CHAPTER ONE: PREHISTORIC SETTLEMENT, SUBSISTENCE AND SOCIAL ORGANISATION (THEME ONE)

THE PREHISTORIC COMMUNITIES: THE HICHMAN'S LANDSCAPE

Andrew Crosby

The research programme for preliminary investigations of the prehistoric archaeology on Nevis, which started in 1999, was directed at establishing the full sequence of prehistoric human occupation and human-induced palaeo-environmental change on the island. The programme is centered on a three-year research project at the Hichman's site complex, first identified and excavated by Samuel Wilson during the 1980s (Wilson 1989; Crosby 2000, 2001). This report briefly describes the results of the final year of preliminary investigations at Hichman's in 2002 and draws broad conclusions about the nature of human settlement there.

The Hichman's Project

The Hichman's project is the principle component of a broader research programme supported by the British Academy as a pilot study for investigating prehistoric socio-political complexity of the Leeward Islands. This programme is designed to plug significant gaps in our understanding of the human colonisation and subsequent prehistory of the Eastern Caribbean and to advance modelling of sociopolitical complexity in the region to a new level. The specific aims of the pilot project are to reconstruct and date the sequence of human occupation at Hichman's, to identify key economic, demographic and technological changes, and to establish a sequence of environmental change for the local landscape. Hichman's was chosen as the only location on the island that has concentrated archaeological evidence from throughout the full prehistoric sequence.

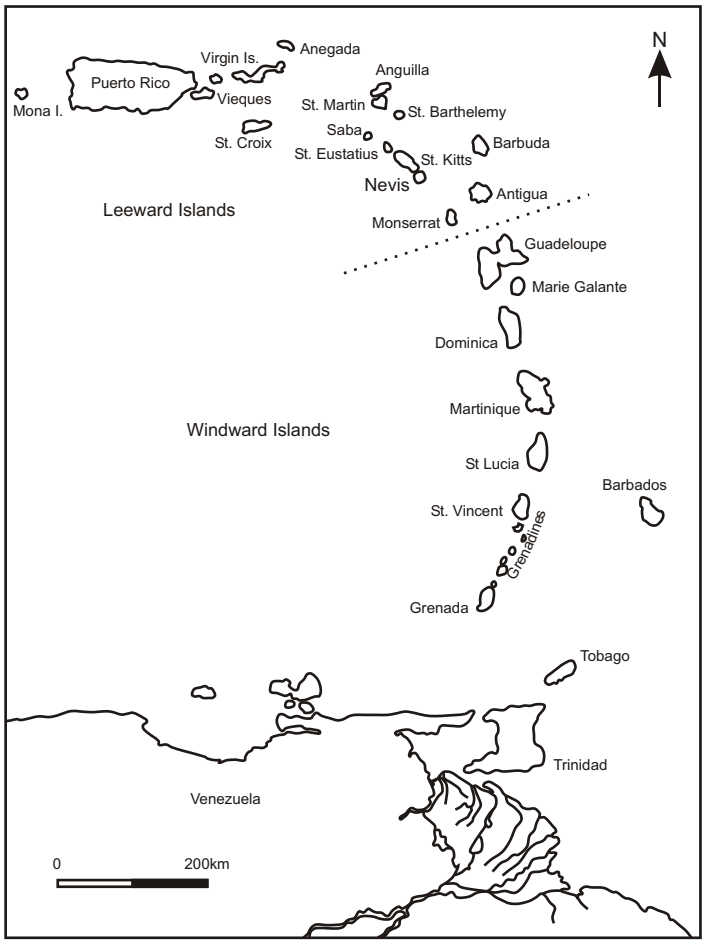


Fig. 1.1 Map of the Lesser Antilles

Initially identified as a series of discrete sites (Wilson 1989; Crosby 2000), Hichman's is now considered to be an integrated landscape of partially overlapping prehistoric settlement areas and colonial field systems (Crosby 2001; Versteeg, Schinkel & Wilson 1993). It lies on the windward (eastern) side of the island, on an apron of gently sloping land bordering a rocky coastline (Figures 1.1, 1.2 and 1.3). Aside from the archaeological remains, which lie prolifically scattered across the surface, the modern landscape is of semi-parched goat pasture and scrubby woodland that is heavily eroded along the coastal edge and deeply cut by a series of ghauts formed by storm-water runoff.

Colonial period archaeology

Archaeological remains of the colonial occupation of Nevis, principally for sugar production, extend across the entire landscape. These include

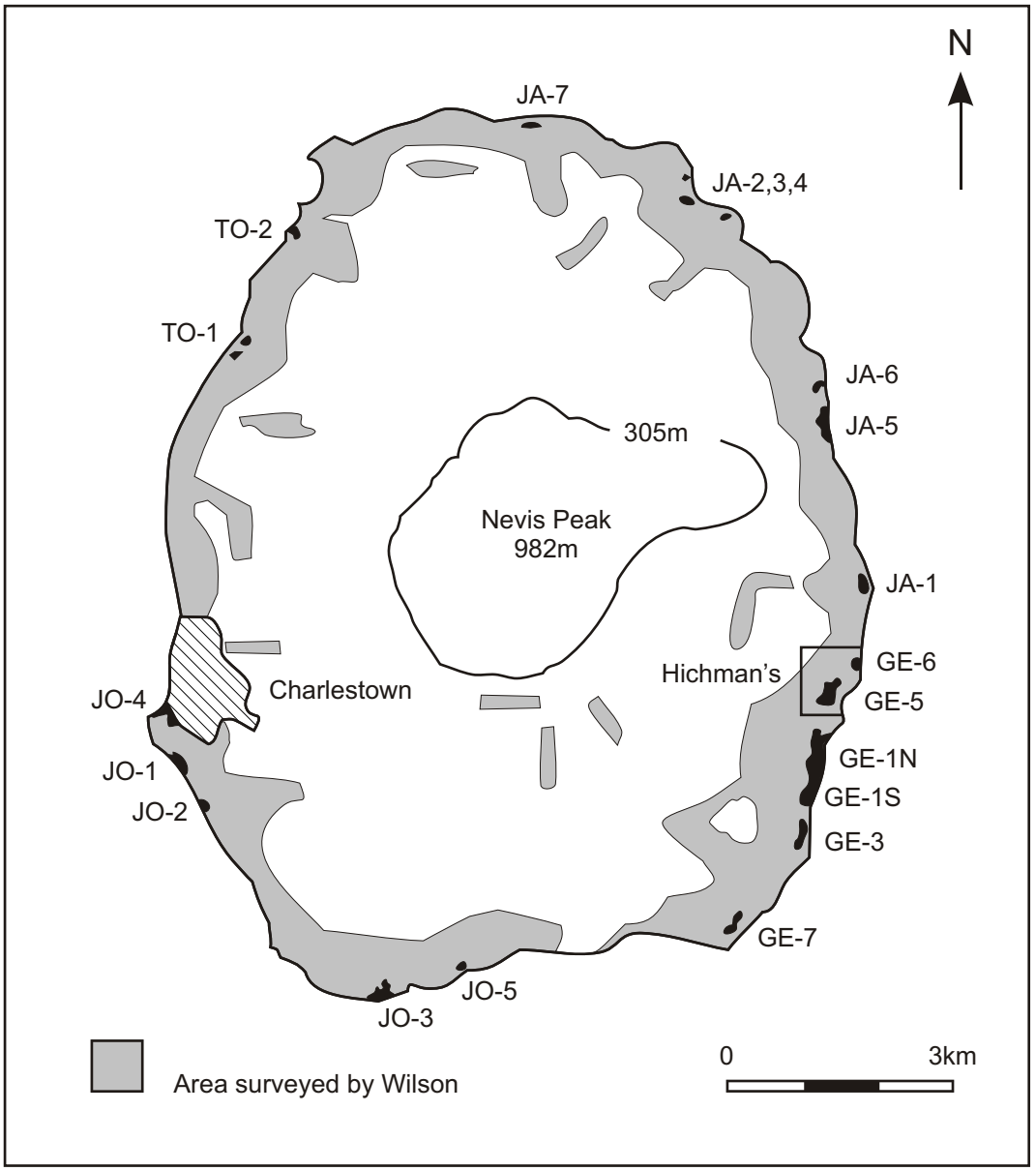


Fig. 1.2 Map of Nevis

significant surviving sections of an 18th century coastal road and the footings of a substantial bridge. Alongside it lie the foundations of several structures, presumably for the storage of sugar ready for transportation, and a stone-lined well that remains in daily use for watering goats. Extending inland from the road are the physical remains of the sugar cultivations themselves: levelled fields, dotted with rubble clearance mounds and separated by dry-stone field boundaries and roads and hollow-ways that are kerbed and paved with volcanic stones.

Alongside these highly visible archaeological traces of durable colonial structures, lies evidence of more transient colonial period activities (Figure 1.3). This includes areas of crushed, burnt coral, particularly prevalent along the banks of the southern ghaut (GE-11), which are presumed to be related to the manufacture of lime plaster. Perhaps of greatest interest, however is GE-10, an area located to the south of GE-5, immediately beyond the southern ghaut, that consists of a scatter of colonial period artefacts including prolific numbers of clay pipe stems, European ceramics and fragments of indigenous colonial period earthenwares. These latter pieces, sometimes known as Afro-Caribbean pottery (Morris 2001a), are primarily thought to have been produced and used on the sugar plantations by African slaves. Their presence, alongside the lack of any formal structural evidence other than several possible stone graves, suggests that GE-10 may represent a slave village or small colonial homestead.

