

PA OF THE AUCKLAND ISTHMUS: AN ARCHAEOLOGICAL ANALYSIS

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Abstract. The construction and defensive methods of the Maori terraced pa on the volcanic cones on the Auckland isthmus is discussed in the light of recent field surveys. A group with late earthwork defences is defined, comprising Mt Hobson, Mt St John, Mt Wellington and One Tree Hill. The archaeological dating evidence is compared with the historical evidence based on Maori oral traditions recorded in the Orakei judgement of 1869.

This article originated as the Roger Buddle Memorial lecture for 1976, given under the auspices of the Anthropology and Maori Studies section of the Auckland Institute and Museum. The subject, the Maori pa of the Auckland isthmus, was chosen partly for its appeal to a local audience but mainly because of the need for an archaeological analysis of a group of outstanding sites, based on fresh fieldwork and incorporating recent advances in knowledge.

The Auckland isthmus (Fig. 1) consisting of a narrow 15 km strip of land between the Waitemata and Manukau harbours, is dominated by a series of isolated small hills, the products of a long period of intense volcanic activity, dating from the late pleistocene period. Concealed within their conical outline, there are the craters from which the ash and scoria were extruded and in many instances the direction and extent of the lava flows are known (Searle 1964, p. 37, fig. 6). The rapid growth of the city of Auckland in the 20th century has engulfed the hills, which now rise from a sea of small houses as focal points in a unique urban landscape.

For the Maori people these volcanic hills were an open invitation for settlement; their steep slopes offered ready-made defence, the surrounding flat land enriched by the volcanic deposits provided workable fertile soils for cultivation, and the nearby waters of the Waitemata and Manukau harbours were a rich source of seafood as well as an easy means of travel among the islands of the Hauraki Gulf and along the coasts. Such generalisations are familiar and obscure the fact that archaeologically very little is known about the Maori settlement of the Tamaki isthmus or about the sites individually. No major research excavation has been done; work has been limited to salvage undertaken in advance of road making and reservoir building on Mount Roskill in 1961, on Mount Wellington in 1960, 1965 and 1971-72 and more recently in advance of quarrying on Elletts Mountain in 1974-75; the full results have not yet been published. Thus the cones still constitute a challenge to the practising archaeologist.

It must be remembered that much of the archaeological record is missing or is imperfect. Out of the 36 known Maori settlements on the volcanic cones (Fig. 1), 15

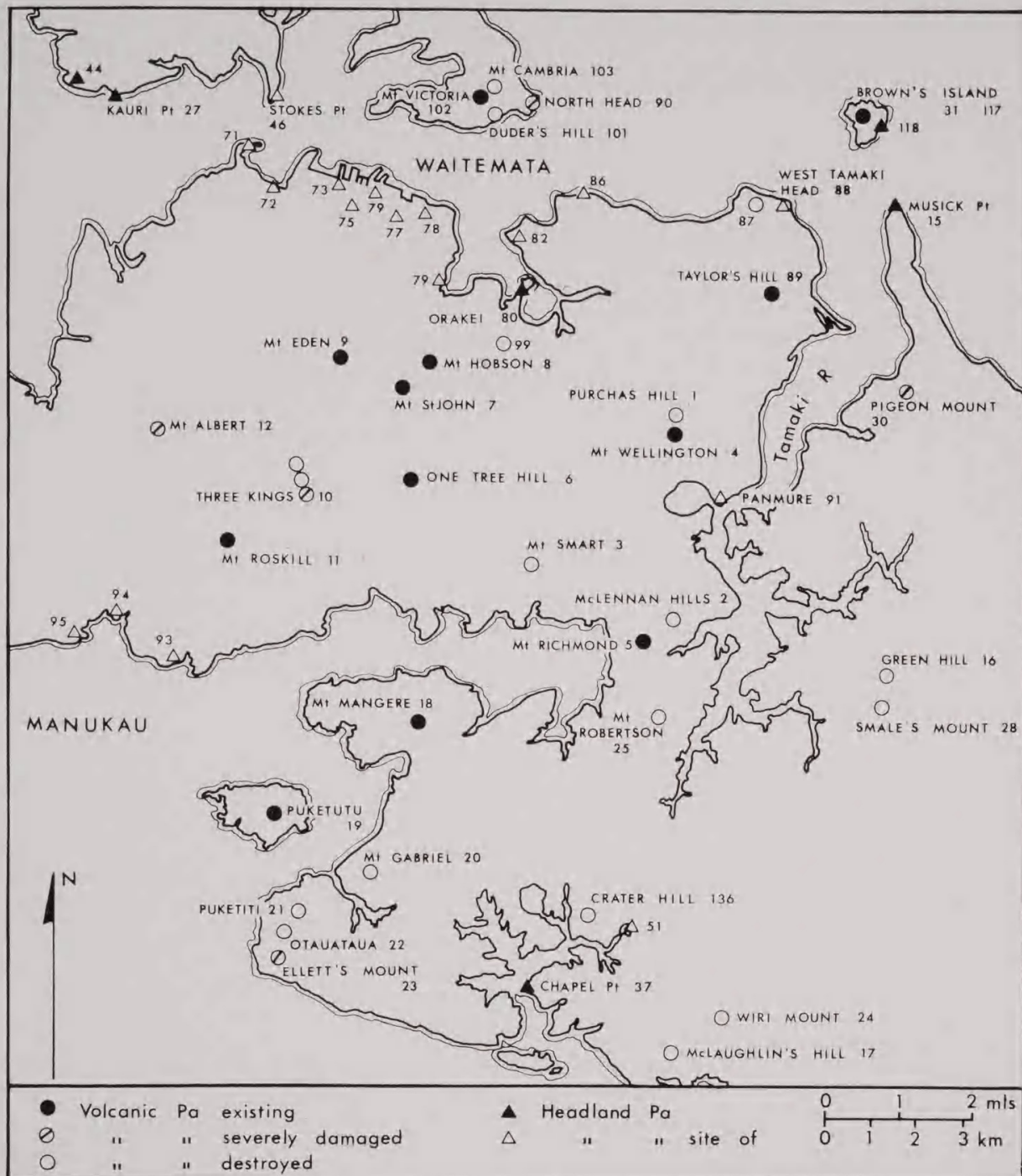


Fig. 1. Distribution map of pa on the Auckland isthmus. The numbers refer to the N.Z. Archaeological Association's site records, on NZMS map N42.

have been quarried away this century to satisfy the demand for scoria in road-making. Others have been severely damaged by the construction of reservoirs and roads, by quarrying and by house building on the periphery. The magnitude of the city's loss can best be appreciated by comparing the magnificent landscape of the Three Kings painted by the Rev. John Kinder (Fig. 2) in 1856 with its present state. The terracing and summit platforms of the pa were then clearly visible, crowning each of the three hills. Today all that remains is the wooded stump of the central 'King' topped by an incongruous water tower, the rest has been reduced to scoria. Green Mountain, Mount

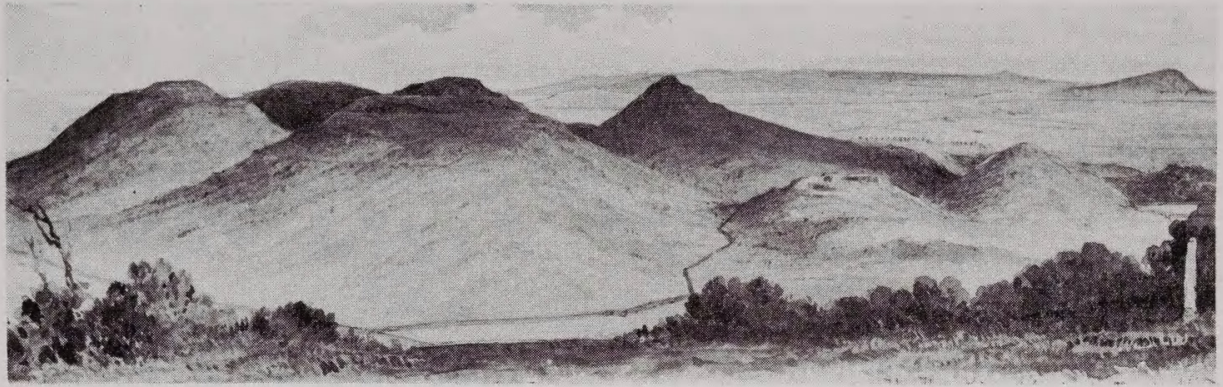


Fig. 2. 'The Three Kings volcanic crater, Auckland'. Watercolour by Rev. J. Kinder, c. 1856, showing the three terraced pa. (Reproduced by permission of Auckland City Art Gallery).

