

19. OTAAHUUHU

19.1 General

This extensive volcanic field had three eruption centres, Te Apunga o Tainui in the north, Otaahuhu in the centre, and Sturges Park in the south. Its basaltic fields were restricted to the vicinity of Te Apunga o Tainui. This field was important traditionally because it was the scene of the three portages across the isthmus between the Taamaki River and the Manukau Harbour.

Several large archaeological investigations have been carried out in these fields in recent years, prior to their destruction for industrial development. Another local site, Mutukaaroa (Hamblins Hill), has been extensively archaeologically investigated. This prominent hill is outside but just next to the volcanic fields, and its occupants would have made use of the volcanic soils for gardening.

Bulmer, S. 1982a (see 27.).

1987b (see 27.).

Hochstetter 1864: 198 (see 27.).

Searle 1981: 128-137 (see 27.).

Sullivan 1972a: 153 (see 27.).

Sullivan, A. 1981. Maori occupation of the Otahuhu district up to 1840. NZHPT, Auckland 1986/12. (Reissue of paper published by Department of Maori, Victoria University.)

Tippett, J. and Molloy, C. 1980. Proposed Maui pipeline, Pukekohe to Westfield section: an archaeological survey. NZHPT, Auckland 1980/1.

19.2 R11/10, Te Apunga o Tainui Paa (McLennan Hills)

This site was a cluster of small cones with numerous craters, and has been nearly completely quarried. It has been sketch mapped from early aerial photos, and a shell sample from a remnant terrace on the edge of the quarry indicates the site was occupied between about AD 1500 and 1690 (Wk-1722). No archaeological excavations have been carried out at this site.

Site mapped from aerial photos, 1986, S. Bulmer.

Searle 1981: 134-135 (see 27.).

Sullivan 1975b: 72 (see 25.4).

19.3 R11/13, Otaahuhu Paa (Mt Richmond)

This site is formed by a cluster of cones and craters, with a number of peaks. It was fortified with ditching at the southeastern corner and was terraced all over and down to its base on all sides. The entire site was defended by a natural moat, i.e., the swamp in the tuff explosion crater that enclosed the site. No archaeological excavations have been carried out at this site. A shell sample from an eroding midden has been dated to between AD 1580 and 1820 (Wk-2013).

Maps of southeastern section, c. 1960, NZAA Site Record File.
Surveyed by students, 1979.

Boscawen 1899: 2/L (see 27.).

Searle 1981: 131-133 (see 27.).

Searle and Davidson 1983: 14-15 (see 27.).

Stacey, B. 1979. Mt. Richmond - a hill pa. Class paper, 03.308, Department of Anthropology, University of Auckland. 14p.

Sullivan 1975b: 72 (see 25.4).

Watts, S. 1979. Site survey of Otahuhu site. Class paper, 03.308, Department of Anthropology, University of Auckland. 10p.

Whiteley, L. and Kay, R. 1979. Site: Mt Richmond. Class paper, 03.308, Department of Anthropology, University of Auckland. 13p.

19.4 R11/898, the Westfield site

This was a settlement site on a low ridge on the northern periphery of the McLennan Hill basaltic fields. The site had terraces around the periphery, pits and house sites on the top and cooking and stone working areas at the southern end. It has seen two major investigations, firstly, in 1982, at the southern end, associated with the construction of a gas pipeline, and, in 1988, the rest of the site was investigated in anticipation of an industrial subdivision. Six radiocarbon dates from this site indicate it was occupied between the AD 1400s and 1700s and possibly more recently (see Appendix 1).

The Maaori community is attempting to prevent the destruction of a burial place in the centre of the site, probably more recent than the main occupation of the settlement site.

Recorded 1980, by Tippet and Molloy.

Excavation 1982, Furey.

Mapped 1987, by Rickard.

Excavation, 1988, Sewell.

Bulmer, S. 1988. A waahi tapu at Westfield. The archaeological site and its protection. Report to the NZ Historic Places Trust. 25p.

Furey, L. 1982. Interim report on excavations at N42/941, Westfield, South Auckland. *NZAAN* 25(2): 138-143.

1983a. Excavation of N42/941, Westfield, South Auckland. 37p.

1983b. Radiocarbon dates from N42/941, Westfield, South Auckland. *NZAAN* 26(2): 106.

1986. The excavation of Westfield (R11/898), South Auckland. *RAIM* 23: 1-24.

Sewell, B. 1989. Preliminary report on excavations of Site R11/898, Tamaki City. DoC, Auckland. 5p.

1992. Further archaeological excavations at the Westfield Site (R11/898), Tamaki, Auckland. *Auckland Conservancy Historic Resource Series No.1*. DoC, Auckland.

19.5 Fisher Road sites (Flat Rock)

This is an area of volcanic fields on the west bank of the Tamaki River. It probably had stone walled gardens, but 19th century rock removal and landuse removed all but fragments. Extensive settlement sites were present, probably continuous with the settlements at Hawkins Hill and the Westfield Site. Three areas were excavated prior to industrial development, uncovering a group of storage pits, a group of houses, a cooking and stoneworking area, store houses, and a shell paved yard. Radiocarbon dates indicate occupation between the AD 1400s and the 1600s (see Appendix 1).

Pipeline route surveyed 1980, Tippet and Molloy,

Surveyed 1985, Veart, Rickard and Bulmer.

Excavated 1985, by Foster and Sewell.

Foster, R. 1986. Radiocarbon dates from the Fisher Road (R11/887, 888, and 899) and Hawkins Hill sites (R11/1394). *NZAAN* 19(4): 248-249.

Foster, R. and Sewell, B. 1985a. Excavations at Fisher Road (Flat Rock), South Auckland. (Preliminary report). NZHPT, Auckland. 3p.

1986. Interim report on the excavation of the Fisher Road sites (R11/887, 888, 899), Mt Wellington, South Auckland. *NZAAN* 29(4): 238-243.

1988. An open settlement in Tamaki, Auckland, New Zealand. Excavation of sites R11/887, R11/888, and R11/899. *Science and Research Series No. 5*. Department of Conservation, Wellington.

1989a. The excavation of sites R11/887, R11/888 and R11/899, Tamaki, Auckland. *RAIM* 26: 1-24.

Fredericksen, C. 1988. Obsidian artefacts. In Foster and Sewell 1989a: 64-9.

Veart, D., Rickard, V., and Bulmer, S. 1985. Archaeological mapping of the Flatrock site, South Auckland. NZHPT, Auckland 1985/2.

19.6 R11/1394, Hawkins Hill

This was another settlement in the volcanic fields west of the Taamaki River, on one of a number of low hills with terraces and pits, between the Westfield Site and the Fisher Road Site. It was excavated prior to industrial development. Radiocarbon dates indicate that the site was occupied between the AD 1400s and the 1600s.

Survey 1984, S. Bulmer.

Excavation 1984, by Coates, report in prep (with C. Fredericksen).

Coates, J. 1984b. Hawkins Hill, South Auckland. Test excavation at Site R11/1394, South Auckland. Interim report and recommendations. NZ Historic Places Trust, Auckland 1984/10.

1986. Excavations at R11/1394, "Hawkins Hill", South Auckland: an interim report. *NZAAN* 29(4): 244-247.

Foster 1986. (see 19.5).

19.7 The Tamaki River sites (R11/1201 and R11/506)

These sites had very little surface evidence, two small pit and midden sites on ridges on the northern periphery of the McLennan Hill volcanic field. However, the excavation of these features and the level fields adjacent to them showed that less than 5% of the sites were represented by surface evidence. The site turned out to be a flatland palisaded paa on the edge of the Taamaki River. A full range of settlement features was present, including house sites, store pits, and middens and cooking debris. The dating of shell from the midden shows the paa was occupied between about AD 1490 and 1650 (R. Foster pers. comm. 1991).

Surveyed, 1982, Veart and Rickard.

Excavation 1988, by Foster and Sewell.

Bulmer, S. 1982a. (see 27.).

Foster, R. 1987. Excavation proposal for Site R11/1201, Paisley Place, Tamaki City. 4p.

Foster, R. and Sewell, B. 1989b. Preliminary report on archaeological excavations at Site R11/1201, Tamaki River, Auckland. 3p.

1993. The Tamaki River sites: excavation of sites R11/1201 and R11/506, Tamaki, Auckland, New Zealand. *Auckland Conservancy Historic Resources Series No.6*. DoC, Auckland.

Veart, D. and Rickard, V. 1983. Site survey - Tamaki River NZMS1 N42. 3p. Auckland, NZHPT.