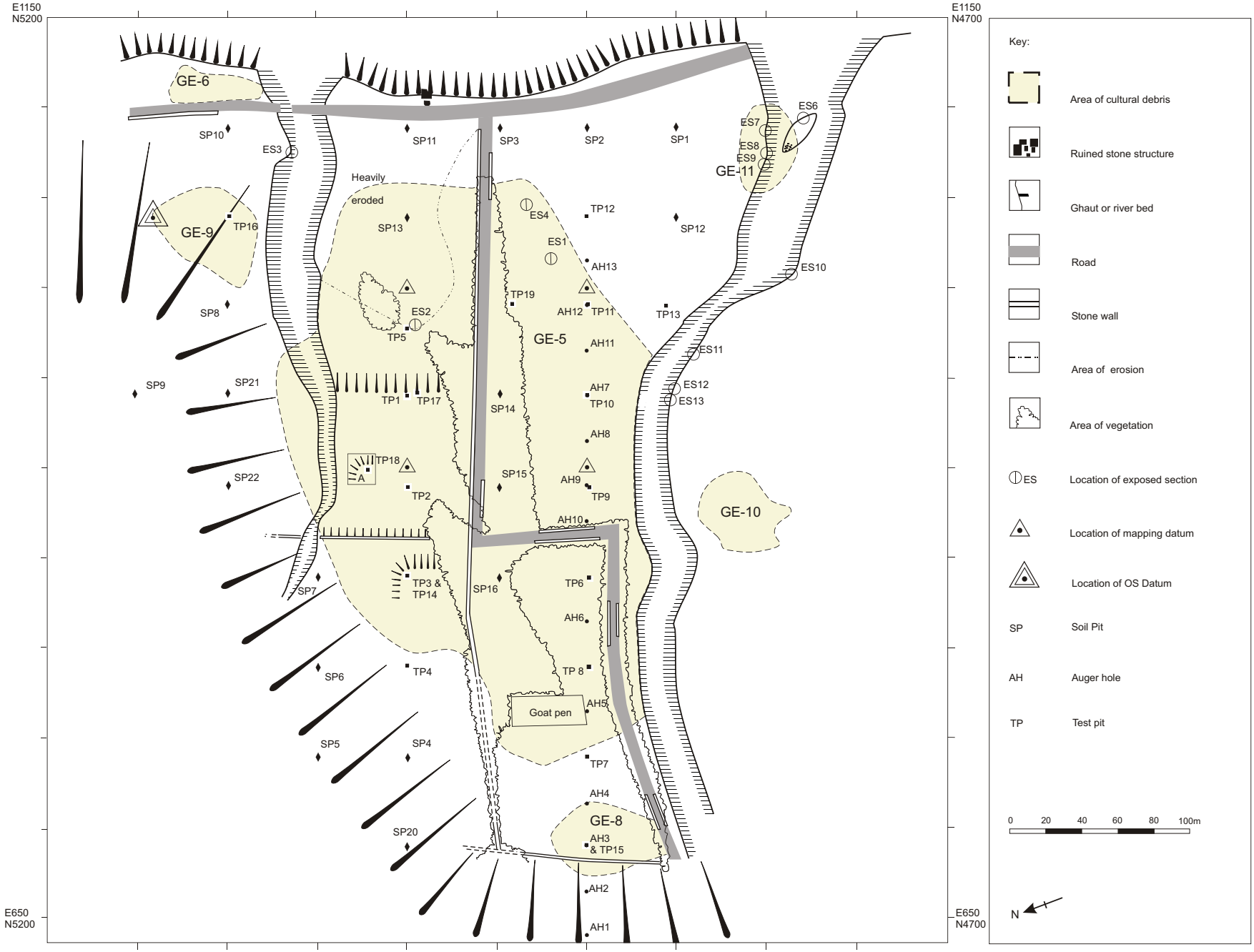


Fig. 1.3 Map of the Hichman's Site Complex

Prehistoric archaeology

While the historic remains extend up the lower slopes of Nevis Peak to the west, beyond the study area, the prehistoric remains of earlier Amerindian settlement are restricted to the coastal plain. They are indicated by concentrated scatters of surface artefacts and food remains, all lying within 500m of the coastal edge (Figure 1.3).

The largest of these (GE-5) is an extensive, oval-shaped settlement marked by a thick surface scatter of broken fragments of pottery, marine shell and stone chips on an area of gently sloping pasture and manchineal scrub. The site has been denuded and severely eroded along the coastal and northern edges but otherwise survives in good condition. The bulk of the pottery is of the Saladoid ceramic series, which characterises a group of ceramic cultures that is thought to have moved through the West Indies after 500BC, originating in the Orinoco basin area of northern Venezuela (Keegan 2000:138).

Both the nature of the pottery, and its distribution across the surface of the site, indicate that GE-5 was probably first settled between 0 and AD100 and is likely to have been more or less continuously inhabited as a substantial settlement through until AD500-600 when the pottery changes to a simpler post-Saladoid (Ostionoid) style. This later pottery has a more restricted distribution, principally confined to a concentrated pocket on the northern edge of the site (Area A). Compared to the Saladoid, the post-Saladoid occupation of the site was apparently spasmodic and small-scale. Analysis of pottery, stone and food remains recovered from the site will help clarify the nature of this change, whether an internal development or an inward migration of a new group of people.

Around GE-5, and overlapping it in places, are a series of much smaller areas (GE-6, GE-8 and GE-9) of scattered chips and flakes of fine-grained stone materials and other non-ceramic debris (including shell and bone midden). The stone is principally chert, a crypto-crystalline material that does not occur naturally on Nevis and is most likely to have been imported from Antigua and other limestone islands within navigable reach of the Amerindian settlers. GE-6 also includes a thick layer of shell and bone midden spilling out along the eroding coastal edge, while GE-8 and GE-9 comprise comparatively sparse surface scatters, almost exclusively made up of chert.

The absence of pottery on all three of these sites suggests that they predate the Saladoid ceramic occupation of the island and provide evidence of the earlier arrival of pre-ceramic colonisers that moved into the Lesser and Greater Antilles from South America after 2500 BC (Keegan 2000:136). A single radiocarbon date of 605 +/- 290 BC recovered by Wilson from GE-6 confirms that this is the case for the coastal midden (Wilson 1989). GE-8 and GE-9, however, are rather more enigmatic. They lack any clear dating evidence and may represent specialised areas of chert use associated with the later ceramic settlements.

The 2002 season

The key aims of the 2002 season were to complete a full topographic survey of the study area, to conduct a feasibility study of the future potential for the geophysical survey of buried remains across the site complex, and to complete the programmes of test excavation, surface collection, and geoarchaeological survey commenced in 2000.

Topographic survey

A topographic survey was conducted over an area of around 23 hectares in order to produce a detailed (microtopographic) record of the terrain and to provide a reference map for recording the location and extent of visible archaeological remains on the landscape (Figure 1.4; Strutt 2003). It provides a clear indication of the full extent of archaeological features of all periods (including the colonial period) and provides baseline topographic data to facilitate a study of landscape change due to the combined effects of natural erosion and human use (principally vegetation clearance, crop cultivation and pastoralism). The topographic survey also provides the necessary baseline data to allow the three dimensional modeling of the landscape and its geological structure for all phases of occupation of the site complex.

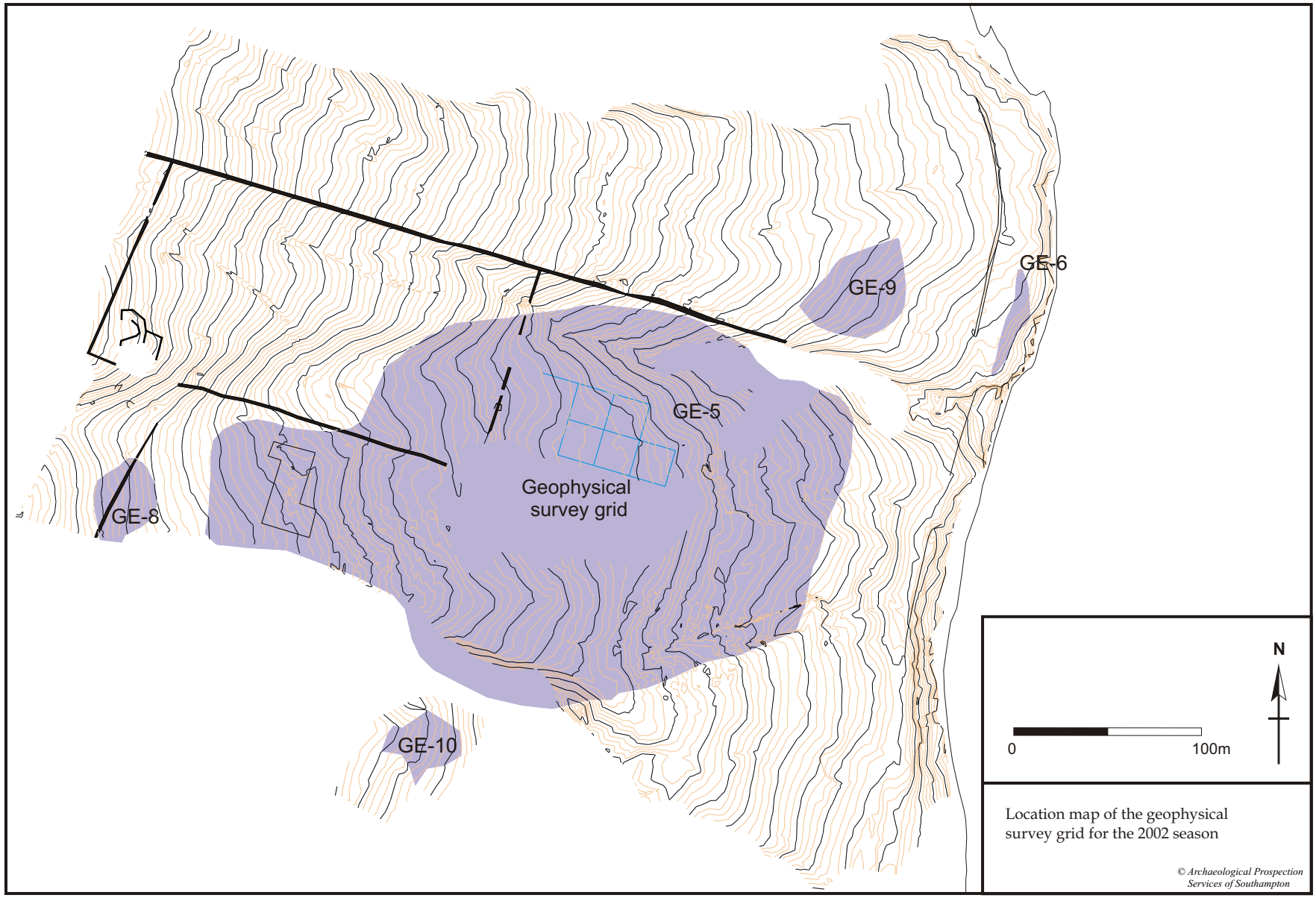


Fig. 1.4 Topographic survey of Hichman's (K. Strutt 2003)

Geophysical survey

A trial geophysical survey was carried out to assess the potential for various prospection techniques, principally magnetometer and ground resistivity for locating and mapping buried archaeological remains. In total, 0.24 hectares of resistivity were carried in the northern part of GE-5 and 0.08 hectares of magnetometer.

