included a canoe of totara (see page 59), a flax fishing net, and a wooden whakapapa (Fig. 36C) with knobs of various shapes and sizes used as an aid to the memory in recalling genealogical names.<sup>2</sup> Among the metasomatised argillite adzes is an example transitional between 2Ai and 2B forms (similar to Fig. 24A but without the chin ridge). Others are early 2Ai and 1A types which, with the adzes from Grossi's Point and the eastern sandhills (S14/19 and 54), confirm the settlement of Mapua in the Archaic period.

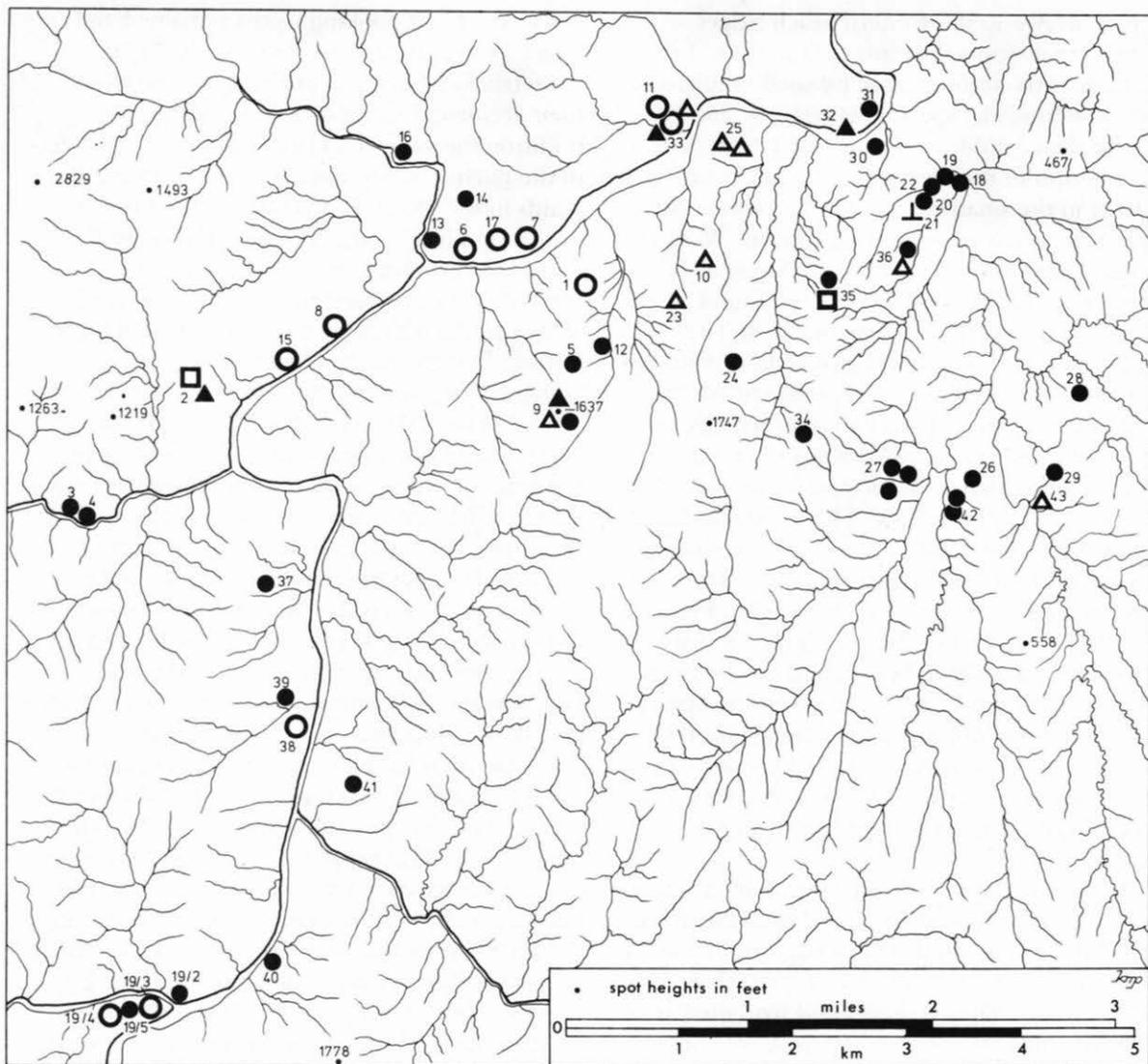
### The Motueka Valley

The first European house in the Motueka Valley was built in 1853 by J.P. Salisbury, just south of the Little Pokororo River on 'a flat of about 600 acres of open land covered mostly by fern, with more than one series of terraces'.<sup>1</sup> The area, formerly settled by the Maoris, was then

deserted. 'Their cooking ovens remained and many axes, and the open fern country that attracted Salisbury was probably the result of their accidental forest fires.'<sup>2</sup> According to tradition the valley had been overrun by invaders in the pursuit of fugitives from the Tasman Bay Raids in the 1820s. It was not resettled because of the tapu laid on the Motueka River by Te Tana Pukekowhatu, who said: 'The source thereof is my head and the mouth is my feet'.<sup>3</sup> When planned European settlement of Stanley Brook, Dovedale, and the Motueka Valley began in the 1860s, most of the region was 'grand primeval forest' of totara, kahikatea, rimu, and beech which overhung the river on both sides.<sup>4</sup> Native wild life abounded; in 1868 a group of Maoris from Motueka who arrived in Pokororo to camp 'lived in great comfort on pigeons, tuis, ducks, woodhens, kakas, and eels'.<sup>5</sup>