19.8 R11/33, Sturges Park site

This site is on a tuff ring with a low central scoria cone. It has not been quarried, but the crater has been filled in to create playing fields. It is in a public domain. A terraced site is evident on aerial photos, on part of the tuff ring, but no map has yet been done. No archaeological excavations have been carried out at this site.

Searle 1981: 130-131 (see 27.).

19.9 R11/142, Mutukaaroa (Hamlins Hill)

This is the largest undefended hilltop settlement site recorded in the Auckland area, and one of Auckland's most archaeologically investigated sites. The prominent hill on which it is located is not volcanic in origin, but it is on the edge of the Otaahuhu fields and its residents no doubt used the nearby volcanic soils for their gardens. The site overlooks the Karetu portage, one of the three routes between the Taamaki River and the Manukau Harbour (Brown 1954: 173-174, see 27.).

Two parts of the site have been archaeologically excavated; a knoll on the southern side of the summit, which was destined to be a clay quarry, and an ARA water pipeline route across the northern end of the hill. A large village site, with houses, fences, earth ovens, hearths, middens and artefacts, was uncovered by the excavations. Radiocarbon dates indicate that the site was occupied between the AD 1400s and the 1600s (see Appendix 1).

Excavations, a series of projects between 1969 and 1984.

Bulmer, S. 1986b. The prehistoric village site at Hamlins Hill (R11/142). NZHPT, Auckland. 5p.

- Davidson, J. 1970c. Salvage excavations at Hamlin's Hill, N42/137, Auckland, New Zealand. *RAIM* 7: 105-122.
- Foster, R. 1984c. Test excavations at Hamlins Hill, 1983. NZHPT, Auckland, 1984/2.
1985. Excavations on Hamlins Hill (Northern Ridge), N42/137. NZHPT, Auckland 1985/4.
- Irwin, G.J. 1975. Further salvage excavation on Hamlin's Hill (N4Z/137), Auckland, New Zealand. *RAIM* 12: 49-55.
- Nichol, R. 1980. Hamlin's Hill (N42/137) excavations: fourth season. *NZAAN* 23(4): 208-225.
1983. Aerial photography on Hamlin's Hill. *NZAAN* 26(1): 45-50.
- Pearce, P.I. 1975. Additional excavation on the main upper terrace, Hamlin's Hill (N42/137). *NZAAN* 18(4): 191-199.
- 1977b. Hamlin's Hill. Unpublished MA thesis, Anthropology Department, University of Auckland.
- Pearce, P.I. and Walton, A. 1983. Radiocarbon dates from Hamlins Hill (N42/137). *NZAAN* 26(4): 276-278.
- Walton, A. 1979. The 1976 excavations on Hamlin's Hill (N42/137). *NZAAN* 22(3): 105-116.

20. EAST TAAMAKI

20.1 General

The East Taamaki volcanic field, associated with two scoria cones and a tuff crater, has been the scene of a series of "rescue" archaeological investigations in recent years. This field was the last to be destroyed by industrial development, and now only a few small allotments await investigation. The destruction of these sites was approved by the Historic Places Trust as a part of its decision, in 1984, to permanently protect two sample areas of stonefields at Matukurua (see 25.1) and Otutataua (see 22.3). The East Taamaki field was judged to be (in 1984) too damaged to warrant permanent protection, and it was not in a suitable position for protecting in a public reserve.

Recording and surveys began in the 1930s.

Detailed archaeological survey and mapping, 1983-1989.

Excavation projects, industrial subdivisions, 1985-88.

Some projects still pending development.

Hochstetter 1864: 200-201 (see 27.).

Rickard, Veart and Bulmer 1983: 37-43, Figs 15, 15a, 16 (see 27.).

Searle 1981: 162-164 (see 27.).

Sullivan 1972a: 151 (see 27.).

Veart 1985. (see 27.).

20.2 R11/36, Te Puke o Tara Paa (Smales Mt)

This was a small scoria cone paa, but little archaeological record has been made of it, although there is good aerial coverage from which it will be possible to map the site. It is now completely quarried. No archaeological excavations have taken place.

Hochstetter 1864: 200 (see 27.).

Searle 1981: 163-165, Fig. 6.26 (see 27.).

Sullivan 1975b: 71 (see 25.4).

Taylor, A. 1963a. Smales mountain Area 11: a tentative survey. *NZAA* 6(1):4-5.

20.3 R11/24 Matanginui Paa (Green Mt)

This cone paa is also now nearly completely quarried, but a good archaeological map was made of it in the 1960s. No archaeological excavations have been carried out on this site. A remnant of a tuff ring to the southeast is in public reserve, but has been extensively disturbed by developments. The paa was the centre of extensive major boundary walls to the northwest, apparent in aerial photos and in the remnant fields.

Mapped 1964, M. Nichols.

Fisher, V. 1934. Notes of a visit to Green Mountain (300 ft high), Papatoetoe. 10/4/34. NZAA Site Record File, DoC, Auckland.

Searle 1981: 162-164, Fig 6.25 (see 27.).

Sullivan 1975b: 71 (see 25.4).

20.4 R11/1301, the Harris Road sites

(Harris Road East, Harris Road West, and Stevenson)

These industrial allotments contained garden features which were mapped and excavated prior to development. The fields were relatively level areas to the northwest of Matanginui Paa, with boundary walls and garden terraces and mounds. There are two radiocarbon dates from samples from two earth and rock mounds. A charcoal sample from one gave an unacceptably early date of 770-630 BC (NZ-7160), while a shell date from another mound (NZ-7098) suggests it was built between about AD 1250 and 1301.

Survey 1983, 1985.

Excavation 1985-86, P. Douglas.

Douglas, P. 1987. Radiocarbon dates from the Harris Road Site, N42/1203 - East Tamaki, Auckland. *NZAAN* 30(1): 49-53.

Foster, R. and Veart, D. 1986. Harris Road mound complex: an archaeological survey. NZHPT, Auckland 1986/8.

Rickard, V. 1985. Archaeological survey of a section of the East Tamaki volcanic fields: the Stevenson Block. NZHPT, Auckland 1985/9.

Rickard, Veart and Bulmer 1983: 39-40, Fig. 16 (see 27.).

20.5 R11/1525, the Shaw Block

This industrial allotment was at the northern periphery of the basaltic fields. The investigations were concerned with some problematic large earthen mounds and an earth oven and two riverside terraces. Excavation indicated that the mounds were of recent origin. One of the terraces was found to be too damaged to be investigated, but the other shows evidence of two short periods of occupation, including an earth oven, a fireplace and postholes.

Survey 1983, 1986, Slocombe.

Excavation 1987, Slocombe, and 1988, Veart.

Rickard, Veart and Bulmer 1983: 41-42 (see 27.).

Slocombe, A. 1986. Shaw Block site survey. Site R11/1525. NZHPT, Auckland 1986/11.

Slocombe, A. and Veart, D. 1989. Archaeological investigation at the Shaw Block (R11/1525), East Tamaki. *Science and Research Internal Report No. 45*. Department of Conservation, Wellington.

20.6 Te Wharau

This is an area to the north of the East Taamaki volcanics, surrounded on three sides by the Taamaki River. There were no clear signs of gardens in most of the area, but there were a few stone structures at the periphery of the stonefields on the southern side of the property and terraced settlements next to the river. Basaltic outcrops next to the river were used both in pre-European times for flaking artefacts, and in the 19th century for quarrying basalt for building and roading materials. A waahi tapu was also recorded, an area of rocky outcrops with tree cover. All three kinds of site were excluded from the proposed subdivision development, all but the waahi tapu being made part of the foreshore reserve along the river.

Survey 1983, 1986.
Test excavations 1990, Robinson.
Excavations planned, pending development proceeding.

Rickard, Veart and Bulmer 1983: 41-42 (see 27.).

Robinson, J. 1990. A short investigation of two sites (R11/1516 and R11/1517) at Tamaki Farms in South Auckland. DoC, Auckland.

Slocombe, A. and Robinson, J. 1986. Te Wharau archaeological survey. NZHPT, Auckland 198617.

20.7 Cryers Road Block

These industrial blocks contained a large number of features thought to relate to pre-European settlement. Archaeological excavation was undertaken to define the nature of that habitation. Six distinct features and three raised lava flow plateaus were excavated, and four of the features and one of the plateaux were found to contain evidence of past habitation. The other features and areas were found to be unmodified natural formations. Eight radiocarbon dates (see Appendix 1) indicate that occupation of the site probably occurred over a 300 year period, possibly beginning as early as about 1450 and continuing into recent times.

It was concluded that the Maaori people favoured this locality because of the rich garden soils and the fresh water springs.

Survey 1983, 1985, 1987.
Excavation 1988, Fredericksen and Visser.