Considering the volcanic nature of the solid geology of the island, the magnetometer survey was more useful than expected, identifying a series of discrete curvilinear features and maculae (Strutt 2003:11). The resistivity survey, however, proved the most useful, successfully identifiying a number of buried archaeological features including a semicircular series of postholes and double-postholes, some packed with stone and others filled with sediment and cultural debris (Figure 1.5; Strutt 2003:11). One of these double-postholes was confirmed by the excavation of a testpit. The resistivity survey also identified other probable postholes and discrete bands of buried cultural debris. One of these bands was tested by hand-auger, the results indicting a natural hollow or shallow pit infilled by cultural debris.

Surface collection

In 2000 a programme of surface collection was instituted to ensure that a representative sample of the full range of artefacts (pottery, worked stone and worked shell objects) was recovered from the surface of all prehistoric components of the site (Crosby 2000, 2001). In the case of GE-6, a midden dump, this was accomplished by collecting within $1m^2$ units along a single north-south transect spanning the site. In the cases of GE-5, GE-8 and GE-9, the sites were sampled across a broader area to establish whether spatial patterns in the distribution of different artefact types could be recognised. For all site components, notes and sketch maps were recorded of the comparative abundance of other materials including shell, coral and animal bone.

For GE-5, the site was gridded into thirty 5m by 5m squares, offset from reference points positioned 20m apart along five north-south transects (each 50m apart). Due to the patchy nature of the surface deposit, each square was offset to encompass the 5m quadrant of richest surface materials contiguous to each reference point. In areas of relatively sparse surface materials the full 5m by 5m quadrant was collected. In areas of abundant surface materials a 2.5m by 2.5m area was collected. In most cases this ensured that a minimum sample of 100 pieces of pottery was recovered from each collection unit, the minimum necessary for representative analysis (Morris 2000).

Alongside the completion of surface collections on GE-5, the primary accomplishment for 2002 was the collection of materials from GE-8 and GE-9. For both of these areas, the material recovered was almost exclusively chert although a few colonial period artefacts and fragments of prehistoric pottery were also recovered. Both the colonial artefacts and prehistoric pottery have a generalised, low level distribution across the surface of the entire study area. For GE-8, the entire area of the site was collected on a 1m by 1m grid. For GE-9, only the southern half of the site was collected, also on a 1m by 1m grid.

These procedures have given a very clear understanding both of the character and extent of surface deposits across all components of the site. Analysis of the recovered materials is currently ongoing.

Test excavations

A key contribution of the 2002 season was to complete a programme of test excavations, primarily on GE-5, that was initiated in 2000 (Crosby 2000). The programme aim was to identify the nature of the buried deposits across the site, and to recover samples of artefacts, environmental remains and carbon residues for analysis and dating. This was to be accomplished through the excavation of testpits at 50m intervals along two parallel, east-west oriented, transects positioned 100m apart, either side of the central belt of manchineal scrub (Figure 1.3).

Most testpits were $1m^2$ but, where warranted were enlarged to 1.5m by 1.5m, or reduced to 0.5m by 0.5m units. The excavations proceeded by 10cm spits within stratigraphic units, and employed a single context recording system. 20 litre bulk samples were recovered at 10cm depths from all major contexts and the remaining spoil recovered from all contexts bearing cultural materials was dry sieved on-site using a 2.5mm mesh. The bulk samples were processed off-site by flotation with all graded residues

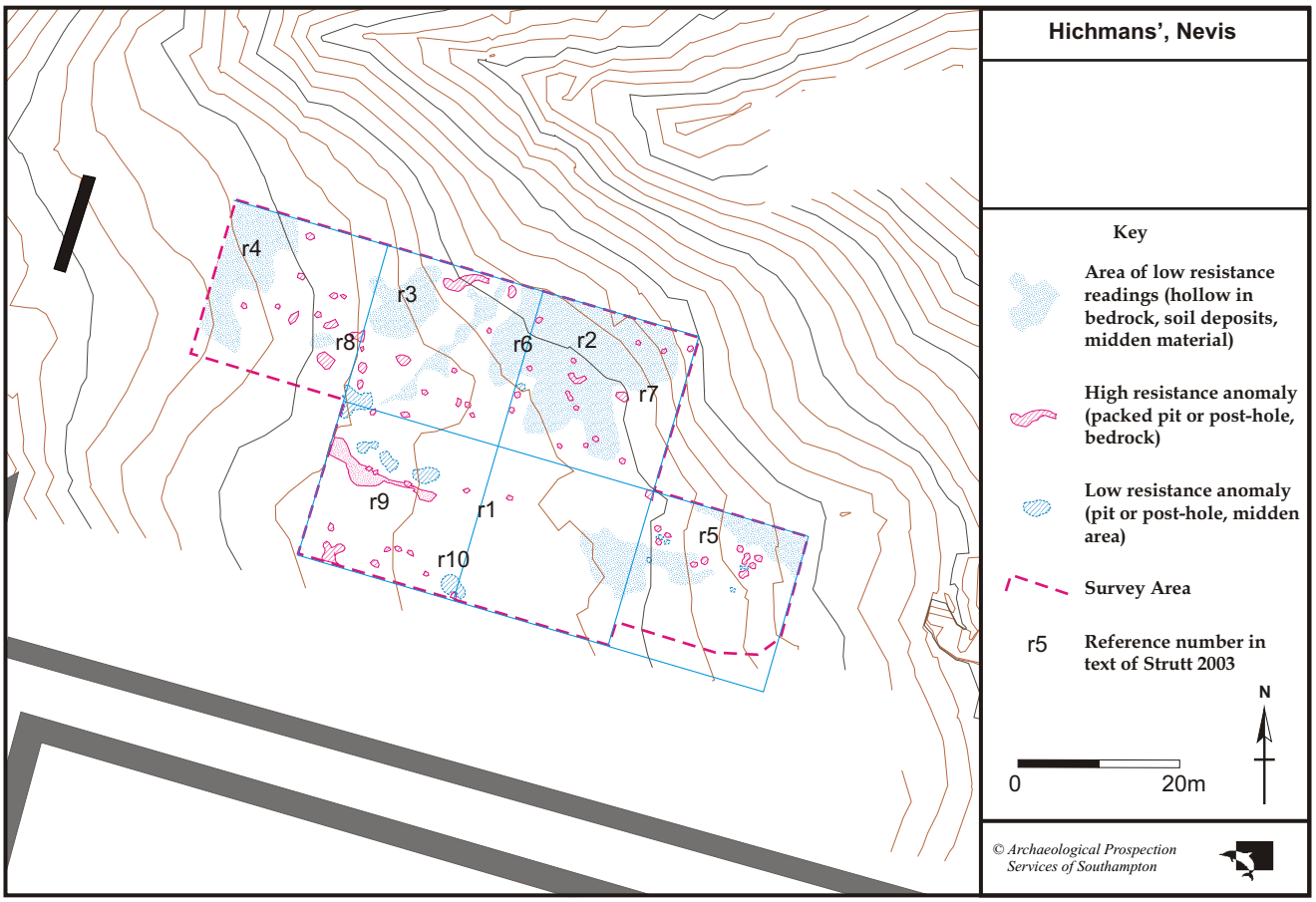


Fig. 1.5 Interpretation plan derived from the resistivity survey results

Fig. 1.6 Kris Strutt and Jim Summers carrying out a resistivity survey at Hichman's

Fig. 1.7 Kris Strutt and Steve Webbe, Nevisian surveyor, at Hichman's

retained for analysis. The dry sieved residues were sorted on-site with all identifiable ceramic, worked stone, faunal and botanical remains retained.

A total of nine testpits was excavated in 2000 and 2001 and an additional eight testpits were excavated in 2002. The majority of these was positioned along the transects, although four testpits were offset to help define the northern and southern limits of the site, to identify a post-hole like anomaly resulting from the resistivity survey, and to test between the transects in the centre of the site. For this purpose, three 0.5m^2 soilpits were also excavated within the central belt of manchineal scrub, positioned 50m apart to effectively provide a third east-west transect across the centre of the site.

In 2002 the opportunity was also taken to excavate testpits in the two chert scatters, GE-8 and GE-9. One testpit, each 1m^2, was excavated centrally on each site to develop a preliminary understanding of these enigmatic sites and to recover materials for dating and analysis.

In total, nineteen testpits have been excavated over the course of all three field seasons. Materials recovered from all excavations have been processed and analysed in the field, with selected samples removed under permit to the University of Southampton for further analysis. Charcoal samples are currently being prepared for radiocarbon assay.

Geoarchaeological survey

A full programme of subsurface geoarchaeological testing was completed across the study area by the excavation of nineteen 0.5m^2 soilpits to supplement the thirteen exposed sections and the hand-auger transect excavated in 2000 and 2001 (Figure 1.3; Heathcote 2000). The soilpits were situated to augment the testpit transects, extending the grid beyond the confines of GE-5 to ensure that excavations were positioned at 50m intervals across the entire site complex, wherever topography and surface vegetation allowed.

This detailed programme of closely-spaced excavations was necessary to allow confident recognition and comparison of the various buried soils on the site, and to provide data of sufficient precision to allow three-dimensional modelling of the base geology and subsequent depositional sequence of soils across the site. This is vital for understanding not only the cultural sequence of soil deposition, but also for reconstructing the history of environmental change resulting from natural and man-induced processes. The results are discussed by Heathcote below.

Results of the 2002 season

The results of all three seasons of fieldwork are currently being compiled and will be fully reported and discussed in a forthcoming monograph on the preliminary investigations of the Nevis prehistory project. In the interim, a brief summary of the results of the 2002 investigations is presented below. The testpits are illustrated below.

GE-5

In combination, the geophysical survey, topographic survey, testpit excavations and surface collection programme have provided a clear indication of the site's form. Best interpreted as an intensively occupied open settlement, the site includes archaeological evidence of permanent residential occupation and associated activities: substantial houses, food preparation areas, refuse disposal, tool manufacture and human burial. There is no visible evidence of perimeter defences, but the outer edges of the site are well defined, beyond which there is an immediate drop off in the volume of surface and subsurface cultural debris. The continued presence of small quantities of pottery extending for some 500m beyond the site boundary, especially to the north and south, suggest a model of nucleated settlement surrounded by agricultural gardens and shelters.

The testpit and geophysical results indicate that this pattern of settlement was established very early in ceramic history of the site, perhaps from the outset, and endured throughout the full period of Saladoid occupation. The earliest ceramic materials are found in several locations defining the full limits of the site's extent (the basal layers of Testpits 9, 3 and 14, and eroding in the areas of ES2 and the southern

ghaut south of Testpit 10; see Figure 1.3). Later Saladoid pottery has also been recovered from deposits across the full extent of the site. It is only the post-Saladoid (Ostionoid) pottery that has a restricted distribution, confined to the area around Testpit 18, indicating that settlement had both contracted and changed form after AD600.

