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FOURTEEN YEARS OF SITE RECORDING ON MOTUTAPU ISLAND: A CAUTIONARY TALE

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For some years I have been intending to write an account of the site recording project on Motutapu Island and the lessons I believe it offers about site recording in general. The recent paper by Garry Law in the Newsletter (Law, 1987) provides the necessary stimulus.

There have been two phases of recording on the island, the first by a variety of people taking part in a loosely coordinated project, the second almost entirely by myself, although with related contributions by a small number of other people. The principal lesson has been that there is no final and definitive answer to the number and extent of sites on the island. The first coordinated site recording project ever undertaken in Auckland (at South Kaipara Head; Groube and Green, 1959) seemed to raise more problems than it solved. The Motutapu experience has been similar.

The First Phase

The first archaeological research carried out on Motutapu Island was Golson's excavation at Pig Bay in the late 1950s (Golson and Brothers, 1959; Brothers and Golson, 1959). At that time, site recording did not normally precede or accompany excavation, and neither the Pig Bay site nor the other important early site discovered on the island during the excavations was officially recorded until several years later. Golson's work, however, drew attention to the potential of the island for further research.

Site recording began on the island in 1963, with the joint aims of providing weekend occupation, entertainment and instruction for members of the large and thriving Auckland University Archaeological Society, and making a useful contribution to the still young site recording scheme. The project was jointly organised by Anne Leahy, Molly Nicholls and myself. The response by members was embarrassing. The Blue Boat to Rangitoto was almost swamped by would-be archaeologists, among whom the inexperienced greatly predominated. Nonetheless, the fieldtrips were highly successful and a large number of sites, as it seemed then, were recorded.

The initial phase of recording took place at a time when we were very unsure of the significance of the features we

were describing. It therefore seemed a logical step to excavate one or more of the many newly recorded sites that were neither middens nor pa; firstly, to verify that they were archaeological sites, and secondly, to define the underlying structures that were giving rise to the surface evidence we had been recording. The first season of excavation took place in the summer of 1967-68 and involved two sites: a particularly amorphous example where the evidence was merely an uneven ground surface with differential pasture growth on a small flat area on a large ridge (Davidson, 1970b); and a clearly defined artificial terrace, the second to lowest in a series of features strung out along a smaller ridge (Leahy, 1970).

These excavations confirmed that we had been recording archaeological sites rather than natural features. The structural evidence consisted of terraces and pits, and the amount of midden and artefactual debris suggested that the sites were small undefended settlements, rather than specialised activity or storage areas.

During this first excavation season, a few more sites were recorded, but it was thought that the majority had been found during the 1963 recording project. The introductory paper to the first series of excavation reports (Davidson, 1970a), described 72 sites, which were largely those found in the first survey.

The Second Phase

In the summer of 1970-1971, a second excavation season took place at Station Bay (Davidson, 1972; Sullivan, 1972; Leahy, 1972). By this time, as a result of occasional visits at different times of year, it was becoming apparent that far more sites existed than had so far been recorded. In the summer of 1972-73, a systematic re-survey was begun. This was carried out, initially by myself alone, in an attempt to achieve consistency of observation over the entire island. For this survey, I used two sets of aerial photographs (1950, 1963), the 1:25,000 and 1:63,000 published maps, and an unpublished contour map at approximately 1:8,000 on which fencelines and other farm features were shown. As Garry Law (1987) states, the locations of sites were marked initially on aerial photographs, and subsequently on the published maps for the purpose of calculating grid references.

The survey was carried out paddock by paddock (the paddocks are named and numbered), by walking along every ridge and spur following natural topography; no systematic transects were undertaken. Notes were made on the vegetation and extent of grazing at the time. Some paddocks offered much better conditions for recording than others.

While I was carrying out my survey, Anne Leahy excavated a terrace which turned out to be largely natural (Leahy, 1986); and Roger Green and Agnes Sullivan tested some very large terraces and showed that they were, as we suspected, natural terraces which had been used, rather than man-made ones. They resulted from differential erosion of underlying strata or, on occasion, slumping (R.C. Green, pers. comm.).

I did not finish the survey in the time available and so I returned in January 1977. This time Anne Leahy assisted me. Garry Law carried out his check survey (Law, 1987). Following his example, we conducted a further check in which Anne Leahy re-surveyed a paddock which I had surveyed four years previously.