Most of the recorded archaeological sites in the subregion (see Figs 3 and 52) are located on the terraces and valley sides of the Motueka River in the Ngakimoti, Pokororo, Woodstock, and Baton areas (see Fig. 2). Except for concentrations on the east bank around Ngatimoti the west bank of the river has provided almost all the evidence, probably because on that side, especially in Pokororo, flood-free middle terraces are most extensive. To the west the Pearse and Graham Valleys were explored. From Ngatimoti downstream to Riwaka very few sites have been reported. Others may have been destroyed by erosion of river banks and terraces, or obscured by deposition of silt on the lower flats in historic times. Evidence is comparatively common on the granite hills of Ngatimoti and around Orinoco. In contrast, the adjacent Moutere Gravel hills are empty (see Fig. 3). But for one ridge-top find spot (S13/46, an adze and a pounder, Fig. 35F; for location see Fig. 3), the steep south-facing slopes of the Arthur Range and Mount Campbell (Brown Acre, Maori name 'Pukeone'<sup>6</sup>) might have been thought deserted in prehistory.

The most important archaeological characteristic of the Motueka Valley is the presence of a series of stone-working sites located close to the river and well upstream (Figs 3 and 52). These are places where tools were made from stones, mainly of metasomatised argillite but some of greywacke, selected from the river



52 The Motueka Valley (key to symbols on Fig. 46; site numbers S13 except where otherwise marked)

gravels by the prehistoric Maori (see pages 41 to 52). These sites have been recognised by the finding of quantities of stone flakes, the debris from tool manufacture, large cores from which tools were to be made, and unfinished adzes in roughout condition.<sup>7</sup> Many of the pieces have water-rolled cortices. At Mount Thomas Spur (S13/1), the only site not on the river terraces, a rodingite hammerstone has been found. A sandstone grinding block was picked up nearby (S13/12, Fig. 25A). Recognisable adze forms among the large quantities of debris flakes from three working areas allow further conclusions. Found at the Pokororo Bridge site (S13/6; see pages 46 to 47, Table II, and Figs 29 and 30) were almost-finished adzes of types 4Ai and 3C (Fig. 29A, B) and roughouts which could have been intended as types 1A and 2Ai (Fig. 30A, C, E). These are Archaic types (see pages 68 to 71). In contrast, the large area of stone-working to the east (S13/7) has produced adzes of the later Classic types 2B, one with a chin ridge, and 6iii (Fig. 23, see page 74). A 2B adze and a fragment of a greywacke miti (Fig. 38C, see page 63) also typical of the Classic period were found at Mount Thomas Spur (S13/1). These finds show that in both the Archaic and Classic periods the adze forms thought to be typical were being made within the Motueka district.

Unfinished roughout adzes have been found elsewhere in the Motueka Valley. Occasionally they lay close to stone-working areas (S13/5 and 39). Two very significant caches have come from Pokororo. One, from the edge of a swampy area east of the Graham Road (S13/14), comprised two large adzes of 1A and 1D types (Fig. 42) and a further massive square-sectioned 1A. These adzes were freshly made and had not been carried far from a working area: the chips produced by the remarkably extensive hammer-dressing process are still held loosely in the shattered surfaces. Of the other cache of five adzes from Pokororo Hall (S13/13) three survive undamaged (Fig. 45, and another, a smaller 2Ai). They were found when a massive granite boulder was being removed, so they may have been secreted at the base of it by someone who intended to collect them and was prevented from doing so. Further downstream a large 2B adze with a slight chin ridge was found near the Rocky River (S13/48, Fig. 3). All these rough-

outs have water-rolled cortices and are of the rather coarse, medium to light grey metasomatised argillite often found on the working areas of the river terraces. Some are probably early (S13/13 and 40) and others a little later in the Archaic sequence (S13/14), and one is of the Classic period (S13/48). This suggests that stone materials were being carried out of the valley throughout prehistory. The oven site by the Little Sydney Stream near where the Motueka Valley opens onto its flood plain produced a number of roughout adzes including a variety of Classic 2B forms (S14/135, Fig. 24; for location see Fig. 48). It is tempting to regard this site as a camp used by stone-workers when emerging from the valley with their wares.

There is relatively little evidence of long-term settlement in the valley. At a site on a terrace south of the Little Pokororo River (S13/33) midden heaps (including cockle shell), cooking areas, and stone chippings have been seen and nephrite adzes recovered. This is thought locally to have been the main Maori village in Pokororo, and correlates with the evidence seen by Salisbury in the 1850s. Adzes have been found in most of the neighbouring paddocks. On the flats of the east bank, opposite Ngatimoti, ovenstones and adzes have been picked up (S13/25). Downstream near the Peninsula Bridge a midden containing pipi shell was seen in the river bank (S13/32). Apart from this, no oven or midden evidence has been recovered near the stone-working areas, a situation which suggests that the latter were visited for short periods only.

