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The Prehistory of the Southern Wairarapa

B. Foss Leach*

Archaeological evidence for prehistoric settlement in the southern Wairarapa region of New Zealand is reviewed. The widely-used dichotomy of Archaic and Classic Maori is not found to be appropriate to this region. Instead, the threads of stability and change in economy, settlement pattern, material culture, technology, and communication patterns are placed in a setting of the complex environmental history of the region. A series of seven cultural periods, spanning AD1100 to AD1853, is suggested.

INTRODUCTION

The environmental setting

The southern Wairarapa (Fig. 1) consists of three different environmental zones — a mountainous hinterland, a complex alluvial valley with associated rivers and lakes, and a narrow coastal platform. The Rimutaka range to the west rises to 1000 m and largely consists of Jurassic greywackes. This is a substantial natural barrier to communication between groups on either side. In the east is the Aorangi mountain block, also about 1000 m high. Geologically, the Aorangi mountains are a mosaic of Triassic greywackes and sandstones, Lower Cretaceous rocks, and Miocene mudstones. Between these two mountainous areas occurs the rich alluvial valley of the Ruamahanga River. Estuarine conditions prevailed in this valley until about 1500 B.C., when it turned into the lacustrine complex of today (Leach and Anderson, 1974). The coastal platform of Palliser Bay is a narrow unstable strip about 200 m wide, with only occasional outcrops of the rocky basement. The sediments are largely redeposited gravels from the Aorangi mountains. They have been produced by massive erosion processes which characterize the area and have been thrown up against the cliffs and foothills. In the Putangirua, Pinnacles, and Hurupi area, the sediments are of marine Miocene origin.

Forests in the region vary greatly from swamp kahikatea stands in the alluvial valley, to a patchwork of mixed broadleaf podocarp forest and beachlands in the mountains. The climax vegetation of the coastal strip was a scrubland composed of flax, kanuka, karaka, ngaio, and occasional kowhai and cabbage trees.

Palliser Bay is a rich marine environment with soft unstable foreshores and occasional rocky headlands such as Black Rocks. The rivers and lakes debouch into the bay through a narrow channel in a gravel bar which tenuously separates Lake Onoke from the sea.

The climate is variable from the occasional long summer drought through to wild storms in winter. Two winds prevail; a northwesterly which can be either dry or wet and last for long periods; and a southerly, which brings the main storms. Palliser Bay and Cook Strait generally are well known as a tumultuous stretch of sea. Rainfall in Palliser Bay is about 1000 mm, and the area has a mean monthly temperature range of about 7 to 19° C over winter and summer.

Economic resources

An important area of chert occurs on the east coast of the Wairarapa near Tora, about 25 km north of Cape Palliser. This varies in colour and some has light chalcedonic veining. It is generally of high quality and is a very suitable material for making knives,

* Department of Anthropology, University of Otago, Box 56, Dunedin, New Zealand.

scrapers and the like. Both at Tora, and farther south at White Rock, siliceous limestone is found, and while it varies a great deal in quality, some may have been suitable for making small adzes. A type of fine-grained unbaked 'argillite' occurs sporadically in Palliser Bay and is well suited to manufacturing small items such as stone lures. The main useful rock in the area, however, is greywacke. This occurs in super-abundance along beaches and in the interior. It could be used for some types of adze and also for oven stones.

Botanical resources of the region include a considerable variety of timbers and wild vegetable produce. *Podocarpus totara* was found only in the main alluvial valley and would

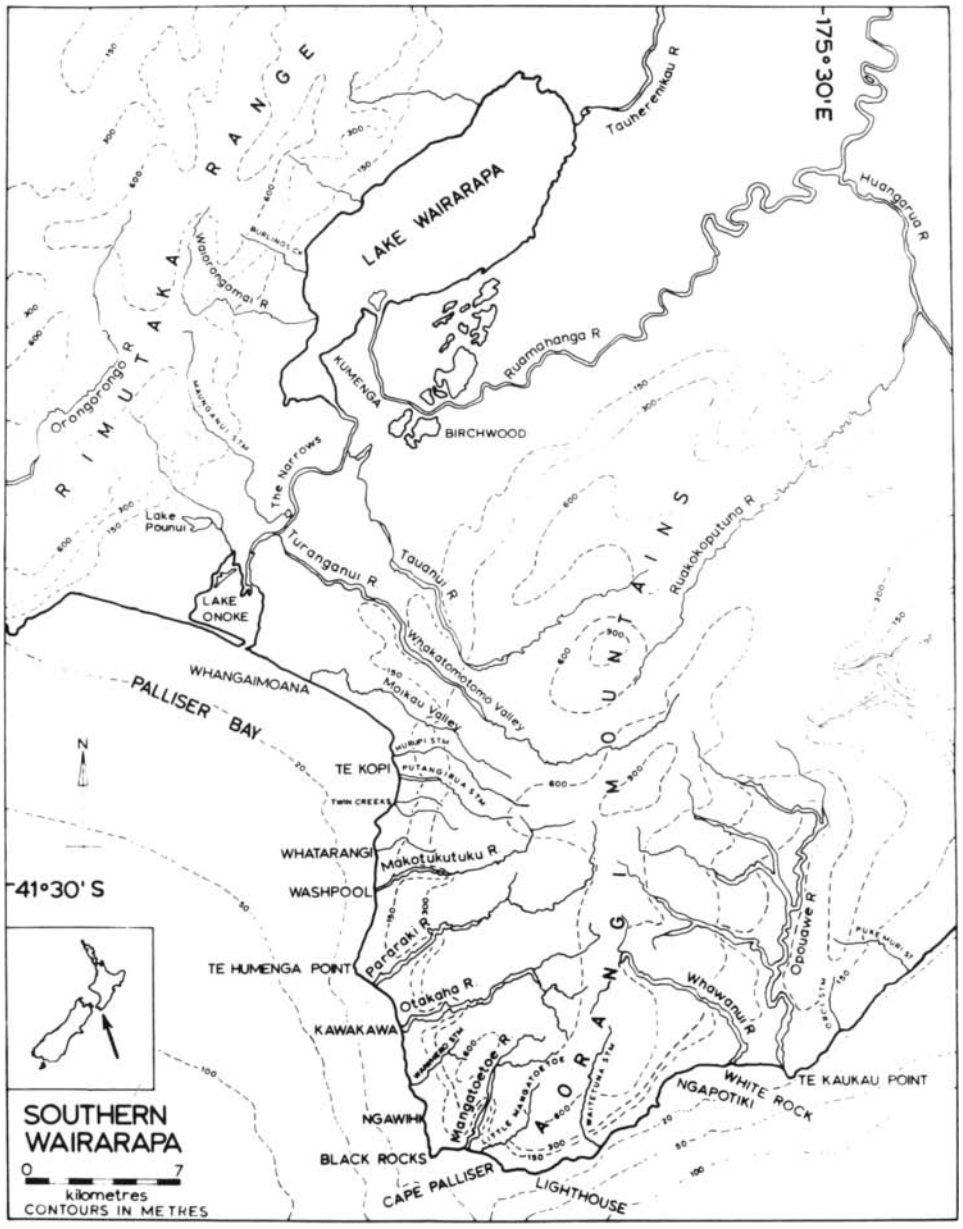

Fig. 1 — Location map.

have been the main source of timber for making canoes. The main type of edible fernroot, *Pteridium esculentum,* is very rare in the Aorangi mountains, but again could have been exploited in the Ruamahanga valley. The forest of course is rich in many kinds of edible berries such as those of karaka and hinau. Flaxes, sedges and rushes are readily available and would be suitable materials for garments and cordage.

The main source of information about moa is from archaeological sites. It suggests that moa were either very rare or even absent in the southern Wairarapa before the time of first settlement (Leach and Leach, 1979: 236). This is interesting, because at the end of the Pleistocene period there were at least three genera of moa living in the Aorangi mountains, evidenced by material from the Martinborough caves — *Anomalopteryx, Pachyornis,* and *Dinornis* (Leach and Leach, 1979: 235). Other types of bird, both of the forest and sea, were numerous during the last millennium.

Cook Strait is well known for the quantity of whales and seals of various kinds which regularly pass through it. There is a small colony of seals at Black Rocks, but the main source of sea mammals was probably the occasional stranding, either as single individuals or *en masse.* Strandings still occur today.

Man brought the Polynesian rat and dog to New Zealand, and these were also an important economic resource to people living in the southern Wairarapa.

Finally, the marine and freshwater resources must be mentioned. Palliser Bay is rich in fish, crayfish, and rocky shore shellfish. The latter only occur in isolated patches at headlands but can be present in large numbers. Eels occur in great abundance during seasonal mass migrations to the sea through the mouth of the gravel bar at Lake Onoke. Eels were also available in smaller numbers, along with freshwater crayfish, throughout the year in the smaller rivers and streams throughout the region.