At the end of these two periods of surveying, a total of 324 sites on the island had been entered in the site record file. This was a fourfold increase on the original survey. Also, all sites had now been visited, at least once, by myself, except for a small number recorded by Anne Leahy during the final stages of the project. I had, in addition, noted 98 locations where I felt there probably had been prehistoric occupation, but where the surface evidence at the time was too slight or unclear to warrant inclusion in the site record files. I intended to revisit these places to assess them further. In the event, however, my move away from Auckland early in 1979 prevented me from doing so.

The recording was extensive rather than intensive. Only brief notes were taken about each site, and none was mapped. The excavated sites at Station Bay had been mapped as part of the second season of excavations. The approximate extent of the very large site was indicated on the aerial photographs, but for the smaller sites, only a single central point was marked.

Recording conditions

My experience over several seasons on Motutapu was that variations in pasture, grazing, and weed growth from one summer to another or from one paddock to another did not greatly affect site finding. Although I attributed a lack of visible surface evidence in one paddock in 1973 to a particularly luxuriant growth of grass, a revisit in 1977 when the paddock had been grazed did not yield more sites. On the other hand, the surface appearance of individual sites did vary from one year to the next, and from one season to another. This variation was sometimes quite dramatic and was only partly due to deterioration. Certainly some sites deteriorated as a result of stock damage over the study period. Other surface

changes were more the result of different pasture and grazing at different times. Casual visits to the island at various times of the year convinced me that a site survey in August, for example, would take place in much better conditions, if not in better weather. There is no doubt that summer is not the optimum time for site recording in the Auckland region.

The field evidence

The nature of the field evidence has been described previously (Davidson, 1970a and 1978). Twelve sites have been recorded as pa on the grounds that they have visible defensive earthworks. The great majority of the remainder are undefended occupation sites, with a very few specialised sites. The undefended occupation sites can be divided into two major groups: those in which there is structural field evidence, in the form of terraces and/or pits, and those in which the evidence is purely depositional, in the form of midden and/or artefacts. Structural sites may, of course, also have depositional evidence.

The structural sites include the most clearly defined and the most ambiguous forms of field evidence, and a single 'site' may include a full range from one to the other. The 98 'possible' sites are possible structural sites. Unfortunately, the correlation between clarity of surface evidence and the results of excavations is not as close as one might expect; this was demonstrated by the various excavations. The first site excavated at Station Bay, N38/37, had very amorphous surface evidence which was impossible to map, but the underlying structures were unambiguously revealed by excavation. At the other Station Bay site, N38/30, excavation on a well defined terrace also revealed structural evidence, including pits which were only faintly visible on the surface. This terrace was the clearest feature on a ridge which also contained fainter and more doubtful surface evidence. However, the terrace at the base of N38/140 behind Pig Bay, excavated in 1972-73, which several experienced field recorders all accepted without question as a structural terrace, turned out to be quite different (Leahy, 1986). This experience is not unique to the somewhat unusual geomorphological conditions on Motutapu. Rather similar results were obtained during recent investigations at Whangapoua on the Coromandel Peninsula (Furey, pers. comm.).

There are obviously still traps for experienced as well as younger players in the recognition of structural evidence. The presence of depositional evidence, of course, greatly helps in deciding whether apparent structural evidence indicates a site or not. In the case of N38/140 behind Pig

Bay, the presence of midden and cooking debris justifies the inclusion of the excavated 'terrace' within the area of the site. At the same time, the experience on this site is a warning against too precise interpretations of living area and population on the basis of numbers of terraces or pits.

Despite difficulties of interpretation, a large proportion of existing structural evidence will be recognised during site survey. A hasty survey by inexperienced people will recognise only the most obvious, as happened in 1963. More intensive survey will find more and more sites. With experience it is possible to optimise conditions so that saturation point is approached.

The recognition of depositional evidence, on the other hand, is always greatly influenced by chance. Coastal erosion, farm tracks, fence lines, stock trampling around gates and water tanks have all revealed depositional evidence on Motutapu which is not immediately associated with structural evidence and would not otherwise be visible. Seventy-four of the recorded sites are listed as middens and 60 of these, or 18.5 per cent of the total number of recorded sites on the island, are on the inland ridges and slopes where structural sites are also found. This is a rather frighteningly large proportion of sites to be revealed by chance erosional factors, and indicates that the visible structural evidence could be only the tip of the archaeological iceberg on the island.