There is some evidence of occupation of the knolls and hills south of the river in Ngatimoti. Ovenstones and water-rolled pebbles taken from the river have been seen on Mount Thomas, Mount Elizabeth, and elsewhere (S13/9, 10, 23, and 36). The finding of adzes (S13/9 and 36) and possibly also shell middens (S13/9) has also been reported. At the southern end of the ridge of Green Hill a small circular pit from which a Type 1A adze was recovered (Fig. 41B) lies at the foot of a quartz reef outcrop from which stone may have been taken (S13/35). Pits and bird bones, said to have been present at Trig AA on the west bank (S13/2), are no longer visible. It is thought locally that these hill-top sites were lookouts occupied in the season of bird hunting or by fugitives. Isolated finds of artefacts (e.g.

adzes, S13/34: a 1A type, and S13/41; and an obsidian flake knife, S13/24) show that the fells of the east bank were explored by the Maori.

Finds of finished artefacts indicate widely dispersed Maori activity. Archaic 1A adzes have been found at Pangatotara (S13/54, Fig. 3) Lloyds Valley (S13/27.1), and Thorpe (Nelson Museum collection). Classic 2B types have come from the Pearse Valley (S13/3), Pokororo (S13/13, not part of the cache), Pangatotara (S13/47, Fig. 3), and a number of locations near Orinoco Creek (S13/18, 19, 20, 22, 27.2 and 3, and 42, the latter a greywacke example, Fig. 35B). In fact archaeological occurrences are relatively common around Orinoco (see Fig. 3); an oven (S13/43), a Classic 2Aii type adze fragment (S13/28), other adzes now lost (S13/26, 29, and 43), and an eel basket (S13/42) have also been reported. Good supplies of eels and birds may have attracted Maori interest, while the larger adzes (S13/28 and 54) could have been used in making canoes. Although 1A adzes have been found in most localities, the larger number of artefacts of Classic type suggests greater activity in the later period.

Fine nephrite artefacts have been found in the subregion. Polished adzes have come from the Graham Valley (S13/16, Fig. 34A), from the Motueka Valley near the Baton River confluence (S19/2 and 5, Fig. 34E, C), from Pokororo (S13/33, one of which was said to have a chin ridge), and from the Peninsula, Ngatimoti (S13/31). The splendid hei-tiki from Hinetai Road (S19/6, Fig. 37D) and the knife pendant from further downstream (S13/37, Fig. 37E) have already been described (see pages 61 and 63). Apart from the Graham Valley adze, all these nephrite artefacts are from the main valley and suggest its use as a major overland routeway.

The Motueka Valley therefore contains sites and materials from all periods of prehistory. Its stone resources were always of great importance locally. Eels and birds were also exploited, and totara logs still taken for use in canoes in the nineteenth century.<sup>8</sup> Salisbury noted several large moss-covered totara stumps which he thought had been chopped with stone tools, and also saw quantities of charcoal and charred wood which suggested to him that fire had been used

to hollow the trunks for canoes.<sup>9</sup> The valley was an accepted route to the west and east coasts of the South Island.<sup>10</sup> Canoes were probably used for part of the journey; a greywacke anchor stone weighing over two kilograms and with a perforation, worn by cords, has been found near the Peninsula Bridge, Ngatimoti (S13/32). Although rarely if ever permanently occupied, the valley played an important role throughout prehistory.

(For full references see pages 111 to 113)

### Sandy Bay

- 1 Murray 1966: Parts 3 and 4.
- 2 Murray 1966: Part 8.
- 3 Peart 1937: 54.
- 4 Mrs R.A. Franklin: private communication; Peart 1937: 135.

### Kaiteriteri

- 1 Nelson Provincial Museum: accession numbers E469.65 and E1112.65.
- 2 Moore 28.4.1888.

### Riwaka

- 1 Moore 23.6.1888.
- 2 Brown and Heaphy 1841; New Zealand Company n.d.
- 3 Challis 1976c: Fig. 2.
- 4 Challis 1976c: Figs 7 and 8.
- 5 Challis 1976c: Fig. 7C and D.
- 6 Peart 1937: 65.
- 7 Brown and Heaphy 1841; New Zealand Company n.d.
- 8 Peart 1937: 65.
- 9 Peart 1937: 58.
- 10 Moore 5.5.1888.
- 11 Peart 1937: 62; New Zealand Company n.d.
- 12 Barnicoat 18.8.1842.
- 13 Peart 1937: 63 and 135.
- 14 Peart 1937: 67.
- 15 2B adzes found at S13/55, 59, 66; S14/12, 84, 91, 101, 102, 110, 116, 120, 123, 128, 130, 135, 138, 140, and 145.
- 16 Peart 1937: 50-52.

### Motueka

- 1 Peart 1937: 60.
- 2 Peart 1937: 62.
- 3 Jordan n.d.
- 4 Peart 1937: 62.
- 5 Peart 1937: 132.
- 6 Peart 1937: 135.
- 7 Peart 1937: 62.