Traditional occupation of the southern Wairarapa

Traditions of Maori occupation in the Wairarapa extend all the way back to the great adventurer Kupe. His visit to this area is immortalised in two place names: nga-waka-o-Kupe, an area on the western slopes of the Aorangi mountains which looks like three upturned canoes; and nga-ra-o-Kupe, near Cape Palliser, an upright slab of rock which looks like a triangular lateen sail.

At the time of European contact, the Ngati-Kahungunu were in effective control of the Wairarapa. This tribe had dominion at that time over a large area extending from Hawkes Bay to Cook Strait along the east of the main divide. Oral traditions consistently refer to a mass migration of these people into the Wairarapa in the early 17th century. At this period, the Rangitane were in occupation, although other groups may have been there also. The Tini-o-awa and the Ngati Ira are known to have co-existed with the Rangitane in this area before moving elsewhere.

The nature and distribution of archaeological sites

Some 249 archaeological sites have been recorded in the region; 46 of these in the main alluvial valley, 87 along the shores of Palliser Bay, and a further 116 along the east coast as far north as Glenburn. This is not a dense concentration (one site for each 6.83 km^2), by some standards in the North Island, and is partly a reflection of the low carrying capacity of the land, given the kind of economic system which might have prevailed during the prehistoric period.

In the alluvial valley, a few sites occur in the Western Lakes area and the eastern valley sand dunes (thrown up during the much earlier estuarine conditions); while rather more are found in the eastern valley lowlands and associated river valleys running off into the Aorangi mountains. In Palliser Bay sites tend to be concentrated about the mouths and inner reaches of the seven main river valleys which drain the Aorangi block. This type of distribution is not so apparent with sites farther up the east coast.

The most common type of site is a small midden and/or oven area, but almost as common are stone wall complexes along the coastal flats. These are particularly striking features (Fig. 2), and lack of ploughing along these flats has helped to preserve them.

Fig. 2 — Stone walls are common in Palliser Bay and outlined early garden areas. This example (N168/29) is unusual in being 2 km inland at the Washpool. Gardening began here by the middle of the 13th century AD.

Fig. 3 — The rectangular raised-rim pit is a striking field feature in the southern Wairarapa. This type of kumara storage appears to have been imported from farther north in the 16th century AD. These examples are in the Whakatomotomo Valley (N165/39).

Fig. 4 — Battery Hill Pa (N165/18) in the Western Lake area. This site has a ring ditch reminiscent of sites in Taranaki and may well have been built during raids in the early 19th century AD.

Groups of storage pits are almost as numerous (Fig. 3), and occur either on the exposed coastal flat, or as defended complexes in 'hide-away' locations on spurs in the bush. A few are defended in the manner of pa sites, with a combination of naturally steep slopes and ditch and bank features.

Fortified settlements, or pa, are fairly rare (37), and two-thirds of these are along the coast north of Cape Palliser. A particularly striking example, known as Battery Hill (N165/18) on a Lands and Survey Farm (Fig. 4), is defended in similar manner to some ring ditch pa in the Taranaki district and may have been built by Taranaki raiders, who are known to have been in the area about AD 1825 (Mair, 1979: 13). A similar one is near Pirinoa across the lake on Hume's property (N165/37). Open settlements in undefended locations number about 15, and are fairly evenly distributed. Finally, there are a few more specialised sites such as garden soils, karaka groves (possibly planted), burial grounds, and chance finds of artefacts.

Review of archaeological research

The first significant publication resulted from a survey by Adkin (1955; see also Leach and Leach, 1979b), who drew attention to the apparent high density of settlement in the eastern Palliser Bay area. The artefacts which he found were typical of moa-hunter sites, as are many items now in private hands (Budd collection, Holmes Warren collection, and Broughton collection) or in the National Museum.

In the late 1950s at least four burial sites were excavated — one near Honeycomb

Rock which had an unusual shell tiki included (Barrow, 1959: 6), and a further three at the mouth of the Pararaki River (Davis, 1959: 18; Keyes, 1975, pers. comm.). One of these was accompanied by a shark tooth necklace (Cairns, 1971). Several short publications (Cairns 1959 a, b, 1960, 1961; Davis, 1957; Palmer, 1961) also appeared about this time, and the growing interest in the Wairarapa culminated in a field trip to the Glenburn area in 1960 by participants of the New Zealand Archaeological Association conference (Scarlett, 1960: 10).

Wellman included parts of the Wairarapa coast in his coastal reconnaissance of the North Island. While he drew attention to the presence of moa bone in close association with human occupation at Cape Palliser, he did not believe there had been significant settlement in the region.

> The coast is extremely windswept and so inhospitable that the small population it would have supported are unlikely to have left a continuous record of their presence . . . . (Wellman, 1962: 39)

The systematic recording of prehistoric sites in the Wairarapa began in 1961 with Smart and Cameron's survey of the Pahaoa area (Smart, 1966). This was followed by a reconnaissance of the coastline between Cape Palliser and Pahaoa in the summer of 1963-64 by Hitchings and O'Rourke (n.d.). A group of students led by Mitcalfe (1968 a-f; 1969) revisited parts of this area on a series of weekends in 1968, and also extended the survey farther north.

Until Park's study (1970) of an area high in the Tararua Ranges in 1968-69, no direct indication of the time depth of Wairarapa prehistory was available. This excavation of an oven complex, dated to AD 1209 ± 54, yielded important palaeoclimatic information (all radiocarbon dates in this paper refer to the old half life, without secular correction).

From 1969 to 1972 a regional programme of archaeological research was centred on the southern Wairarapa region. This included a site survey of some 1700 km², analysis of historic and traditional records, and excavations of 25 archaeological sites in Palliser Bay. This project co-ordinated the efforts of some of the staff and students of the Otago University Anthropology Department, the bulk of the work being carried out by A. J. Anderson, B. F. Leach, H. M. Leach, G. M. Mair, K. Prickett, N. J. Prickett, I. W. G. Smith, D. G. Sutton, and R. Wallace. Results of this work have been extensively published, the main work being a bulletin of collected papers (Leach and Leach, 1979a). Since most is known about the prehistoric occupants of Palliser Bay, the following reconstruction is most relevant to that area of the Southern Wairarapa.

THEMES IN WAIRARAPA PREHISTORY

The people

It is logical to begin a review of prehistory in a region by considering the people themselves. In the Wairarapa we are fortunate that a detailed study (Sutton, 1974, 1979) has been made of skeletal material recovered in Palliser Bay. From the time of first settlement of the region, the people of the southern Wairarapa clearly had typical Polynesian characteristics (Houghton, 1980). They were tall by contemporary European standards, adult males having an average height of 175 ± 2 cm, and adult females 161 ± 3 cm. They lived a vigorous but fairly short life; the average age at death of adults was about 38 years. About 70 per cent of adults died between the age of 32 and 44, and only one in a hundred adults reached the grand old age of 56 years. This may seem an indication of very short life expectancy but was common in prehistoric New Zealand, and for some populations, such as those at Wairau Bar (Houghton, 1975), life expectancy was considerably shorter.

Only a small number of children were born in any one family, about two to four being the norm. Most adults suffered from osteoarthritis in their limbs, and spinal degeneration was common in advancing years. Causes of death are usually very difficult to determine archaeologically, but it seems that these people lived active lives without much traumatic injury such as broken limbs. There is no evidence of group warfare in the early periods.

The evidence relating to teeth is striking. This shows every sign that the diet was

rather coarse and abrasive. Significant tooth wear seems to have begun as early as six or seven years, and by the time a person reached 20 to 30, the front teeth and first molars were becoming quite worn. By an age of 30 to 40 years the dentition was badly depleted, and anyone who survived into the next decade would have had marked periodontal disease and abscessing. This reconstruction is a sorry picture of the effects of hard life in Palliser Bay, where teeth were used not only to chew gritty food but also as implements for biting and stripping.

Some lines of evidence suggest that in the course of the prehistoric period, the general physical conditions of the people deteriorated significantly. This is particularly evident in the dense and numerous Harris lines visible in the X-rays of limb bones of both children and adults dated to the late 15th century. In contrast, these features are absent amongst earlier people. These Harris lines result from episodes of malnutrition or moderately severe illness, and show that the general conditions of life must have worsened markedly after occupation became established in the area. This is a most interesting line of evidence, and fits well with the economic changes which appear to have taken place over the same period (see below).

Prehistoric horticulture

There are several lines of evidence which show that a form of horticulture was practised in Palliser Bay from the time of first settlement. One of the most obvious types of field feature of the region is a long row of piled up stones — 'stone walls' — or stones carefully placed in single boulder alignments. These features are organised into complexes, and H. Leach (1979a: 137ff.) has shown that they are field boundaries, surrounding early garden plots. Excavations revealed these walls to have been 2 to 3 m wide, and their maximum height was probably about 40 to 60 cm. Charcoal, and even some midden, is often associated, but in some cases there is little or no matrix other than stones. The walls are partly related to clearing operations in the preparation of garden plots and also functioned as boundary markers. Most are very straight, and some are as long as 200 m.

