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# THE FIRST THOUSAND YEARS

Regional Perspectives in New Zealand Archaeology

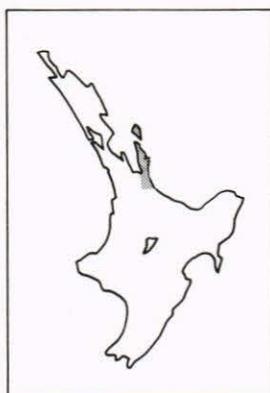
Edited by Nigel Prickett



# COROMANDEL PENINSULA AND GREAT BARRIER ISLAND

Garry Law

The region covered in this chapter stretches from the Tauranga Harbour in the south, to the end of the Coromandel Peninsula and Great Barrier Island in the north (see Fig.3.1). Tauranga is below the base of the peninsula and a western boundary will be taken at the Hauraki Plains. Topographically the region is a spine of broken hills rising to 900 m. In the east is a broken cliff-girt coast yielding to occasional estuaries in largely alluvium filled valleys. The western boundary is a sudden fault-defined transition to the Hauraki Gulf and Firth of Thames, and in the south to the extensive and swampy Hauraki Plains. From the perspective of people travelling by sea, the offshore islands are prominent features and vary widely in size and distance from the peninsula.<sup>1</sup>

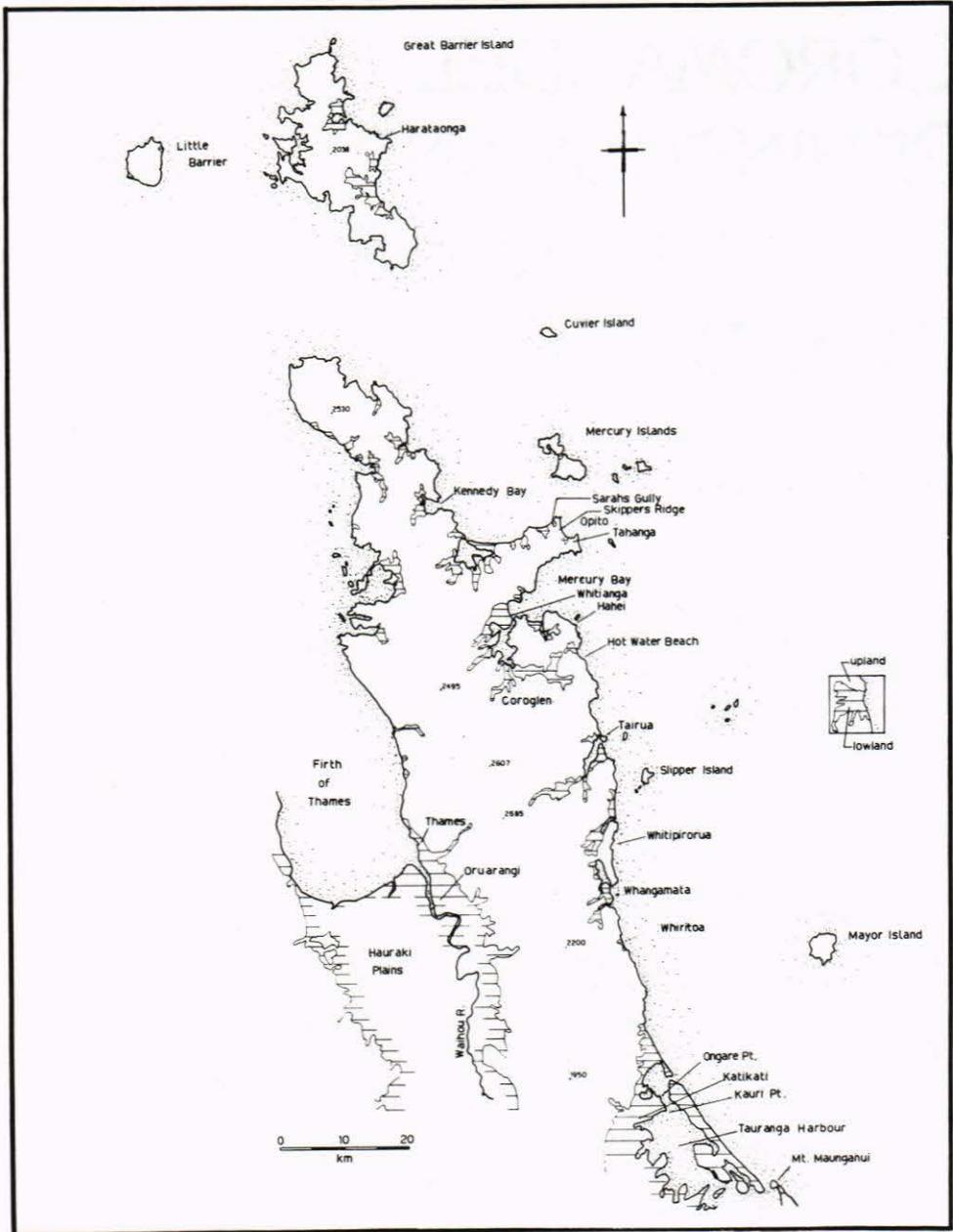


Geologically the predominant surface rocks are Tertiary volcanics, predominantly acid, unconformably overlying less frequently exposed Mesozoic greywacke and argillite sedimentary rocks. Quaternary vulcanism has created Little Barrier and Mayor Islands. Pleistocene low sea level would have linked the islands to the mainland, limiting the scope for faunal and floristic variety.