The site appears to have been intensively used throughout the period of Saladoid occupation. This is indicated by both the depth of buildup of midden deposits, and by evidence of multiple phases of house construction, with post holes occurring at varying levels within some testpits, some showing evidence of post removal and house reconstruction. Alignments of post holes, indicated both by the resistivity survey in the northeast and by the scouring of topsoil by goats in the goat pen to the southwest, suggest roundhouse structures that are approximately 20m in diameter. The appearance of multiple human burials, also due to animal scouring, closely adjacent postholes in the goatpen area and eroding near ES2 in the northeast indicate that individuals were buried throughout the site, probably within or beside houses.

The clustered distribution of artefacts across the site, indicated by patches of high versus low densities of artefacts on the surface, and by considerable variations in the depth and density of cultural deposits in the testpits, is difficult to interpret on the basis of the testpit results until a full analysis has been completed on the recovered materials. Some of this variation may be due to differential erosion across the site. The geophysical survey results indicate that some variation is also likely due to the dumping of midden material into natural hollows and depressions formed by the uneven nature of underlying volcanic bedrock, resulting in pockets and bands of midden across the site. One of these infilled features was confirmed by hand augering across a band of occupation debris that had accumulated within a shallow pit, probably a natural depression.

The detailed results of the survey, surface collections and all test excavations will be reported on in a forthcoming monograph. For the purposes of this interim report the test excavation results are summarised below.

Testpits 10-13, 19

The excavation of these five testpits in the southeastern part of the site yielded only comparatively shallow archaeological deposits containing small amounts of pottery and midden overlying natural sandy clay and conglomerate bedrock. Testpits 10 (Figure 1.8) and 19 contained the deepest cultural deposits , although both had been disturbed in their upper 10cm by colonial period sugar cultivation. The comparatively shallow depth of prehistoric cultural material in TP10 compared to TP9 located 50m to the west, indicates the shelving out of the cultural deposit towards the edge of the site. Testpit 11 (Figure1.9) has been heavily eroded at the surface. A shallow cultural deposit may have existed there but, if so, it and any trace of later sugar cultivation sugar have been eroded and replaced by a series of water deposited sediments (1310/11/12) filling a shallow rill. Testpits 12 and 13 (Figures 1.10 and 1.11) contained practically no cultural material and appear to be located beyond the extent of the site, defining its eastern and southeastern margins. These two testpits also lacked any clear indication of sugar cultivation soil.

Testpit 14

This testpit was excavated 1m to the east of Testpit 3, a 0.5m^2 testpit that was hurriedly excavated in 2000 but yielded an exceptional depth of midden. It was hoped that the new testpit would substantially expand the sample of valuable pottery and faunal shell and bone recovered in 2000 and clarify the stratigraphy. This indeed proved to be the case (Figure 1.12). The testpit revealed two deep cultural layers 1362/63 and 1364) lying beneath a 20cm deep deposit of hill-wash and sugar cultivation soil (1360 and 1361). Both of the undisturbed layers contained large quantities of shell and bone midden and fragmented pottery within friable deposits of ashy and slightly clayey sand. They were distinguished primarily by colour and by the reduced quantity of pottery and shell in the lower deposit. The pottery from both layers was of the Saladoid ceramic series; that from the lower deposit included sherds decorated with Zone-Incised-Crosshatch (ZIC) designs and of typically early Saladoid forms. A number of shallow scoop and posthole features was recognised in each layer, and a substantial posthole descended from the base of the lower deposit, probably one of the earliest structures erected on the site.

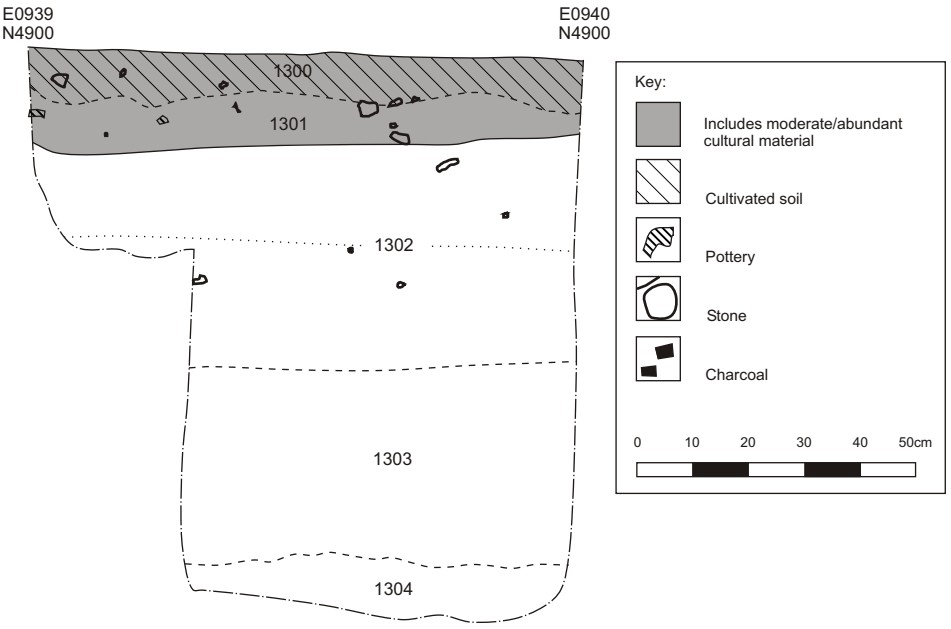


Fig. 1.8 South facing section of testpit 10

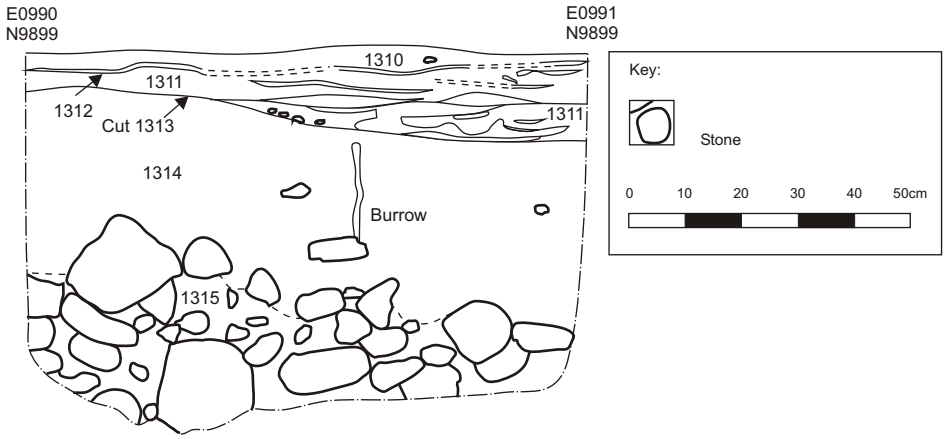


Fig. 1.9 South facing section of testpit 11

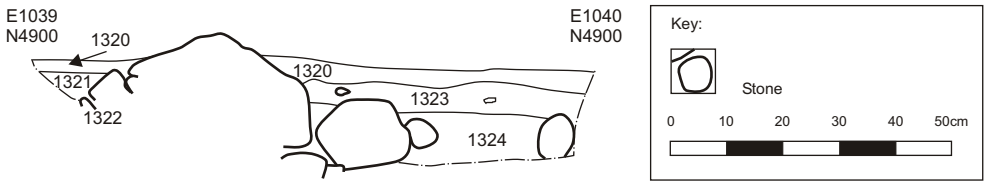


Fig. 1.10 South facing section of testpit 12

Testpit 17

This testpit was excavated in order to test a series of circular anomalies identified by the resistivity survey in the northeastern part of the site. These presented as an arc of small circular areas of low resistance, approximately 1m apart, each flanked by one or more areas of high resistance (see Figure 1.5). They suggested a series of postholes flanked by packing stones, forming a circular or oval shaped structure approximately 20m in diameter. A continuation of the arc extended into Testpit 1, where a substantial stone-packed posthole was excavated in 2000 (Crosby 2000).

Unfortunately an estimated 20 cm of topsoil has been lost from this area through surface erosion (Figure 1.13). Nevertheless, Testpit 17 revealed a very substantial pottery and shell-packed posthole that had