In addition, there are pits, either associated with the walls, or in areas by themselves. These are clearly for the storage of horticultural produce. Clusters of walls are found at each of the seven main valley systems in Palliser Bay. They have been dated to as early as the beginning of the 12th century and as late as the close of the 15th century AD.

In some cases, cleared garden plots have numerous small mounds of stones piled up inside the boundaries, and these are thought to be small cultivation mounds (H. M. Leach, 1979b: 242; B. F. Leach, 1979a: 122). There are also a number of small terraces (B. F. Leach, 1979a: 111), of varying size, which are not demarcated by walls or stones but nevertheless were garden plots (see Fig. 5).

Determining what crops might have been grown in these gardens is a relatively simple matter, despite the absence of archaeological evidence in the form of actual pieces of the plants. Amongst the cultigens imported into New Zealand in the prehistoric period, kumara requires a growing season of five to six months, gourd six to seven months, yam about eight months, and dry land taro seven to nine months. Both kumara and gourd grow best at mean temperatures above 17° C, while taro and yam prefer a mean temperature of above 20° C during the growing season (H. M. Leach, 1979b: 242). The tubers of kumara and yam suffer tissue damage if and when the temperature falls below 4 to 5° C, while taro is rather more tolerant. The kumara can tolerate drier conditions than taro and yam: minimum monthly rainfall for kumara is 60 mm, while taro and yam require at least 100 mm, preferably up to 150 mm during the growing season.

In modern Palliser Bay, the effective growing season is five to six months, with a mean temperature of 16.3° C. Rainfall ranges from 58 to 82 mm during the growing season.

Thus it can be seen that for taro and yam there is not enough rain, it is too cold, and the growing season is too short. The growing season is barely sufficient for gourd. In the case of kumara, there is adequate rainfall and a sufficiently long growing season, but termperatures are about 1° C lower than desirable. It has to be concluded that the climate

is distinctly marginal for kumara and gourd, but these nevertheless must have been the crops grown. The small stone mounds are most likely to have been the plots for gourd, particularly as there is archaeological evidence (B. F. Leach, 1976: 248) for a central post, which is necessary for the climbing vine. Fern root could have been a minor crop, but soil and climate conditions appear to be generally unfavourable. Bracken fern is only rarely found in botanical surveys of the area, and is much more common in the main alluvial valley of the Wairarapa.

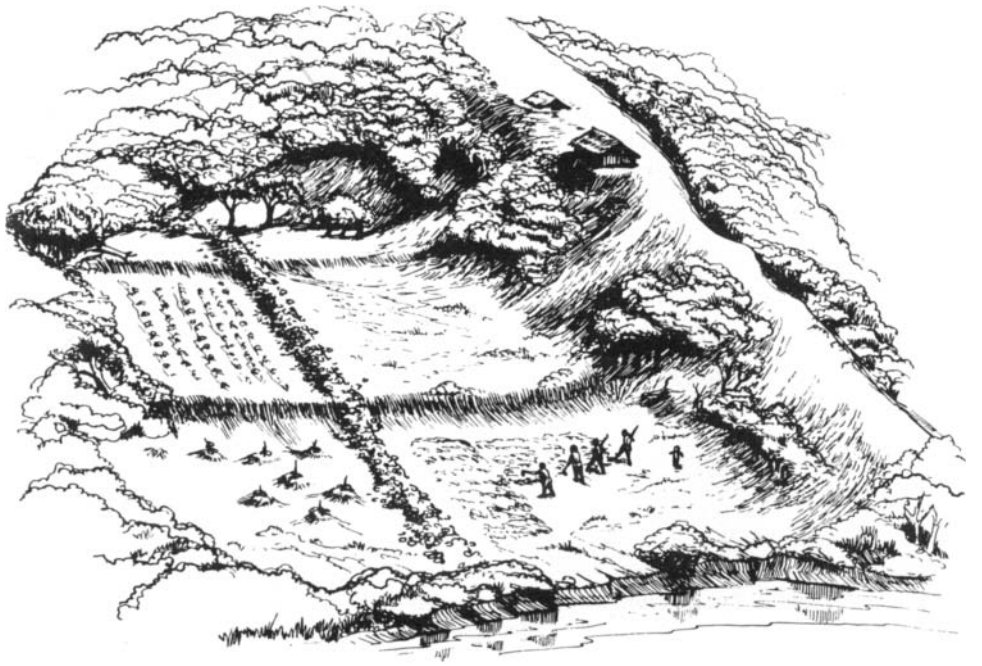

Fig. 5 — A reconstruction of an early gardening scene. Gourds would have been grown on the small mounds and kumara in the rectangular plots. Some ground has been left fallow. This scene is based on site N168/29 in the Washpool Valley (see Fig. 2).

The changing climate and environment

There is now firm evidence that climatic conditions in New Zealand have undergone significant changes during the last millennium (Leach and Leach, 1979: 229 ff.). These changes would have had a profound influence on people and their activities along the coastal areas of Palliser Bay for two reasons.

Firstly, at the best of times, only about 60 days in a summer season of 120 days would be suitable for collecting shellfish in the intertidal area or for inshore fishing (Anderson, 1973: 126). The main prohibiting factor is wind swell which creates very uncomfortable conditions for foraging or putting out to sea in a canoe. Hand line fishing would be all but impossible on most of these days of swell, which occur on locally 'fine' days, when cold fronts are affecting weather elsewhere. In addition, the swell lasts for some days after the passage of frontal systems. In a period characterized by shorter time intervals between cold fronts, the effects on marine foraging and fishing must have been dramatic.

Secondly, Palliser Bay under present climatic conditions is marginal for successful kumara and gourd horticulture. A consistent change in mean annual temperature of 1° C would make a considerable impact on horticultural communities, because it would be accompanied by a significantly shorter growing season. Such a change could well have turned a critical situation into an impossible one.

Climatic changes of this order of magnitude are now known to have taken place during the period of human occupation, and these must have had far-reaching effects on the cultural and economic history of this region. The sequence of climatic events is summarised in Figure 6.

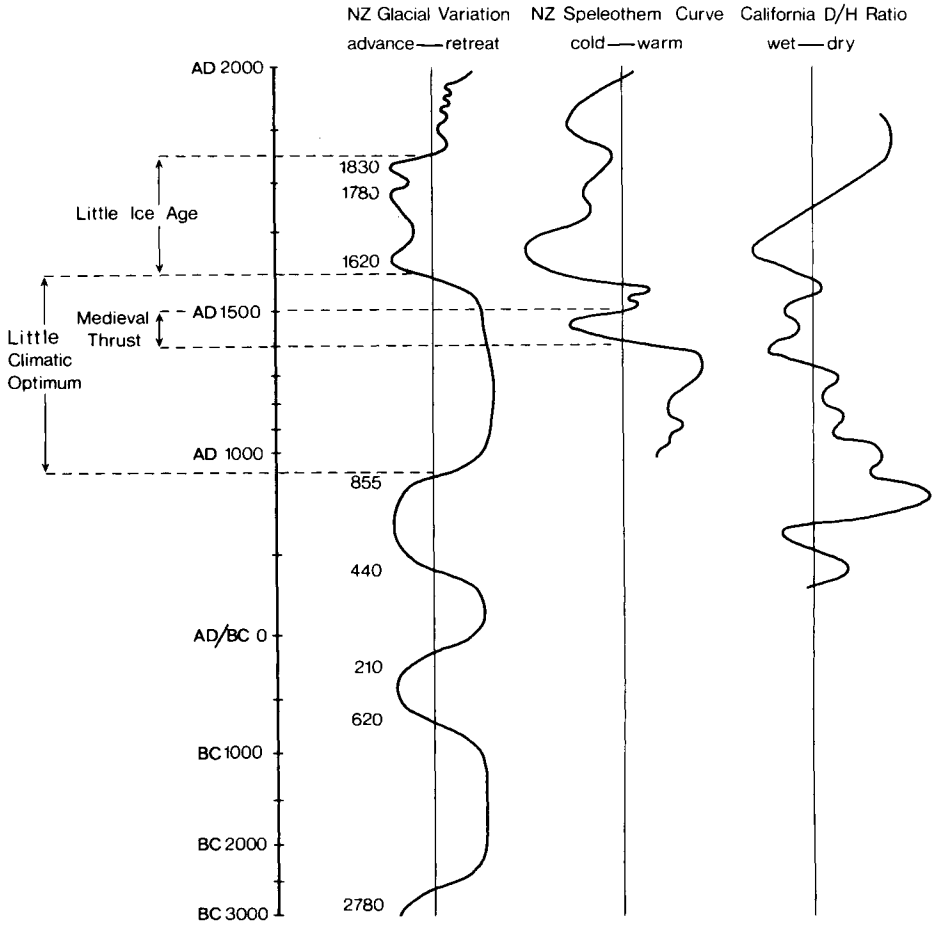

Fig. 6 — Schematic summary of recent climatic changes in New Zealand.