At European contact the timber resources of the area were of note. The unmodified vegetation was undoubtedly a variety of forest associations, not necessarily static ones, and after the Maoris came, some man-induced scrub and fern areas were established.<sup>2</sup>

The region has attracted much archaeological attention. On the east coast this has stemmed from beach middens unusually rich in portable artefacts. At Thames the adjacent sites of Oruarangi and Paterangi, which are built-up mounds on the low lying banks of the Waihou River, are again sites rich in artefacts. Lastly, Katikati has been the scene of intensive controlled excavations on sites where structures rather than portable artefacts are the works of man — defensive surrounds to sites, storage pits and shell middens. One of these Katikati sites also produced one of the most spectacular discoveries ever made in New Zealand, the wooden artefacts from Kauri Point Swamp (see Fig.3.8).

The region generally lacks the large pa sites with massive defences found in other parts of New Zealand, but smaller pa abound (Fig.3.2). Regrettably, the natural arch topped by a pa which Cook's artists recorded in Mercury Bay,

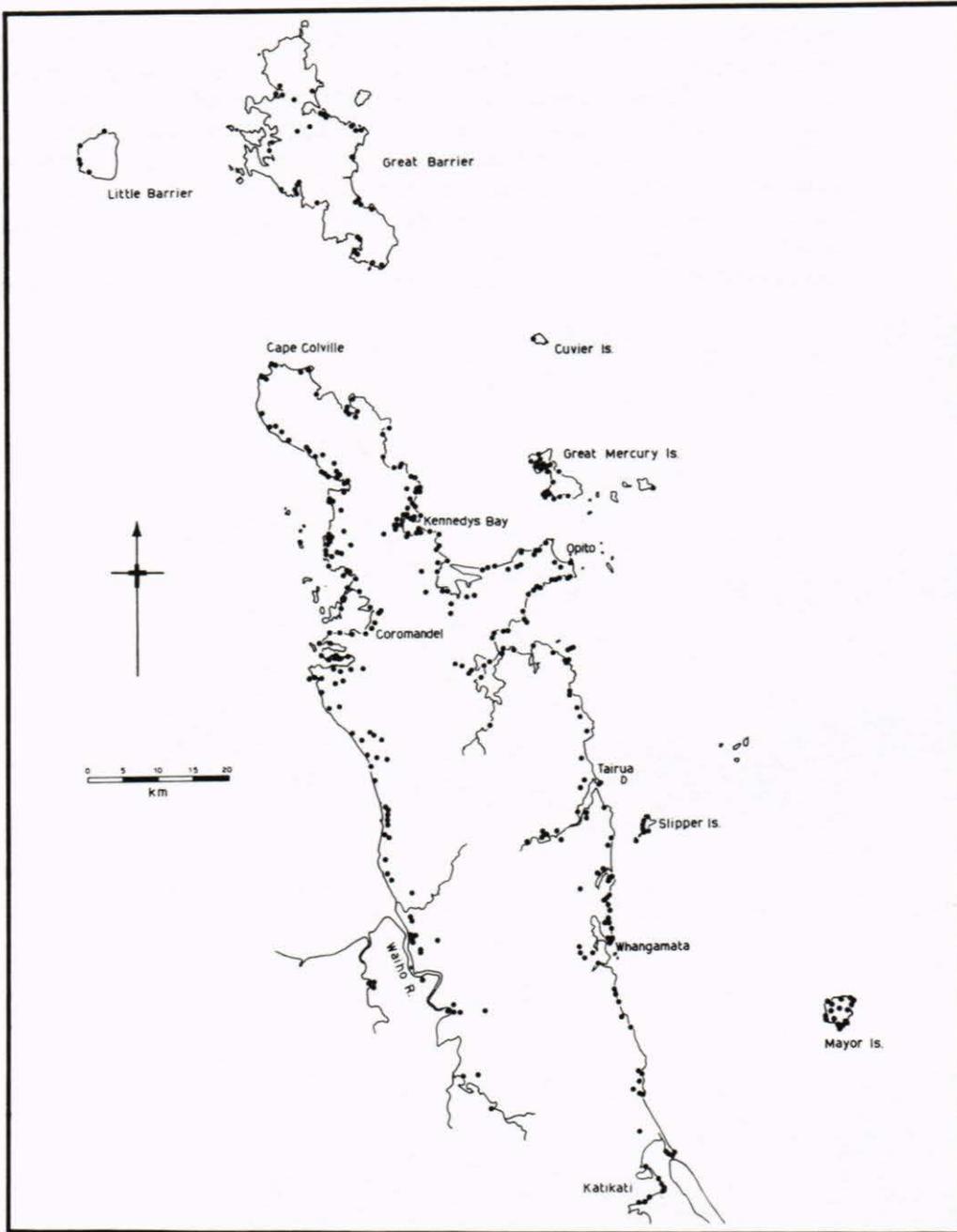


3.1 The Coromandel Peninsula and Great Barrier Island region, showing lowland areas, localities and archaeological sites mentioned in the text.

epitomising the opportunistic nature of so many of these sites, is gone — its arch collapsed.<sup>3</sup>

Other pa sites claim attention. Wharetaewa, visited by Cook, stands in Mercury Bay, prominent to view,<sup>4</sup> as does the pa opposite the Whitianga Wharf, seen in ruins by Cook. Unique features of this site are the empty post holes cut deep into the rock.

At Thames, Te Totara pa, where Hongi Hika defeated the Ngati Maru in 1820, is easily visited. Other prominent pa distinguish the valley behind Whitianga at Coroglen, and the Tairua River valley. Undefended sites marked by earthworks are common and concentrated along the coasts. Sites with pits and terraces are not usually large, but rather suggest hamlets occupied by family units. Pits



3.2 Distribution of pa sites of the Coromandel region as recorded in the New Zealand Archaeological Association site record files.

apparent from surface evidence do not range up to the large sizes seen on the Auckland isthmus and elsewhere. Pits with raised rims do not occur. Cave and bell-shaped pits, while occurring in the archaeological record, are not common as unfilled surface features.

Stone hearths, thought to mark houses, are absent in the field evidence of the region, until Mt Maunganui is reached in the south. Primary inhumation burials are attested from chance finds, while secondary burials in caves or clefts are not the common feature they are elsewhere in the North Island. A local feature is petroglyphs, known from five sites.<sup>5</sup>