### Moutere

- 1 Pratt 1877: 82.
- 2 Peart 1954.
- 3 Rigg 1952: 20, quoting F. Tuckett's comments of 1842.
- 4 Wakefield 12.10.1841 (spelling corrected).
- 5 Starnes 1939.
- 6 Challis 1976a: 136.
- 7 Challis 1976a: Fig. 2A.
- 8 Challis 1976a: Figs 2 and 4.
- 9 Green 1974: 27-28.
- 10 Peart 1937: 132.
- 11 Peart 1937: 50-52.

### Mapua

- 1 Anderson 1966: 49, 72; 1286 ± 71 a.d.
- 2 Skinner 1974: 99.

### The Motueka Valley

- 1 Brereton 1947: 3, 16.
- 2 Brereton 1947: 4.
- 3 Peart 1937: 60.
- 4 Brereton 1947: 15-18.
- 5 Brereton 1947: 168.
- 6 Peart 1937: 134.
- 7 Stone-working sites: S13/1, 6, 7, 8, 11, 15, 17, 33, 38, 53; S19/3, and 4.
- 8 Peart 1937: 66.
- 9 Brereton 1947: 18.
- 10 Peart 1937: 70.

## Chapter five

# Conclusions

### The Motueka district in prehistory

A striking result of the archaeological research reported here is the wealth of prehistoric sites and artefacts in the Motueka district, far greater than the casual observer might assume. Although interpretation of this evidence is restricted because the enquiry is deliberately non-excavational, it is not without a historical dimension even though no close summary of historical reality can be given. Any impression of a sharp division between Archaic and Classic Maori culture would be misleading; rather, New Zealand prehistory may be viewed as a continuum of change following initial settlement from East Polynesia.<sup>1</sup> Nevertheless certain differences between earlier and later occupations of the district are apparent and will now be tentatively summarised.

It has been suggested that the Nelson region may have been a centre of initial settlement in the period A.D. 800 to A.D. 1000.<sup>2</sup> Whether the Motueka district was occupied at that time is not known, but Archaic sites of the thirteenth century at Grossi's Point, and the fourteenth or fifteenth century at Kaingaroa, have been identified. Others in similar raised beach situations may have existed at Marahau, Riwaka Wharf, Jacketts Island North, and Kina Peninsula. Food preparation, cooking, and tool manufacture took place at these apparently small camps which may have been recurrently-occupied seasonal bases for fishing and shell-fishing activities. Gardening on the Motueka flats might have begun as early as the twelfth century. Artefacts of the period include serpentine pectoral amulets and shark-tooth necklaces, moa-bone fishhooks and triangular-sectioned stone minnow shanks, and metasomatised argillite adzes commonly of types 1A,

2Ai, and 4Ai. Such adzes were manufactured from selected Motueka River stones at Pokororo Bridge. Obsidian and nephrite were imported. The finding of Archaic adzes in isolated locations throughout the district as far inland as Wratt's Whare and Orinoco suggests wide-ranging activity in the heavily forested interior. Although fresh-water fish, birds, edible plants, and sea mammals were probably exploited, the roles of these foods and of moa hunting in the Archaic period are not yet demonstrated.

Evidence thought to be of the Classic period, perhaps from the sixteenth century onwards, provides a contrast with the Archaic pattern. The fine series of coastal defended pa sites indicates a considerable period of coherent community organisation in conditions of increased warfare. Coastal settlements close to the major lowland areas, at Marahau and on the raised beaches near the Riwaka River mouth, may have been relatively large. These, as well as smaller settlements on the lowlands and coastal bluffs, and ridge-top storage sites<sup>3</sup>, were probably fenced. Food preparation, cooking, stoneworking, and burial took place at Pah Point. Wide variation in the quality of adzes from that site suggests the existence of both local and specialist stone-workers.<sup>4</sup> Classic adze forms were made there and at Pukengerengere, and in the Motueka Valley at Pokororo East and Mount Thomas Spur where metasomatised argillite stones (selected from the river) were worked. Although the extensive made soils of the Marahau, Riwaka, and Motueka flats suggest that agriculture may have increased in importance, fishing, shellfishing, and bird hunting continued. Shell middens of late date in Motueka contain mud-flat species, mainly cockle. New artefact forms include ornaments of nephrite, weapons, and adzes of 2Aii, 2B, 4Aii, and 6

types. The greater numbers of these compared with Archaic material (especially in the Sandy Bay, Kaiteriteri, Riwaka, Motueka, and Motueka Valley subregions) suggests increased human activity. The maximum population size which could have been maintained under prehistoric conditions in the district may have been between 300 and 500 people. The especial density of archaeological evidence on the Riwaka coastal strip encourages the view that there, at some time in prehistory, lay a focus of prehistoric settlement. A wide-ranging traditional life style may have embraced the stone resources, timber, birds, and eels of the valley; the garden areas of the flats; the fish and shellfish of the Moutere and granite coasts; and fortified sites such as Te Mamaku on the Moutere Bluffs. The larger defended pa sites and the Marahau Beach frontage to the north may also have acted as settlement foci.