Smart, Mount Gabriel and Wiri Mountain, are among similar casualties. Furthermore, as the distribution map shows (Fig. 1), settlement on the cones is only part of the prehistoric pattern; many of the numerous headlands on the shores of the Waitemata were occupied, and were fortified by means of a transverse ditch and bank on the landward side. Of these only the pa on Musick Point, Kauri Point, and at Castor Bay, ca. 7.5 km north of North Head, have survived more or less intact. Excavation of Rahopara pa at Castor Bay (N38/20), where a radio-carbon date of a.d. 1492 $\pm$ 60 was obtained from the early open settlement which preceded the defences (Davidson 1974, p. 144; Green 1970, p. 2), has indicated that some of these small settlements were occupied at the same time as the large ones on the volcanic hills.

THE TERRACED PA

The Maori pa on the cones are known as 'terraced pa'; comprising Class 1 of the classification set out by Groube (1970, p. 142). These rely for defence on a series of artificially steep slopes made by cutting back into the hillside and using the soil so obtained to heighten the scarp below. In so doing, a level terrace was built up which not only provided a stance for the defenders, but also a suitable flat place for house building or for stores. A succession of such terraces produced the stepped profile characteristic of the cones and of many other pa elsewhere. These defences could be supplemented by a timber palisade erected on the outer edge of the terrace; postholes for such work were observed at the summit of One Tree Hill, when the monument to the Maori people was set up in 1940 (Fairfield 1941, p. 94), and were located on Mount Roskill in the rescue excavations in 1961 (Shawcross 1962, p. 81). However, work on Mount Wellington in 1971-72 showed that these were absent on two of the lower terraces (Davidson 1975, p. 12). It is also evident from the intermittent character of much of the terracing and from the frequency of storage pits and probable house sites, that defence became a secondary consideration in some sectors.

Mount Eden (Figs. 3, 4, 5) may first be examined as an outstanding example of a terraced pa. The Maori name, Maungawhau, means the hill of the whau tree (*Entela aborescens*). The settlement occupied the whole of a volcanic complex, built up over a period of time from three vents, 0.75 km long and 196 m high at the summit, with the long axis approximately south to north. It includes a deep conical crater at the southern end and there was formerly a second shallow one farther north now filled in by a reservoir. The crest of the hill was not flat; there are massive scoria



Fig. 3. 'St. Mark's, Remuera', Watercolour by Rev. J. Kinder, 1857, showing in the background Mount Eden terraced pa with strong points and two craters. (Reproduced by permission of Auckland City Art Gallery).

mounds which formed four prominent knobs on the descending spine. These produced its distinctive outline as recorded, from Remuera in 1857 in a water colour by the Rev. John Kinder (Fig. 3), before it was obscured by trees and damaged by quarrying.

The defences consist of three, and in places four, close-knit lines of terracing on the external slopes. These are not continuous around the entire perimeter of the mountain but are broken up and dovetailed one into the other, in order to accommodate to the changes in the contours. In some places, terracing stops on either side of a very steep slope, as visible in the air photo (Fig. 4). The work does not give the impression of a unified design but of piecemeal construction. This is reinforced by the frequency of storage pits on the terraces and by levelled flats and low banks that suggest house sites. This is particularly evident on the conspicuous series of terraces on the south-facing slopes immediately below the summit.

The highest sector of the crater rim may be assumed to have been the citadel or *tihi*, but it has suffered much alteration in recent years. The rectangular scarped platform, now covered by a paved concourse, presumably incorporates remains of original Maori work. This summit was defended on the east by two transverse and one diagonal scarp across the rising ground, extending from the end of the uppermost external terrace to the edge of the crater, below the Post Office building (Fig. 5). Two deep rectangular pits have been cut below the second transverse scarp, presumably at a later date. On the west the approach to the summit was guarded by the natural steep slopes created by a breach in the lip of the crater, just above the present road junction, and the upper terraces end here. Short lengths of the lower terraces continue across the breach on the lower side of the road. The interior of the crater was not terraced; traditionally this was a sacred place, the food bowl of Mataoho, the god of volcanoes.



Fig. 4. Mount Eden (*Maungawhau*). Oblique air photograph from the east, showing the external terracing, crater and strong points. (Photo: Whites Aviation).

The summit was only the southern one of three or four strong points in this extensive pa (Fig. 5). A second one was constructed on the scoria mound on the opposite (northern) side of the crater, where the slopes down to the breach were defensively terraced; on the north side the steep sides of the mound sufficed but on the west a terraced scarp was inserted, which turns to cross the crater rim. The squarish summit of the knob, (38 x 30 m) was defined on two sides by a low bank that probably carried a palisade; a similar feature occurs in a subsidiary strong point on One Tree Hill (Fig. 11 — 5). The third strong point is a similar squarish flat topped mound 70 m to the north; it has been steepened artificially and there are traces of a fallen revetment of scoria blocks on the southern side. On the summit of the mound (Fig. 4) there are twelve pits in no set alignment which occupy almost all the level surface of 30 x 45 m, indicating that this was a main foodstore; there are also two very large deep pits on the saddle between the two strong points. Beyond this mound, the building of the reservoir has obliterated a considerable tract of the hill-top; formerly there was a shallow crater here (Fig. 3) and it seems likely that there was a fourth strong point on its rim incorporating the surviving steep scarp to the north. Below this, there are terraced slopes utilised for pit storage and house sites.

To sum up, the salient features of Mount Eden are:

- (1) The creation of a series of strong points on the hillcrest, utilising the volcanic knobs of scoria. Their slopes were artificially steepened and the approaches defended either by terracing or by lines of scarping. One functioned as a communal food store.

MT EDEN N42/9



Fig. 5. Mount Eden (*Maungawhau*). Diagram plan; based on contour survey and air photographs supplied by Mount Eden Borough Council, drawn by Caroline Phillips.

- (2) The cutting of terraces on the external slopes, partly for defence but mainly for living places and pit storage. The terracing was not continuous around the entire perimeter.
- (3) Defence by means of ditch and bank is absent.

These features recur in the majority of pa that are relatively undamaged on the Auckland volcanic hills. For example, Mount Roskill (Puketapapa) had three strong points on the rim of the double craters before the reservoir was built and Taylor's Hill (Taurere) had two. On Mangere Mountain the western summit constitutes the major strong point, being defended by two transverse scarps at the base and a bank near the top of the southern slopes. There are two other natural high points on the rim of the large crater, which though terraced for occupation, have not been modified for defence. Terracing on the external slopes is concentrated, in contrast to the rather sprawling settlement on the rim.

Whilst the number and formation of such strong points in each pa were obviously related to the accident of the throw-out from volcanic eruptions, the multiple use is a consistent feature, and may be regarded as a tribal characteristic. The early inhabitants of the Auckland Isthmus, according to evidence given to the Maori Land Courts in the 19th century, were the Waiohau tribe, a complex group comprising several related sub-tribes, including the Nga Iwi, Nga Oho and Nga Riki (Fenton 1879, p. 58).

PA WITH EARTHWORK DEFENCES

There is, however, a second variety of fortifications on the cones, in which transverse ditches, usually with an accompanying bank or scarp, form part of the defence. These consist of a central group of three, One Tree Hill, Mount St John and Mount Hobson, with two outliers, Mount Wellington on the Tamaki River and Motukorea, Brown's Island (Fig. 1); their relationship to the majority needs to be examined.