At the time of first settlement of Palliser Bay, and during the ensuing 450 years, the climate can be characterized as settled (Leach and Leach, 1979: 234). Many summers would have been marked by a cycle of northeasterly breezes with drizzle night and morning and fine days, followed by fresh northwesterly winds with warm day temperatures, and then brief, cooler southerly winds with only light rain. There is little likelihood that more rain fell than at present, but humidity may have been higher. Minor droughts could have been experienced. Wind strengths were probably lower and less desiccating. It is possible that anticyclones persisted well into autumn, thereby lengthening the growing season by several weeks. Winter conditions would have brought more frequent cold fronts with heavier rain and also periods of fine cool weather with sharp inland frosts.

On the other hand, weather in a typical growing season of the period AD1450 to 1500, and 1600 to 1800, would have been far more unpredictable, with low pressure systems dominating the weather in both winter and summer. It can be predicted that summer

temperatures would fluctuate between extremes, up to 30° C when northwesterly winds prevailed, and down to 4 or 5° C during the passage of active cold fronts. Shelter would probably become a critical factor for successful gardening. Increased wind strength during these periods was undoubtedly reflected in more turbulent sea conditions.

Coupled with these climatic conditions are significant changes in the coastal ecology of Palliser Bay. There is a complex cause and effect relationship between human economy and the natural environment; unravelling the contribution and precise role of climate and cultural factors in the changes which took place is very difficult. For instance, increased stormy conditions can result in more tree wind-throw, which in turn can accelerate erosion processes. Man's deforestation of the relatively unstable slopes of the Aorangi mountains would have the same effect. On the whole, though, such changes can be detected in the archaeological record before the onset of climatic deterioration — man was therefore having a significant impact on the environment. Accelerated shingle fan activity has been documented at the Pararaki in the 12th and 13th centuries, at Te Humenga by the early 13th century, at Whatarangi after the beginning of the 15th century, and at Waiwhero in the 16th century (Leach and Leach, 1979: 236-7). These changes all pre-date the period of worsening climate.

Another line of evidence also attests these environmental changes. Faunal assemblages from archaeological sites dating before about AD1400 have significant numbers of filter-feeding shellfish, including mussels and tuatua. These species disappear from the archaeological record after this, and are absent in the modern marine environment. In addition, forest birds decline in importance in the faunal assemblages represented in middens.

It is suggested that a chain of events occurred with man as the prime initiating force. It began with forest clearance for gardening and was followed by erosion. This raised the general sediment load in streams and rivers, which in turn wiped out sensitive filter-feeding marine shellfish species. With the later poorer climatic conditions, the process gathered momentum, and ultimately produced the now familiar unstable shingle beaches, braided shingle rivers, and marked hillside erosion and gravel fans.

Subsistence economy and seasonality

The people of Palliser Bay are best described as foraging horticulturalists. They exploited the food resources of the rivers and streams, the forest zone, the coastal strip of land, the intertidal platform, and the offshore area. Of these zones, three stand out as of greatest importance in the food quest: the coastal flats were the main areas for kumara gardening, the forest zone was where most birds were caught, and the intertidal and inshore area was where the bulk of fish and shellfish were obtained.

The range of species caught by these people is impressive: at least 50 shellfish species, 45 species of bird, 25 of fish, 5 of mammal, and 5 of crustacean. Dominating types of shellfish were paua, *Melagraphia* spp., limpets, catseye, and *Haustrum haustorium.* The main birds caught were tui, parakeets, pigeons, and shearwaters. Although moa were eaten, it has been argued that most were obtained in the South Island during trading expeditions (B. F. Leach, 1979a: 89-90). We can be quite certain that moa-hunting was not a significant aspect of the subsistence economy. Amongst the different kinds of fish taken, catches were dominated by labrids or spotty, tarakihi, greenbone, red cod, kahawai, eels, and barracouta. Only a few snapper, groper and blue cod were taken, although these are the dominant fish taken today. Very large numbers of crayfish were caught, and amongst the mammals, only rats were eaten in large numbers. There is no evidence of cannibalism at any period.

Of course, sheer numbers of animals eaten is only part of the story. In terms of bulk of food, the single example of a baleen whale in one of the sites (Smith, 1979: 217) probably far outweighs all other remains in all archaeological sites excavated.

Amongst the vegetable foods in the economy, kumara and gourd were the most important, while fernroot may not have been. The evidence of possible fern root attrition planes on teeth is ambiguous. Firm evidence was obtained for consumption of karaka,

hinau and pokaka berries, and no doubt many additional vegetable foods were gathered too.

Many of these foods could not have been obtained in the winter — kumara would have been harvested in the autumn (Leach and Leach, 1979d: 261), and the bulk of fishing and shellfish gathering must have been confined to the summer because of turbulent sea conditions in winter. For this reason it is clear that storage of food gathered during the summer and autumn abundance must have been of great importance if people were to last out the winter shortages. A portion of the kumara harvest was stored in subterranean pits, some fish were dried on racks, and birds were potted in fat. Year-round occupation has been confidently established (B. F. Leach, 1979b).

Settlement pattern

There seem to have been two rather different kinds of settlement pattern in the Wairarapa: an early one based on permanent settlement in Palliser Bay, and a later configuration with permanent habitation in the alluvial Ruamahanga valley. Exploitation of these two zones was probably not entirely mutually exclusive, but substantially so. On the whole, there is a dearth of early archaeological evidence in the main valley, and a corresponding absence of late evidence along the coastal areas.

The early pattern is similar in many ways to that of archaic communities in tropical eastern Polynesia — the primary focus was the mouth of a river valley. Seven such communities can be identified in Palliser Bay, established within the first 250 years of founding settlement. Coastal and forest resources were of importance to these people, and although year-round exploitation has been demonstrated (B. F. Leach, 1979b; Smith, 1979: 219), it is suspected that there may have been some shifting in settlement throughout the year. Two sizeable dwellings have been found in inland locations — one in the Moikau valley from about AD 1180, and another in the Washpool valley from about AD 1550. Occupation in at least the summer has been inferred for the former (N. J. Prickett, 1979: 41), and autumn to winter for the latter (B. F. Leach, 1979a: 125). The main period of activity relating to coastal resources, such as gardening and fishing, was undoubtedly summer and autumn, and food processing camps and perhaps semi-permanent dwellings were established at the mouths of the valleys. However, in the course of the year, people may have retreated inland to escape from stormy winter conditions on the highly exposed coastal flats.

Thus characterized, there are two foci of the early Palliser Bay settlement pattern — coastal, and inland. Burials in the early period are definitely associated with the coastal area, and this alone may show the importance of this zone for habitation, since the standard early Polynesian pattern is for a close association between burials and dwellings (Leach and Leach, 1979c: 210). Houses have not yet been identified archaeologically on the coast, but traces of several kinds of other domestic structures, such as cooking sheds, have been found (B. F. Leach, 1979a: 81).

It is unlikely that these people in their daily activities ranged much farther than about 5 km in any direction, and a community size of 30 to 40 has been suggested (Leach and Leach, 1979d: 266). With this size of group, people must frequently have been obliged to seek marriage partners outside their immediate community, probably amongst groups in other river valleys along the coast.

The late settlement pattern is considerably different. This is essentially related to the Ngati-Kahungunu and seems to have been largely based on settlement in the region of Lake Onoke and Lake Wairarapa. Less is known of this configuration archaeologically, and it is reconstructed by extrapolation from historical and traditional sources (Mair, 1979). It must be noted that the period in question, late 16th through to 19th century, was a time of great social upheaval. Thus, there are likely to have been several different patterns of settlement. One thing can be stated with confidence, however, it was markedly different to the pattern of previous centuries. People living in the main valley appear to have been rather more mobile than their predecessors, and fishing parties would travel from the valley to areas on the coast where they had fishing rights —

distances of up to 30 km (Mair, 1979: 41). There is little evidence of any year-round habitation on the coast at this period, and it is more likely that only specialized camps were there. Warfare becomes a significant factor late in the sequence (Mair, 1979: 18), and villages even on flat land were surrounded with stockades. Fortified retreats on higher ground were also constructed.