Albert, H. 1987. Archaeological survey of a volcanic field at Cryers Road, East Tamaki. NZHPT, Auckland 1987/4.

Coates, J. 1989. Soil phosphate analysis as an indication of archaeological deposits. *Science and Research Internal Report No. 69*. DoC, Auckland.

Cofman-Nicoresti, K. 1989. Shell analysis. In Fredericksen and Visser 1989: 93-102.

Douglas, P. 1989. The natural environment. In Fredericksen and Visser 1989: 8-13.

Fredericksen, C. and Visser, E. 1988. Excavations at the Cryers Road site (R11/1519), East Tamaki, Auckland. *NZAAN* 31(4): 233-250.

1989. Excavations at the Cryers Road site (R11/1519), East Tamaki, Auckland. *Science and Research Series* No.21. DoC, Wellington.

1991. Calibrated radiocarbon dates from Cryers Road (R11/1519): a correction. *AINZ* 34(3): 161-162.

Veart, D. 1985. Archaeological survey of part of the East Tamaki volcanic field: the Cryers Road Block. NZHPT, Auckland 1985/7.

Smith, IWG 1989. Bone analysis. In Fredericksen and Visser 1989: 102-106.

20.8 Aliens Road sites

A series of settlement and garden sites were recorded on low ridges on the western periphery of the East Taamaki volcanic field. One of these was excavated as representative of the sites.

Surveys 1983, 1985-86.

Excavation R 11/1497, 1986, by Albert.

Albert, H. 1986a. Preliminary report of excavations at Aliens Road (R11/1497), East Tamaki. NZHPT, Auckland. 5p.

1986b. Preliminary report on an archaeological survey of the unformed roadway, Aliens Road. NZHPT, Auckland. 4p.

Bulmer, S. 1985a. Report on archaeological features at the Aliens Road Site, East Tamaki (DP 76820). NZHPT, Auckland. 6p.

Rickard, Veart and Bulmer 1983: 38-39 (see 27.).

20.9 Southward sites

Further industrial blocks were surveyed here, on the western periphery of the East Taamaki volcanic field. Some features have been selected for archaeological investigation prior to their proposed destruction.

Survey 1983, 1987, further survey pending.

Excavations 1992, D. Veart.

Douglas, P. and Veart, D. 1988. Inspection and assessment of archaeological features recorded in DP 58548, Lots 151, 154, and 155, East Tamaki. DoC, Auckland. 14p.

Rickard, Veart and Bulmer 1983: 38-39 (see 27.).

21. MAANGERE

21.1 General

The extensive stonefields that derived from Maangere Mountain are almost entirely destroyed by urban developments, with no archaeological record. The only remnant is in Ambury Farm Park where a group of house sites and a part of a mound garden can still be seen.

Hochstetter 1864: 204-205 (see 27.).

Macdonald and Bulmer 1981: 10-27 (see 27.).

Taylor, A. 1961. Five Manukau pa sites. *NZAAN* 4(2): 56-61.

1966. Burial and cremation in the Manukau area. *Historical Review* 14(4): 154-156.

1968x. Perforated shells. *NZAAN* 11(3): 121.

1972. Manukau caves and rock shelters. *NZAAN* 15(4): 161-162.

Searle 1981: 139-152 (see 27.).

Sullivan 1972a: 153 (see 27.).

21.2 R11/26, Te Pane Matao Paa (Maangere Mountain)

Maangere Mountain is one of the four largest cone paa in Taamaki, and is also the cone paa in the best general state of preservation. The only serious damage has been caused by the formation of the road to the summit and the water tank on the summit. The paa has three divisions, the southern section of the rim, and the northwest-northern section, both of which are defended by ditches and banks, and the third, the small crater to the northeast. The site is extensively terraced, down to the base on the north and western sides, and on the upper slopes to the south. No archaeological excavations have taken place at this site. An interpretation of the paa features in the background of a painting by Chris Gaskin which is to be published in Nigel Prickett's forthcoming guide to Auckland sites (see Ambury Park 21.3).

Student mapping projects 1984, 1987, Department of Anthropology, University of Auckland.

Mapping of small northeastern crater 1978, by R. Cassels and C. Phillips.

Computerised mapping in progress 1993, S. Bulmer and D. Veart.

Best 1927: 301-303 (see 27.).

Boscawen 1899: 50, 51/R, 53/L (see 27.).

Bulmer, S. 1991. Maori traditions and history of Mangere, and Archaeology. Pp. 7-21 in: Preliminary policy guidelines for the management of Mangere Mountain Reserve. Submission to Manukau City Council. Dept. of Conservation, Auckland.

Cooney, S. n.d. [1976?] Site survey Mangere Mt. Class project, Department of Anthropology, University of Auckland. 8p.

Doherty, J.M. and McManus, L.G. n.d. [1976?] Site survey of Mangere Mountain (a survey of surface features only). Class project, Department of Anthropology, University of Auckland. 13p.

Macdonald and Bulmer 1981: 17-27 (see 27.).

Searle 1981: 142-143 (see 27.).

Searle and Davidson 1983: 18-19 (see 27.).

Sullivan 1975b: 44-45, 71 (see 25.4).

Whaanga, R. n.d. [1976?] Site survey report, Mangere Mountain. 03.208 Class project, Department of Anthropology, University of Auckland. 15p.

21.3 Ambury Park

This Regional Park includes a part of the northwestern edge of the Maangere stonefields, the only remnants of the fields not under housing or other urban developments. The remnant field contains a coastal settlement and a mound garden. The archaeological features of the immediate coastline have mostly been destroyed by the Auckland Regional Council sewage works, and damage has also been done to archaeological features by the development of the park. However, these archaeological features are important, even in a damaged condition, as the only available remnants of the Maangere fields. A painting by Chris Gaskin, to be published in a guidebook to Auckland sites by N. Prickett, illustrates the settlements and gardens, with Maangere Mountain in the background, as they might have appeared while they were used in pre-European times.

Two small archaeological excavations were carried out in connection with the construction of a products pipeline through the park. One of these, at a small terrace on the northern coastline of the park, was found to have been a fishing camp. The other, near the settlement, investigated mounds and other possible stone constructions in a garden area.

Survey 1978-79, by students for NZHPT.

Survey of products pipeline route 1981, Cramond and Nevin.

Excavations of features in two areas of the pipeline 1982, Adds and Brassey, and Lilburn.

Adds, P. and Brassey, R. 1983. Archaeological investigations at Mangere, Site N42/779. NZHPT, Auckland 1983/5.

Bulmer, S. 1981a. Ambury Park. In: Archaeological sites in the Auckland Regional Parks - a summary. NZHPT, Auckland, 1981/8.

Cramond and Nevin 1981. (see 27.).

Lilburn, K. 1982. Ambury Park archaeological investigations. Stage 1. N42/1143, 1137, and 1251. Draft report, NZHPT, Auckland. 10p.

Macdonald and Bulmer 1981: 9-13 (see 27.).

Rickard, Veart and Bulmer 1983: 17-25 (see 27.).

Sullivan 1972a: 153 (see 27.).

22. IHUMATAO

22.1 General

The Ihumatao volcanic field consists of four eruption centres, all of which had paa sites on scoria cones. The fields were a centre of Maaori population from the earliest times up until 1860, and the sites around Otataua and Pukeiti and west of Maungataketake are still in relatively good condition. The land to the west of Maungataketake contains a number of important sites, including the site of an early 19th century mission station. The fields and remaining cones of Otataua and Pukeiti have been selected by the Historic Places Trust for permanent protection.

Golson, J. 1961b. Notes on artefacts from the Manukau pa. *NZAAAN* 4(2): 61-63.

Hudson, E. 1985. An Ihumatao transect. Class project, 03.325, Anthropology Department, University of Auckland.

Macdonald and Bulmer 1981: 37-54 (see 27.).

Searle 1981: 150-153 (see 27.).

Sullivan 1972a: 151 (see 27.).

22.2 R11/31, Maungataketake Paa (Ellett's Mt) and its fields

A substantial section of this prominent paa has been destroyed by quarrying, but a significant portion of it still remains. Its archaeological features have not yet been mapped in detail. Two major excavations have been carried out on the western and southern sides of the site, in anticipation of quarrying. The results of this work have not yet been published, but a series of radiocarbon dates indicates this site was occupied as early as the period from AD 977 to 1179 (NZ-6476), and continued to be used in later centuries, possibly up until the 1800s (see Appendix 1).

Excavations 1973-75, 1982, McKinlay.

Eastern section field survey 1982, Bulmer.

Planimetric map of Elletts Mountain, [n.d.], for NZHPT and Auckland University Archaeological Society, but does not record archaeological features.