Mount Hobson (Fig. 6), named after Captain Hobson, R.N., the first governor of New Zealand and the founder of Auckland City, is a widely breached crater with the lava flow issuing from it in a southerly direction. The Maori settlement, named Remuera, formerly occupied the whole of the rim and slopes of the hemisphere, but the building of a reservoir has obliterated about a third of it; a quarry on the northern slopes has also cut into the site. The pa had only one strong point, the *tihi*, situated on the highest point, 470 ft (143 m) by the Trig station. It was defended on the south by the sweeping curves of three major terraces built in the interior of the crater, which follow the contours round the summit on the eastern slopes above Market Rd. amongst the modern houses and gardens, and re-emerge on the north-facing slopes above Remuera Rd., where short lengths of extra terraces have been interpolated.

The *tihi* was built on two levels above this main defensive terracing; access was probably by a path ascending the small scarps from the SE. Just north of the Trig, the hill top is crossed by a straight line of ditch with a 1 m high internal bank facing east, which plainly cuts through the scarps of the original *tihi*. A hundred metres farther along the ridge, beyond the wooded scar of the quarry, there is a second transverse ditch and bank, facing west; this has cut through a low stony bank

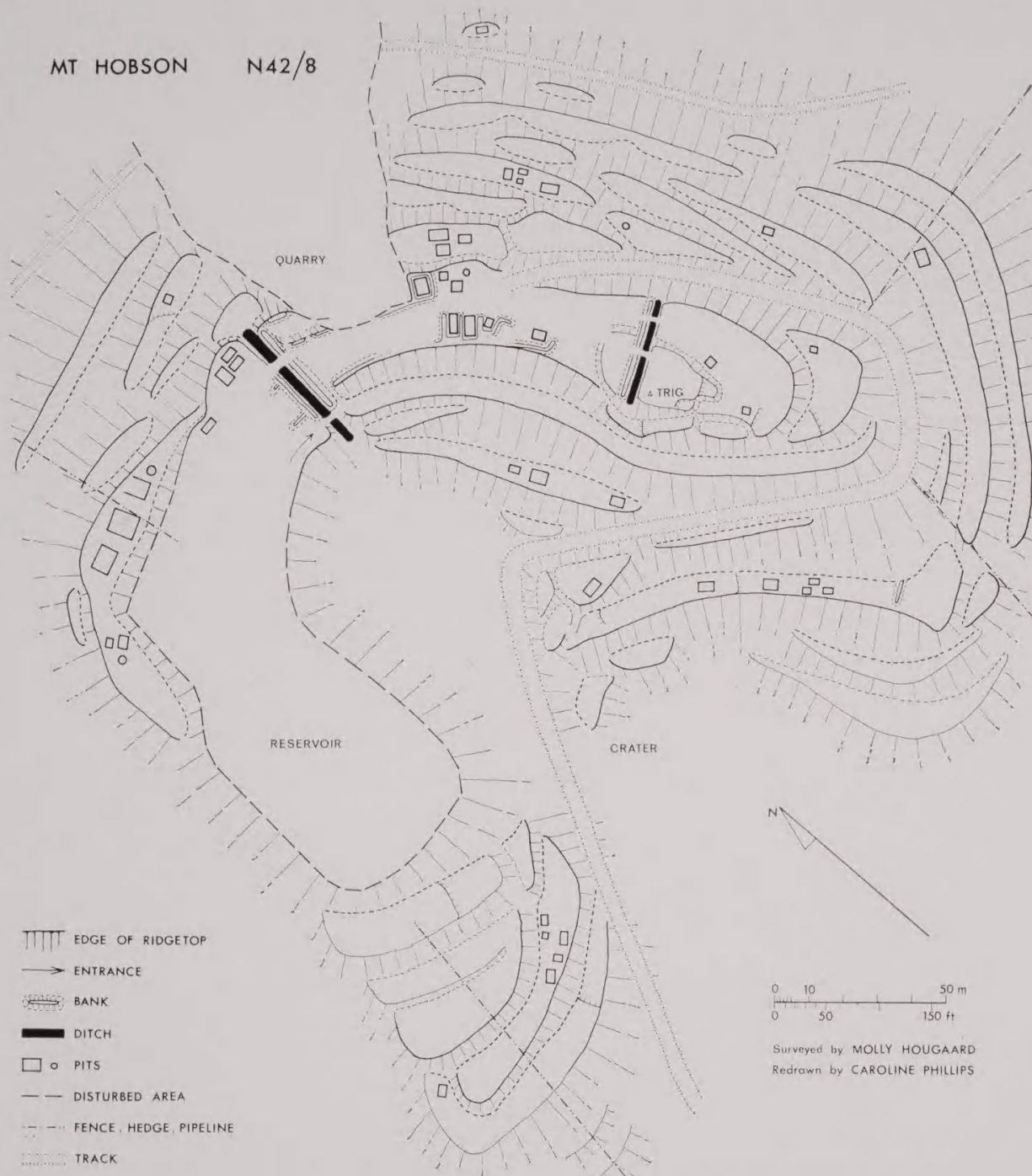


Fig. 6. Mount Hobson (*Remuera*) Plan; based on a survey by Mrs M. Hougaard and Auckland University Archaeological Society, redrawn by Caroline Phillips.

along the southern rim of the crater, which continues for 6 m beyond the ditch. It is clear that the citadel has been remodelled; the area has been reduced, surprisingly excluding the highest point, whilst the defences have been greatly strengthened by the additional earthworks. These guard against attack from either end of the ridge. A group of seven pits, mostly embanked, provided for food storage in the area between the defences.

The entrance to the citadel at this period was through the western defences, not by the central gap which is recent but by a path which crosses the end of the ditch

at the edge of the crater and then continues up through a narrow gap round the southern end of the bank (Fig. 6). It is possible that there was a second way up on the northern side by one or other of two similar paths that lead up from a terraced flat behind the defensive bank, but these are very close to the side of the quarry and may not be original.

Analysis of the visible remains on Mt Hobson thus indicates that the ditches and banks belong to a late phase in the occupation. Is the same true of others in the group? On Mount St John (Te Kopuke) (Fig. 7) the settlement is built around the rim of a small horseshoe-shaped scoria cone, with intermittent terracing on the external