The question as to why the different Classic artefact and settlement types became established in the district demands consideration. It is thought that Classic Maori culture developed in the northern part of the North Island where ecological conditions governing food supplies were most favourable. Economic pressures and warfare then forced part of a growing population to move southward, setting off a series of internal migrations and further conflicts.<sup>5</sup> Thus Maori tradition portrays the South Island as 'a place of refuge for weak and defeated tribes from the North Island. . . . As each successive wave of these northern immigrants arrived in the south they conquered and absorbed the native occupiers of the soil.'<sup>6</sup> Of the tribes which occupied the Motueka district (see page 7), the Ngaitara people are said to have come from the extreme south of the North Island.<sup>7</sup> The Ngati Tumatakokiri are thought to have moved down from Taupo via Wanganui and the Marlborough Sounds.<sup>8</sup> The Ngati Apa may have come from the Rangitikei district.<sup>9</sup> The later Te Atiawa and Ngati Rarua settlers previously lived in Taranaki and Horowhenua.<sup>10</sup> Traditional evidence thus depicts immigrations from the North Island which can be held responsible for the gradual introduction of Classic traits, perhaps from the sixteenth century onwards.

Among the archaeological evidence of the Classic period in the Motueka district, therefore,

both indigenous and intrusive elements may be expected, some of them, like obsidian, spanning the entire prehistoric period. Other artefacts too might be considered direct imports from the North Island. For example, the squared butt, high blade edge-angle, and greywacke material of a 2B adze from Orinoco (Fig. 35B) are different from 2B types produced at stone-working areas in the Motueka district (e.g. Fig. 23), and are thought to be typical of those from parts of Taranaki.<sup>11</sup> Another greywacke 2B with sharp lateral edges from Marahau (Fig. 35A) is likewise foreign. The distinctive 2Aii type with the chin ridge might have been similarly introduced, greywacke imports (Fig. 35C) being faithfully copied in local metasomatised argillite (Fig. 44C). It seems that Classic adze forms worked from materials within the district and often rounded or irregular in shape (e.g. Figs 12 and 23) are a local development, although the fashion may have been of North Island inspiration. Classic Maori weapons and fishing equipment are more likely to be North Island types: the patu onewa with ridged butt (Fig. 38B),<sup>12</sup> and the kahawai lure hook (see page 66).<sup>13</sup> On the other hand, nephrite hei-tiki and other ornaments have characteristics in common with other South Island examples (see pages 61 to 63). This is to be expected given the South Island sources of the nephrite of which they are made.

The attempt to distinguish elements developed within the district or in the South Island from those which were imposed from the North cannot be pursued further given the present state of knowledge. The absence of excavation in the district forbids chronological precision. The paucity of regional archaeological accounts of the crucial south-western quadrant of the North Island renders comparative studies largely speculative. Still it is worth noting that at Paremata on the north side of Porirua Harbour, a site occupied in both the Archaic and Classic/Historic periods, elements and materials of the Nelson region occur.<sup>14</sup> Presumably there was a long-standing tradition of visiting and exchange across the Cook Strait, and a certain community of culture on either side. Beyond this, only the accumulated evidence of accurate excavation can allow the explanation of culture history in the district to proceed beyond the level of informed fiction.

The arrival of the European in New Zealand consigned the Maori to conditions of accelerating change. The musket was instrumental in severely reducing the Maori population of the Motueka district in the Tasman Bay Raids of the late 1820s. Subsequent resettlement was dominated by pakeha crops and animals, metal tools, and other introduced materials. By the mid-1840s the European dispersed rural settlement pattern had been imposed and the pakeha was destined to form the majority of the population. Yet the previous thousand years had seen the vigorous and successful use of the resources of the local environment by the Maori people whose adaptive genius is shown in the magnificence of fine artefacts and the perceptive location of settlements. Such creative activity is worthy of increased consideration. Only archaeology can furnish the details of pre-European achievements.

### **The future of the past**

This survey sets out the framework within which future archaeological investigations, most of them based on excavation, will be conducted. Many of the leading questions about Motueka district prehistory will remain substantially unanswered until then. What effect did Maori occupation have on the physical environment? What was the history of agriculture and fortification? How did diet, fishing equipment, house types, and settlement patterns change during prehistory? Why did cultural change take place? Detailed answers to these and many other questions lie in the stratified archaeological deposits remaining from the lives of prehistoric people; and they will therefore never be answered unless some archaeological sites are preserved undamaged for future study.

Any form of subsurface alteration of a site destroys evidence of the past. Unfortunately only four per cent of known sites in the Motueka district appear to be undisturbed. The majority are partly destroyed (see page 10). In recent years serious damage has been caused to coastal sites by marine erosion, public vehicular access, and construction activities, and to hill-top and ridge sites by bulldozing and house building. Fossicking for artefacts continues. At the present rate of destruction no significant archaeological

potential will remain by the end of the century. It would be unreasonable to expect present agricultural, residential, recreational, or other land use to be disrupted to take account of already seriously damaged sites. Not all can be saved. However, the utmost must be done to preserve as many as possible. Certainly, full protection must be afforded to undamaged sites as so few of them remain. In addition many only partially extant should also be retained, especially those which may have been occupied for a long time, those which may be unusual, and those which are the object of Maori reverence.

Excavation, while it removes parts of a site by digging, compensates for this disturbance by producing information in the form of documents and artefacts which can be effectively preserved. Hopefully the archaeologist, working to the highest possible standards, will recover even more information as new techniques develop. However, even if there were sufficient archaeologists to fully excavate a large number of important sites in the district now, such activity would stand condemned if thereafter insufficient remained for future investigation. It is part of the archaeologist's responsibility to ensure, as with any diminishing resource, that some major sites are retained unexcavated, to be examined by the techniques of the future. Thus sites not dug actually increase in value and the community's responsibility for their protection increases. They form the untapped part of the cultural heritage.