Boscawen 1899: 17/R, 19/R, 20/L, 21/L (see 27.).

Bulmer, S. 1981b. The eastern portion of Elletts Mountain (Maungataketake), Site N42/23. NZHPT, Auckland. 4p.

Hochstetter 1864: 204 (see 27.).

Macdonald and Bulmer 1981: 42, Figs 8, 9 (see 27.).

McKinlay, J.R. 1974. Ellett's Mountain 1973-4. *NZ Historic Places Trust Newsletter* 3: 4-6.

1975. Ellett's Mountain 1974-5. *NZ Historic Places Trust Newsletter* 5: 6.

Searle 1981: 150-152 (see 27.).

Sullivan 1975b: 71 (see 25.4).

Taylor, A. 1970. Agricultural adzes. *NZAAAN* 13(2): 86-87.

22.3 R11/30, Otuaataua, R11/29, Pukeiti, and their fields

The cores of the two paa have been partly quarried, but their outer slopes remain, and their contiguous fields have seen limited quarrying but are otherwise still in a good state of preservation. The Historic Places Trust has selected the combined fields as one of two historic stonefield areas in the Auckland region to be permanently protected. A large number of features in the fields have been recorded, beginning in the 1960s, and one section has been mapped in detail in anticipation of quarrying. No archaeological excavations have been carried out in this area.

Site survey 1960s, A. Taylor.

SCSP group site survey 1979-80, maps by G. White.

Survey of proposed quarry area 1985, Foster and Veart.

Further survey 1993, D, Veart.

Bulmer, S. and Tubb, B. 1988. A proposal for the protection/acquisition of historic stonefields at Otuaataua (Mangere). DoC, Auckland. 35p.

Copsey, J. 1974. A surface collection of Maori adzes from a farm on Ihumatao Road, Mangere. In Sullivan 1974a: 44-46 (see 27.).

Foster, R. and Veart, D. 1984. Archaeological features in the area quarried by Wilkins Davies, 1984. NZHPT, Auckland. 13p.

Macdonald and Bulmer 1981: 37-54 (see 27.).

Rickard, Veart and Bulmer 1983: 26-30, Figs 6-9 (see 27.).

Searle 1981: 149 (see 27.).

Sheppard, B. 1987. Protection of two archaeological landscapes, Otuaataua (Mangere) and Matukurua (Wiri). HP12/30/2. NZHPT, Wellington.

Sullivan 1975b: 71 (see 25.4).

Taylor 1961: 59 (see 21.1).

Taylor, A. 1963b. Warfare during the Archaic period of Maori culture. *NZAAN* 6(2): 107-10.

1971. Modified stone adzes, *NZAAN* 14(4): 198.

Veart, D. 1986. (see 27.).

1993. Otuaataua site assessment. [Unpublished manuscript]. 5p. + map. DoC, Auckland.

22.4 R11/28, Waitomokia Paa (Mt Gabriel) and its fields

This paa consisted of three small volcanic cones, enclosed within a large tuff explosion crater (1 km in diameter), which contained swamps that provided natural defences (see 19.3, Otaahuhu, a site with similar defences). The cones are completely destroyed by quarrying, but good photographic records exist and will make it possible to map the site's archaeological features. A recent archaeological survey of the land between the southern rim of the tuff crater and the Oruarangi Creek showed that settlement was widespread in this area, although most of the archaeological features have been

destroyed by horticulture. The site of a ring-ditch paa overlooking the Creek (R11/575) is still present. No archaeological excavations have been carried out at Waitomokia.

Boscawen 1899: 18/L, 18/R, 19/L, 19/R, 20/R(see 27.).

Golson 1961b: 61-62 (see 22.1).

Hochstetter 1864: 202-203 (see 27.).

Searle 1981: 148, Fig. 6.12 (see 27.).

Sullivan 1975b: 42, 71 (see 25.4).

Taylor 1961: 59 (see 21.1).

1966: 155 (see 21.1).

Veart, D. 1991. Oruarangi archaeological survey. DoC, Auckland.

22.5 R11/353, earthen banks on coast (N42/36)

The site includes two kinds of earthen bank, one a long bank running more than 100 m parallel to the coast, with a ditch along part of it. The long bank is presumably part of a garden or field boundary, possibly a ditch and bank fence dating to the 1800s.

The other bank feature is circular, about 6 m in diameter, and was interpreted by Taylor as the site of a round house. Bellwood disagreed and argued that it was most likely a potato clamp. No archaeological excavations have been carried out at this site.

Recorded c. 1968, A. Taylor.

Revisited 1968, P. Bellwood.

Site not found during survey 1991, Veart.

Bellwood, P.S. 1968. Round houses in New Zealand prehistory. *NZAAN* 11(4): 175-6.

Taylor, A. 1968b. Manukau coastal site. *NZAAN* 11(3): 125.

Veart 1991. (see 22.4)

23. PUKETUTU (WEEKS ISLAND)

23.1 General

Puketutu is a large basaltic island with a central scoria cone that has multiple peaks and craters. Puketutu formerly had extensive walled field systems. A large number of features in the fields have been recorded, but many have been destroyed by farm development as well as quarrying. No archaeological excavations have been carried out on Puketutu Island.

Survey and aerial photography 1938, Fairfield.

Site survey 1978-79, SCSP group.

Boscawen 1899: 17/L (see 27.).

Fairfield, G. 1938. Puketutu pa on Week's Island, Manukau harbour. *JPS* 47(187): 119-28.

Macdonald and Bulmer 1981: 28-36 (see 27.).

Searle 1981: 145-147 (see 27.).

Sullivan 1972a: 151 (see 27.).

Taylor 1961: 59-60 (see 21.1).

23.2 R11/27, R11/553, and R11/554, Puketutu Paa

On the basis of aerial photos, the peaks of the island were terraced, and at least one (R11/553) had a defensive ditch (see Searle 1981: 146, Plate 53). These may have been parts of a single paa, such as was present at Te Taatua (see 8.2). No archaeological excavations have been carried out on this site.

Fairfield 1938: 122ff (see 23.1).

Searle 1981: 146 (see 27.).

Sullivan 1975b: 42, 71 (see 25.3).

Taylor 1961: 59-60 (see 21.1).

24. PUUKAKI and CRATER HILL

24.1 General

This area has been extensively surveyed, and archaeologically mapped in detail. In spite of nearby urban development there is still highly significant historic landscape present, in particular on the peninsula south of Puukaki Creek and at Crater Hill. The district has five tuff craters, one of which, Crater Hill, enclosed a basaltic field and small scoria cone. The early gardening settlement of this district was probably restricted to Crater Hill, but the creeks were a focus for fishing and collecting. The tuff and ash soils may not have been cultivated until the 1800s, according to the archaeological information available. Another important aspect of this area was its position at the end of one of the portages from the Tamaki River.

Two archaeological excavations have taken place in this area, one on a settlement site on the banks of the Waokauri Creek where pipeline construction was to destroy the site, and the other on part of the northern rim of Crater Hill that was planned to be destroyed by motorway construction.

Site survey 1970-75, Sullivan.

Survey 1977, ARA Southwestern interceptor (sewer pipeline), Fox.

Student SCSP site survey of Puukaki area.

Survey in connection with products pipeline in 1981, Cramond and Nevin, and in 1982, Taylor and Grace.

Airport motorway access route survey 1983, Foster and Johns.

Cramond and Nevin 1981. (see 27.).

Foster, R. and Johns, D. 1983a. Archaeological site survey, Pukaki Creek, Stages 1 and 2, for the Airport Access Study. NZHPT, Auckland 1983/10.

1983b. Archaeological site survey, Pukaki Creek, Stage 3, for the Airport Access Study. NZHPT, Auckland 1983/13.

Hochstetter 1864: 201-203 (see 27.).

Macdonald and Bulmer 1981: 55-58, Figs 15, 16 (see 27.).

Searle 1981: 152 (see 27.).

Sullivan 1972a: 151 (see 27.).

Sullivan, A. 1973. Site survey of lower Pukaki Creek. *Working Papers in Archaeology No. 27*. Department of Anthropology, University of Auckland.

Taylor, A. 1962b. Pukaki Pa 11: a brief survey. *NZAAN* 5(1): 84-86.

Taylor, M. and Grace, C. 1982. Supplementary site survey of the Auckland-Whangarei Products Pipeline (Pukaki Basin-Mangere Section). NZHPT, Auckland 1982/7.

24.2 Te Hau Kapua (Crater Hill)

This large tuff crater is a unique and impressive site, a complex landscape of archaeological settlement and garden features. Its archaeological features have been recorded as 90 sites, each of these has many different features, but Crater Hill is in fact a continuous historic landscape. All of its surface features have been mapped in detail. At least one part of the rim was fortified with transverse ditching.