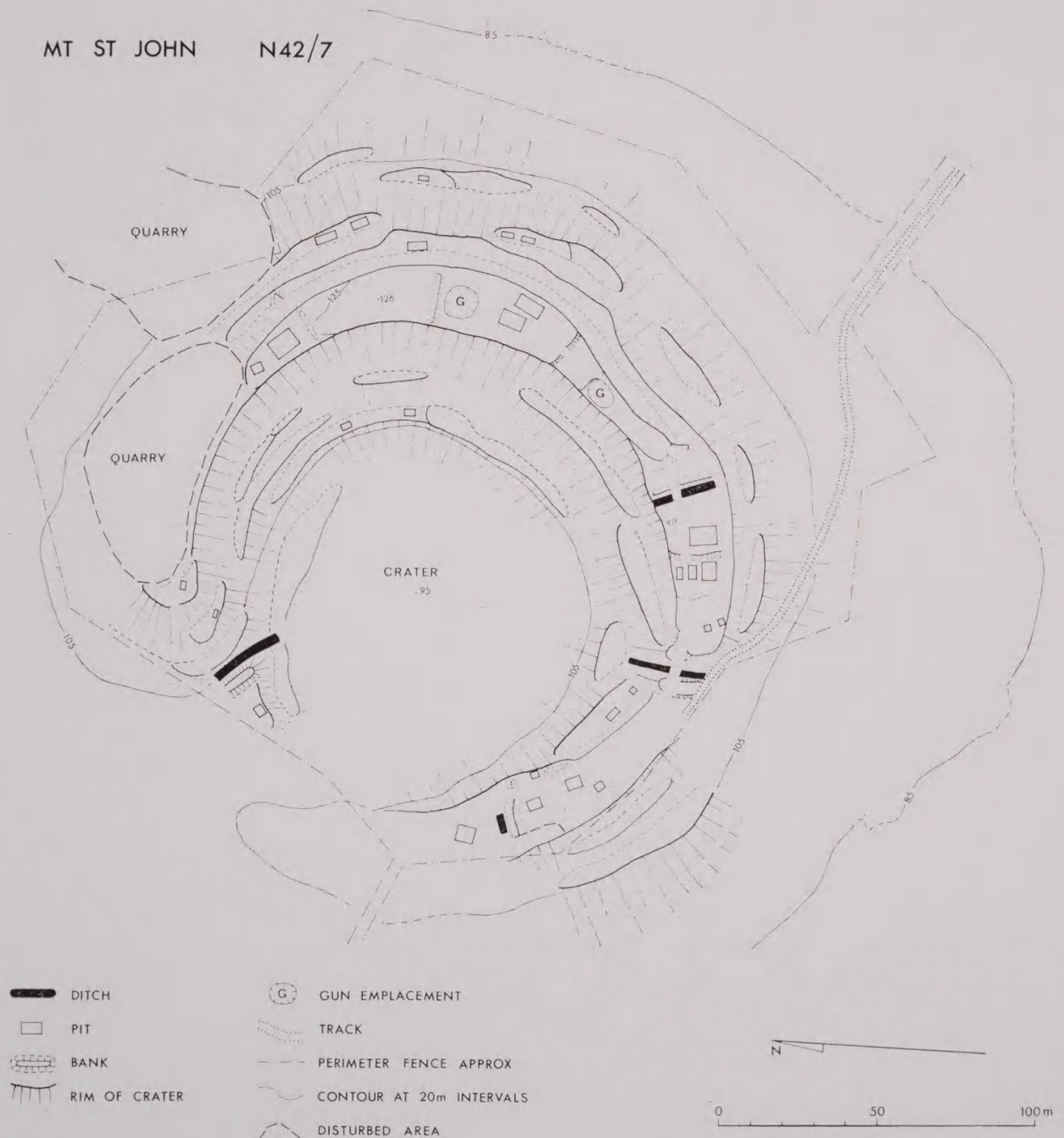


Fig. 7. Mount St John (*Te Kopuke*). Plan; based on a survey by Anthropology Dept., Auckland University, drawn by Caroline Phillips.

slopes overlooking Market Rd, to the east. The flattened summit area (125 m) lacks a dominant strongpoint or *tihi*; it is divided by two low transverse banks and a scarp into three or four compartments, in two of which modern gun emplacements were installed during World War II. The Maori defence system was designed to defend the summit area from an attack starting in either direction from the lowest portion of the crater opposite. The northern flank is defended by three successive terraced scarps, with a transverse ditch and external bank below. The ditch continues across another terrace on the internal slopes of the crater and therefore should be a secondary feature. On the south and east there are three lines of transverse ditches and banks, spaced out on the terraced ascent, though breached by a modern track. The middle ditch has an external bank and like its opposite number, appears to interrupt terracing within the crater. Although the surface evidence is inconclusive, it is highly probable that the earthworks are additions to a terraced pa.

Mount Wellington (Maungarei) (Fig. 8) is a much more imposing fortification than either Mount Hobson or Mount St John, despite the building of a reservoir in 1960 within the northern part of the central triple crater. The lava flow was from a fissure on the flank of the cone in a southerly direction (Searle 1964, fig. 13); the lava field has been extensively quarried on the flat. The steep external slopes facing east towards the Tamaki river were terraced from top to bottom (150 m beyond the upper margin of the plan in Fig. 8). The terraces are intermittent, most have one or two storage pits visible on them, and their construction should relate to domestic needs rather than to defence. In addition there is a group of very large pits on the lower terraced slopes (not shown in Fig. 8) which suggest that the land between the pa and the river was heavily cultivated. A small stone walled garden was located in excavations in 1971 at the foot of the western slopes but the quarrying has removed all further traces of cultivation on this side of the mountain (Davidson 1975, p. 11). On the upper slopes and on the crater rim it is noticeable that the pits occur in groups of 5 to 11 pits arranged in an orderly fashion on the terraces; this implies some communal organisation of the food stores. Excavations of one such group of five on the crater rim NE of the reservoir, by Davidson in 1971-72, showed that some of the pits were lined with walls of neat scoria blocks; there was a cooking place nearby and a levelled flat where a few postholes and stakeholes were found. Excavations on two of the lower terraces, cut by the new road later in 1972, revealed a succession of pits cut in the solid ground at the back of the terrace that had been filled in with midden. Part of a human burial was found on the second terrace, beside a large pit. There was no sign of palisade postholes at the edge of either terrace (Davidson pers. comm.).

The crater rim has two 'strong points', each defended by transverse ditches, and scarps. The southern one is on the highest point, 440 ft. (134 m) high, by the Trig, the other is on a rocky knob 376 ft. (115 m) high west of the reservoir (Fig. 8). The latter has an independent set of defences, designed like those on Mount St John (see above) to guard against an attack launched from the lowest point on the crater rim on the west, where a low bank has been thrown up on the outer edge. The transverse defences consist first of a bank, then of a scarp 40 m away on gently rising ground and each needing a palisade to be effective, and finally a ditch with an external bank at the foot of the major scarp. The ditch extends down the outer slopes where it can be clearly seen to cut through a terrace.

The ascent to the main *tihi* from the lowest point on the rim was difficult, for the ridge is steep and narrow with terraces on either side and the summit was

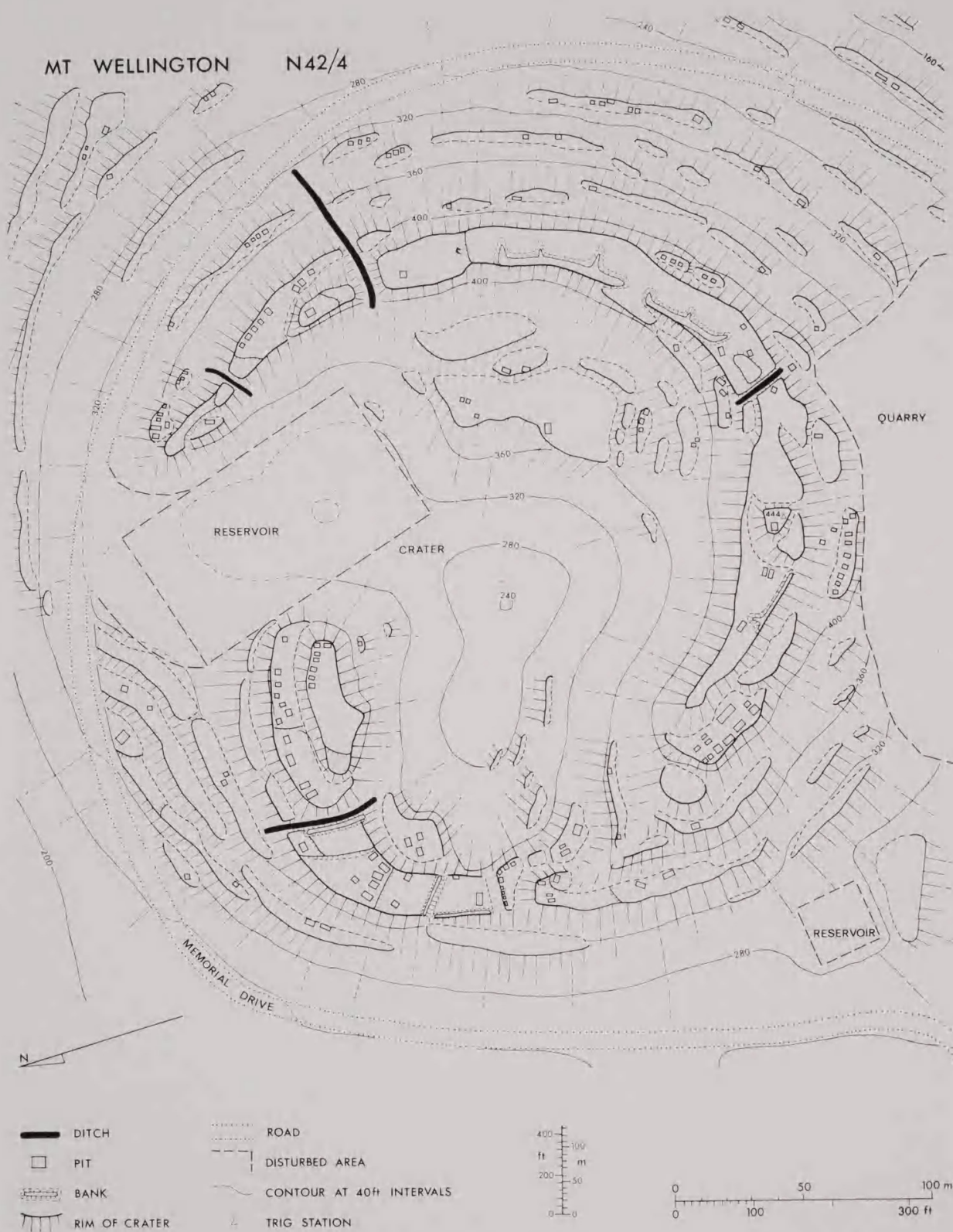


Fig. 8. Mount Wellington (*Maungerei*) Plan; based on a survey by Auckland University Archaeological Society and Mount Wellington Borough Council, redrawn by Caroline Phillips