The Coromandel Peninsula has been a major focus of activity in the study of New Zealand archaeology. Opito (see Fig.3.3) was the location given for the first

report of moa bones associated with other food remains in a midden.<sup>6</sup> The excavations at Oruarangi and Paterangi, while tragically unscientific, provided an assemblage of portable artefacts which has been fundamental to any archaeological definition of the material culture of the latter half of New Zealand prehistory.

The intense period of investigation in this area lasted from the mid-1950s to approximately 1970. As a consequence of the reduced excavation activity in the area, some research interests of the 1970s, like investigations of gardens and quantitative analyses of fish and bird contents of middens, are but poorly represented in the record. However, the field survey effort, principally emanating



3.3 Opito Bay, north of Whitianga, has been the scene of much archaeological activity. The highest hill in view is Tahanga, the source of basalt rock used for manufacturing adzes which were distributed throughout the northern North Island (G. Law).

3.4 A fish trap at Carey Bay near Colville recorded in recent years by archaeologists working for the New Zealand Historic Places Trust. Such structures are said to have trapped fish on the falling tide (G. Barton).



from the Historic Places Trust, has very largely rectified an earlier weakness and has made the area one of the more thoroughly recorded in the country (see Fig.3.4).<sup>7</sup>

The best known part of the prehistory of the area is the Archaic beach midden sites. A review of these has been published by Davidson.<sup>8</sup> The sites are typically quite small and unspecialised. They have a wide variety of evidence of preparation and consumption of a wide variety of sea food and birds, together with evidence of production and maintenance of tools.

The sites range in date from about A.D. 1100 through to A.D. 1500. Table 1 gives the radiocarbon ages determined for seven dated Archaic sites. Tairua and less certainly Whangamata are sites which show some internal patterning in the distribution of activities.<sup>9</sup> No unequivocal houses have been recognised. Structures other than ovens are not commonly recorded, being absent in most sites. Storage pits dug in sand do occur at Sarahs Gully<sup>10</sup> and Hahei.<sup>11</sup> The sites collectively point to a material culture closely related to that of Wairau Bar but with some local changes in emphasis.<sup>12</sup>