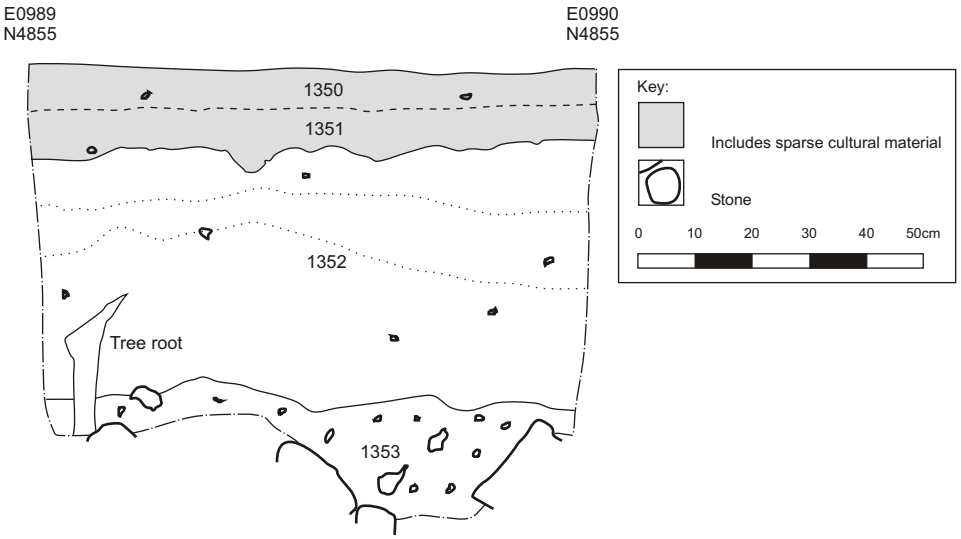


Fig. 1.11 South facing section of testpit 13

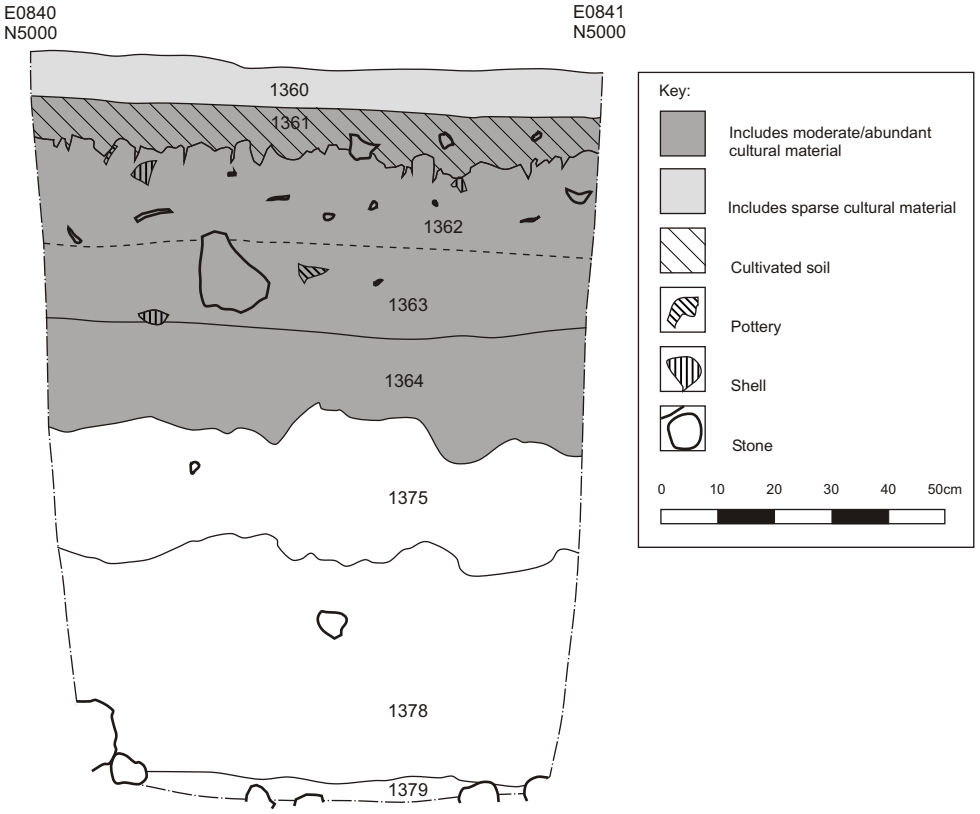


Fig. 1.12 South facing section of testpit 14

been excavated partly through an earlier, previously infilled posthole (1477). The earlier posthole had in turn been excavated through a deep deposit of a sandy-clay fill (1479) containing very sparse amounts of pottery that may have been deliberately laid to level the ground in this area. Taken together, the sequence of fills and postholes provides compelling evidence for a significant duration of residential occupation in this part of the site, and confirms the applicability of resistivity survey for identifying buried archaeological features.

Testpit 18

Testpit 18 was excavated within Area A, a shallow mound of pottery and shell midden located at the northern margin of the site. This feature had been systematically field walked and surveyed in 2000 and

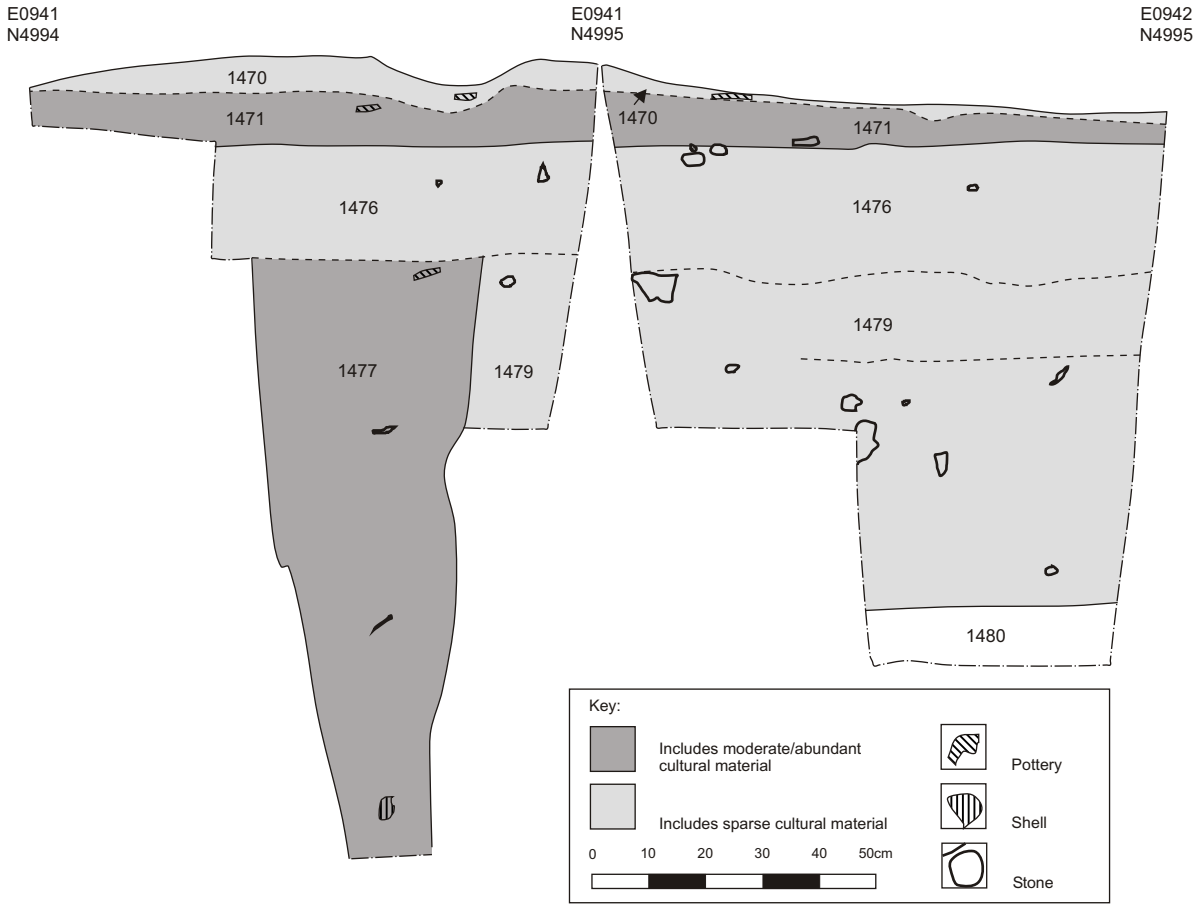


Fig. 1.13 East and south facing section of testpit 17

analysis of the pottery collected from the surface had identified it as a significant deposit of primarily post-Saladoid (Ostionoid) material (Morris 2000). The upper surface has been eroded in this area, removing any trace of the sugar cultivation soil (Figure 1.14). Nevertheless, the excavation provided clear evidence of two phases of prehistoric occupation of the site in this location, with two distinct cultural layers, the lower (1492) containing typically Saladoid ceramic forms, the upper (1490/91) post-Saladoid. The two deposits also yielded evidence of markedly different economic exploitation strategies, with clear changes both in the variety of animal species exploited and their size (see Morris below).

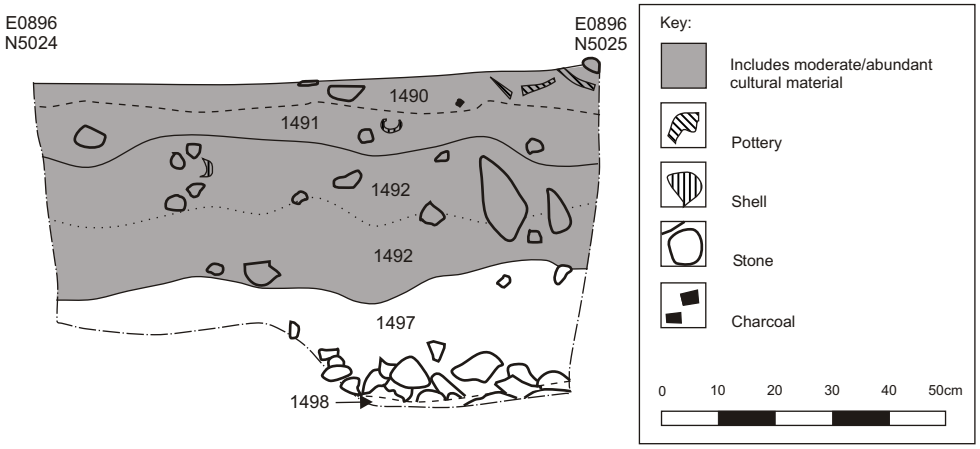


Fig. 1.14 North facing section of testpit 18

GE-8

This site was first identified in 2001 as a sparse scatter of chert flakes and chips lying on the surface immediately west of GE-5. This year we successfully managed to define the extent of the scatter by mapping and collecting flint across the full area of the site. In addition we excavated a $1m^2$ testpit (Testpit 15) within the site as an extension to the testpit transect extending across the southern part of GE-5. Both the surface collection and test excavation confirmed the near absence of any material remains other than flint. No animal bone or pottery was recovered from the excavations, and occasional fragments of pottery recovered from the surface may be associated with the peripheral use of GE-5: gardening or forest clearance taking place immediately beyond the settlement area.

Testpit 15

The excavations indicated that the chert was associated with a fairly shallow and ephemeral deposit, partially disturbed by the later sugar cultivations (Figure 1.15). Although chert was found from the surface down to approximately 27 cm depth, the entire chert-bearing deposit (1450/51) had been turned over by sugar cultivation. Unfortunately no datable materials were recovered, although the stone pieces are currently being analysed for comparison with dated materials recovered from elsewhere on Hichman's and other sites in the Leeward Islands. The relative sparsity of chert, and the absence of pottery or shell suggest a specialised activity area associated with light chert use, possibly the preparation of vegetable foods, textiles for clothing or thatch for roofing. The absence of pottery *suggests* a pre-ceramic date, but this cannot be confirmed.

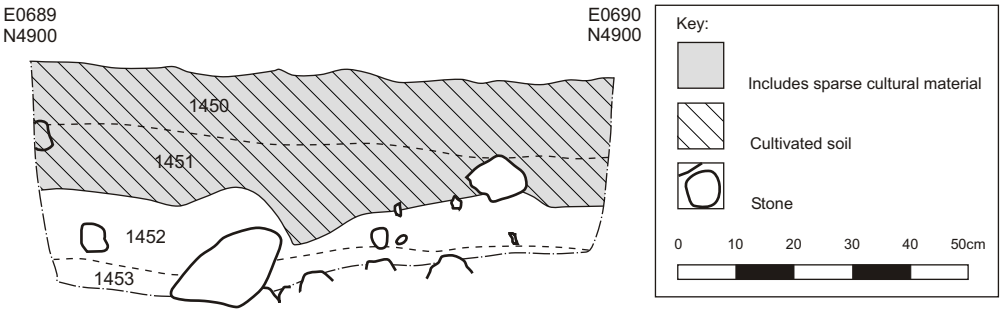


Fig. 1.15 South facing section of testpit 15

GE-9

Also identified as a chert scatter in 2001, this site lies immediately inland (west) of GE-6, a deep pre-ceramic midden. It covers a larger area and contains a higher surface density of chert than GE-8. The surface of the site has been badly eroded. It was treated in the same way as GE-8. All material lying on the southern half of the site was collected and mapped on a 1m grid, and a $1m^2$ testpit (Testpit 16) was excavated in an area of comparatively level, uneroded ground towards the site's southern margin. These procedures identified several key differences between GE-8 and GE-9, leading to the conclusion that GE-9 may have formed an area of pre-ceramic settlement associated with the deep midden lying immediately to its east.