The reason for this problem on Motutapu are probably several. Firstly, although the island presents an initial impression of gently rolling topography, there is in fact considerable variation. Some parts are much steeper than others. It is on the flat surfaces of the large natural terraces, and on flat or very gently sloping expanses of ridge that patches of midden without other visible field evidence often occur. Secondly, cultivation before 1963 has undoubtedly blurred or obliterated the surface evidence of structures in some areas, particularly at the southern end of the island. War time constructions have probably had a similar effect in northern and western areas.

There is no easy way that hidden depositional evidence can be discovered during site survey. A quite different approach involving extensive systematic test pitting would be needed, to improve on the level of site recognition achieved by surface inspection alone. This type of approach has recently been applied with considerable success in smaller areas elsewhere in the Auckland region (e.g., Robinson, 1987).

Horticultural sites

No serious attempt was made during the survey to identify horticultural sites, although it was assumed that there must have been gardens on the island associated with the many undefended sites containing storage pits. Garry Law had independently reported two agricultural sites on the basis of test pits through the Rangitoto ash behind the two early coastal middens at Pig Bay and the Sunde Site. These had revealed pebbles in the underlying soil which Law believed had been introduced by humans, although he has subsequently revised this opinion (Law, pers. comm. 1987).

The study of prehistoric gardens has been a feature of recent archaeological work in Auckland and elsewhere. Any serious attempt to understand prehistoric activity on the island should now seek to identify exactly where gardens would have been. Motutapu was blanketed by volcanic ash from nearby Rangitoto shortly after human settlement began, and the soils that developed on the ash were probably one of the attractions of the island for prehistoric settlement. It is quite possible that gardens on the island required no deliberate modification of soils; certainly no plot boundaries have yet been detected. On the other hand, it is possible that at least some of what I have described above as depositional evidence represents deliberate addition to garden soils, rather than the debris associated with habitation. The problem of identifying gardens cannot be resolved without extensive test excavations. It would seem likely, however, that the inclusion of gardens as sites, if they can be identified, would have the effect of making the entire island a continuous archaeological site. Even if gardens cannot be identified, one could still be led to the conclusion that the entire island was an archaeological site, since all parts of it are likely to have been walked over, gardened or hunted on at some time in the past. This kind of argument could be carried to dangerous lengths in New Zealand as a whole, and there are obviously strong reasons to restrict archaeological sites to places where visible or tangible evidence can be detected.

Sampling

Well designed sampling can certainly give a reliable indication of the number and range of sites in a project area and, as Garry Law has indicated, mechanical searching by transect, for example, can provide a valuable check on other methods of site finding. Both for research and for site protection and management, there initially appear to be compelling reasons to carry out as complete a survey as possible of a place like Motutapu. On reflection, however, these reasons can be challenged.

I have to admit that the second survey has not produced all the data I now perceive to be necessary for the kind of analysis I had in mind when I began it. Ideally, I would not start all over again with better location data, more thorough assessments of site size, and a programme of test excavations. Of course, previous site survey projects in New Zealand have foundered for the same kind of reasons. We should probably accept that recording will always prove deficient in some respect and attempt to analyse the data we have, rather than always going back for more.

Similarly, since there are reasonable grounds for believing that not all the sites on the island have yet been found, a specific threat to a part of the island where no site has been recorded still calls for a further field check. Under certain circumstances a sampling programme sufficient to indicate the site density on the island might be just as useful a guide to management as the attempt at full coverage has been.

Splitting versus lumping

The question of what constitutes a separate site has never been fully resolved on Motutapu. In general, the principle adopted has been that a site consists of a discrete group of contiguous surface features. In practice this definition poses problems. Take, for example, N38/30 (Leahy, 1972: Fig.1), at Station Bay, on which one terrace was excavated. Recognisable structural features are strung out along almost 150 m of ridge with no clear break. It has therefore been recorded as a single site. This may not reflect prehistoric reality, however. In fact, there is no way of determining, at least from surface evidence, whether the various features were constructed by the same people on one occasion, by the same people on several successive occasions, or by different people on different occasions. On another ridge of similar size, the visible surface evidence might consist only of a pit at one end and a couple of terraces at the other. These would probably be recorded as two separate sites. The discovery of midden in the track at an intermediate point might, however, cause this decision to be reversed.