barred by a succession of major scarps. Approached in the opposite direction, starting east of the reservoir, there are three transverse ditches to cross, widely spaced on the circumference of the crater. The second ditch appears to be the major obstacle; it has been dug for a considerable distance down the external slope, cutting through the uppermost terrace (Fig. 8) though the junction is unfortunately obscured by a track. The succeeding portion of the rim has been levelled and embanked on the inner edge to form a series of compartments. An excavation here by W. Shawcross in 1965 showed no signs of domestic use and it has been suggested that this was an open assembly place (Davidson 1975, p. 11). The final 10 m ascent to the summit is controlled by the third ditch which also appears to have cut through a terrace.

Thus it is probable that the ditches which defend both strong points on Mount Wellington were subsequent to the terracing: supplemented by palisades, they would have provided successive lines of resistance in the event of attack.

ONE TREE HILL

Finally, One Tree Hill (Maungakiekie) (Figs. 9-13) must be considered, the most magnificent structure of all the Auckland pa, daunting in its extent and complexity (Figs. 9, 10). The basic volcanic structure consists of a trio of craters, one a complete



Fig. 9. One Tree Hill (*Maungakiekie*). Oblique air photograph from the south-west showing the two lines of defences across the plateau in the illuminated foreground. (Photo: Whites Aviation).

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Fig. 10. One Tree Hill. Oblique air photograph from the south-east, showing the eastern crater and the terraced slopes to the summit. On the left the inner defences, on the right 'strong point' 5. (Photo: One Tree Hill Borough Council).

bowl, the other two breached to form the characteristic hemicycles or amphitheatres (Fig. 11). The resulting outline of the hill approximates to a trefoil, with two lobes on either side of the main crater and the third, a gently inclined plateau, extending south between the two breached craters. The external slopes are very steep and provide formidable natural defences; they rise from 120 m at the base to 150 m on the main crater rim, and to 180 m at the Monument on the summit. The only easing of the incline occurs at the lower southern end where a relatively easy ascent of 20 m to the plateau is possible either from the south-eastern flat, or by the modern Summit Drive (Fig. 9). The difference is well brought out by some experimental running by Pearce in 1974, which showed that it took only 13 seconds to sprint up from the flat to the plateau, whereas it took 125 seconds to run and scramble up the terraced slopes from the floor of the eastern crater to the summit, and the runner arrived in no fit condition to attack (Pearce 1977, p. 19, figs. 1, 2). It is thus apparent from the topography that the hill was vulnerable at the lower end, and that is where defences were needed. Furthermore, the southern lobe faces the easy lines of approach from the Manukau Harbour from which seaborne attacks could be expected.

The defences

Two defensive systems can be recognised on One Tree Hill (Fig. 11), first a comprehensive linear defence system related to the weakness in the topography, and



Fig. 11. One Tree Hill (*Maungakiekie*). Diagram plan showing the defences and strong points. Based on a contour map supplied by One Tree Hill Borough Council and surveys by Auckland University Anthropology Dept., drawn by Caroline Phillips.

secondly a system of semi-independent strong-points related to the natural strength of the volcanic features, as on Mt Eden or Mt Wellington.

The linear defence system consists of two lines, 300 m apart, a long outer line starting at the rim of the western crater and crossing the plateau diagonally in the direction of the eastern crater, and a short inner line across a rise on the narrow neck of land that separates the two craters. Both lines are multiple and consist chiefly of scarps supplemented by earth banks (Fig. 12). The earthworks in this area are very complicated and it seems unlikely that every feature can be understood, even after excavation. Much of the plateau was used as a golf course in the 1930s, and it is possible that some of the anomalous earthworks are the remains of tees, greens or bunkers. There was also a cart track which was used when the reservoirs were constructed and some subsidiary waterworks which have cut into the inner line of defences. Nevertheless the essential outline of the Maori defences is clear, as shown on the air photo (Fig. 9), the diagram plan (Fig. 11) and sections (Fig. 12).

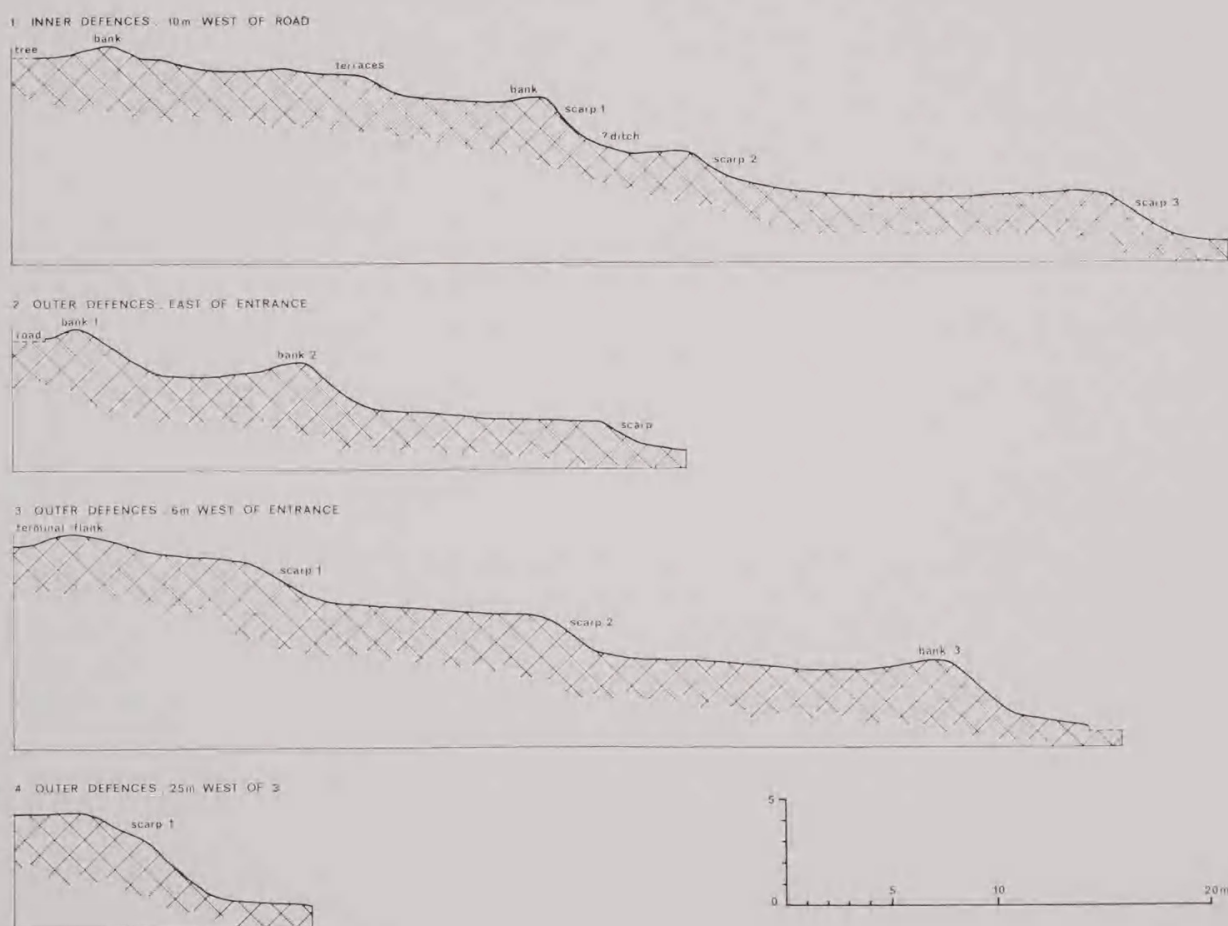


Fig. 12. One Tree Hill. Level-sections 1-4 across the defences.