There was formerly a small scoria cone inside the tuff crater, now quarried away. It is referred to as a paa in the site records, but no archaeological features were recorded prior to its destruction and aerial photos consulted so far do not show any terracing or other archaeological features.

Surveyed 1970-75, A. Sullivan.

Searle 1981: 152-156 (see 27.).

Macdonald and Bulmer 1981: 64-68 (see 27.).

Sullivan, A. 1975a. Checklist of archaeological sites at Crater Hill, Papatoetoe. *Working Papers in Archaeology No. 37*. Department of Anthropology, University of Auckland.

24.3 R11/665, Crater Hill Motorway Site

In 1984 a motorway was proposed that would cut through the eastern and northern sides of the site. An archaeological excavation was begun in part of the area to be destroyed. The fieldwork was stopped part way, as the motorway was realigned to avoid Crater Hill. The excavations revealed some very important evidence, including a slope mound garden and a living area that was paved with scoria cobbles, as well as midden and store pits.

Motorway route, Crater Hill, 1981, R. Cassels, and 1984, Bulmer, Foster, and Sewell.

Excavation on proposed motorway route, stopped after Stage 1, 1985, Foster, Sewell and Veart.

Foster, R. and Sewell, B. 1985b. Excavations at Crater Hill, Papatoetoe, Auckland. 4p.

Foster, R., Sewell, B. and Veart, D. 1985. Preliminary excavations of Crater Hill, South Auckland. NZHPT, Auckland 1985/1.

24.4 R11/609, Waokauri Creek Site

The edges of the Puukaki and Waokauri Creeks have a large number of middens. These have been recorded as separate sites, but they are more-or-less continuous along the creeks. The construction of the Whangarei products pipeline through this area meant that destruction to some archaeological features could not be avoided. R11/609 was one of two sites that would be destroyed. It was archaeologically excavated as an example of the many small coastal and streamside settlements which are the commonest form of site in the region.

The site was recorded as a small promontory in the Waokauri Creek, extending about 42 m into the creek and 21 m wide. Excavation showed that habitation deposits extended for about 20 m inland from the creek edge. There was no surface evidence

on the promontory, other than midden eroding from cliffs at the creek edge. Excavation showed the presence of evidence of complex habitation, indicating repeated occupation for a long period of time. Terraces, oven pits, a large number of store pits, fireplaces and postholes from other structures were excavated, features such as pits having been filled in with midden after their use was discontinued. A few artefacts were excavated, including broken bits of adzes, obsidian flakes, and fishhook points.

Excavations 1982-83, M. Taylor. Report in prep.

Taylor, M. 1983. Archaeology investigations at Waokauri Creek, Crater Hill, 1982. A preliminary report. NZHPT, Auckland 1983/8.

25. MATUKURUA (WIRI MT AND MCLAUGHLINS MT)

25.1 General

Matukurua ("the two bitterns") refers to the two scoria cones, Matukutuureia, "the careless bittern" (McLaughlins Mt) and Matukutuururu, "the watchful bittern" (Wiri Mt). The cones shared 500 ha of stonefields, and these are the best studied of any of the Auckland volcanic fields in archaeological terms. This is due to the extensive and intensive research by Sullivan, which included the detailed mapping of nearly the entire field. The field has now been destroyed through quarrying, with the exception of one section to the southwest of McLaughlins Mt which the Historic Places Trust has resolved to protect permanently (with Otataua, see 22.3) as one of two sample areas of historic stonefields. This field contained both clusters of settlement features and a wide variety of gardens, including major boundary walls from the cones to the periphery of the field.

Four major archaeological investigations have been carried out at Matukurua. The earliest was Sullivan's mapping and excavations on upper terraces and slope gardens of Matukutuururu and in garden features in the fields nearby. The Puhinui investigation of features on a pipeline corridor across the southern end of the Matukutuureia fields were carried out in 1978-79, the Wiri Oil Terminal Site was investigated in 1982-83, and the fourth project, the investigations of the Wiri Railway Quarry Site, north of Matukutuururu, was carried out in 1983-86. A fifth project is pending, on a 350 X 120 m remnant of the northern lower slopes of Matukutuururu.

Hochstetter 1864: 204-205 (see 27.).

Rickard, Veart and Bulmer 1983: 30-37, Figs 10-14 (see 27.).

Searle 1981: 155-160 (see 27.).

Sheppard 1987. (see 22.3).

Sullivan 1972a: 151 (see 27.).

Sullivan, A. 1974a. Scoria mounds at Wiri. *NZAA* 17(3): 12.8-144.

1989. An archaeological and traditional account of the proposed stonefield reserve at Matukurua (Wiri-McLaughlins). DoC, Auckland. 40p.

25.2 R11/25, Matukutuureia Paa (McLaughlins Mt)

This site was on a high cone with a single breached crater. It had terracing part way down to the base on three sides, and to the southwest it was continuous with the field sites on sloping land. No archaeological excavations have been carried out on the site, which is now largely destroyed by quarrying.

Surveyed and mapped 1974, by Sullivan.

Nepe, T.M. 1974. Analysis of a sample of shell midden from McLaughlins Mountain (N42/17). In Sullivan 1974a:47-50.

Sullivan 1975b: 70 (see 25.4).

1989. (see 25.1).

25.3 R11/25, Puhinui pipeline corridor

This is a 460 m long and 30 m wide strip across the volcanic field south of Matukutuureia Paa, next to the Puhinui estuary and stream. This work was done in anticipation of the destruction of the sites by the Auckland Regional Council's proposed sewer pipeline across the fields. Sullivan had already mapped the fields in detail, and the investigations focussed on a series of stone constructions, middens and terraces.

Excavations showed the area may have been occupied for hundreds of years, from AD 1300s, up until recent times. Eight radiocarbon dates have been obtained (see Appendix 1 for details). The streamside terraces had been repeatedly used for camping and cooking. Other features excavated included stone walled structures interpreted as field shelters in the gardens and a variety of garden structures.

Surveyed and mapped 1974, Sullivan.

Survey and excavations 1978-79, Lawlor.

Braggins, J. and Johns, D. 1981. Plant remains (Interim Report). In Lawlor 1981a, Appendix 7. 1p.

Charters, H. 1981. Pebbles, flakes and stones. In Lawlor 1981a, Appendix 14. 10p.

Gardner, NW 1981. Landsnails. In Lawlor 1981a, Appendix 8. 3p.

Houghton, P. 1981. Human bone and teeth (Interim Report). In Lawlor 1981a, Appendix 4. 3p.

Lawlor, I. 1980. Puhinui excavations: an interim report. *NZAAAN* 23(1): 11-23.

1981a. Puhinui (N42/17) excavation report. Department of Anthropology, University of Auckland.

1981b. Radiocarbon dates from Puhinui (N42/17), South Auckland. *NZAAAN* 24(3): 160-3.

Lawlor, I., Hayes, P., Nevin, N., and Widdowsen, N. 1981. Midden analysis. In Lawlor 1981a, Appendix 1. 37p.

Lilburn, K. 1981. Fish Bone (Interim Report). In Lawlor 1981a, Appendix 3. 3p.

Naus, B. 1981. List of European artefacts. In Lawlor 1981a, Appendix 12. 4p.

Scarlett, R. and Foley, D. 1981. Bird and animal bones. In Lawlor 1981a, Appendix 2. 2p.

Stephenson, A.B. 1981. List of crab remains. In Lawlor 1981a, Appendix 13. 1p.

Wallace, R. 1981. Wood. In Lawlor 1981a, Appendix 6. 1p.

White, M. 1981. Obsidian and petrified wood flakes (Interim Report). In Lawlor 1981a, Appendix 5. 11p.

25.4 R11/32, Matukutuururu Paa (Wiri Mountain)

This paa was built on a large scoria cone, with terracing concentrated on its upper slopes, and with scattered terraces on its lower slopes, at least on the northern side. One part of the site remains on the northern side, a strip 350 m X 120 m, and this will be archaeologically investigated before it is quarried. An area of upper terraces above the remaining strip was excavated by Sullivan, who found that the earliest terraces were the highest, with slop gardens below. As the settlement grew, terraces were built over the

former slope gardens. Three of the radiocarbon dates (NZ-1887, 1889 and 1909) have dating ranges too large to be helpful, but the two with smaller dating ranges are of interest. NZ-1888 dates the slop garden underneath the terrace to between AD 1001 and 1490, and NZ-1890 dates occupation on the terrace to between AD 1404 and 1672.

Surveyed and mapped 1974, by Sullivan.

Northern section surveyed and mapped 1988, by Foster.

Excavated by 1974, Sullivan.