Technology and material culture

The early coastal people were not particularly skilled in stone flaking techniques; many of the adzes which they used had been imported from the South Island in almost finished form (B. F. Leach, 1979a: 95; Leach and Leach, 1979d: 263). Equally, these people did

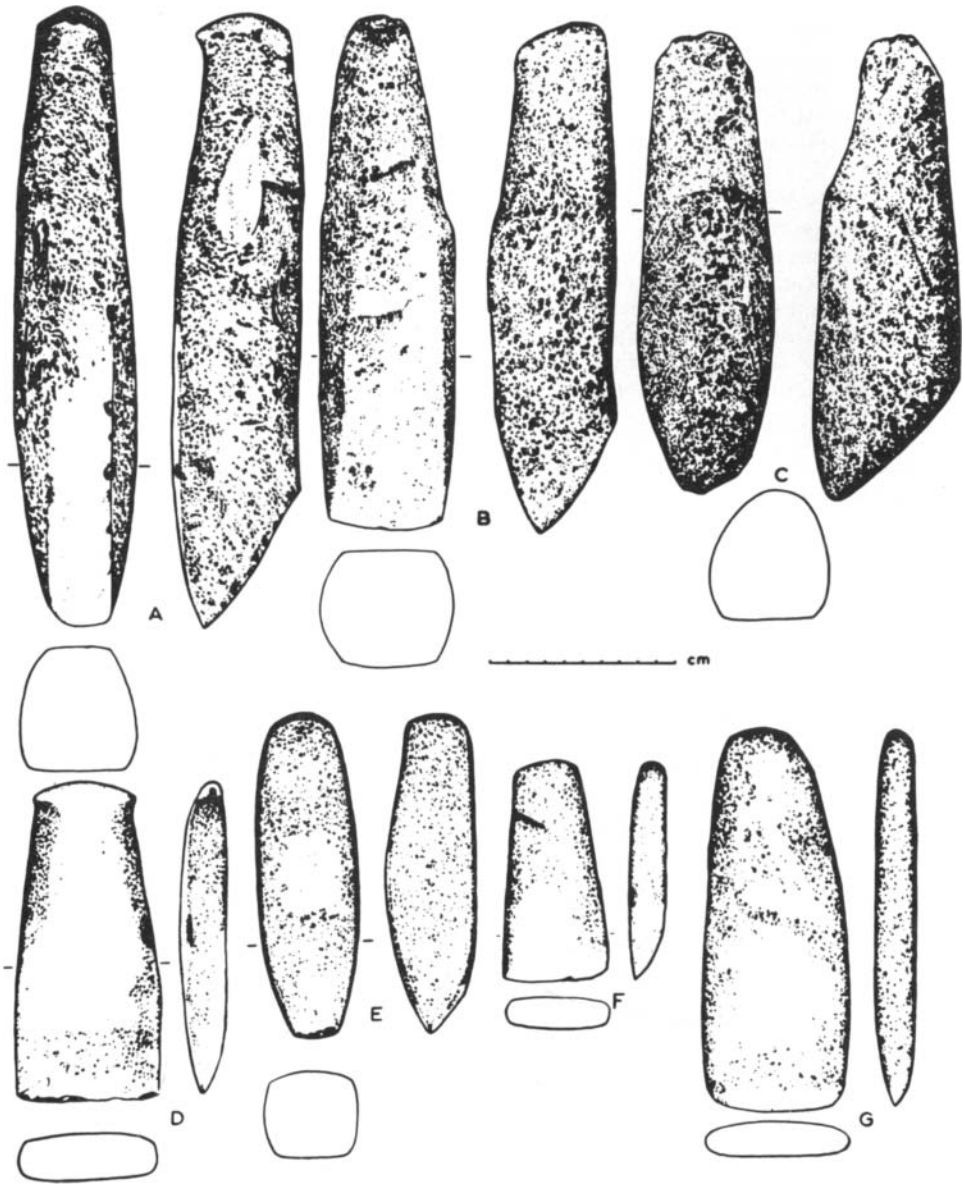

Fig. 7 — Adzes in the southern Wairarapa, made from greywacke.

not know how to make blades from prepared cores. Their main speciality was with abrasive rather than percussive techniques, and a single artefact may have involved a sequence of scarf-sawing and snapping, filing and grinding, and finally drilling. These techniques are much more suited to the main rock types available locally — greywacke, and unbaked 'argillite'. These materials were fashioned into some fine artefacts. Of particular significance is the manufacture of greywacke adzes (see Fig. 7). Some of these are clearly copies of the hogback form, so often encountered in archaic New Zealand sites. In this case, however, they were made by what must have been a very time consuming and difficult hammer dressing technique.

Two other tool types — the schist file and the greywacke cutter — are also associated with abrasive techniques; both are fairly common in sites of all periods. The files are well known in other parts of New Zealand too, and no doubt served a variety of functions such as reaming out the centre of fish-hook tabs. Less well known is the spall of greywacke, one edge of which was used as a cutter with a sawing action. These tools are similar to some found in South Canterbury sites, where they are sometimes incorrectly identified as ulu (B. F. Leach, 1979a: 96).

Fishing equipment in Palliser Bay was made from stone, bone and shell. Moa bone was the favourite material, and lures and both one-piece and composite hooks were manufactured. Hooks of a fairly standard style were made, but it is noteworthy that the 'Oruarangi Point' was in use by about AD 1350 (B. F. Leach, 1979a: 102). Trolling lure points which have been identified, are an unusual form and appear to be a regional style (Anderson, 1979: 57, B. F. Leach, 1979a: 103).

Also with a restricted distribution is a type of triangular sectioned stone lure shank which has two distal knobs on the ventral surface (N. J. Prickett, 1979: Fig. 5; B. F.

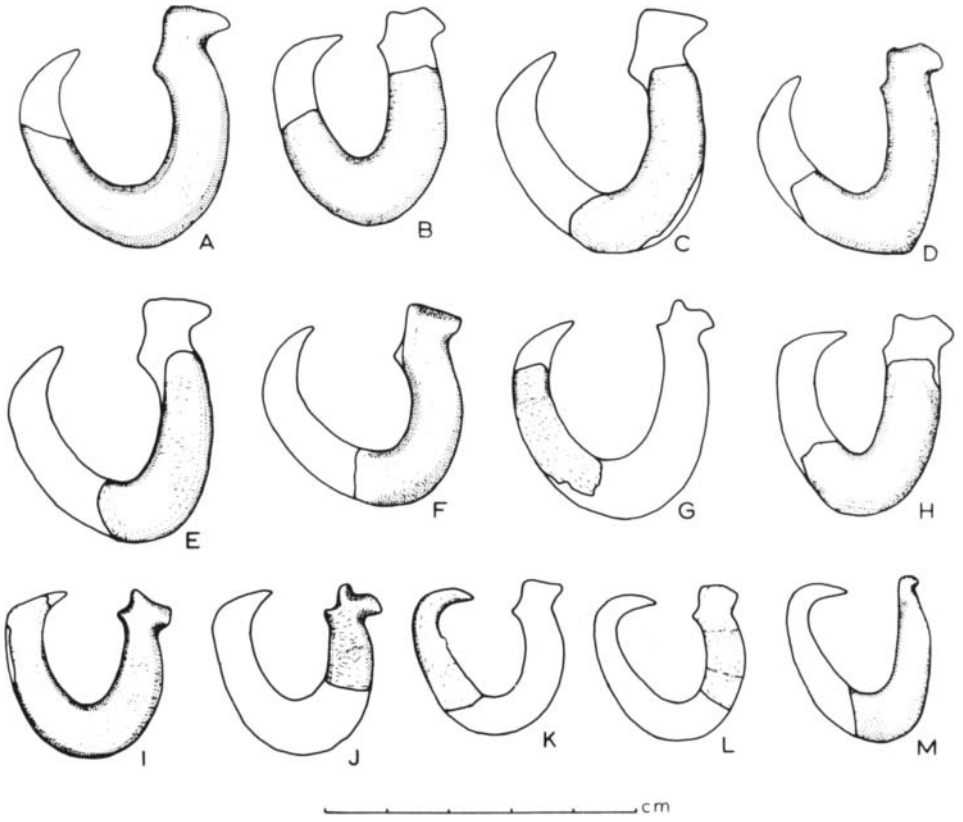

Fig. 8 — One-piece shell fish-hooks from Palliser Bay.

Leach, 1979a: Fig. 15). This form is confined to the Cook Strait region (B. F. Leach, 1979a: 100-101), occurring on both islands. Other types of stone lure shanks are also coeval with this form in Palliser Bay, but one type does apparently have chronological significance. This is an oval or triangular sectioned stone lure shank with a laterally notched snooding attachment at both ends. Only two have been found; the one which is complete is unperforated, but the incomplete specimen could have been dorso-ventrally drilled. These two lures are clearly similar to those of the Coromandel-Hauraki Gulf area (N. J. Prickett, 1979a: Fig. 5; B. F. Leach, 1979a: 100). They occur in one of the earliest archaeological sites in Palliser Bay and could be a positive indication of the source of the founding group. However, the Cook Strait lure type was found closely associated and also occurs in the later sites, whereas the former does not.

Shell fish-hooks are invariably one-piece in form (Anderson, 1979: Fig. 3; B. F. Leach, 1979a: Fig. 21), and seem to be confined to contexts earlier than the 14th century. Some examples are illustrated in Figure 8.

Bird spears are reasonably common in the archaeological sites (Fig. 9) — a sure sign of the importance of birding in the economy. There are several distinctive forms (B. F. Leach, 1979a: 104 ff.).