It is clear that the chance exposure of depositional evidence can provide links between apparently discrete groups of features. Moreover, if we are to consider prehistoric reality, there is no reason why two groups of structural features separated by empty space should not have been part of a single contemporaneous settlement.

There were a number of instances on Motutapu where the problem of splitting versus lumping posed very real problems. It must be admitted that no rigorously consistent approach was adopted. Each of the most difficult examples was pondered over, revisited on a number of occasions, and thoroughly examined for clues which might indicate continuity between apparently discrete clusters. The problem is compounded by the great variation in size of 'sites' on the island. It is quite possible that some of the largest have grown over quite a long period from several separate beginnings on different spurs of a single ridge system. They must now be regarded as large single sites. There are other instances which may reflect an earlier stage of such development and which can still be regarded as three or four separate sites in close proximity.

Practical considerations inevitably affect the issue. There is a strong inducement to lump when sites are so close together that grid references are likely to become confused. There can also be an inducement to lump when one is faced with hundreds of site record forms to fill out. An artificial division such as a fenceline with different growth of pasture on either side can provide an inducement to split which would not be felt if the features under consideration were all in the same paddock.

No hard and fast rules can be derived from the Motutapu experience of this problem. The objectives of a survey will provide guidelines in most instances, and the problem must be approached sensibly. Although consistent and rigorous rules about what constitutes a site may not lead to a particularly reliable reflection of prehistoric reality, they will provide a sounder basis for archaeological analysis. Certainly an explicit approach enables other people to make better use of the data.

Location and relocation

With some judicious juggling, it proved possible to correlate all the sites from the Phase I survey with sites recorded during Phase II. (Phase I site records were not taken into account at all during Phase II fieldwork, the matching was done later.) Some considerable adjustments had to be made to some Phase I grid references. In my experience, this fell within the normal duties of a filekeeper handling records submitted by a variety of people. For the purpose of relocation, an accurate verbal description or good location map are more useful than a grid reference. Similarly, two or more sets of grid references with only minimal site descriptions could easily lead to confusion, whereas two reason-

ably full records of the same site can usually be matched, even if the grid references do not agree.

In open farm land like Motutapu, it is not easy to find permanent features to relate sites to. Fencelines and gates have been moved from time to time; some of the isolated large trees that were once a feature of the island have been felled. There is probably no way that the exact position and extent of sites could be adequately indicated within the limitations of the site record scheme. On the other hand, location and extent could have been shown fairly accurately on the large scale farm map, if we had chosen to devote considerably more time to the project. With the resources at our disposal, marked up aerial photos provided the most accurate way of showing site locations.

Observer bias

Problems over splitting and lumping, and over grid references, can usually be resolved if site descriptions, plans, and relocation details are of a high standard. Most filekeepers have had to deal with these problems from time to time. It is ultimately still the filekeepers who have to arbitrate. As Auckland filekeeper, I was able to impose my own view on the 1963 site records from Motutapu. To the present Auckland filekeeper would fall the task of arbitrating in Law and Davidson were now both to file independent sets of records for Motutapu. The better the records submitted by Law and Davidson, the easier would be the task.

However, variations among recorders are not limited to site definition and grid reference. The most experienced fieldworkers can easily differ over what they see on the ground, let alone how they interpret it. On Motutapu this problem is most apparent with the doubtful structural sites. In the small experiment Anne Leahy and I conducted there was general agreement on definite sites but no agreement on doubtful sites (Table 1). Since the doubtful sites have not been entered in the site record file, this may not matter very much. But the discrepancies in observation of site 230 (which became N38/452) are food for thought.

It is worth noting that although both Davidson and Leahy described 227 and 228 as separate sites in the field, Davidson subsequently decided to lump them as parts of a single site originally recorded in 1963 (N38/32).