A full range of Archaic adzes is attested from the area (Fig.3.5). Bait fishing gear consists of one-piece unbarbed hooks made of moa bone and occasionally of ivory with rarer one and two-piece hooks in *Cookia sulcata* shell. The earliest site in the area, N40/3 at Opito, has larger bone hooks than later sites,<sup>13</sup> this possibly reflecting the abundance of moa bone in this site. Sinkers are rare. Trolling fishing gear consists of uniperforate hook points and separate shanks made of bone, stone and shell. The line attachment details of these are either dorso-ventral drilled holes, or grooves. One remarkable find is a lure shank in pearl shell from an archaeologically controlled excavation at Tairua.<sup>14</sup> Pearl shell is not found in New Zealand so this must have come on a voyage to this country. Ornaments are reels in bone, ivory and stone, with fossilised *Dentalium* also occurring in several sites. Coromandel is the only area in the North Island to have sites with these.<sup>15</sup> Bird bone tubes are common. Drilled whale and other teeth occur as do imitation whale tooth units of bone. Shell was used ornamentally, with drilled shells and *Dentalium nanum* having been found. Reels and whale teeth were probably strung as a single ornament in the case of the Hahei burial of 12th century A.D.<sup>16</sup> It is remarkable that the greater part of the Archaic ornaments found in the North Island have come from this region.<sup>17</sup> This situation is matched by that for a second Archaic artefact, the side-hafted adze.<sup>18</sup>

Other bone artefacts are tattooing chisels, bone needles, large needles of arguable interpretation, awls and chisels. Tools for making tools include drill points, files, hammer stones, polishing blocks and attrition saws. Cutting tools are simple flakes from chert, obsidian and basalt. The technology employed on tools is comparable with Archaic sites elsewhere in the country. One feature of tool use is the high proportion of flakes from polished tools in sites. Presuming these to be from adzes suggests a high level of maintenance.

This can well be linked with the proximity of the stone source and the ease of working this rock. The ease of working, however, is related to the propensity to damage.<sup>19</sup>

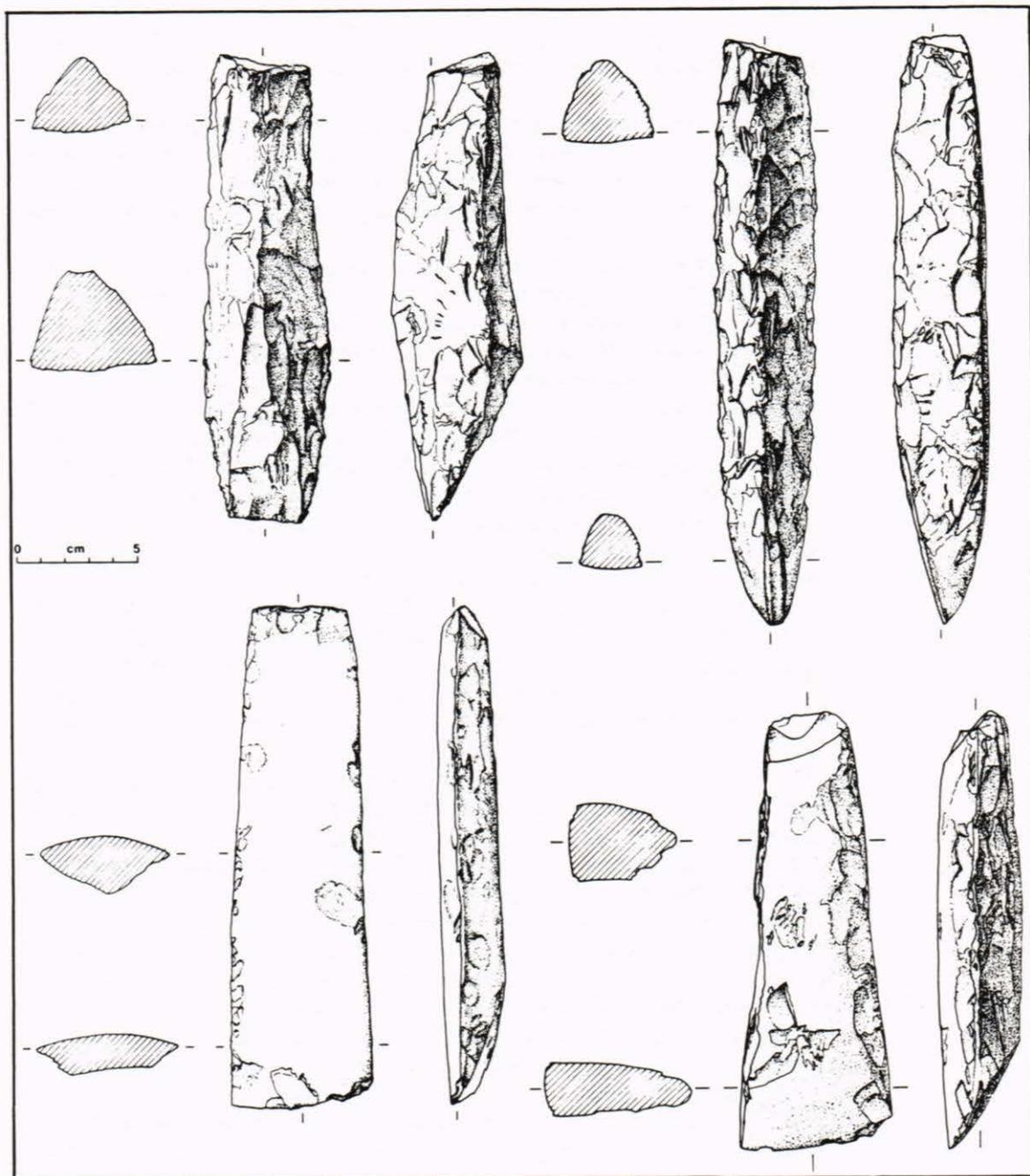
The stone source in question is Tahanga basalt at Opito (see Fig.3.3). Stone from this source is the dominant adze material at Archaic sites throughout the northern North Island, well outside the region treated here. There is a spectacular quarry site on Tahanga and Archaic-looking roughouts on the surface,<sup>20</sup> but as will be noted below, some of this evidence could well be more recent. A second basalt quarry is known on Great Barrier, but its time of use is not known. Other local materials which were used both locally and further afield are obsidian and siliceous sinter, the latter being a cherty material.