Rarer artefacts are stone food pounders, amulets, gaming stones, sandstone grinders, pumice net floats, stone sinkers, and bone tattooing chisels. The latter are represented by two specimens: one from about AD 1180, and the other from about AD 1350. Both are notched at the proximal end (B. F. Leach, 1979a: Fig. 2; 107 ff.), showing that this form, so common in later archaeological sites, has a respectable antiquity in New Zealand. It is contemporary with the proximal drilled variety found at Wairau Bar, but is more common in early sites in the Hauraki Gulf and Northland areas.

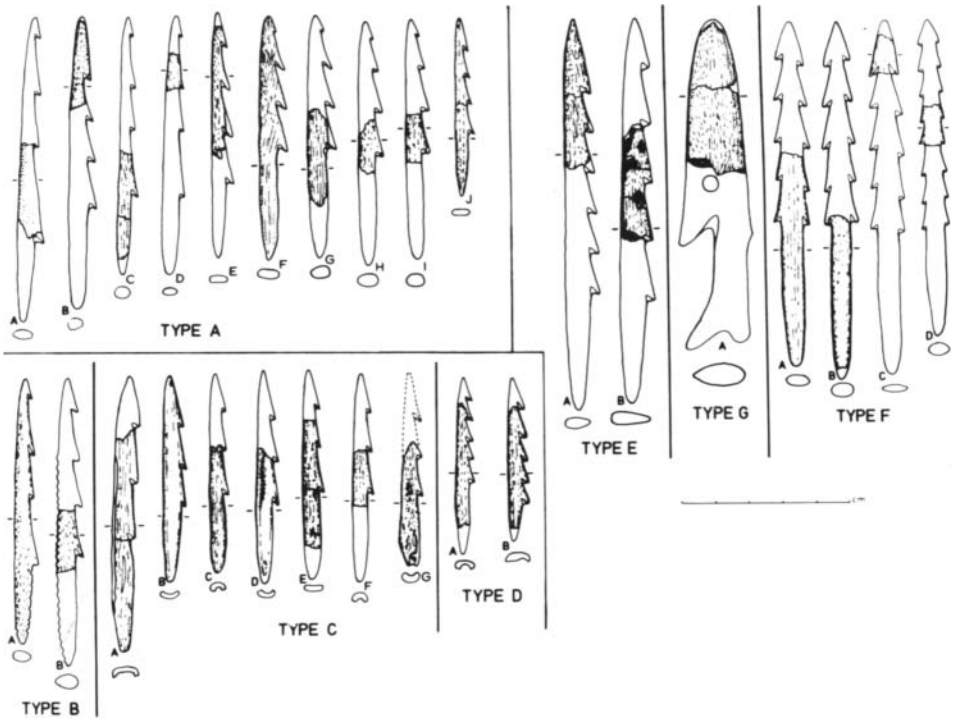

Fig. 9 — Bone harpoons from Palliser Bay.

Trade and exchange

Both economic and ceremonial exchange were of fundamental importance in the structure of pre-European New Zealand society. An enormous range of material goods flowed hither and yon and was the concrete expression for the transfer of equally important abstract social values such as status. Mauss (1966: 9) has described this spiritual transfer as the *Leitmotif* of Maori custom and suggested that it could be positively dangerous to keep the concrete expression of the gift. A material gift is itself a strong motivating force for ever further circulation of property and status (B. F. Leach, 1978a: 391ff).

People in the southern Wairarapa were involved in a regular system of exchange and communication with other groups in New Zealand from the period of first settlement of the region. This is evident in the range and quantity of imported material goods in the archaeological sites. The main surviving residues of this exchange network are different kinds of stone, but we can be certain that many other more perishable items were involved too. Chert was being obtained from the Tora area; limestone from White-Rock, Tora, and Akitio in Hawkes Bay; and obsidian from Northland, Coromandel, Bay of Plenty, Rotorua, and Taupo. From the South Island, argillite was obtained from D'Urville Island, nephrite from the West Coast, and silcrete all the way from Central Otago. Thus, stone materials alone were coming into Palliser Bay from as far away as 850 km to the north and 750 km to the south. It is also believed that moa bone was an item of trade, as the main species in the sites is a South Island variety (B. F. Leach 1979a: 89-90). In addition, numerous tui and parakeets caught locally were preserved in a special manner (B. F. Leach, 1979c), and were probably just one of the items being traded out of the region. In the later period, historical records show that eels from Lake Onoke were traded throughout the North Island. Mair has reconstructed an impressive list of items ranging from kumara, mats and canoes, to feathers and scented oil, which were flowing north and south, through the hands of southern Wairarapa people (Mair, 1979: 22-23).

It is possible that these groups in the Wairarapa should be seen as entrepreneurs — able to make a profit from handing on some northern obsidian to people in the South Island and at the same time profiting from handing on to northern people argillite adze blanks made in the South Island. If they were middlemen in this fashion they would be in a good position to siphon off for their own use a portion of the goods flowing in both directions. It is not known how much long distance transportation was involved, in contrast to neighbour-to-neighbour exchange. Given the more sedentary settlement pattern suggested for the early period compared with that of later communities, it could be that there was a tendency for long distance transportation to supplant an earlier system of essentially short distance transfer.

The extent to which early communities in Palliser Bay relied on imported stone is remarkable. In the course of time, the proportion of imported objects as against those made of local stone rose from 77% (AD 1150) to 83% (AD 1350) to 94% (AD 1550) (B. F. Leach, 1978a: 397).

This shows not only that the desire for imported materials was always high, but that communication channels with places elsewhere in New Zealand were very strong. It is interesting that these external links changed in character through time. The great heyday of trade was clearly in the middle prehistoric period (about AD 1350) and slowly shrank to a closer involvement with people closer to home, particularly around the Cook Strait region.

THE PREHISTORIC SEQUENCE

Period I: Successful colonization (AD 1000 to AD 1250)

There is firm evidence from several parts of Palliser Bay that a number of valley-based communities were established by about AD 1050 to 1200, and it is likely that the first settlers reached the area not much before this — perhaps by AD 1000 (Fig. 10). The people appear to have had close links with groups farther to the north (from where they

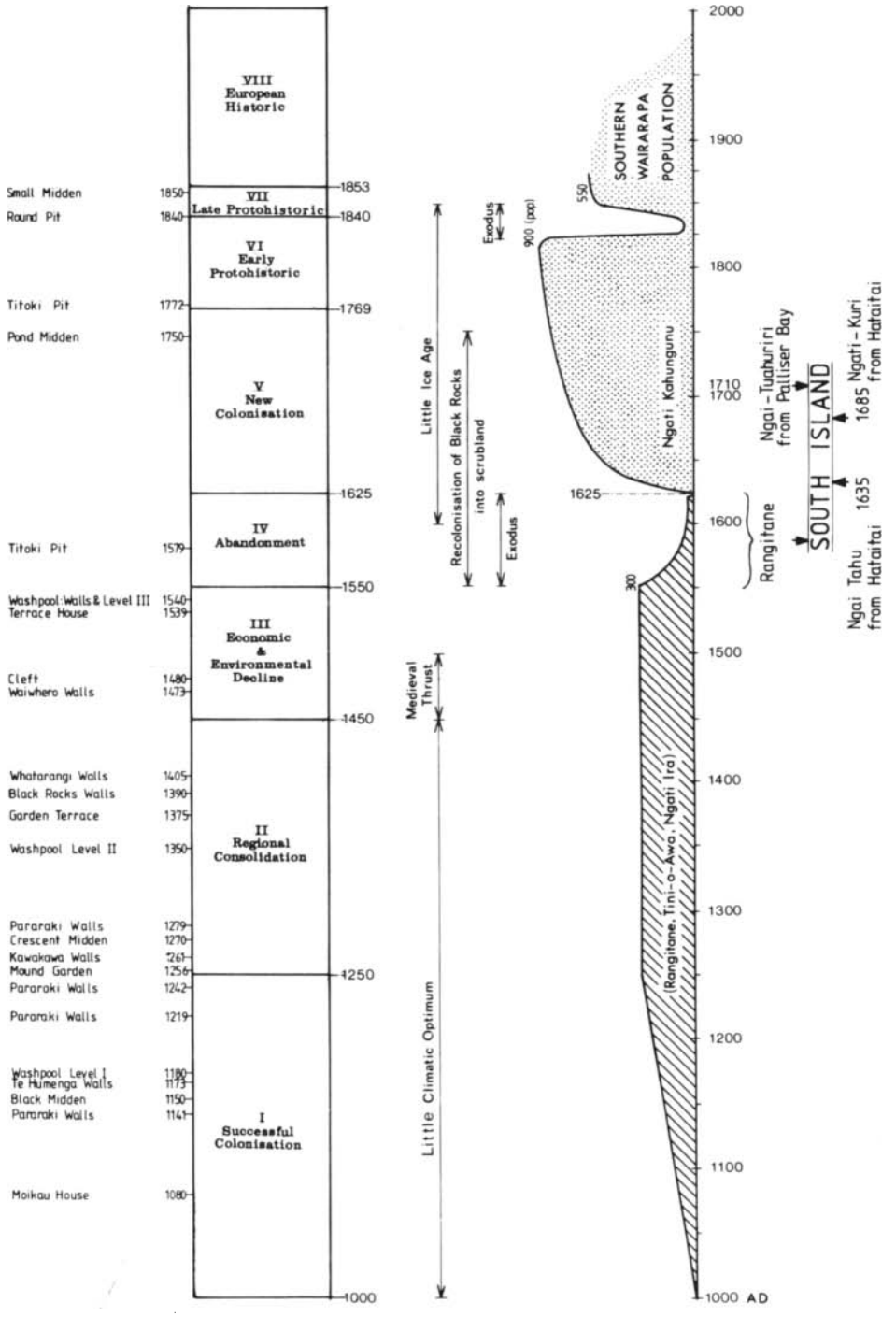

Fig. 10 — Schematic sequence of the prehistory of the southern Wairarapa.