Individual variations in site recording can also appear in mapping. Although no experiments have been conducted in mapping on the island, I have little doubt that different

	Davidson in 1973	Leahy in 1977
Definite sites:		
Field no. 227	pits	pits
228	pits	pits
229	terraces (several)	3 (or 2) terraces
230	3 or more terraces	1 terrace
231	2 terraces	2 terraces
Doubtful sites:		
	possible terraces all down ridge	-
	-	crop marks
	-	2 or 3 terraces, could be slumping
	-	1 terrace with a depression, doubtful

TABLE 1. Comparison of sites recorded in Ram Paddock in 1973 and 1977.

field recorders would produce significantly different maps of many of the sites. This is not surprising when so much of the surface evidence is vague or ambiguous. It is a problem that must always be born in mind in any comparative studies using numbers or dimensions of pits and terraces. I believe that variations from one observer to another are and always have been greater than many people suspect.

Conclusions

The Motutapu site survey leads to a number of conclusions which may seem pessimistic. I believe they simply reflect limitations inherent in the site recording scheme, which we should all be aware of.

It is seldom if ever possible to find all the sites in a survey area. The more intensive the recording, the closer one comes to the ideal, but equally there always comes a point at which time expended has to be weighed against results achieved.

As numerous people have pointed out, the concept of 'site' is an artefact of archaeologists, rather than a reflection of reality in the past. In a densely settled or intensively used area, site definition must be influenced by practical considerations. It is up to the person directing a survey to impose a consistent and explicit view of what constitutes

a 'site'. Other people using site records for analytical purposes must have access to more than grid references and site type, if their analyses are to be worth while.

Inaccuracies in site location using grid references have always been inherent in the site recording scheme. In addition to the initial difficulties in getting a grid reference right, additional scope for error appeared when the yard grid was adjusted (with significant difference between the 1:25,000 and the more recent editions of the 1:63,000 maps of Motutapu) and with the change to metric maps. Thorough and detailed site records and relocation details are the best answer within the restrictions of the site recording scheme as it still stands.

As Law has independently concluded, personal factors are certainly not negligible. Individual archaeologists, even those who have worked closely together over a long period, differ in their approach to site location, in their ideas of what constitutes a 'site', in what they actually perceive on the ground, and in how they interpret it.

The Motutapu experience has suggested that the sites themselves appear to change, presenting more or less surface evidence at different times of year, and from year to year. The same person may record the same site differently on different occasions, even before two archaeologists get the chance to record it differently.

Lastly, the awareness that not all sites have been found poses an ethical problem. How far are archaeologists justified in insisting that there is almost certainly a site in a particular place, despite an absence of surface evidence, because their experience of local conditions leads them to believe that there ought to be one there?

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References

Brothers, R.N. and J. Golson 1959 Geological and archaeological interpretation of a section in Rangitoto Ash on Motutapu Island. N.Z. Jnl Geology and Geophysics, 2:569-577.

Davidson, J.M. 1970a Survey of archaeological sites on Motutapu Island. Rec.Akld Inst. Mus., 7:1-12.

1970b Excavation of an "undefended" site, N38/37, on Motutapu Island, New Zealand. Rec. Akld Inst. Mus., 7:31-60.

1972 Archaeological investigations on Motutapu Island, New Zealand. Introduction to recent fieldwork, and further results. Rec. Akld Inst. Mus., 9:1-14.

1978 The prehistory of Motutapu Island, New Zealand. Five centuries of Polynesian occupation in a changing landscape. Jnl Polyn. Soc., 87:327-337.

Golson, J. and R.N. Brothers 1959 Excavations at Motutapu. N.Z.A.A. Newsletter, 2(2):5-8.

Groube, L.M. and R. Green 1959 Site survey of South Kaipara Head: preliminary results. N.Z.A.A. Newsletter, 2(2):8-13.

Law, Garry 1987 Site survey method and standards: a check survey of Motutapu. N.Z.A.A Newsletter, 30:16-26.

Leahy, Anne 1970 Excavations at site N38/30, Motutapu Island, New Zealand. Rec. Akld Inst. Mus., 7:61-82.

1972 Further excavations at site N38/30, Motutapu Island, New Zealand. Rec. Akld Inst. Mus., 9:15-26.

1986 Excavations at site N38/140, Motutapu Island, Auckland. N.Z.A.A. Newsletter, 29:160-166.

Robinson, James 1987 An intensive survey of the proposed Dacre Crest Residential Development. New Zealand Historic Places Trust, Auckland 1987/1.

Sullivan, Agnes 1972 Excavation of a pit at N38/25, Station Bay, Motutapu Island. Rec. Akld Inst. Mus., 9:27-60.