## The Archaic period

**Table 1**  
**COROMANDEL C14 AGES**

Site	Material	Laboratory Number	Age, years before A.D. 1950
N30/3	Harataonga Bay Pa	Charcoal NZ 1893	441 ± 55
N30/4	Harataonga Eastern Midden	Charcoal NZ 1891	216 ± 55
		Charcoal NZ 1892	247 ± 55
N40/3	Opito Site	*Charcoal NZ 354	640 ± 50
N40/7	Skippers Ridge 1	Charcoal NZ 1740	807 ± 57
N40/9	Sarah's Gully Settlement	*Charcoal NZ 355	600 ± 50
		Charcoal NZ 356	< 200
		*Charcoal NZ 357	590 ± 50
		*Wood NZ 358	810 ± 50
		*Charcoal NZ 359	650 ± 50
N40/10	Sarah's Gully Pa	Shell NZ 698	260 ± 51
		Shell NZ 699	292 ± 41
		Charcoal NZ 1080	703 ± 46
		Charcoal NZ 1081	335 ± 48
		Charcoal NZ 1082	388 ± 49
N40/16	Moore's Bach Opito	Charcoal NZ 1992	180 ± 60
		Charcoal NZ 1993	190 ± 60
N40/73	Skippers Ridge 11	Charcoal NZ (R2148/1)	< 132
		Charcoal NZ (R2148/2)	< 213
N40/219	Te Mateku	*Charcoal WK 94	410 ± 130
N44/2	Tairua	*Charcoal NZ 594	878 ± 49
		*Charcoal NZ 595	443 ± 40
		*Shell NZ 1875	570 ± 60
		Shell NZ 1876	250 ± 70
N44/69	Hot Water Beach	*Charcoal NZ 1169	421 ± 40
		*Charcoal NZ 1170	484 ± 79
		'Grease' NZ 1171	177 ± 77
		*Shell NZ 1296	453 ± 40
		*Shell NZ 1297	524 ± 40
		Fish Bone Carbonate NZ 1298	Modern
		*Fish Bone Collagen NZ 1299	325 ± 78
N44/97	Hahei	*Charcoal NZ 4345	760 ± 50
N49/17	Paterangi	Shell NZ 4180	250 ± 50
		Charcoal NZ 4181	270 ± 80
N49/28	Oruarangi	Charcoal NZ 4176	450 ± 80
		Charcoal NZ 4177	230 ± 60
		Shell NZ 4178	310 ± 50
		Bracken NZ 4179	280 ± 50
N53-54/5	Kauri Point Pa	Charcoal ANU 25	495 ± 100
		Charcoal ANU 26	230 ± 100
		Charcoal ANU 46	395 ± 53
N53-54/5	Kauri Point Swamp	Wood NZ 592	398 ± 56
		Wood NZ 593	684 ± 57
		Charcoal NZ 809	279 ± 53
		Wood NZ 810	594 ± 45
		Wood NZ 811	410 ± 54
		Charcoal NZ 812	430 ± 54
N53-54/6	Kauri Point Undefended	Charcoal NZ 813	547 ± 71
		Charcoal NZ 1897	470 ± 70

Dates marked \* are from Archaic levels of beach midden sites, and are of acceptable age.



3.5 Four adzes of a variety of Archaic forms found in a cache at Whiritoa (drawing by C. Phillips).

Obsidian sources used certainly include Mayor Island and some source near Whitianga,<sup>21</sup> but far more identifications from sites are required. No serious work has yet been done on the archaeology of the obsidian quarries. Sources for some other materials have not yet been identified. Basic studies on abrader materials, cherts and ochre await attention.