Testpit 16

The excavations revealed a comparatively deep cultural deposit: an upper 20cm (1463) that had been disturbed by colonial sugar cultivations (1463), and a lower 20cm (1464/65) that remained pristine and included within it an area of cobbles extending across the square (1465) (Figure 1.16). No pottery was found within either deposit and, like GE-8, only sparse numbers of chert pieces were recovered. Unlike GE-8, however, a few fragments of shell and fishbone were recovered along with two shell celts. These celts lay towards the base of the excavation, one sealed beneath the cobble layer. Both were constructed from the comparatively thin edge of the conch shell, normally considered to be an earlier form of construction than those manufactured from the much thicker shell hinge.

Given the depth and, therefore, apparent duration of the deposit, its expanse over a wide area, and the presence of some, albeit negligible, food and non-chert tool remains, it seems that GE-9 is a site of a different order than GE-8. Its close proximity to the substantial midden remains of GE-6, and the

apparant deliberate construction of a cobbled surface, suggest that it may be an area of residential settlement associated with the midden. If so, GE-9 would represent the first significant evidence of a pre-ceramic settlement site recorded in the Leeward Islands, and the degree of permanence and formality suggested by both the depths of deposit and the cobbled floor may substantially transform our existing ideas of pre-ceramic occupation as being transient and insubstantial.

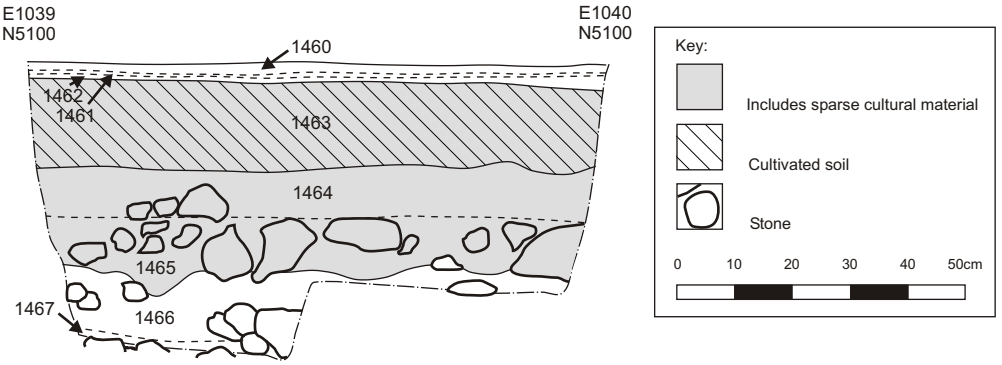


Fig. 1.16 South facing section of testpit 16

Acknowledgements

Considerable advice and assistance was received from a wide range of people in completing the fieldwork described in this report. Primarily, thanks go to the landowners, The Department of Agriculture (Government of Nevis and St Kitts) and Mr and Mrs Cedric David, and to those who provided financial, institutional and logistical support, The British Academy, the Faculty of Arts of the University of Southampton, and Mr and Mrs Drew Morris of Gingerland, Nevis. Thanks also go to all those who participated in the field: Elaine Morris, Peter Bellamy, Jen Heathcote, Kris Strutt and Mark Nokkert all directed various aspects of the fieldwork and assitance was kindly provided by Isla Hipworth, Rachel Thomas, Philip Thomas, James Summers (all students at the Department of Archaeology, University of Southampton) and Steve Webbe (of Hill's Surveys and Mapping, Charlestown). Further assistance and advice was kindly provided on Nevis by Richard Steadman, Martin Dalgleish, and Vince Hubbard, who all alerted our attention to things that we would otherwise have remained ignorant. The illustrations were prepared by Penny Copeland and Kris Strutt.

GEOARCHAEOLOGY & SITE TAPHONOMY

J L Heathcote

This interim report presents some preliminary observations and conclusions concerning the nature of site formation and post-depositional processes that have affected the archaeological deposits at the Hichman's prehistoric site-complex. Of particular interest is the degree to which land-use practices of the historic and recent periods have influenced deposits bearing prehistoric remains. Whilst it is clear that soil erosion has played a major role in shaping the landscape of this part of the island, a key question is whether this is a long-term or relatively recent phenomenon. The longevity of this particular process has major implications not only for understanding the magnitude of change experienced by the Nevisian landscape throughout the period of prehistoric occupation, but also for the visibility of prehistoric sites and consequently the methodologies required to identify them and define their limits.

Background information

Extant soil mapping information indicates that over the majority of the island, soils are derived from volcanic deposits (75%), approximately 10% from ghaut deposits and c.2% from beach sand and lagoon deposits with the remainder (13%) unmapped due to inaccessibility (Corker 1990). According to the most detailed survey data available, the soil at the Hichman's prehistoric site-complex is

classified as belonging to the Smectoid Clay Group (Corker 1990 after Lang and Carroll 1966). These have a high proportion of shrink-swell clays (i.e. they expand when wet and crack when dry), a property which indicates soil development of considerable maturity. A single sub-group is represented, the only additional information provided being that it exhibits a clay texture and high stone content. However, as will be noted below, this classification masks a greater degree of complexity within the area than might be suggested from the soil map.

Today, the area is uncultivated and the land suitability classification assigned by Corker (1990) limits its potential use to hand (rather than mechanised) cultivation due to the frequent large stone content which is typical for soils on the eastern side of the island. Clearance cairns lie within the limits of cultivation terraces dating to the Historic period, attesting to the fact that although the stone content might be perceived to preclude tillage today, considerable effort has been expended in past cultivation of the land.

Methods

To date, test excavations (test-pits of typically 1m2), survey and fieldwalking have been carried out, focussing on the Hichman's site-complex (GE-5, GE-6, GE-8 & GE-9; see Figure 1.3) where localised well-stratified deposits containing artefacts representing all major periods of Eastern Caribbean prehistory occur (Crosby 2000). These test-pits have been positioned to refine our understanding of the depth, sequence and spatial distribution of deposits bearing cultural material (principally midden deposits) at Hichman's GE-5. Given the time-depth apparently represented by the midden (from Saladoid to Post-Saladoid, i.e. potentially spanning c.1500years) one of the key questions to be addressed at GE-5 is whether the site represents continuous or episodic use of the area. Fundamental to answering this question is whether there are clearly identifiable prolonged breaks in deposition of the midden material that can be identified by the formation of surface soil horizons. It is also essential to establish whether stratification identified on the basis of context properties such as colour and texture (rather than artefact and ecofact components) are a consequence of depositional events or post-depositional pedogenic processes. For this reason, in addition to standard recording of sections according to archaeological principles, soil horizons and pedogenic properties have also been described and test-pits have been excavated to bedrock wherever possible to establish the full sequence of superficial geological deposits: variability in these may have implications for the nature of the soil properties encountered.

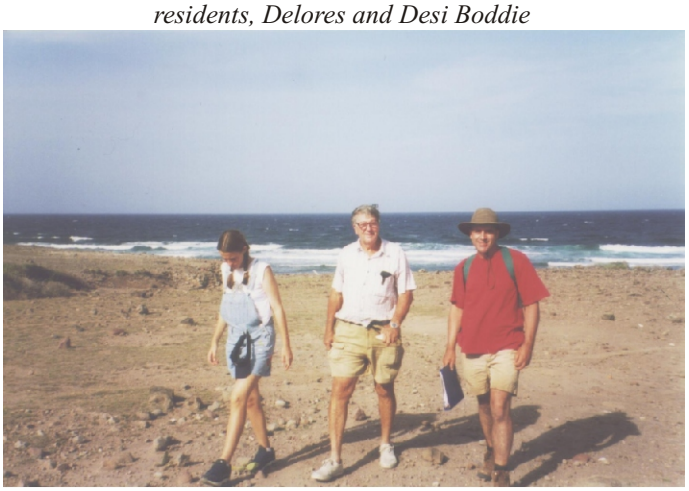
To supplement the $1m^2$ archaeological test-pits, an auger survey was conducted along an east-west transect to establish the nature and relationship of the natural pedosedimentary sequence with deposits bearing cultural material. This proved to be of limited use due to the typically stony nature of the deposits in the eastern sector of the site. Auger penetration was also problematic in the western part of the transect, where it was due to the hard-setting clay properties encountered within 0.3m of the ground surface. Though slower and more labour intensive, hand-augering was later replaced by the excavation of soil-pits (i.e. rapidly dug rather than excavated archaeologically) as this was the only way to determine with confidence the nature of the depositional sequence.

In order to contextualise the sequences encountered within the archaeological test-pits, soil-pits and auger holes, a survey of the surrounding soils, superficial deposits, geomorphological features and surface cultural remains has been conducted, both within the site limits and extending into the immediate site environs by up to 1km. In particular, observations on naturally-occurring sections in erosion gullies (exposed sections; Figure 1.3) have proved useful for investigating both cultural sequences and natural deposits occurring within and adjacent to the Hichman's site-complex.

Formal modelling of the sub-surface depositional sequence has yet to be undertaken, but will combine data from the test-pits, soil-pits, auger holes and exposed sections to create a series of schematic cross-sections through the site running approximately north-south and east-west. The observations that will provide data for the modelling are at c.25m intervals across the site-complex and its immediate environs. In advance of modelling the sub-surface deposits, some preliminary conclusions have been drawn that are suggestive of the causes and timing of the most significant taphonomic process to affect the deposits at Hichman's GE-5, that of soil erosion.