Meanwhile, because the information contained in archaeological sites is part of the public heritage, activities which damage or endanger sites without an over-riding reason should be prevented. Thus in New Zealand anyone who causes to be 'destroyed or damaged or modified, the whole or any part of an archaeological site'<sup>1</sup> without authority, commits an offence. Included here is the keen though undisciplined fossicker who out of curiosity digs up artefacts for private gain. The New Zealand Historic Places Trust administers the current site protection legislation.<sup>2</sup> In all cases where proposed land use will affect an archaeological site, an authority from the Trust to carry out the work must be obtained beforehand. Even the archaeologist must now get permission to dig, and only the Trust may permit scientific investigation or authorise

damage. Its advice should be requested well in advance of the proposed activity so that, if the threatened site is proved to be especially significant, alternative courses of action may be discussed. As far as possible, land should be used in a way which causes minimal or no damage to archaeological sites. Where damage is inevitable, however, the object of the legislation is to ensure that an adequate record is made beforehand; it cannot follow the bulldozer.

Maori artefacts are commonly found on the surface of the ground, on beaches or ploughed fields. Provided that no digging takes place such chance discovery is not condemned. As is shown in this book, much can be learned from the systematic recording of such evidence. Also by this means unknown archaeological sites can be located. However, any artefact so found after 31 March 1976 is the property of the Crown, and the finder must report it to the nearest public museum or to the Secretary for Internal Affairs within twenty-eight days.<sup>3</sup> Where circumstances warrant, the Department may retain it or order it to be deposited in a public institution, but in many cases the finder will be allowed to retain a chance find. He may even continue to collect provided he registers as a collector. The artefacts may be disposed of only to a public museum, to another registered collector, to a licenced dealer, or by gift to a relative. This procedure is designed to ensure that detailed information about the finding is recorded, that artefacts are held in safe keeping and are available when required for scientific examination, and that selling or export for private gain is controlled. It is hoped that this regulation of archaeological sites and materials will restrain the activities of the few irresponsible individuals.

The great majority of the public interested in archaeology should not think of this legislation as inhibiting their involvement. On the contrary, without their support little effective protection could be achieved and many important legitimate activities would be impossible. Of all the sciences archaeology is perhaps the one to which knowledgeable amateurs can contribute the most. Throughout New Zealand archaeological sites lie unrecorded. Interested people can assist significantly in site recording programmes run by museums or local societies linked with the New Zealand Historic Places Trust or the New

Zealand Archaeological Association.<sup>4</sup> They can help in the excavation of sites the destruction of which cannot be avoided. People with sites on their property can protect them from vandalism and give them added security by declaring them Protected Private Land.<sup>5</sup> At the very least individuals can join forces for the conservation and not the destruction of the nation's non-renewable resources, archaeological sites among them. No longer must neglect characterise our attention to the historic values of land; Maori history should be treated with greater sensitivity. This book has been written in the belief that public awareness and involvement are the surest ways of reversing that neglect and preserving evidence of the past for the future.

Puritia nga taonga tuku iho i nga tupuna,  
Hei-tiki huia ma nga uri whakatupu o Aotearoa.

Keep the treasures handed down by the  
ancestors,  
As an adornment for the descendants yet to be  
born in Aotearoa.

(For full references see pages 111 to 113)

### **The Motueka district in prehistory**

1 There is at present no theoretical or factual basis for any alternative explanation of Maori origins.

2 Simmons 1969: 9, 21.

3 Assuming, with Green (1974: 30, 36), that most storage pit sites are later Archaic or Classic Maori.

4 Challis 1976c: 467.

5 Green 1974: 30, 35-6.

6 Peart 1937: 2.

7 Peart 1937: 8.

8 Peart 1937: 12.

9 Peart 1937: 17.

10 Peart 1937: 24, 32, 58, 59.

11 D.R. Simmons: private communication; see Buist 1964: Fig. 8.

12 D.R. Simmons: private communication.

13 Hjarnø 1967: 41.

14 Davidson forthcoming.

### **The future of the past**

1 *Historic Places Amendment Act 1975*, clause 9F.

2 New Zealand Historic Places Trust, P.O. Box 12 255, Wellington.

3 *Antiquities Act 1975*, clause 11.