Burials have been recorded in close proximity to three sites. Grave goods of ornaments occurred at Hahei and adzes with what is probably an Archaic male burial at Opito.<sup>22</sup> The number of burials found is low in proportion to the years of activity apparent in the sites known. Philip Houghton's investigation of the burial materials suggests the people had typically short lives, were active and well developed, and had a grit-free diet compared with later Maoris. Interestingly, there

are also indications consistent with their having spent a lot of their lives in canoes.<sup>23</sup>

It is now quite apparent that storage sites of comparable age to these beach middens occur in the area. These sites have a much more limited range of evidence and it is only through the dating of the earliest levels at Skippers Ridge<sup>24</sup> and Sarahs Gully pa<sup>25</sup> that the comparable age of storage sites has been demonstrated.

The storage component of these sites consists of pits. In the case of Skippers Ridge these are very sophisticated structures placed in an organised pattern on the ground, this pattern persisting through later use of the site. The early storage sites identified are close to Archaic beach middens.<sup>26</sup> It is apparent then that these middens do not hold the sum of evidence for the region. The lack of typological markers indicating the age of the sites away from the beach warns us that the full range of sites used by Archaic Maoris may not yet have been determined. Present knowledge suggests the pits were used for kumara storage. Thus the Archaic economy includes horticulture, although its importance is not known.

The orientation of the economy is suggested by the site distribution strongly favouring the east coast with its wide variety of resources. Use of the islands is apparent. The Archaic Maoris shared this district with breeding seal colonies,<sup>27</sup> a wide range of moa and other ground birds.<sup>28</sup> The evidence of these animals comes from the sites themselves, and their later absence suggests the relationship with man was not a harmonious one. A variety of large and small fish and a wide range of other birds occur in almost all sites, with the presence of small fish suggesting that methods other than line fishing were also known.<sup>29</sup> Diversity of species is paramount particularly for the birds, with only one site having a large number of individuals of one species (flesh-footed shearwater) suggestive of systematic and selective hunting. Of the land birds kaka and tui are of most universal occurrence but are never found in large numbers. Shellfish is unimportant in the sites thus far recorded as Archaic, but those shellfish which were chosen show little attention has been given to soft shore species.

Dog bone is common in sites, particularly at part of the Whangamata site. The keeping of many dogs suggests a food surplus was available. In a study of dog material one researcher has suggested the diet of dogs from this area had a higher vegetable food content than dogs further south.<sup>30</sup>

For most of the animals occurring in the middens, study is still required on patterns of butchering before consumption. The hangi is the only cooking method so far attested.

Seasonal indications for two sites, Harataonga Western Midden and Hot Water Beach, suggest spring/early summer occupation<sup>31</sup> while indications at Tairua suggest winter.<sup>32</sup> As yet no seasonal pattern of location of settlement is apparent.

On a wider scale it is tempting to look at the area as a central place for the northern North Island early in New Zealand's prehistory. It is central to an area accessed by coastal voyaging to the Northland peninsula, east through the Bay of Plenty to East Cape, west into the Hauraki Gulf and through the Tamaki Portage to the west coast of the North Island.

The wealth of personal ornaments from the region can be seen as indicative of the wealth or prestige of the inhabitants. The concentration of sites is almost certainly higher than in other northern North Island areas. The inhabitants certainly were involved in exchange relationships, sending obsidian, sinter and basalt outwards in some form or allowing others to take these. The archaeological record does not indicate goods in return unless some of the diverse food animals are from outside the region and excepting fossil *Dentalium* which does not occur naturally in the region. However, many items leaving no archaeological trace quite possibly came in during this period.

### The later period

If the eastern coast was important early in prehistory, it was to diminish later in time. Few prestigious late items are found and the area is of little consequence in accounts of 18th and 19th century wars. Excavations of later sites are predominantly on the east coast. The distribution of the field evidence of what are most probably later sites suggests a bias in the selection of sites for excavation.

Looking first at the later evidence from the northern half of the area, the immediate wish is for more excavated evidence, particularly from pa and settlements. While three pa sites have been excavated, the sum of the evidence is not great. At Sarahs Gully pa occupation is dated to about A.D. 1650,<sup>33</sup> while the Harataonga Bay pa appears earlier at about A.D. 1500<sup>34</sup> though this date is possibly before the site was defended. The later occupation of this latter site is characterised by a midden of much more limited faunal variety than earlier sites, and lacking the wealth of artefacts. Both sites have pit storage facilities within the defences. The pits here and at other sites show some changes from earlier sites. Specifically, pits which had undercut walls to form earth roofs over some or all of the pit seem to be less frequent in the record. Defensive features dated at Sarahs Gully are a ditch across the ridge approach with lateral scarps.