Starting at the edge of the west crater, the outer line consists of a succession of formidable terraced scarps up the slope. The lowest projecting sector appears to be a replacement for a former direct line. As the slope eases on either side of the modern road, the scarp has been replaced by a bank, 1.5 m high and 3 m wide (Fig. 12 — section 3). The inner line commences by a mound, probably recent, and continues to a shallow projection, 19 m wide and 5 m high with a slope of 45° (Fig. 12 — section 4);

its commanding position suggests that it was designed to carry a fighting stage from which missiles could be hurled. At this point the earthwork bifurcates; each limb ends in low banks which form the sides of a narrow intrenched entrance way, unfortunately partly cut away when the road was made, but undoubtedly an original feature (Fig. 11).

East of the road the two banks, supplemented by a third scarp (Fig. 12 — section 2) continue in a straight line across the plateau, diverging to end beside a rectangular embanked and terraced complex with 15 pits (Fig 11 — 6) beyond a group of puriri trees. It seems likely that this complex was in existence when the defences were constructed and that its south-facing scarp was incorporated in the new system. In contrast the third scarp continues as an effective outer defence as far as the steep slopes of the eastern crater. The defences have been breached in several places and minor scarps and pits have been inserted between the lines, presumably at a later date. There was no attempt to fortify the southern part of the plateau beyond these defences, unless it were by palisade, though there are many surface indications that the area was utilised at some time. The position was chosen in order to shorten the outer line and to avoid the weakness of a large salient in the event of an attack.

The second set of defences (Fig. 12 — section 1) across the narrow neck between the east and west craters (Fig. 11) seems to be a construction of several periods. The principal feature is a bank and ditch, which has been remodelled at the west end, where there is a change in the direction of the bank, which has been heightened by midden, and a deepening of the ditch. In front of these there is a scarp (Fig. 12 — section 1, scarp 2) but on a different alignment, close set on the east but diverging to end at the edge of the west crater, after an interruption by a cart track. Associated with it, is a short length of similar scarp 18 m farther forward which extends down across the first terrace on the side of the eastern crater, below the modern road (Fig. 12 — section 1, scarp 3); it is positioned to guard against flank attack from the south-east. These two scarps are probably the primary work; another transverse bank 20 m behind the main ditch and bank (beside a pine tree) may belong to this phase also.

The strong points

These two lines of complicated earthworks, the inner and the outer, complete the unified defences of One Tree Hill; they effectively bar the way from the plateau to the occupied zone surrounding the central crater and its terraced outer slopes. Within this zone four or five strong points can be recognised, each with its own scheme of defence. Moving clockwise round the main crater, the first or 'southern mount' (Fig. 11 — 1) now marked by a clump of karaka trees, is a rectangular knob defended only by major scarps; most of its flattened top was used for pit storage. The second or 'western mount' (Fig. 11 — 2) has been greatly modified by the building of two reservoirs. It was defended by a short length of bank and ditch starting at the edge of the western crater and continuing as terraced scarps around the rim of the central crater. The northern limit is indicated by a low transverse bank. The steep slopes facing north-west above the road have also been extensively terraced, and include a bastion-like projection just below the western reservoir, probably for a fighting platform or stage. The third strong point (Fig. 11 — 3), the 'northern mount' is separated from the western mount by a short length of transverse ditch with an internal bank continuing as a scarp along the side of the central crater; these defences cut through a terrace and so are a secondary construction.

The citadel proper (Fig. 13) was constructed on the adjoining steeply terraced summit of One Tree Hill; it was defended on the western side by a major earthwork,

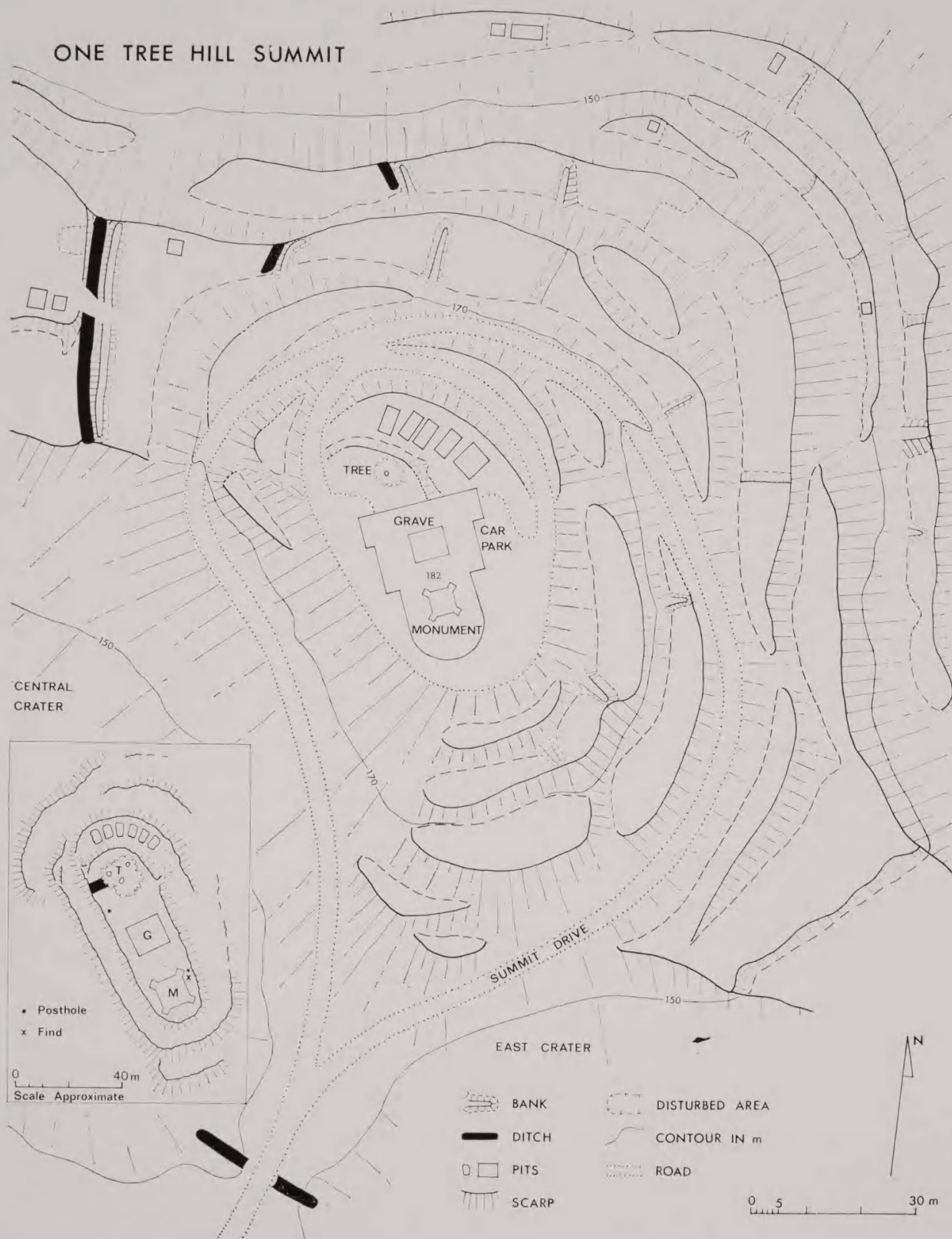


Fig. 13. One Tree Hill. Plan of summit. Redrawn by Caroline Phillips from a survey by Auckland University Anthropology Dept. Inset, after G. Fairfield 1941.

a transverse ditch with an internal bank across the crater rim, separating it from the flat of the 'northern mount'. Any attempt to outflank this line at the northern end was barred by two separate short lengths of ditch and bank; these also prevented access to the upper terraces where the principal living quarters were probably situated. On the eastern side the defence rested on a transverse ditch at the foot of the ascent, strategically placed on the narrow neck between two craters. Most of this earthwork, which was visible in photographs in 1940 (Fairfield 1941, fig. 17) is now covered by the Summit Drive. The inner side of the ditch was exposed by a slip within the east crater in 1976; a layer of shell midden (cockles) in the filling ended abruptly as though against a revetment post. The defended hill top has a succession of terraces on the east and north side; many of them are divided by a bank of undisturbed soil into compartments, which presumably relate to domestic requirements. Pits are absent, except for a row of five or six on a terrace immediately below the summit.