4 New Zealand Archaeological Association, P.O. Box 24 059, Linwood East, Christchurch.

5 Advice may be received on request from the New Zealand Historic Places Trust.

# Appendix I

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# Appendix 2

## Common and scientific biological names

### Native plants

akeake	<i>Dodonea viscosa</i>
beech	<i>Nothofagus</i> spp.
bracken fern	<i>Pteridium aquilinum</i> var. <i>esculentum</i>
cabbage tree, Banks'	<i>Cordyline banksii</i>
cabbage tree, common	<i>Cordyline australis</i>
flax	<i>Phormium tenax</i>
fuchsia (tree)	<i>Fuchsia excorticata</i>
hinau	<i>Elaeocarpus dentatus</i>
kahikatea	<i>Dacrydium dacrydioides</i>
kakaramu	<i>Coprosma lucida</i>
kanuka	<i>Leptospermum ericoides</i>
karaka	<i>Corynocarpus laevigatus</i>
karamu	<i>Coprosma robusta</i>
kawakawa	<i>Macropiper excelsum</i>
kie kie	<i>Freycinetia banksii</i>
lowland totara	<i>Podocarpus totara</i>
mamaku	<i>Cyathea medullaris</i>
manuka	<i>Leptospermum scoparium</i>
matai	<i>Podocarpus spicatus</i>
miro	<i>Podocarpus ferrugineus</i>
ngaio	<i>Myoporum laetum</i>
nikau palm	<i>Rhopalostylis sapida</i>
northern rata	<i>Metrosideros robusta</i>
raupo	<i>Typha orientalis</i>
raureka	<i>Coprosma australis</i>
rimu	<i>Dacrydium cupressinum</i>
supplejack	<i>Rhipogonum scandens</i>
titoki	<i>Alectryon excelsus</i>
toetoe	<i>Cordaderia toetoe</i>

### Introduced plants

gourd	<i>Lagenaria siceraria</i>
kumara	<i>Ipomea batatas</i>
taro	<i>Colocasia antiquorum</i>
yam	<i>Dioscorea</i> sp., probably <i>D. alata</i>

### Birds

bellbird	<i>Anthornis melanura</i>
bittern	<i>Botaurus stellaris</i>
duck, blue	<i>Hymenolaimus malacorhynchos</i>
duck, grey	<i>Anas superciliosa</i>
duck, paradise	<i>Tadorna variegata</i>
duck, teal (New Zealand swamp)	<i>Aythya novaeseelandiae</i>
kaka	<i>Nestor meridionalis</i>
parakeet	<i>Cyanoramphus</i> spp.
pigeon	<i>Hemiphaga novaeseelandiae</i>
pukeko	<i>Porphyrio porphyrio</i>
tui	<i>Prothemadera novaeseelandiae</i>
woodhen (weka)	<i>Gallirallus australis</i>

### Fish

barracouta	<i>Thyrstites atun</i>
bulley	<i>Gobiomorphus gobioides</i>
crayfish, freshwater	<i>Paraneohorsia planifrons</i>
dogfish, southern	<i>Squalus acanthias</i>
eel	<i>Anguilla</i> spp.
flounder	<i>Rhombosolea</i> spp.
hapuku	<i>Polyprion oxygeneios</i>
kahawai	<i>Arripus trutta</i>
mullet	<i>Aldrichetta forsteri</i>
red rock cod	<i>Physiculus bachus</i>

smelt	<i>Retropinna retropinna</i>
snapper	<i>Chrysophrys auratus</i>
stingray, short-tail	<i>Dasyatis brevicaudatus</i>
warehou	<i>Seriolella brama</i>
whitebait	<i>Galaxias attenuatus</i>

**Shellfish**

black-edged mussel	<i>Mytilus edulis aoteanus</i>
cat's eye	<i>Lunella smaragda</i>
cockle	<i>Chione stutchburyi</i>
large green mussel	<i>Mytilus canaliculus</i> ( <i>Perna canaliculus</i> )
large ostrich foot	<i>Struthiolaria papulosa papulosa</i>
mud snail	<i>Amphibola crenata</i>
New Zealand dosinula	<i>Dosinula zelandica</i>
oyster	<i>Ostrea sinuata</i>
pipi	<i>Amphidesma australe</i>
southern volute	<i>Alcithoe swainsoni</i>
speckled whelk (large spotted mud whelk)	<i>Cominella adspersa</i>
white rock shell (cart rut shell)	<i>Neothais scalaris</i>

# Appendix 3

## Catalogue of archaeological sites

### Abbreviations:

<i>bu</i>	burial	<i>ov</i>	oven	<i>so</i>	source site
<i>fi</i>	find spot	<i>pa</i>	defended pa	<i>st</i>	stone structure
<i>mi</i>	midden	<i>pi</i>	pit	<i>te</i>	terrace
<i>ms</i>	made soil	<i>pl</i>	platform	<i>wa</i>	working area
		<i>qp</i>	quarry pit		