Beach middens show changes from the Archaic period, the trend of which is apparent in some of the stratified Archaic sites which extend into the 15th century. Bird bone is much less apparent, moa and seal disappear, and shell and fish bone become dominant. Where available, soft shore shellfish become an important content of shell middens. Very small shellfish were being taken, especially in comparison with modern populations and particularly in comparison with specimens of Archaic age. The apparent spread of occupation sites to western coasts precludes frequent use of some bird and shellfish resources predominant



3.6 Excavation in progress on the Kauri Point undefended site. In the foreground can be seen two pits aligned end to end. Central holes mark posts which held up the roof, while in the far corner can be seen a sump for drainage. Such pits stored kumara tubers (Anthropology Department, University of Auckland).

on the eastern coast, and supports evidence of the change in economic activity.

The portable artefacts of later northern sites are little known. Use of obsidian and cherts certainly continued. From evidence outside the region, Great Barrier, Whitianga and Mayor Island sources were in use. An important site with regard to artefacts is N40/16 at Opito,<sup>36</sup> where a midden site shows that use of Tahanga basalt for adzes continued, using techniques which follow through from the Archaic and producing adzes which would not be out of place in the earlier period, though many of the Archaic adze features are absent. The same site attests to two-piece bait hooks with points from *Cookia sulcata*, use of files, hammer stones and polishing blocks. The shell hooks differ from earlier forms on attachment details.

Personal ornaments from later sites in the region include perforated olive shells and *Dentalium nanum* shells.

The site of Skippers Ridge II at Opito, dating from near the end of the prehistoric period, shows some typical Duff type 2B adze forms but includes one of triangular section.<sup>36</sup> A basalt flake assemblage shows a new feature — large flakes used to the point of showing edge polish. Burnishing of wood is a possible function.

Houghton's examples of burials from late sites in this region suggest the diet included more grit, and that the people led active lives with load-bearing prominent.<sup>37</sup>

In the southern area of the region the Katikati evidence must be reviewed. The adoption of the Katikati area for a settlement implies a declining interest in, or lack of availability of, the sorts of site location selected in the Archaic period. Sites for rocky shore marine exploitation, pelagic fish, petrel and penguin burrow nesting sites and seal haulouts are distant. In contrast, fine horticultural soils are to hand as are harbour fish and shellfish resources.

At about 1500 A.D. two sites were in use at Katikati, the Kauri Point undefended site (Fig.3.6) and the first undefended use of the Kauri Point pa site (Fig.3.7), both with storage pits as prominent features. The first site<sup>39</sup> attests to the use of



3.7 Kauri Point pa near Katikati on Tauranga Harbour. A typical 'ring-ditch' pa on a cliff edge. When this site was excavated, evidence was found of occupation dating back to the 15th century, and of two earlier fortification stages before the defences took on the double ditch and a bank form seen here (Anthropology Department, University of Auckland).

specialised storage sites in conjunction with horticulture. At the second an occupation history starts which probably spans the rest of the prehistoric period.<sup>39</sup> The site was fortified soon after first occupation and details of the fortification altered substantially on two later occasions, although none varied from the basic concept of the ring-ditch (see Fig.3.7). This form of defence is not the dominant one further north, as it is here. Storage continued and late pits in the site

- 3.8 Comb from the Kauri Point Swamp site adjacent to the pa shown in Figure 3.7. Only fragments of the teeth remain. This comb gave the clue to the anthropomorphic character of the more difficult shapes and designs on the many combs from this site. The swamp material dates to the 16th or 17th century (Anthropology Department, University of Auckland).



show a reduction in size from those used earlier. During an early part of the occupation a repository for material was utilised in an adjoining swamp.<sup>40</sup> This was a formal structure in which were placed wooden combs (Fig.3.8), obsidian flakes and other material, apparently under some cultural compulsion. During the period of the deposition the decorating style of the combs changed from one which was rectilinear but with apparent anthropomorphic origin to a curvilinear style found in ethnographic examples where the anthropomorphic origin was concealed but apparently not forgotten.

The portable artefacts from Kauri Point differ from those to the north of the region. Adzes show the full movement away from Archaic forms and method of production, and shell fishhooks differ also, these being one piece.<sup>41</sup>

The character of these sites was confirmed in the third Katikati excavation, at Ongari Point.<sup>42</sup> Additional evidence here was for some patterning of the activities within this large ring-ditch pa. The site is distinguished by a shell midden large enough to mine commercially for chicken grit, this mining actually going on while the site was being excavated.

Extended primary burials without grave goods occurred at this site. An attempt to link the pits in this site to those on the other Katikati sites on stylistic grounds failed on the variability of forms displayed.