Excavations on remaining portion pending, awaiting quarrying.

Foster, R. 1988. Archaeological survey of the remnant of Wiri Mountain, Manukau City. *Science and Research Internal Report No. 4*. DoC, Auckland.

Scarlett, R. 1975. Table 4. Mammal and bird bone. In Sullivan 1975b: 82.

Smith, P. 1975. Table 1. Charcoal identification. In Sullivan 1975b: 76.

Sullivan, A. 1975b. Slope gardens at Wiri. *Working papers in Anthropology No. 31*. Department of Anthropology, University of Auckland.

1975c. Radiocarbon ages from Wiri. *NZAAN* 18(4): 206-207.

25.5 R11/1187, Wiri Oil Terminal Site

The area proposed for the tank storage terminal for the Whangarei-Wiri products pipeline contained about 20 ha of stonefield sites. These were mapped in detail and selected features excavated prior to their destruction. Settlement features included 3 stone walled houses, a kerbed cooking site, garden walls, terraces, mounds and enclosures, and a well. Radiocarbon dates from shell associated with two of the stone walled houses (NZ-6818, 6819, and 6830) indicate that they were occupied between the late 1400s and the 1600s (see Appendix 1 for details).

Survey 1974, Sullivan.

Survey 1982, Cramond *et al.*

Excavations 1982-83, Bulmer *et al.*

Bulmer, S. 1983c. Prehistoric Polynesian gardens at Wiri. Paper presented to the International Congress of Archaeological and Ethnological Sciences, Vancouver. 12p. NZHPT, Auckland.

1983d. Archaeological investigations at the Wiri Oil Terminal Site. NZHPT, Auckland 1983/7.

1985b. Reconstructing the environment of volcanic Auckland -1000 years at Matukurua. Paper presented to the *2nd Archaeometry Conference, Canberra*. 18p. NZHPT, Auckland.

Bulmer, S., Green, K.C., and Hughes, S. (in prep.) Archaeological Investigations at the Wiri Oil Terminal Site.

1. Bulmer, S. (a) Introduction to the Wiri Oil Terminal project. 58p.
2. Bulmer, S. (b) Analysis of the archaeological field evidence. 71p.
3. Taiaroa, R. Mounds by the swamp. 19p.
4. Bulmer, S. (c) More about mounds. Further investigations of mound gardens at Wiri. 25p.
5. Rickard, V. and Bulmer, S. A kerbed structure. 27p.
6. Bulmer, S., Taiaroa, R., and Veart, D. In quest of field shelters; C and L shaped structures at Wiri. 42p.
7. Maingay, J. (a) Garden features in the north paddock. 29p.
8. Maingay, J. (b) Enclosure and terrace in the north paddock. 13p.
9. Fredericksen, C. (a) Gardens and terraces in the south paddock. 25p.

10. Maingay, J. (c) A walled garden enclosure. 32p.
11. Veart, D. A large dryland enclosure. 26p.
12. Bulmer, S. (d) Three stone houses at Wiri. 65p.
13. Bulmer, S. (e) Gardens around the ridge settlement. 32p.
14. Bulmer, S. (f) Discussion and conclusions; settlement and gardens at Matukurua.

Appendices

- I. Fredericksen, C. (b) Stone material analysis. 25p.
- II. Sewell, M. Identification of 8 samples of midden. 9p.
- III. Gardner, R.O. Identification of charcoal and notes on handling and identifying charcoal. 18p.

Cramond, B., Bulmer, S., and Lilburn, K. 1982. Archaeological survey of the Wiri Oil Terminal Site (N42/124). NZHPT, Auckland 1982/6.

Keen, C. 1983. Temperature experiments on stone walls at Wiri. Class Project, 03.325, Department of Anthropology, University of Auckland.

Veart 1986. (see 27.).

25.6 R11/1188, Wiri Railway Quarry Site

This was a 16 ha industrial allotment to the east of the Wiri Oil Terminal Site and immediately north of Wiri Mt. This area was destined for destruction by quarrying. It contained some kinds of field evidence not found at the other Matukurua sites, as well as well-preserved mound gardens. The field evidence was mapped in detail and selected features archaeologically excavated. Investigations focussed on mound gardens and a large settlement site on a plateau. Representative mounds in a sink area were excavated and an experimental mound garden built, to be monitored for temperature, moisture, and physical change, in order to better understand the functions of stone and earth garden mounds. The plateau settlement contained a variety of features, including a group of buildings, one of which was a very large house. There was also an extensive earth oven cooking area. No radiocarbon dates have been obtained for this site because of an absence of shell or suitable charcoal.

Survey 1983, 1984.

Excavation 1983-86, Coates, Rickard and Veart. Report in prep., D. Veart.

Coates, J. 1985. Preliminary report, Wiri excavation. Environmental and experimental section. 5p.

1992. An experimental approach to the archaeology of earth and rock mounds in New Zealand. *Auckland Conservancy Historic Resource Series No. 4*. DoC, Auckland.

Rickard, Veart and Bulmer 1983: 32-37, Figs 13, 14 (see 27.).

Veart, D., Foster, R. and Bulmer, S. 1984. Archaeological mapping of the Wiri Railway Site. NZHPT, Auckland 1984/7.

Veart 1986. (see 27.).

26. SITES IN THE AUCKLAND AREA OUTSIDE THE VOLCANIC FIELDS

These sites have been archaeologically excavated, but are not near to any of the volcanic cones or fields.

26.1 R10/41, Rahopara Paa (Castor Bay)

This is a small paa on a headland in a public domain north of Takapuna City. The defended site is a small headland citadel, but excavations showed that the initial site was a much larger terraced settlement, making use of the natural defences of the cliffs, with the inland slopes terraced. At a later time about one third of the site was defended with a ditch and bank, but without palisading.

The earlier settlement included deep rectangular storepits as well as shallow pits which were interpreted to be house sites. An earth oven pit belonging to the earlier occupation has been dated to between AD 1466 and 1648 (NZ-1762).

Excavated 1964, R. Green.

Davidson, J. 1974b. A radiocarbon date for Rahopara Pa (N38/20) at Castor Bay, Auckland. *NZAAN* 17(3): 144-145.

Green, R. C. 1970a. Investigations at Castor Bay Point Pa, Takapuna, New Zealand. *NZAAN* 13(1): 2-22.

26.2 R11/35, paa at Kauri Point (Birkenhead)

This paa is a small headland citadel, overlooking a bay where Maaori traditions describe congregations of fishing parties during the summer in pre-European times. Other sites around the bay include two other traditionally named paa, as well as terraces and midden. The paa at Kauri Point has been repeatedly threatened by proposed developments, but hopefully the site is now better protected in a scenic reserve.

Excavations were carried out to investigate the nature of the occupation inside the ditch and bank defences of the paa, and this was found to have been very brief and transitory. There may be other evidence of occupation on the broad ridge inland from the defences, but it appears that the citadel was built as a refuge, rather than an occupation site. The few stone artefacts found inside the defences showed that rock was imported for ovenstones and tools. The shell midden inside the paa included only locally available estuarine shellfish. An interpretation of the site by C. Gaskin will be published by N. Prickett in a forthcoming guidebook to Auckland sites.

Three radiocarbon dates have been obtained from a shell sample from the excavations: AD 1290 to 1716 (NZA-881), AD 1522 to 1894 (NZA-1070) and AD 1680 to 1950 (NZA-1735). The radiocarbon laboratory recommended disregarding the first dating, because of its large age range and Janet Davidson thinks that the other two datings suggest the occupation of the site was probably in the 1700s as no historic material was found in the excavations. This is consistent with traditions about Te Matarae a Mana, the paa of Manaoterangi, a Kawerau chief who lived in the 1700s (Simmons 1980).

Excavated 1971, J. Davidson.

Davidson, J. 1990. Test excavations on the headland pa at Kauri Point, Birkenhead, Auckland, in 1971. *RAIM* 27: 1-18. (R11/35)

Davidson, J. and Wallace, R. 1992. Additional information about the pa at Kauri Point, Birkenhead, Auckland. *RAIM* 29: 1-5.)

26.3 R11/120, pit site (Parnell)

The surface evidence on this site consisted of vague pits, terraces, and a scarp on a ridge in a small Auckland City Council reserve. The site was excavated because the ridge was to be levelled. Excavations of two of the features showed they were rectangular pits, probably for crop storage in the vicinity of gardens. A few post holes were also present, indicating a structure of some sort had formerly been present. This evidence was interpreted to reflect storage by a small family, who probably lived near the beach, within 500 m of this site.