Phil and Jim opening Testpit 17

Andrew explaining the site to the television crew and local residents, Delores and Desi Boddie



Joy and Colin Napier being shown GE-5 by Andrew

Isla sieving and Rachel digging on GE-5

Jen and Frederick Clarke investigating a soil pit

Systematic fieldwalking

Fig. 1.17 Photos of staff, students and visitors to the Hichman's site

Preliminary observations and discussion

To date, no type-sequence can be presented for GE-5 as it exhibits considerable variability in terms of the depth of midden deposits encountered, the degree of differentiation within those deposits and the nature and depth of the underlying depositional sequence. In particular, a greater degree of textural variability is present in the soils at the site than is suggested from the soil map designation which indicates a single soil sub-group characterised by its clay texture (Corker 1990). The only generalisation that can be made at present is that soils in the eastern and northern parts of the site tend to be shallower and heavier (i.e. they have a higher clay content) than those found in the western and southern parts of the site. Even so, localised variation in the textural properties occurs, as can be noted in the observations recorded at the adjacent positions of TP8, AH6 and TP6 (Figure 1.3). Here, within 50m, the sequence changes from one characterised by stiff sandy clay (TP8) to friable, silty fine sand over bedrock (AH6) and back to stiff, sandy clay (TP6). Midden material was found within all of these sequences suggesting that the site presented a mosaic of soil types at the time of occupation.

Sequences with friable silt and fine sand sub-soil sediments are also found locally elsewhere on the site and it is thought that they may represent pockets of weathered tephra that have been preserved in localised depressions in the underlying bedrock. At ES2 a sequence of c.1.40m depth was encountered, in which midden material was limited to the upper 0.22m. In contrast to AH6, the midden material was held within a sandy clay matrix and underlain by an archaeologically sterile sandy clay unit beneath which, over 1m of friable silt-dominated deposits were identified. The nature of the sterile clay-rich deposit is, as yet, enigmatic although it is thought to be pedogenic, rather than sedimentary, in origin. If pedogenic, the high clay content indicates that it represents a soil of considerable maturity. Thin section micromorphology will be required to establish whether the unit represents a topsoil or sub-soil horizon. The results of this analysis may indicate whether the sequence was truncated prior to midden development which in turn will suggest whether there is any evidence for early prehistoric soil erosion at the site.

In respect of the degree of more recent soil erosion experienced by the site and its environs, a soil erosion map of Nevis (Towle *et al.* 1991) places the Hichman's site-complex firmly within the area of the island that is thought to have lost over 50% of its topsoil cover. However, the causes and timing for the on-set of this degree of erosion are not suggested in the literature. Observations from the surrounding pedosedimentary environment offer some evidence to indicate the relative timing of its initiation. Shallow, sandy clay soils lie to the immediate north and east of GE-5 (e.g. SP4-SP7, SP20-22) which show little (or no) horizon differentiation and lie directly over bedrock. Within the boundaries of plantation cultivation terraces, the soils are typically only 0.3m thick suggesting significant truncation of the profile has occurred since their active use for the cultivation of sugar-cane, a deep rooting crop.

Evidence that soil erosion was a problem during the plantation period has been suggested from historical sources for islands throughout the Caribbean, even though the rooting structure of the crop is now used to encourage soil stability (FAO 2002). If it is assumed, for the moment, that soil erosion was problematic (probably due to poor planting regimes), after the abandonment of the estates for plantation agriculture, subsequent vegetation colonisation and the establishment of surface cover would provide a greater degree of soil stability and consequent lower rate (or complete cessation) of soil erosion through surface wash and a probable reduction in rilling. However, to date, there is no stratigraphic evidence to suggest a significant downslope (i.e. seawards of the site) accumulation of material from this period, suggesting that the majority of soil erosion has occurred more recently and that it may be linked to modern land-use practices.

Active erosive processes can be observed today in the form of rills and gullies that dissect the site, as well as from localised dense surface scatters of bone, shell and artefacts. Soil is eroded predominantly by sheetwash that is likely to be most problematic at the onset of the rainy season and during high-intensity rainfall within the dry season. It has been observed that the soil is particularly prone to crusting, and consequently permeability of surface water into the soil is problematic; even after heavy,

prolonged rainfall events the soil remains dry within 0.2m of the surface. The introduction of pastoral farming (particularly sheep and goat) during the mid 20th century has resulted in a problem of overgrazing (Watts 1973) that intensifies year-on-year as a consequence of high livestock populations, an increased frequency of years experiencing drought and the lack of partitioned grazing rights. Observations to date suggest that overgrazing may be the most significant factor in soil erosion and that the most significant period of accelerated erosion has occurred since the introduction of this practice in 1950's.

Conclusion

To date, there is no stratigraphic evidence to suggest that significant episodes of erosion have occurred during either the prehistoric or the historic period and all evidence points to it being a recent phenomenon. It is most likely linked to the most recent trend in Nevisian agricultural land-use, that of livestock-management (principally sheep and goat though there is a growing and problematic - donkey population). Feral animals as well as managed herds freely graze on abandoned plantation estate land (low quality pasture), frequently in high stocking densities which lead to problems of over-grazing, sparse vegetation cover and consequent exacerbation of soil erosion.

Evidence for soil erosion can be observed in virtually all areas of the site as differential patterns indicating both erosive and limited depositional processes. Although only occurring in localised positions, the presence of accreting sediments have important implications for both defining site limits, as these are largely discerned from the identification of surface scatters, and for estimating the density of associated sub-surface midden deposits. At one location (ES1) examination and extension of a freshly eroding rill indicated up to 0.2m of apparently sterile sheet-wash sealing deposits bearing pottery, shell and bone fragments. As sites are initially demarcated on the basis of surface scatters, the potential exists for under-estimating the full extent of sites due to the recent localised accretion of eroded material.

ARTEFACTS

Compiled by Elaine L. Morris

Pottery

A total of 5,210 sherds of Amerindian (pre-Columbian pottery) was recovered from the 2002 season of testpits and surface collection units, not including the final unit. All of the pottery was brought back to the University of Southampton with the exception of the final collection unit which had been gathered on the last day of fieldwork during the filming of the project by the local TV network. It was not possible to wash the finds properly and dry them before departure back to the UK, and therefore this material (four one-litre capacity bags) was left behind to process in 2003.

Analysis of the pottery from 2002 has not been conducted on this large amount of pottery in order to not waste any precious time in performing work similar to that presented in the 2000 and 2001 interim reports (Morris 2000, 2001). This was prompted by the decision that all of the pottery from these three seasons (2000-2002) will be analysed together between 2003-4 using the University of Leiden method for analysis and reporting of prehistoric pottery (Hofman, n.d.). As for the chipped and worked stone research described below, it is important to be able to compare the pottery from our Nevis fieldwork with the pottery analysed by Dutch scholars on sites located on St. Eustatius, Saba and St. Martin (Versteeg and Schinkel 1992; Hofman 1993; Hamburg 1994). This is a very systematic method of recording details about the pottery which is highly suitable for computerisation of huge assemblages composed of large, medium, small and very small sherds - even small, fragmented rim sherds can be recorded using this method as opposed to being set-aside as too small to make a contribution. This was an aspect which had been troublesome with respect to the upper spits in the testpits and most of the surface collection units where sugar cultivation, erosion, and animal feet had reduced sherds to thumbnail-size fragments!

This year the range of pottery types recovered was enhanced considerably by the presence of stratified Ostionoid (post-Saladoid) material from the upper spits of TP18, located in the Area A part of GE-5, and by the recovery of quantities of very early material known as Zone-Incised-Crosshatched pottery (ZIC). This pottery is very beautiful, with extremely thin vessel walls and dark colour (dark grey to black), as well as the very distinctive decoration. ZIC technique of decoration is completely different from the much more common painted, polychrome, white-on-red, orange-and-red, or simily red pottery found on Amerindian sites on Nevis and other Eastern Caribbean islands. The decoration is laid out within shallow grooves as a framework shape and then the shape is infilled with scratched designs of criss-crosses and other patterns. Modern potters who have been shown these ancient sherds believe that the scratching phase of the decoration took place when the pot was at the leatherhard stage of manufacture rather than after firing; but they admit that this interpretation needs to be tested with some experimental pot-making! Whatever the technique, it was very exciting to discover that we had found one of the earliest locations of activity at GE-5 since this material is thought to represent occupation dating from significantly before AD 500.

The four months of summer 2003 have been allocated to work on the detailed analysis of the 18,906 sherds from the three seasons of fieldwork (Table 1.1). The text report and tables of information will be prepared in 2004 for publication in the Nevis Heritage Project monograph for this theme.

Fieldwork Season	Testpits	Surface Collection Units
2000	667	7,331
2001	725	4,973
2002	2,259	2,951
TOTAL	**3,651**	**15,255**

Table 1. 1: Quantification of pottery by count for each season of fieldwork.

Chipped and Worked Stone

The gridded surface collection of artefacts from GE-8 and GE-9 resulted in the recovery of two very large assemblages of primarily chipped chert with significant quantities of other worked stone. The chert includes a variety of different types based on colour and visual texture, and it is predicted that these are likely to represent different sources for the chert rock. Suggested sources include Antigua and St Martin where known outcrops of chert were exploited by Amerindians during prehistoric times.

A total of 235 pieces of chipped stone and other worked stone (weighing 1,257 grammes), including ground or polished Nevis igneous rock used to make tools, was recovered from GE-8, the small site located just west of GE-5. However, nearly 32 kilogrammes of chipped and worked stone were collected by metre square surface units along 20 runs at GE-9, located to the north of GE-5. Analysis of this material will be conducted to determine if either of these sites is contemporary with the famous pre-ceramic shell midden site at GE-6 investigated by Sam Wilson (l989). There is a strong possibility that GE-9 might be the settlement associated with the shell midden since there are similar types of stone tools on both sites, while GE-8 could be a special activity area for making stone tools used at GE-5, the ceramic site.

All of this material has been transported to the University of Southampton for analysis. The range of types present in the collections include blades, flakes, and cores resulting from stone tool production as well as vast quantities of small chips, and some fragments from polished and ground stone tools of both local, Nevisian rock and non-Nevisian stone.

Peter Bellamy will be analysing this material during 2003-4, after he visits Sebastiaan Knippenberg at the University of Leiden (The Netherlands) to discuss with him the methods of analysis he has used to study similar material from the archaeological sites excavated by his university on St. Eustatius, St. Martin and Saba and in the Windward Islands. Sebastiaan has a reference collection of the different sources of chert and other stone from various islands in the Caribbean and is knowledgeable about stone

tool production and use. Peter is looking forward to his visit and discussing how to record details about this material so that it will be possible to compare the similarities and differences amongst the assemblages from our sites, GE-5, GE-8 and GE-9 and with contemporary sites in the region. The most important aspects about our preparation of information in the forthcoming monograph will be the ability to compare our data to that from other islands gathered by other specialists and document the trade in stone across the Eastern Caribbean.