may have originated), such as Coromandel and Bay of Plenty, as obsidian from these sources dominates. However, some obsidian also derives from sources around Rotorua and Taupo in this period, suggesting the possibility of communication with central North Island people also. Some of the earliest stone lures are fashioned in a style common in the Coromandel and Hauraki Gulf area, which again may point to a northern origin for the founder population.

It is clear that people engaged in considerable experimentation with local stone — and were attempting to apply old skills to a new lithic environment. The main rock type found is greywacke, and this is not easy to fashion into the usual types of stone adze which these people were familiar with, such as the hogback and 1A forms. Nevertheless, they certainly attempted to do so.

This period was in the Little Climatic Optimum, when seas were somewhat calmer than they are today, and the growing season was longer by perhaps four weeks. Kumara and gourd were successfully cultivated, and areas of land were neatly laid out into rotational plots — some under cultivation, others lying fallow. Bush birds were systematically caught, and some parts of them preserved in fat for trade or winter consumption when poor weather made conditions unpleasant enough for people to stay at home.

The village was usually centred on the mouth of a river valley, and the whare-puni can be clearly identified at this period as a carefully laid out and constructed house, very similar to those seen in New Zealand in the 19th century. Small cooking sheds were established on the coast, and people were buried with suitable ceremonial ritual near these and other domestic structures. This is a continuation of the standard practice of tropical eastern Polynesia. It appears that although these people had a hard and active life, they had a nutritionally adequate diet, and led a moderately healthy existence.

Dense forest conditions were nearby, with quiet rivers flowing through bush clad valleys to the sea. Mussels and tuatua were available in especially stable pockets of beaches along the coast.

Period II: Regional consolidation (AD 1250 to AD 1450)

The climax population of Palliser Bay has been estimated at about 300 (H. M. Leach, 1976: 182) given the kind of economic system which prevailed. This was spread over seven village based communities centred on the mouths of the major river valleys of the area. Individual group sizes may have varied somewhat, and on the basis of shellfish gathering behaviour Anderson (1973: 127) has suggested parties of 10 to 25 people at Black Rocks, while H. Leach suggests communities of between 30 and 40 on the basis of areas under cultivation at any one time (1976: Ch. 9; see also Leach and Leach, 1979d: 266). A founding community of perhaps 25 people based at one such river valley would reach the climax population of 300 in about 250 years (assuming a 1% growth rate per annum). We can be reasonably confident that by about AD 1250, the carrying capacity of the land along the shores of Palliser Bay had been reached.

It is in the ensuing 200 years that trading contacts seem to have been most highly developed, and this is evident in the rich variety of imported stone types (B. F. Leach, 1978a: 395, 403; Leach and Anderson, 1978). Obsidian, for example, was entering Palliser Bay from no less than seven different geological sources in the North Island — Huruiki, Purangi, Cooks Bay, Mayor Island, Rotorua, Ongaroto, and Taupo. More to the point, links between communities in Cook Strait firmed up at the expense of those further afield (B. F. Leach, 1978a: 401, 403; K. Prickett, 1979: 179), and this is an indication of regional consolidation. This is especially evident in the increased importation of chert from the Tora area, and metasomatised argillite from D'Urville Island (B. F. Leach, 1978a: Table 1).

During this period it is suggested that there was reasonable economic stability. There were still beds of such filter-feeding shellfish as mussels and tuatua to be exploited. This is documented in the Crescent Midden at Black Rocks (Anderson, 1979: 53), and Level II at the Washpool (B. F. Leach, 1979a: 88), and suggests that coastal erosion processes

had not yet begun to accelerate. At the same time, the number of forest birds which were being caught definitely decreased (Leach, 1979c: 108; Anderson 1979: 55), which no doubt reflects the significant encroachment of gardens into nearby forested areas. Dated archaeological sites show that by this time most of the coastal strip in Palliser Bay was being gardened.

Period III: Economic and environmental decline (AD 1450 to AD 1550)

The onset of this period was probably associated with a brief climatic recession known in the northern hemisphere as the 'Medieval Thrust'. Filter-feeding shellfish disappear from the archaeological record suggesting unstable nearby beaches brought about by high sediment loads in the rivers, which were carrying significant quantities of slope erosion products as a result of deforestation. Settlements were certainly up to 2 km inland up the river valleys, and people buried their dead in hide-away locations — a sure sign of growing unrest. The lines of supply of imported stone by this time, while still outside the Wairarapa, had shrunk to areas rather closer to home, and the people were in a state of near-dependence on imported raw materials (B. F. Leach, 1978a: 397).

Above all, the evidence from the Cleft Burial site in the Washpool shows a dramatic incidence of Harris lines in limb bones — the result of adverse economic conditions which cause periodic malnutrition or near starvation.

Period IV: Abandonment (AD 1550 to AD 1625)

Under such circumstances of economic poverty and worsening climate and sea conditions, the scene was set for eventual depopulation of the area. Exactly when this process began is not known but several lines of evidence suggest the dates given. The 'Little Ice Age' began around AD 1600, and there are strong oral traditions of a final exodus of the Rangitane in AD 1625. The land snail fauna from the Pond Midden at Black Rocks, dated to about AD 1750, shows that by this time a scrubland had developed over the coastal platform — such as would follow a period of abandonment (Wallace, 1979). The later re-establishment of shellfish beds at Black Rocks confirms the absence of people engaged in marine foraging (Leach and Anderson, 1979: 161). It is suggested that this movement away from Palliser Bay may have begun as early as AD 1550, around the end of known habitation of the Washpool valley.

Period V: New colonization (AD 1625 to AD 1769)

The earliest migrations of the Ngati-Kahungunu probably occurred in the first half of the 16th century when a group left Poverty Bay for Heretaunga. It appears that they lived there until AD 1625, when they moved on to Southern Wairarapa (Mair, 1979: 12; Bagnall, 1976: 5). This period, which lasted until Captain Cook arrived in New Zealand in 1769, is practically unknown archaeologically, but what little evidence is found in the region is interesting. The Pond Midden at Black Rocks has a more restricted faunal assemblage than earlier sites and is very likely to be the result of a fishing party of the kind known during the protohistoric period (Mair, 1979: 20). At that time, people in the main alluvial valley of the Wairarapa made short expeditions to areas on the coast where they had fishing rights. This interpretation of periodic non-intensive exploitation of the coast is reinforced by the general size of species caught in the Pond Midden (Anderson, 1979: 62); and non-residence is suggested by the above-mentioned dense scrubland conditions nearby.

Thus characterized, this period is one of absentee ownership of the coastal areas of Palliser Bay. This then was probably the time at which significant habitation of the main alluvial valley and river and lakes district began. There are only indirect and isolated indications of earlier settlement in this zone.

In the absence of excavations in this area, the subsistence base, of what was essentially an inland community, can only be guessed at. However, it must be remembered that this period was in the middle of the 'Little Ice Age', when cultivation of all known Pacific

Island crops in this area would have been extremely difficult. Of profound importance to later groups, where records are clearer, were the eels of the lower lakes district. Periodic closure of the sand bar at Lake Onoke facilitated enormous catches of eels, estimated at 10 to 30 tons (Mair, 1979: 22). These were highly prized throughout the North Island in trading exchanges. Resident groups, even in this period of rather poorer climate, therefore, may have had a secure basis to their economy by preserving eels for the winter, and exchanging some for kumara grown farther to the north. Fernroot too is known to have been an important resource in this area in later periods and could have been encouraged or semi-cultivated. The area of the Ruamahanga River valley was densely forested, and would have provided many foods such as birds, rats, and berries.