Excavated 1968, R.G. Law

Law, R.G. 1970. A Maori pit site in Parnell, New Zealand. *RAIM* 7: 93-102

27. GENERAL REFERENCES

This section includes (a) books and papers on New Zealand archaeology in general which include references to Taamaki, (b) reviews of Auckland archaeology, and (c) reports that refer to groups of sites. Items in other sections are cross-referenced to this section, (e.g., see 27.).

Anderson, A. 1991. The chronology of colonization in New Zealand. *Antiquity* 65(249): 767-795.

Best, E. 1927. *The pa Maori*. Government Printer, Wellington.

Boscawen T. 1899. Album of photographs of the Auckland volcanic cones. Auckland Institute and Museum library, Auckland.

Brown, HJR 1954. The prehistoric geography of the Tamaki Isthmus. Unpublished MA thesis, Geography Department, University of Auckland.

1960. The Tamaki Isthmus. *NZAAN* 3(2): 21-22.

1966. Site destruction and salvage on the Auckland isthmus. *NZAAN* 9(3): 102-107.

Bulmer, A. 1982. Historic archaeological sites in the Auckland City Council area. NZHPT, Auckland 1982/5.

Bulmer, S. 1982b. Archaeological sites of Mt Wellington Borough. NZHPT, Auckland 1982/1.

1984. Auckland stonefields historic reserves - a proposal. NZHPT, Wellington. HP 284/1984.

1985c. Auckland's vanishing stonefields sites. *Auckland Regional Committee Newsletter, New Zealand Historic Places Trust* 14(3): 1,4.

1987a. Land area and settlement size on the volcanic cone paa of Tamaki Makaurau. Seminar presented to the Department of Anthropology, University of Auckland. [Unpublished] DoC, Auckland, 43p.

1987b. Prehistoric settlement patterns in the volcanic fields of Taamaki: a review. *Man and culture in Oceania* 3, Special Issue: 133-156.

1989. Gardens in the south. Diversity and change in prehistoric Maaori agriculture. Pp. 688-705 in Harris, D.R. and G.C. Hillman (Eds): *Foraging and farming*. Unwin Hyman, London.

(in press) Ngaa tiimatanga - the beginnings. A model of the colonisation of Aotearoa. In Sutton, D.G. (Ed.): *The origins of the first New Zealanders*. University of Auckland Press, Auckland.

(in prep. g). *Ngaa whakairo a Tiitahi. The volcanic cone paa of Taamaki Makaurau*. Science and Research Division, Department of Conservation, Auckland.

Cramond, B. and Nevin, D. 1981. Archaeological survey of the Whangarei-Auckland products pipeline. NZ Historic Places Trust, Auckland 1981/9.

Davidson, J. 1975b. *Archaeological sites in the Auckland region*. Auckland Regional Authority Planning Division, Auckland.

1978b. Auckland prehistory: a review. *RAIM* 15: 1-14.

1984. *The prehistory of New Zealand*. Longman Paul, Auckland.

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- 1987d. The paa Maori revisited. *JPS* 6(1): 7-26.
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- Fox, A. 1976. *Prehistoric Maori fortifications in the north island of New Zealand*. Longman Paul, Auckland.
1977. Pa of the Auckland isthmus: an archaeological analysis. *RAIM* 14: 1-24.
- 1978b. Notes on photos by T. Boscawen 1899. DoC, Auckland.
1983. Pa and people in New Zealand: an archaeological estimate of population. *NZJA* 5: 5-18.
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- Green, R.C. 1970b. A review of the prehistoric sequence in the Auckland Province. *Auckland Archaeological Society Monograph No.1 and New Zealand Archaeological Association Monograph No. 2*. University Book Shop, Dunedin. (Reprint of a 1963 monograph, with new introduction.)
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APPENDIX 1

Radiocarbon dates from archaeological sites in Taamaki

Explanation

Some of the dates in the following list may differ from those originally reported by the Institute of Nuclear Science.

In the past, inconsistencies in nomenclature and the reporting of calibration standards have led to some confusion about the interpretation of radiocarbon dates measured at the DSIR radiocarbon laboratory. To resolve such questions and ensure that all radiocarbon ages are reported in a consistent manner, measurements made prior to 1988 have been recalculated in accordance with the recommendations of Stuiver and Polach (1977) and stored on a database. From 1988 all results since NZ-7543 have been reported in strict accordance with the Stuiver and Polach conventions. All accelerator mass spectrometry ages, identified by NZA numbers, follow the Stuiver and Polach conventions.

Southern hemisphere terrestrial calibrations are based on a compilation by M. Stuiver and P.J. Reimer (1986) of 20 year tree ring data for the period 7210 BC to AD 1950, with offset of 30 radiocarbon years as recommended by Stuiver and Pearson (1986).

New Zealand marine calibrations are based on the carbon cycle model calibration curve of M. Stuiver, G.W. Pearson, and T. Braziunas (1986), with geographic offset Delta-R set to -30 as recommended by B.G. McFadgen and M.R. Manning (1990).

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Notes

Identifier = Laboratory Number, listed in numerical order by site

CRA = Conventional Radiocarbon Age, years before 1950

Cal. Age Range = Recalibrated calendrical age range at 2 S.D., i.e., 95% confidence level, unless otherwise indicated, e.g., 68%)

Stratigraphic Notes = Brief notes indicating archaeological content

* = Not cultural material

Identifier	CRA	Cal. Age Range	Stratigraphic Notes
Rangitoto (Law 1975)			
ANU-258	225 ± 110	AD 1508–1956)	*Unburnt wood beneath R. lava
R10/22, Pig Bay Midden (N38/21), Motutapu (Brothers and Golson 1959, Law 1975)			
NZ-220	1153 ± 40	AD 1130–1306	*Shell, from beach below Rangitoto ash
NZ-221	332 ± 39	AD 1483–1661	Charcoal, from cultural layer above R. ash
NZ-222	823 ± 40	AD 1140–1275	*Burnt twigs from beneath R. ash near site
R10/25, Sunde Site (N38/24), Motutapu (Davidson 1974b, Anderson 1991, Nichol 1988: 459–461)			
NZ-1199	620 ± 70	AD 1190–1470	Charcoal
NZ-1898	613 ± 58	AD 1286–1425	Charcoal from oven beneath R. ash
NZ-1899	624 ± 85	AD 1266–1466	Charcoal, Level 4, first occupation after R. ash fall
NZ-6954	470 ± 30	AD 1435–1635	Shell
NZ-6955	350 ± 30	AD 1545–1745	Shell from midden
NZ-6956	1036 ± 30	AD 1273–1399	Midden below R. ash
R10/26, Station Bay Paa (N38/25), Motutapu (Davidson 1978c, Law 1975)			
NZ-4348	367 ± 61	AD 1445–1655	Bone collagen from burial in pit
NZ-4349	35 ± 66	AD 1803–1940(68%) AD 1681–1746(25%) AD 1955–1956(2%)	Charcoal in pit fill
R10/31, Station Bay Terrace Site (N38/30), Motutapu (Davidson 1978c)			
NZ-4347	562 ± 41	AD 1379–1443(65%) AD 1306–1362(30%)	Bone collagen from burial
R10/38, Station Bay Terrace Site (N38/37), Motutapu (Davidson 1974b, Law 1975)			
NZ-1164	610 ± 44	AD 1291–1417	Charcoal in base of fill of pit
NZ-1165	608 ± 44	AD 1292–1418	*Charred twigs under R. ash
NZ-1166	510 ± 87	AD 1290–1528(82%) AD 1556–1633(13%)	*Charred twigs under R. ash
NZ-1167	410 ± 81	AD 1398–1669(94%) AD 1776–1793(1%)	*Charred twigs under R. ash
NZ-1168	188 ± 86	AD 1633–1956(93%) AD 1527–1562(3%)	Charcoal from cooking pit in fill of store pit
NZ-4346	490 ± 50	AD 1414–1524(81%) AD 1569–1630(14%)	Bone collagen from burial in pit
R10/41, Rahopara Paa (Castor Bay) (Davidson 1974a)			
NZ-1762	378 ± 58	AD 1466–1648	Charcoal from oven pit, earlier occupation