Site number	Description	Figure	Page	Name
S8/4	fi	3	86	Kairuru
S8/5	pi/te	19	34, 38, 39	Holyoake Valley
S8/6	pi/te	19	34, 38, 39	Holyoake Valley
S9/39	ms	46	80, 81	
S9/40	pi	46	35, 80	
S9/41	mi/fi	13, 46	81	Marahau Estuary
S9/42	pi	46	35	
S9/43	bu	46	9, 41, 81	Marahau Heads
S9/44	bu	46	9, 39, 41, 81	Marahau Sandspit
S9/45	wa	33, 35, 41, 46	80, 81, 89	
S9/46	mi	13, 46	25, 26, 80, 81	
S9/47	mi	46	25, 80	Marahau School
S9/48	mi/wa	25, 35, 39, 44, 46	9, 54, 66, 80, 81, 98	Marahau Beach
S9/49	fi	40, 46	68, 80, 81	
S9/50	fi	46	81	
S9/51	ms/qp/fi	41, 46	31, 80, 81	
S9/52	pa/pl/te	20, 46	12, 13, 20, 39, 80	Pa of Te Makawawa
S9/53	fi	46	81	
S9/54	fi	46	54, 81	
S9/55	ov	37, 46	81	
S9/56	fi	46	81	
S9/57	fi	38, 46	63, 81	
S9/58	mi/ov	13, 46	25, 81	Tinline Stream
S9/59	pa/pi/pl/te/so	4	12, 13, 20-22, 35, 38, 39, 54, 80	Otuwhero Inlet
S9/60	fi	35, 44, 47	82	Otuwhero Wharf
S9/61	pi	47	35, 82	Otuwhero Inlet South Head
S9/62	pa/pi/te	5, 47	12, 13, 16, 19, 22, 35, 39, 82	Toko Ngawa
S9/63	te/so	5, 47	39, 54, 82	
S9/64	te	20, 47	39, 84	Towers Bay North
S9/65	te	47	39, 82	
S9/66	pa/pi/pl/te	6, 47	12, 13, 20, 22, 35, 82	Ngaio
S9/67	pa/pi/te	46	12, 13, 19, 22, 35, 39, 80	Tinline
S9/68	pi/ov	3, 20	38, 39, 81	Motuarero-iti
S9/69	bu/mi/ov/wa	3, 37	40, 61, 81	Motuarero-iti
S13/1	wa	38, 52	44, 56, 63, 95, 97, 98	Mount Thomas Spur

Site number	Description	Figure	Page	Name
S13/2	mi/pi	52	26, 38, 95	Trig AA
S13/3	fi	52	96	
S13/4	fi	52		
S13/5	fi	52	95	
S13/6	wa	29, 30, 52	46, 47, 52, 71, 72, 95, 97, 98	Pokororo Bridge
S13/7	wa	23, 52	41, 52, 56, 77, 95, 97, 98	Pokororo East
S13/8	wa	52	97	
S13/9	mi/ov	52	95	Mount Thomas
S13/10	ov/st	52	95	Mount Elizabeth
S13/11	wa	52	97	
S13/12	fi	25, 52	95	Mount Thomas Gully
S13/13	fi	45, 52	95, 96	Pokororo Hall
S13/14	fi	42, 52	71, 72, 95	Graham Road
S13/15	wa	52	97	
S13/16	fi	34, 52	74, 96	The Island, Graham Valley
S13/17	wa	52	97	
S13/18	fi	52	96	
S13/19	fi	52	96	
S13/20	fi	52	96	
S13/21	bu	52	40	
S13/22	fi	52	96	
S13/23	ov	52	95	
S13/24	fi	52	95	
S13/25	ov	52	96	
S13/26	fi	52	96	
S13/27	fi	52	96	
S13/28	fi	52	74, 96	
S13/29	fi	52	96	
S13/30	fi	52		
S13/31	fi	52	96	
S13/32	mi	52	95, 96	Peninsula Bridge
S13/33	mi/ov/wa	52	95, 96, 97	Pokororo Pa
S13/34	fi	52	96	
S13/35	pi/so	41, 52	35, 54, 95	Green Hill
S13/36	ov	52	95	
S13/37	fi	37, 52	63, 96	
S13/38	wa	52	97	
S13/39	fi	52	95	
S13/40	fi	52	95	
S13/41	fi	52	96	
S13/42	fi	35, 52	56, 96, 99	Orinoco
S13/43	ov	52	96	
S13/44	fi (bu?)	3, 43	40, 71, 72, 86, 98	Wratt's Whare
S13/45	mi	3	86	
S13/46	fi	3, 35	93	
S13/47	fi	3	96	West Poplar
S13/48	fi	3	95	Rocky River
S13/49	mi/te/st	3	26, 39, 65, 86	Mount Buggery
S13/50	fi	3	89	Wills Valley
S13/51	pi	3	38	
S13/52	fi	3	89	
S13/53	wa	3	97	
S13/54	fi	3	68, 96	
S13/55	fi	3	86, 97	
S13/56	ms	3	86	
S13/57	ov	3	86	
S13/58	fi	3	86	
S13/59	fi	3	86, 97	The Dip

Site number	Description	Figure	Page	Name
S13/60	fi	3	86	Goose Island
S13/61	pi/te	3, 20	38, 39, 86	Bottom Gully
S13/62	pi/te	3	38, 86	South Branch Gully
S13/63	mi/pi	13, 19	25, 34, 38	Holyoake Valley
S13/64	mi/pi	19	25, 34, 38	Holyoake Valley
S13/65	fi	3		
S13/66	fi	3	86, 97	
S14/11	ov	48	84	Outer Island
S14/12	bu/mi/ov/wa	22, 25, 26, 33-35, 44, 48	8, 10, 40, 41, 44, 47, 50-52, 54, 61, 63, 74, 77, 84, 86, 97, 98	Pah Point
S14/15	bu/mi/ov/pi	13, 47	25, 41, 82	Kaka Island
S14/16	ms/qp	15-17, 33, 37, 49	29-33, 54, 63, 66, 71, 87, 88	Whakarewa Street
S14/19	fi	40, 51	68, 91, 93	Grossi's Point
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## Abbreviations:

JPS *Journal of the Polynesian Society*  
 NZAA Newsletter *New Zealand Archaeological Association  
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