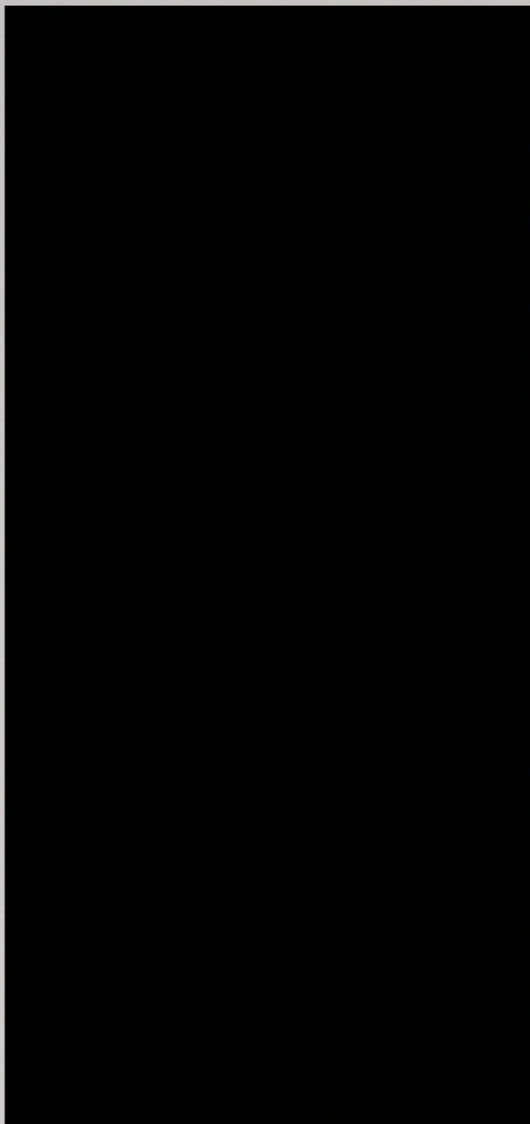
Below the citadel but high up on the rim of the eastern breached crater there is a small rectangular enclosure, which constitutes another strong point, the 'eastern mount' (Figs. 10, 11 — 5). It has a low bank on two sides, probably for a palisade, and contains five storage pits. The site is defensible with steep terraced slopes on both sides; it is separated from the citadel by a defensive scarp. A worn path winding up beside a scoria outcrop provided access to the strong point from the crater floor, where there are a series of low banks, indicative of cultivation (Fig. 10).

The summit and artifacts

The original surface of the hill top is now nearly completely obliterated by the monument dedicated to the Maori people and by the grave of Sir John Logan Campbell (1817-1912) to whose foresight, generosity and strong feeling for the past we owe the preservation of these great earthworks. This would have been a most important area, the *tihi* or summit platform pertaining to the chief. It is known that there was a sacred totara tree growing here in the 18th century which provided an alternative name for the place, *Totara i ahua*. (Smith 1897, p. 81). When the ground was levelled in 1940 for the construction of the monument and the paved surround, the end of a small-scale transverse ditch and two deep postholes were seen and recorded by Fairfield (1941, p. 94) (Fig. 13 — inset). The position of the postholes on the edge of the scarp suggests that these were part of a palisade around the hill top. The ditch, which cuts across the summit, is not well placed for defence; it is possible that it defined a *tapu* area related to the sacred tree.

Two remarkable little objects carved out of scoria (Figs. 14-16) were recovered at the same time with other artifacts and subsequently deposited in Auckland Museum. One is an anthropomorphic figure, three dimensional, with a round head, emphatic features, raised arms and stubby legs and toes (Fig. 14). The front of the torso is patterned with a double spiral design. The flat back has a central rectangular cavity, which could be used as a container only if the image were held horizontally, probably suspended by a cord round the neck and feet (Fig. 15). It can be deduced that the figure was intended to be seen from below, like the well known 'feather boxes' (*waka huia*) which are carved on the underside. The second container is undecorated (Fig. 16); it has an oval slot cut into the flat surface, and a central groove around the sides and base probably also for suspension. Both objects were of a size suitable for holding tattooing pigments, such as can be seen in Augustus Earle's painting of a Maori being tattooed (Murray-Oliver 1968 pl. 28). They indicate that an important activity connected with the warrior class, namely *moko* or tattooing, may have been carried out on the summit platform.

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Figs. 14, 15. Scoria artifact from One Tree Hill. 14. Anthropomorphic figure 10.5 cm high. 15. The same suspended to show back with rectangular cavity. (Photos: Vahry Photography).

For cultural reasons, this image has been removed.
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Fig. 16. Scoria artifact from One Tree Hill. Container, 10 cm long. (Photo: Vahry Photography).

Summary

A field survey of One Tree Hill, therefore, has shown that this immense and complex site incorporates defensive features recognised in other Auckland *pa*, namely the terraced slopes, the strong points which include pit stores, the transverse ditches, banks and defensive scarps. In part the irregularities in relief produced by the volcanic throw-out of scoria have determined the multiple strongpoint construction as already noted at Mt Eden (see above, p. 5) but it may reflect a tendency to separatism in the social organisation of the Waiohau tribes. The same phenomenon occurs on Pouerua and Maungaturoto *pa* on the volcanic cones near Ohaeawai in the Bay of Islands (Best 1927, figs. 77, 78). On the other hand, although each centre has its separate defence, the ditches face in one direction, as though to forestall attack in a clockwise direction around the rim of the central crater, towards the citadel. The steepness of the terraced external slopes, precluded attacks launched from the bottom of the hill, as Pearce's experiments have shown (see above, p. 13). It appears that the use of ditches on One Tree Hill, as elsewhere in Auckland, is a late feature. The single ditch incorporated in the linear defences (see above, p. 16 and Fig. 11) is an addition to primary scarps, and the ditch defending the 'northern mount' cuts into a terrace. Apart from the major earthwork defending the citadel, the use of ditches is uncertain, being limited to short lengths of small-scale excavations; the defenders presumably relied on palisades.

GENERAL DISCUSSION

It now remains to fit the results of this survey of the Auckland pa into the chronological framework provided by archaeology, based on the evidence of radio-carbon dating, and to supplement it by what is known of the local Maori history, based on oral tradition; this was ultimately written down as evidence in support of claims to the Maori Land Courts before Mr Justice Fenton in 1868 and recorded by John White, Percy Smith and others in the late 19th century.