Identifier	CRA	Cal. Age Range	Stratigraphic Notes
R11/10, Te Apunga o Tainui (McLennan Hills) (Sewell 1992)			
Wk-1722	680 ± 50	AD 1492–1697	Shell, “grab” sample from remnant terrace
R11/13, Otaahuhu Paa (Mt Richmond) (Sewell 1992)			
Wk-2013	600 ± 50	AD 1547–1850	Shell, “grab” sample
R11/12, Maungarei (Mt Wellington) (Golson 1961a)			
NZ-404	509 ± 40	AD 1397–1477	Charcoal under fill on lower crater rim
NB. A further 6 dates have been run on samples from Maungarei and are to be published (J. Davidson, in prep.). The dates show occupation of Maungarei from the AD 1500s to the AD 1700s.			
R11/14, Maungakiekie Paa (One Tree Hill)			
NZ-7946	602 ± 39	AD 1610–1816	Shell in palisade posthole, Terrace 3
NZ-7947	660 ± 42	AD 1528–1692	Shell from most recent habitation, Terrace 3
NZ-7948	652 ± 38	AD 1540–1693	Shell from lens on scarp between Terraces 2 and 3
R11,17, Maungawhau Paa (Mt Eden)			
NZ-7943	683 ± 33	AD 1530–1668	Midden in fill in storepit on summit
NZ-7944	706 ± 29	AD 1519–1652	Shell from feature in subsoil, northern knoll
NZ-7945	713 ± 43	AD 1496–1659	Shell layer in cooking area, northern knoll
R11/19, Puketaapapa Paa (Mt Roskill) (Fox 1980)			
NZ-4471	305 ± 56	AD 1469–1680(81%) AD 1744–1803(11%) AD 1941–1955(3%)	Charcoal from fill in base of pit
NZ-4472	288 ± 55	AD 1475–1743(71%) AD 1736–1810(19%) AD 1930–1955(6%)	Charcoal from stone edged hearth
NZ-4473	420 ± 61	AD 1430–1639	Charcoal from hearth in pit fill
NZ-4553	350 ± 46	AD 1466–1651	Charcoal from base of pit fill
R11/25, Puhinui, Matukurua (Lawlor 1981b, Lawlor pers. comm. 1993)			
NZ-6198	690 ± 32	AD 1515–1672	J16c, Rerun of NZ-5043. Shell in postpole of a stone walled structure
NZ-5164	305 ± 76	AD 1446–1860	35. Charcoal in stone row
NZ-5165	333 ± 56	AD 1452–1670(93%) AD 1779–1794(1%) AD 1949–1955(1%)	129. Charcoal in firescoop

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Identifier	CRA	Cal. Age Range	Stratigraphic Notes
NZ-5166	207 ± 75	AD 1670–1818	147. Charcoal in oven pit on terrace
NZ-5167	566 ± 85	AD 1299–1469	165. Charcoal in base of garden soil
NZ-5168	305 ± 75	AD 1570–1720	249a. Charcoal in stone walled structure
NZ-5169	919 ± 83	AD 1010–1267	290. Charcoal in firescoop on terrace
NZ-5170	352 ± 56	AD 1451–1921	344. Charcoal in base of midden
NZ-6198	596 ± 40	AD 1612–1818	Shell, Sample 346, midden layer
NZ-6199	734 ± 32	AD 1488–1638	Shell, Sample 347, midden layer
R11/35, Kauri Point Paa (Davidson and Wallace 1992)			
NZA-881	840 ± 120	AD 1290–1716	Shell from fill of drain on terrace
NZA-1070	632-75	AD 1522–1894(94%) AD 1938–1950(1%)	Same sample as above
NZA-1735	519 ± 60	AD 1680–1950(95%)	Same sample as above
R11/31, Maungataketake (Elletts Mt) (B. McFadgen, pers. comm. 1992)			
NZ-6353	726 ± 43	AD 1479–1660	Shell in deepest pit fill, Terr. 2
NZ-6474	566 ± 32	AD 1650–1853	Shell on floor of pit, Terr. 1
NZ-6476	1322 ± 40	AD 977–1179	Shell, initial occupation layer, Terr. 4 (Layer 5)
NZ-6482	783 ± 50	AD 1438–1636	Shell, erosion of earlier occupation, Terr. 3 (Layer 5A)
NZ-6483	894 ± 51	AD 1327–1504	Shell, initial occupation layer, Terr. 3 (Layer 7)
NZ-6486	737 ± 57	AD 1459–1666	Shell, initial occupation, Terr. 2 (Layer 3)
NZ-6491	11,205 ± 138	(out of range)	Shell, brown midden layer
NZ-6495	406 ± 55	AD 1437–1635	Shell from stone hearth
R11/32, Matukutuururu Paa (Wiri Mt) (Sullivan, 1975c)			
NZ-1887	344 ± 132	AD 1410–1955	Charcoal layer in soil under wall
NZ-1888	727 ± 156	AD 1001–1490	Charcoal in shell lens in soil under wall
NZ-1889	284 ± 83	AD 1461–1955	Charcoal in firepit on terrace
NZ-1890	396 ± 89	AD 1404–1672(92%) AD 1755–1796(3%)	Charcoal in upper occupation layer on terrace
NZ-1909	804 ± 324	AD 632-1955	Charcoal in deepest soil under wall

Identifier	CRA	Cal. Age Range	Stratigraphic Notes
R11/96, Taurere Paa (Taylors Hill) (Leahy 1991: 64–5)			
NZ-7770	396 ± 46	AD 1447–1635	Charcoal from scoria/ash/charcoal layer
NZ-7753	670 ± 50	AD 1521–1795	Shell in deepest fill in pit
R11/142, Mutukaaroa (Hammins Hill) (Pearce and Walton 1983).			
NZ-5962	411 ± 76	AD 1415–1674	Charcoal rich layer on floor of pit
NZ-6156	667 ± 40	AD 1515–1695	Shell from midden, later occupation
R11/887, Fisher Road, Area A (Foster 1986).			
NZ-7064	726 ± 30	AD 1490–1651	Shell, midden in cooking area
R11/888, Fisher Road, Area C (Foster 1986).			
NZ-7049	716 ± 40	AD 1488–1662	Shell floor
R11/898, Westfield Site (Furey 1983, Sewell 1992: 47).			
NZ-6163	660 ± 55	AD 1492–1729(92%) AD 1756–1792(3%)	Shell, midden layer
NZ-6164	746 ± 55	AD 1456–1659	Shell, midden layer
NZ-6165	637 ± 52	AD 1520–1802	Shell, midden layer
Wk-1720	630 ± 45	AD 1535–1800	Shell, Area B, occupation layer
Wk-1721	540 ± 45	AD 1663–1903	Shell, Area C, occupation layer
Wk-2030	340 ± 45	AD 1472–1657	Charcoal, Area A, base of pit fill
R11/899, Fisher Road, Area B (Foster 1986).			
NZ-7048	741 ± 25	AD 1482–1639	Shell, midden layer
NZ-7065	716 ± 30	AD 1497–1657	Shell in fill of pit
R11/1187, Wiri Oil Terminal Site (Bulmer 1987).			
NZ-6818	407 ± 35	AD 1483–1649	Shell 8–10 cm deep in midden layer at Midden House
NZ-6819	420 ± 29	AD 1477–1638	Shell 10 cm deep in midden layer at Midden House
NZ-6830	469 ± 35	AD 1439–1599	Shell under house wall at Big House
R11/1301, Harris Road sites, East Taamaki (Douglas 1987).			
NZ-7098	411 ± 76	AD 1415–1674	Charcoal from stone and earth garden mound
NZ-7160	2650 ± 70	(out of range)	Charcoal from lens at base of mound

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Identifier	CRA	Cal. Age Range	Stratigraphic Notes
R11/1394, Hawkins Hill (B. McFadgen pers. comm. 1992).			
N.B. The dates reported for this site by Foster (1986) are incorrect.			
NZ-7011	716 \pm 25	AD 1402–1653	Shell, earlier occupation (Coates 1984)
NZ-6971	716 \pm 52	AD 1476–1673	Shell, as above.
NZ-1972	410 \pm 55	AD 1438–1637	Charcoal, as above.
R11/1519, Cryers Road, East Taamaki (Fredericksen and Visser 1991).			
Wk-1127	750 \pm 45	AD 1463–1649	Shell, A41, in base of F7
Wk-1128	700 \pm 40	AD 1500–1672	Shell, in lens Central Plateau
Wk-1129	670 \pm 40	AD 1514–1693	Shell, East Plateau
Wk-1130	590 \pm 40	AD 1587–1848	Shell, West Plateau
Wk-1131	510 \pm 40	AD 1691–1951	Shell, West Plateau
Wk-1132	680 \pm 45	AD 1502–1691	Shell, A 56
Wk-1133	690 \pm 45	AD 1497–1683	Shell, A 41
Wk-1134	520 \pm 45	AD 1682–1951	Shell, A 41
R11/1559, Waihorotiu, the Gaol Site (Best 1992).			
Wk-1142	850 \pm 50	AD 1360–1561	Shell, occupation layer next to stream
Wk-1143	750 \pm 50	AD 1216–1321(81%) AD 1344–1393(14%)	Leaf litter in base of stream bed

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