Peter has said that finally he has more than enough material to work with - one of his old grumbles about our previous seasons of fieldwork has been that he has had too few pieces to make convincing arguments about the production and use of stone materials at the Hichman's site complex. That concern has now been removed!

Animal Bone Remains

Mark Nokkert has already prepared an extremely detailed report (32 pages of text and 23 tables) about the animal remains recovered from the 2002 season testpits at both GE-5 and GE-9. A copy of the full report has been submitted to the Nevis Historical and Conservation Society for archive storage. The following is a short summary of the report and includes the methods of analysis utilised and some of Mark's discoveries.

Aims

The primary goal of Mark's work was in the provision of a characterisation of the assemblages of animal remains from different areas of the Hichman's Site Complex in order to provide information concerning the meat component of the subsistence basis of the occupants at the various sites over time. This period of time may stretch from the mid-first millennium BC to the mid-second millennium AD (c. 700 BC - AD 1500), a period of two thousand years. The second goal in this study is to compare the results of this analysis to those of similar studies on well-stratified prehistoric animal remains on Nevis and elsewhere in the Lesser Antilles to determine whether subsistence activities in the region were the same or different throughout the prehistoric period. Were people on different islands, small and large, conducting their meat food gathering activities in a uniform manner and was the effect of their actions the same everywhere or is there variation in those activities and their effects based on size or topography of the island or the location in the Antilles chain? Is this variation or similarity occurring at the same time everywhere or is there a 'timewave' effect in evidence with certain activities taking place earlier on some islands and later on others?

Methods

The artefacts were recovered using two different, complementary methods: (1) dry sieving, in which all soil (except for flotation - see below) from every testpit was sieved through a 2.5 mm screen (called DS-samples) and the artefacts picked out of the screen and bagged; (2) flotation, in which 20 litres of soil (called BS-samples) from every spit of every context in the testpits was selected randomly during excavation and processed using a purpose-built flotation system, with a 250 um flot mesh and a 500 um residue mesh; after drying, the residues were sieved in order to facilitate sorting and subsequent analysis, resulting in the following size fractions: >5 mm; 5-2 mm; and <2 mm. The <2 mm remains have already been demonstrated as providing very little more information to what can be gathered from the >2 mm fraction material (Nokkert 2001), and therefore these were not investigated this season. Mark conducted all of the flotation work, sorting and identification himself this year to guarantee that no remains would be overlooked by assistants unfamiliar with the range of animals which might be present.

A careful assessment of the animal remains from this work was conducted to determine which samples would provide the maximum information and least biased results related to sample size, and also would represent a range of chronological periods of activity at the Hichman's site complex supported by radiocarbon dating of the deposits. Of the nine new testpits from the 2002 fieldwork, Mark focused on the animal remains from two of these (TP14 and TP18) because these contained numerous remains. TP14 was a focus of Saladoid activity, while TP18 was located in Area A where intensive surface collection had been conducted in 2000 (Crosby 2000) and revealed one of the few locations on the site with a pure post-Saladoid (or Ostionoid) occupation zone (Morris 2000). Therefore a good contrast in

information about food procurement strategies was expected to be revealed by examination of these testpit samples. In addition, the remains from TP16 from GE-9 were analysed fully due to their probable pre-ceramic (pre-Saladoid) date of occupation.

Results

A total of 69,198 animal remains was analysed from the 2002 fieldwork (68,933 from GE-5 and 265 from GE-9), bringing the total of remains analysed by Mark for the Hichman's Site Complex to 139,949. The remains of GE-5 so far analysed consist of 2,720 mammal specimens, 340 birds, 698 reptiles, 47,271 fish, 1,436 sea urchins, 66,406 crustaceans, 17,022 shells, 3,790 unidentified vertebrate remains, and 1 unidentified invertebrate.

Mark has provided 12 pages of detailed description and tables about the results from the GE-5 testpits from this season and compares these results to those from different phases of activity recognised during the analysis of material from the previous two seasons. His work will be published fully in the forthcoming monograph, and therefore will not be presented here due to the limited space available - I could not presume to do justice to his outstanding work.

However, just to give you a bit of terribly interesting information, I will summarise here the results of his discoveries about TP16 from GE-9. Although the assemblage is small and clearly heavily influenced by erosion processes which resulted in very weathered material, the dominance of marine resources in the assemblage, with a strong component of herbivorous fishes, is a recurring theme in pre-ceramic sites in the region, such as Krum Bay on St. Thomas (Reitz 1989) and the Norman Estate site on St. Martin (Nokkert 1995). The taxa identified for GE-9 are also the dominant taxa in the assemblage analysed from the nearby site of GE-6, known as Hichman's Shell Heap excavated by Wilson (1989) (Kozuch and Wing, in press), which Mark says makes it most likely that the GE-9 assemblage is indeed also from a pre-ceramic date. He had noticed during surface collection work that the chert fragments and tools from GE-9 were frequently burned and this is the same for the animal remains. Mark supports Andrew Crosby's view that perhaps these factors indicate that the GE-9 finds were refuse from a residential area with GE-6 being the refuse dumping area used by the same people. Everyone was very excited about discovering the pre-ceramic GE-9 site in 2001, and now the initial observations and study of the evidence from the surface collection and the first testpit of this site have not been disappointing!

I hope that Mark will be able to find time over the next year to integrate his reports from 2000/2001 and 2002 into a single contribution for the monograph publication, and that the Project will be able to secure funding for between 20-30 radiocarbon dates from charcoal samples found in the same deposits as the animal remains. Mark and his partner are currently travelling around the world; they started their trip in South America and are moving on to New Zealand and Australia next. We know that they are having a great time, and look forward to their return soon.

References

Corker, I. 1990, Nevis: Resource Assessment and Zoning Plan. *Overseas Development Natural Resources Institute, Bulletin No.* 6. (Chatham: Overseas Development Natural Resources Institute).

Crosby, A.D. 2000, Prehistoric Settlement and Social Organisation: Preliminary Investigations. In: E. L. Morris, A. D. Crosby, R. Leech, and T. Machling, *et al*, 2000, 7-20.

Crosby, A.D. 2001, Further investigations at Hickman's, Nevis, in E. L. Morris, A. Crosby, T. Machling, R. Leech, 2001, 6-19

FAO 2002, Grassland Index. http: //www.fao.org/ag/agp/agcp/doc/gbase.htm

Hamburg, T. D. 1994, *Cedrosan Saladoid Pottery at Friars Bay, St.Martin (FWI)* Master of Arts thesis (Leiden: University of Leiden, The Netherlands)

Heathcote, J.L. 2000, Economic and environmental programme, in E. L. Morris, A. Crosby, R. Leech

and T. Machling *et al.* 2000

Hofman, C. L. 1993, *In search of the native population of pre-columbian Saba (400-1450 AD). Part one. Pottery styles and their interpretation*, Ph.D.dissertation, (Leiden: University of Leiden, The Netherlands).

Hofman, C.L. 1994, *Codebook for Ceramics* (Unpublished manuscript, Leiden: University of Leiden, The Netherlands).

Keegan, W.F. 2000, West Indian Archaeology 3. Ceramic Age. *Journal of Archaeological Research* 8, 2: 135-167.

Kozuch, L. and Wing, E., in press, Animal remains from archaeological sites on Nevis, in S. M. Wilson (ed), *The Prehistory of Nevis* (New Haven: Yale University Press).

Lang, D. and Carroll, D. 1966, *St. Kitts and Nevis Soil and Land Use Survey No.16.* St. Augustine, (Trinidad: Imperial College of Tropical Agriculture).

Morris, E. L. 2000, Pottery assessment, in E. L. Morris, A. Crosby, R. Leech and T. Machling *et al*, 2000, 21-33

Morris, E. L., Crosby, A., Leech R. and T. Machling *et al*, 2000, *The Nevis Heritage Project Interim Report 2000*, (Southampton: Department of Archaeology, University of Southampton, UK and the Nevis Historical and Conservation Society, Charlestown, Nevis).

Morris, E. L. 2001a, Afro-Caribbean Pottery, In: E. L. Morris, A. D. Crosby, T. Machling, and R. Leech, *et al*, 2001, 84-87

Morris, E. L. 2001b, Pottery Assessment, In: E. L. Morris, A. D. Crosby, T. Machling, and R. Leech, *et al*, 18-27

Morris, E. L., Crosby, A., Machling, T. and R. Leech, 2001, *The Nevis Heritage Project Interim Report 2001*, (Southampton: Department of Archaeology, University of Southampton, UK and the Nevis Historical and Conservation Society, Charlestown, Nevis)

Nokkert, M. 1995, *Prehistoric faunal exploitation on St. Martin. An analysis of vertebrate faunal material from the pre-Ceramic Norman Estate and the Cedrosan Saladoid Anse des Pères sites* (Leiden: unpublished MA thesis, University of Leiden, The Netherlands).

Nokkert, M. 2001, The animal remains from Hickmans (GE-5), Nevis. Remains from the 2000 and 2001 excavations, In: E. L. Morris, A. D. Crosby, T. Machling, and R. Leech, *et al*, 2001, 27-32.

Reitz, E.S. 1989, Appendix B: Vertebrate fauna from Krum Bay, St. Thomas, Virgin Islands, in E. R. Lundberg, *Preceramic procurement patterns at Krum Bay, Virgin Islands,* 274-289 (Urbana: unpublished PhD dissertation, University of Illinois).

Strutt, K. 2003, *Hichmans', Nevis: archaeological survey report March 2003* (SREP 2003/1) (Southampton: Archaeological Prospection Services, University of Southampton)

Towle, E. L., Towle, J. A., Bacle, J.-P., Jones, I. and Klancher, M. (eds.) 1991, *St. Kitts and Nevis: Country Environmental Profile*. (St. Michael, Barbados: The Caribbean Conservation Association).

Versteeg, A. H. and Schinkel, K. (eds), 1992, *The Archaeology of St. Eustatius: the Golden Rock site* (Amsterdam: St. Eustatius Historical Foundation, no. 2 and Foundation for Scientific Research in the Caribbean Region, no. 131).

Versteeg, A. H., Schinkel, K. and Wilson, S.M. 1993, Large-scale excavations versus surveys: examples from Nevis, At. Eustatius and St. Kitts in the Northern Caribbean, *Analecta Praehistorica Leidensia 26,* 139-61

Watts, D. 1973, From sugar plantation to open-grazing: changes in the land use of Nevis, West Indies, 1950-1970. *Geography*, 58: 65-8.

Wilson, S. M. 1989, The prehistoric settlement pattern of Nevis, West Indies, *Journal of Field Archaeology 16(4)*, 427-450.