The earliest radio-carbon dates on the Auckland isthmus have been obtained by Sullivan from a small open settlement among the extensive cultivations on the lower slopes of the volcanic pa on Wiri Mountain, Manurewa. These range from a.d. 1220 $\pm$ 200 from occupation layers predating a terrace, to deposits of a.d. 1490 and 1560 $\pm$ 90 which were associated with occupation on the terrace (Sullivan 1975, p. 206). It is therefore highly probable that there was similar open settlement in central Auckland, beginning in the 12th or 13th century. It is certain that by the 15th century there was settlement on Mount Wellington, because a radiocarbon date of a.d. 1430 $\pm$ 40 (corrected to a.d. 1440, Law pers. comm.) was obtained by Golson in excavations, when the reservoir was being constructed (Golson 1961, p. 51). This was from a midden deposit which pre-dated the construction of a terrace with pits (Golson 1960, p. 33). It is evident from this and other salvage excavations that occupation on the cones was prolonged: on both Mount Roskill (W. Shawcross, 1962, p. 82) and Mount Wellington, a sequence of intercutting pits has been uncovered, whilst in 1974-5 on Elle's Mountain, McKinlay had evidence of three periods of occupation, from which material for radiocarbon dating was obtained but the results are not yet available. The close-packed terraces and the numerous pits on the hills spreading down the slopes far beyond the defences as on One Tree Hill or Mount Wellington also imply a steady growth in population over a long period of time, or else a period of rapid expansion.

There is, as yet, no archaeological evidence for the date of any of the earthwork fortifications. This can only come from skilled excavations designed to obtain the requisite material for radiocarbon analysis from stratified deposits; for example, charcoal from a hearth sealed below a bank, which must pre-date the construction, or rotted fragments of wood in the postholes of timber palisades. At present we must rely on the field survey, which has shown that the earthwork defences are a late feature of the four pa.

We must therefore turn to the traditional historic sources in search of an appropriate context for the fortification of a small proportion of the Auckland pa. From the evidence given to Mr Justice Fenton in 1868 in the Native Land Courts concerning land at Orakei, it is apparent that during the first half of the 18th century the Waiohau people came under attack from the neighbouring confederacies of the Ngati Paoa to the south, centred on the west coast of Thames, and the Ngati Whatua to the north, centred in South Kaipara. An extensive raid by the Ngati Paoa to Kohimarama and Orakei about A.D. 1700 was not followed up by annexation of any of the Waitemata coast, though settlement took place on Waiheke and other off-shore islands, as well as farther north (Fenton 1879, p. 61, 62). A generation or two later, *circa* A.D. 1740, the Waiohau had an outstanding leader, Kiwi Tamaki with his principal seat on One Tree Hill and his territory extending over the whole isthmus (Smith 1897, p. 79). He treacherously killed several members of the Te Taou, a sub-tribe of the Ngati Whatua and in consequence the Ngati

Whatua came south from Kaipara to take revenge (*utu*). A combination of attacks by land and sea were ultimately successful and the Waiohūa led by Kiwi were defeated at Paruroa (Big Muddy Creek) on the shores of the Manukau; One Tree Hill and Mangere were both taken during this time. These events provide a possible background for the fortification on One Tree Hill. The elaborate outer lines of defence are unique in the Auckland pa, and as already pointed out (see above, p. 13) were designed against an attack from the direction of the Manukau. It is tempting to see them as the work of the great Kiwi Tamaki, but they could be of earlier date since there are signs of alterations and additions (see above, p. 16). The remodelling of the second line of defence which included the heightening of the bank with midden, and the short lengths of small-scale ditches added to the strong points (see above, p. 20) however may represent a hasty attempt to strengthen the position against the expected Ngāti Whatua attack. After the victory, it is recorded that Te Taou remained to occupy "the desolated and vacant countryside and held undisputed possession of all the lands inhabited by the numerous tribe of the Waiohūa" (Fenton 1879, p. 64). Judge Fenton was told by a claimant that their chief Tuperiri had built his pa on One Tree Hill, adding that he had seen the palisade posts still standing in his own time. The competent and complete earthwork defences of the One Tree Hill summit (Fig. 13) set it apart from the other 'strong points' in the pa and suggest that this self-contained citadel is the work of a newcomer, well accustomed to this type of earthwork fortifications. Defence by means of a transverse ditch and bank is common to most areas in the North Island and is certainly found in the territory of Ngāti Whatua in South Kaipara.

Similarly on Mount Hobson there is evidence of a changed style of fortification where the defences of a small new citadel have been imposed on a terraced *tīhi* of the Waiohūa type (see above, p. 8). Mount St John, which lies between the two, completes the picture of a replacement of culture in this central area. If all three sites are contemporary, they give the impression of a small number of newcomers who were uneasy in a strange land and resorted to a strong defence. Other pa mentioned as belonging to Te Taou are small-scale works on the upper Waitemata, including the headland pa on Kauri Point and Tauhinu, Greenhithe (Fenton 1879, p. 65). This phase of tension did not last long; in the early 19th century as Sullivan (pers. comm.) has shown, Te Taou had abandoned their defensive position on One Tree Hill and were living close to the harbour on the flat land at Onehunga and Mangere. In 1840 when John Logan Campbell climbed through high fern to the top of Mount Hobson, it was to admire the view from Remuera, not the pa site, which must have been completely overgrown (Campbell 1881, p. 109).

The fortifications on Mount Wellington require another context. The situation of Maungarei on the Tamaki estuary made it vulnerable to seaborne attack by tribes from the Hauraki Gulf, the Ngāti Maru and Ngāti Paoa. It is therefore probable that the Waiohūa had occasion to fortify against the Ngāti Paoa intrusion led by Chief Kapetawa in the early 18th century (Fenton 1879, p. 61) or at some earlier period for which information is lacking. There is also the possibility that some of the earthworks were constructed by Ngāti Paoa people after the Waiohūa had been overcome by Te Taou. It is recorded that a coastal strip on the west bank of the river known as Tauoma was given in the late 18th century to a member of the Ngāti Paoa by Te Taou; shortly after there was a period of strife in which both tribes were involved, and when a re-fortification at Maungarei might have been required (Fenton 1879, pp. 66, 67). The ditch systems on Mount Wellington, which have been demonstrated to be an addition to the terraced pa of the Waiohūa,

divide the crater rim into zones suitable for successive lines of defence, in a similar manner to the ditches on the headland pa on Pawhetau Point, in Ngati Paoa territory further south (Fox 1974, p. 16, fig 4). On the Tamaki the main centre for this branch of the Ngati Paoa people in the early 19th century was at Mokoia, beside the Panmure Basin, with another fortification, Mauinaina, at Panmure itself (Fenton 1879, p. 68). In 1820 when Samuel Marsden visited Mt Wellington from Mokoia (Mogoea), it was apparent that the hill was uninhabited (Elder 1932, pp. 280, 314).

Epilogue

The Auckland isthmus has had a troubled prehistory; it was not known as *Tamaki-makau-rau* without good cause (Tamaki with a hundred lovers, i.e. desired of many). There were doubtless other occasions in the more remote past when some intruder needed to fortify a site for which oral tradition is lacking, or when the validity of the surviving stories needs careful assessment by Maori scholars. The interpretation that has been put forward in this article is admittedly speculative, though based on a detailed archaeological analysis and on a standard printed source, in which the witnesses were recounting events of only two or three generations before (Fenton 1879, p. 64). It is recognised that the chronology that has been suggested can be contradicted or modified by the results of excavations in the near future. Although this attempt to correlate archaeological and historic evidence may be premature, it is hoped that it has demonstrated the contribution that field archaeology can make to the understanding of Auckland's prehistory.

Acknowledgements. This work could never have been accomplished without the assistance of archaeology students at Auckland University who, under the direction of Molly Nicholls (now Mrs Hougaard) in 1964 and of Roger Green in 1974-77 made large scale plans of Mount Hobson, One Tree Hill and Mount St. John, on which figs 6, 7, 11 and 13 have been based, after revision in the field. Contour plans and air photos were kindly made available by One Tree Hill Domain Board through Mr. J. Howse, and by Mount Eden Borough Council, through the engineer, Mr. E. Briggs. Dr. Aidan Challis assisted with the level sections on One Tree Hill. I am very grateful to them all, as well as to my draughtswoman Caroline Phillips for her sensitive and patient work.

For information about the excavations on Mount Wellington I am indebted to Janet Davidson, Auckland Institute and Museum, and for those on Mount Roskill to Wilfred Shawcross. Mrs. Agnes Sullivan kindly read the text and made some historical emendations; any remaining errors are my responsibility.

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