Period VI: Early protohistoric (AD 1769 to AD 1840)

Captain Cook arrived in Palliser Bay on February 9, 1770. When people in three canoes paddled up to the *Endeavour* off the east coast just to the north of Cape Palliser, they immediately asked for nails! Cook observed that they had never seen them before but evidently knew how to use them. He surmised that they had learned about nails from the people of Cape Turnagain whom he had visited the previous year (Mair, 1979: 11). Thus, the protohistoric can be reasonably held to have begun with Cook's first contact with the Maori farther north in 1769.

This was a period of great upheaval in the Wairarapa, induced in the main by the activities of Te Rauparaha, in his southward drive along the west coast and into Cook Strait. The Wellington and Wairarapa districts were visited by war parties of Ngapuhi, Ngati Whatua and Ngati Toa in 1820 and later by the Amiowhenua Expedition of 1821-1822. Groups on the west coast were supplanted by Taranaki tribes, and some retreated into the mountains or over them into the Wairarapa. In 1825-26 migrants from Taranaki also entered the Wairarapa valley (Mair, 1979: 13).

This period of social unrest and skirmishes resulted in the gradual and then accelerated exodus of people from the Wairarapa to the Mahia peninsula area. By 1835 there appear to have been no more than about 100 people resident in the region, from a climax population of around 900 (Mair, 1972: 222; 1979: 15). No doubt, many of the fortified pa sites in the lower valley were built during this period of conflict.

Relatively poor climatic conditions still prevailed in this period, and there would have been a continuation of the non-horticultural foraging economy. At the same time, significant changes would have come about as a result of the spread of European food resources. By 1839, for example, the hunting of wild pigs is recorded (Mair, 1979:20). The trade of fish and crayfish is consistently mentioned in historical accounts.

Period VII: Late protohistoric (AD 1840 to AD 1853)

The signing of the Treaty of Waitangi in 1840 was the turning point in the eventual resettlement of the Wairarapa. It was believed that land rights reverted to the situation immediately before the mass migration; secure in this knowledge, groups began to re-occupy their old lands. The Heretaunga hapu left on one day, sailing home in 69 canoes. The various hapu at Te Mahia were not as quick to return, but most had left by 1842. A population of 604 was recorded in the southern Wairarapa in Kemp's census in 1848-49 (Mair, 1972: 224; 1979: 15).

The Treaty of 1840 marks the beginning of the historic era for most of the Wellington area, but not so for the Wairarapa. This region was not explored by Europeans until 1841, and squatters did not move into the valley until 1844. It was not formally settled by Europeans until a government-approved scheme began in 1853 (Mair, 1979: 12).

European crops were extensively cultivated in the late protohistoric period. Cabbage and turnips grew profusely in the wild, and pumpkins, melons, corn, and wheat were cultivated. Kemp records Wairarapa Maori growing 15 acres of wheat, 32 acres of corn, 102 acres of potatoes, and 12½ acres of other garden produce in 1850 (Mair, 1979: 21). As before, the great eel harvest of the Lake Onoke area was of continuing importance.

DISCUSSION

One of the most interesting features of the archaeological record in the southern Wairarapa is that there is no evidence of a marked change from Archaic to Classic culture, often postulated in New Zealand prehistory. The threads of change can be detected in many aspects of the prehistoric culture and environment, but on the whole these changes were gradual, and explicable rather than sudden and dramatic. They also took place at different times and different rates over a long period rather than all at once. This is not to suggest that there were no significant events in the prehistoric period — quite the contrary, as the foregoing has shown. It seems, though, that the archaeological evidence does not easily lend itself to polarisation into the two separate systems — Archaic and Classic — which bedevil reconstructions in other parts of New Zealand. In the southern Wairarapa, the human occupation and its effects on the environment in several distinct periods have been characterized by a blend of economic, environmental and social features.

Some concluding remarks are appropriate about the possible role of the southern Wairarapa people in the emergence of what has been called 'Classic Maori Culture' in the South Island. The question of the source of this influence in the South Island is of considerable importance and has been much debated.

A study of oral traditions on this subject has shown that there were at least three movements of people which are subsumed under the general name of 'Ngai-Tahu migration, (B. F. Leach, 1978b: 19).

(i) *Ngai-tahu* group, headed by Tuteahunga, from Hataitai in Wellington, about AD 1635.

(ii) *Ngati-kuri* group, headed by Manawa, from Hataitai in Wellington, about AD 1685.

(iii) *Ngai-tuahuriri* group, headed by Turakautahi, from Turanga[nui], in Palliser Bay, about AD 1710.

The leaders of these three movements were all descendants of Rakawakakura, a well known Ngati-Kahungunu figure (B. F. Leach, 1978b: 29). Tuahuriri, the eponymous ancestor of the third movement, was the father of Turakautahi. He made several expeditions to the South Island, one with a group of 70, and another with 170 people. Oral traditions suggest that most of these people returned to Palliser Bay (B. F. Leach, 1978b: 21). Such excursions sound more like trading expeditions than expansionist voyages. Tuahuriri himself was drowned in Cook Strait when his canoe overturned on one of these trips. Just how many people went with his son, Turakautahi, to the South Island is not known; but on the whole, the impact of the Wellington derived groups of the Ngati-Kahungunu led by Manawa and Tuteahunga may well have been greater, since they figure more prominently in South Island traditions.

Although there are oral traditions suggesting a close relationship between the Ngati-Kahungunu and those speaking the southern dialect (B. F. Leach, 1978b: 20), until recently there seemed little hard linguistic evidence of this relationship. This difficulty has been rectified by Harlow's recent research into New Zealand dialects, which clearly shows that the southern dialect is closest to those of the Ngati-Kahungunu and Tuhoe (Harlow, 1979). This result supports the traditional Ngati-Kahungunu affiliations of the leaders of the three expeditions mentioned above but does not necessarily strengthen the case for any supposed mass movement from the southern Wairarapa to the South Island.

The South Island Ngai-Tahu were renowned for their skills in the manufacture of nephrite tools using abrasive techniques. It has been argued (Leach and Leach, 1979d: 264) that this type of technology could have been imported into the South Island by groups from the Wairarapa, who had a long established tradition of stone working by abrasive techniques. This type of technology, of course, was established in the southern Wairarapa long before the arrival there of the Ngati-Kahungunu, and could have been introduced to the South Island by earlier migrants, such as the Rangitane.

It must be noted that the movement of a group of people under the direction of Turakautahi from the shores of Palliser Bay to the South Island about AD 1710 was not

an isolated phenomenon. The Tini-o-awa, who entered the Wairarapa as a result of the expansionist activities of the Ngati-Kahungunu farther north at an unknown period, lived for a time alongside the principal occupiers of the Wairarapa, the Rangitane, but ultimately emigrated to the South Island (Mair, 1979: 12). The Rangitane too, confronted with the incoming Ngati-Kahungunu, moved to the South Island. This event is well known in oral tradition and apparently followed a peaceful encounter that took place about AD 1625. The Rangitane exchanged their lands for canoes and weapons supplied by the Ngati-Kahungunu. Thus, it appears that there may have been a long series of contacts and movements between the southern Wairarapa and the South Island, rather than a single decisive 'migration'.

The encounter between the Rangitane and the Ngati-Kahungunu occurred at the end of what is believed to have been a period of progressive abandonment of the southern Wairarapa, as an area of little further economic viability, given the kind of economic system that had prevailed there for the previous 500 years. Thus, the Rangitane may well have considered that they got the best of this trading encounter with the Ngati-Kahungunu. Perhaps this is what their leader, Te Rerewa, implied in his ambiguous parting remark to the new owners from the vantage of his departing canoe:

> You watch the whawhakou [*Eugenia maire*] tree; if it bear much fruit it will be a year of famine, no birds, no rats; that is a sign of the Wairarapa district — and when you see the waters of the lake flow to its source it will be a year of plenty (Bagnall, 1976: 6).

Whether the lake to its source could flow, before Great Birnam wood to high Dunsinane hill could go, is a matter for sober reflection. The prosaic interpretation of this remark is that when the gravel bar at Lake Onoke closes, the waters back up and will be accompanied by a great eel harvest (Bagnall, 1976: 6). However, the imagery is more complex — Te Rerewa could have been making a poetic remark on the difficulties his tribe had experienced living in the southern Wairarapa.

In the foregoing it must be abundantly clear that a view of prehistoric man as a 'noble savage' in harmony with nature, and an 'archetypal conservationist' of the environment is not one which can be sustained, at least for this region of New Zealand. The combined effects of forest clearance and over-exploitation of marine foods ultimately led to such pronounced erosion and depletion of natural resources that further occupation of the coast, even with introduced crops and animals, was impossible. The foothold which these people had was always tenuous, since kumara horticulture was marginal at the best of times. The onset of deteriorating climatic and sea conditions must have been the last straw. One must be careful, though, in interpreting the human responses to this chain of events, as Anderson (1979: 64) has pointed out:

> . . . it would be invidious to draw the conclusion that the . . . inhabitants were ignorant of, or unsympathetic to, the need for . . . conservation; it may well have been a luxury they could simply not afford.

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