Turning to the Thames area, the occupation of Paterangi and Oruarangi swamp pa has recently been dated as having started about A.D. 1500.<sup>43</sup> Again the location chosen shows the difference in economic orientation from the Archaic sites. Occupation continued to the historic period. The location at the mouth of the Waihou River is also strategic being on a ready communication route through to the Waikato, an area not generally believed to have been populous until later than the Archaic occupation of the Coromandel. The immediate resources here are those of the ecotone between the hills and the swampy plain and the fish and the shellfish of the muddy but productive Firth of Thames. The shellfish at least are represented in the site. Gourd fragments suggest horticulture was practised.

The material culture of these sites is too voluminous to fully review here.<sup>44</sup> Important elements are the distinctive two-piece fishhooks differing from those to the north of the region, flutes of bone and stone, tattooing chisels, human and dog tooth pendants, toggles and bone needles.

Adzes are interesting with fully Classic forms represented, with adzes of Tahanga basalt quite frequently showing some Archaic features. As shown above, these need not all be regarded as early examples. Burials are frequent, with both extended and trussed forms found.<sup>45</sup>

The unique wealth and character of these swamp pa with only a few comparable near-neighbours argues for seeing them in a wider context of exchange relationships as suggested above.

From the dates of these southern sites it would appear changes were under way by the 15th century, changes which took longer to become apparent on the northern coast, occupied by people continuing a more Archaic economy. There is a case to be made for continuity of a local tradition on the peninsula proper well past A.D. 1500, and it is difficult to see the Coromandel Archaic as the origin of the post A.D. 1500 Thames or Tauranga ways of being Maori.

Did the local Archaic period then have much reference to the rest of New Zealand prehistory, particularly the development of Classic Maori? The implication of the Thames and Katikati evidence is that while the Coromandel Archaic Maoris were flourishing, people elsewhere were finding a more productive way of using New Zealand through systematic horticulture. The evidence from the eastern Coromandel has little to say on that.

## Notes

1. Edson, 1973, gives an anthropological view of these islands' past occupation and ecology.
2. McLintock, 1959, Map 14.
3. Begg and Begg, 1969, p. 38.
4. Kelly, 1953.
5. Ambrose, 1961b; Law, 1966 and 1969.
6. Owen, 1856.
7. Substantial contributions have been made by Jill Tippet, Joanna Boileau, S. Best, L. Diamond, G. Barton, D. Butts, J. Coster, Gabrielle Johnson, Angela Calder, S. Edson and Janet Davidson. Limited circulation reports on site surveys by these field-workers are available.
8. Davidson, 1979.
9. For Tairua (N44/2) see Jones, 1973. For Whangamata (N49/2) see Allo, 1972, and Jolly, 1978.
10. N40/9 — Golson, 1959, p. 14.
11. N44/87 — excavations in 1979 by Wendy Harsant.
12. Golson, 1959, looks at the artefacts generally. Artefact information from site reports generalised here include Crosby, 1977; Davidson, 1975e; Edson and Brown, 1977; Green, 1963; Jolly and Murdoch, 1974; Law, 1972; Leahy, 1974; Murdoch and Jolly, 1967; Smart and Green, 1962; and Trower, 1962.
13. Sunde collection.
14. N44/2 — Green, 1967.
15. The sites are N49/16, Whitiwhirua (Jolly, 1978) and N44/69, Hot Water Beach (Leahy, 1974, p. 42).
16. Edson and Brown, 1977.
17. The situation reported by Duff, 1956a, p. 135, has been reinforced by several new finds of reels and imitation whale teeth units.
18. Moore, Keyes and Orchiston, 1979.
19. Best, 1977.
20. Moore, 1976.
21. Leach and de Souza, 1979, p. 43.
22. Excavated early this century, Janet Davidson, pers. comm.
23. Houghton, 1977.
24. N40/7 — Davidson, 1975e.
25. N40/10 — Birks and Birks, 1973.
26. Green, 1972a and 1972b.
27. Smith, 1978.
28. Davidson, 1979, gives the most complete summary. The work is mostly that of Ron Scarlett.
29. Law, 1972, and Leahy, 1974, report fish such as butterfish, leatherjacket and spotty which could not be caught on normal Maori hooks.
30. Allo, 1970.
31. N30/5 — Law, 1972; N44/69 — Leahy, 1974.
32. Rowland, 1977.
33. Birks, 1960; Birks and Birks, 1970.
34. N30/3 — Law, 1972 and 1975a.
35. Excavated by the writer in 1972 and as yet unpublished.
36. Bellwood, 1969.
37. Houghton, 1977.
38. Green, 1963.
39. Golson, 1961b; Ambrose, 1962 and n.d.; Green, 1978.
40. Shawcross, 1964 and 1976.
41. Green, 1978, p. 40.
42. Shawcross, 1964 and 1966.
43. Best, 1977.
44. Fisher, 1934, 1935a, 1935b and 1936; Teviotdale and Skinner, 1947; Green and Green, 1963; Shawcross and Terrell, 1966; Best, 1977.
45. W. D. Liggins, pers. comm.