ARCHAEOLOGICAL FIELDWORK 1990
Further Investigation of Artefact Concentrations South of Quarter Wall

By
A.J.SCHOFIELD* and C.J.WEBSTER**

* English Heritage, Fortress House, 23 Savile Row, London W1X 2HE
** Architectural and Historic Heritage Group, Department for the Environment, Somerset County Council, County Hall, Taunton TA1 4DY.

INTRODUCTION

The field survey described in this and earlier reports (Schofield 1988; Schofield and Webster 1989) was planned as a research exercise into the formation and appearance of artefact distributions and those aspects of human behaviour responsible for them. As was stressed in the previous report (Schofield and Webster 1989,34), islands provide an ideal context within which to pursue such investigations, while archaeological knowledge based on previous research (eg. Gardner 1957), made the area south of Quarter Wall a suitable field laboratory. The methods adopted were designed to be largely non-destructive (in terms of both artefact removal and disturbance to buried features), to concentrate in areas of previous cultivation, and to produce enough of a return to allow detailed analysis both of individual items and the patterns in which they occurred.

Work in 1989 produced evidence for numerous artefact concentrations in the areas of Airfield and the Lighthouse Field. These varied in scale and date, and were considered to represent areas of human behaviour dating from the Mesolithic to the post-medieval period. Although some attempt at interpretation was made on the basis of extensive survey, further work was required before more detailed observations could be made regarding, for example, the extent of the concentrations, whether specific areas of activity occurred within them and how they could be interpreted in terms of human behaviour (for examples of recent applications of this approach cf. papers in Hietala 1984). Specifically the aims of the 1990 season were:

A To investigate further the flint concentration located around TP94 and suggested as being of Bronze Age date. Specifically the questions for which answers were sought were: 1) Is the concentration as tightly defined as results from 1989 suggested (Schofield and Webster 1989,38)? 2) Are activity areas identifiable within it? 3) Does the entire concentration date to the same period or are areas within it of earlier and/or later date? 4) What aspect of human behaviour does the concentration represent?

B To investigate further the post-medieval pottery concentration located around TPs 118 and 119 and interpreted as the possible remains of a settlement. Specifically: 1) Does this concentration represent settlement evidence or something more connected with agricultural use, for example a field dump for manure? 2) Are any patterns, perhaps representing discard events or the distinction between storage and use, visible within the concentration? 3) Is it all of one date or does evidence suggest long-term use?

Within these primary aims, and within the methodology adopted for this stage of the enquiry (below), it became possible to integrate into the research design numerous additional questions and problem areas. These related mostly to small artefact concentrations occurring within those already earmarked for investigation. For example the pottery concentration confined to TP97 and thought to represent a single vessel, could be further studied, as could localised flint concentrations such as that around TP102. By studying artefact concentrations at this scale, it may be possible to gain some insight into the quality of information discrete locations (from extensive survey) might produce, as well as determining the extent to which an extensive survey might be expected to reveal such places within a wider area.

The methodology adopted was based largely on the experience of work in previous years and comprised test-pit excavations at 10m intervals traversing what appeared the centres of artefact concentrations. It was also decided, based on problems of interpretation encountered using this method alone, to conduct test-pit excavations at 25m intervals in the spaces between the extensive 50m grid (figs 1 and 2). This would allow a more accurate picture to be drawn of individual concentrations and would mean relying less on speculation in areas devoid of collection units. A further stage was to conduct geophysical survey in a number of areas including those of artefact concentrations previously described. This work was conducted in February 1991 and a report will appear in the next *Annual Report of the Lundy Field Society*.

RESULTS

a LITHICS

From the 106 test-pits excavated in 1990, a total of 171 chipped stone artefacts were recovered of which 95.3% were flint derived from beach pebbles and 4.7% comprised other raw materials including quartz. Of that total most of the artefacts occur within one of four concentrations, three of which occur in the north of Airfield and one in the area central to Airfield, investigated primarily for its pottery concentration. The results of these will be considered, looking at both the intensity of artefacts and the range of materials recovered. A subsequent section will attempt to summarise how these results fit into those emerging from the survey as a whole.

The concentration around TP94 appeared clearly defined after the extensive survey of 1989 though with a (possible associated) extension southwards in TP102. From an intensive survey comprising seventy-three test-pits (fig. 2a), the flint concentration of TPs 94 and 102 became both more clearly defined and extensive; they are also, to some extent, exclusive (figs 3a and b). Flint from the concentration around TP94 (70m N-S by 50m E-W) was crudely struck, a point reflected in the variable size of tertiary flakes recovered from the concentration (fig. 4a) and in the large size of primary and secondary flakes. Such evidence is generally considered an indication of Bronze Age technology (Ford *et al* 1984), a point supported by the recovery of Bronze Age pottery from collection units in the area. That the concentration represents industrial rather than domestic activity is suggested by the percentage of bashed lumps (3%), cores (5%) and hammerstones (3%) in addition to the low percentage of retouched artefacts (Table 1). Evidence therefore represents a stage of primary reduction, removing outer flakes, sorting out the 'rejects' and preparing manageable lumps for carriage elsewhere. This is a procedure well documented in the ethnographic and archaeological literature (eg. Gould 1980), the distinction being drawn between the initial task of locating the raw material (in this case pebbles from beaches on the west side of the island (Schofield and Webster 1989,42), primary reduction (knocking the flint into a shape that can be easily handled, transported and exchanged), and preparation and tool manufacture, tasks usually conducted within the settlement (Schofield 1986). Habitation during the Bronze Age appears to have been widely scattered across the island with a concentration surviving at the north end (Claris and Thackray, this volume). It is therefore tempting to suggest analogy between the evidence from Lundy and the situation presented by Crace (1988) whose novel, describing the transition between late Neolithic/early Bronze Age society, suggested a system of centralised acquisition and core-reduction prior to distributing prepared flint within the community as a whole.

The concentration from the area aroung TP102 is smaller both in size (75m E-W by 40m N-S) and the quantity of artefacts recovered while the size of tertiary flakes appears smaller and more consistent than that in TP94 (fig. 4b). Other factors, however, suggest that both concentrations are parts of a wider activity area. The type of flint is consistent (fig. 5), the proportions of waste material are similar (Table 1) as is the degree of patination, a factor commonly associated with the length of time flint artefacts spend within the soil and local micromorphological conditions. It would appear, therefore, that both concentrations were exploiting the same types of flint while both the chronology and type of behaviour were comparable. Flint artefacts would have been essential to Bronze Age communities on the island and supply had to be organised and

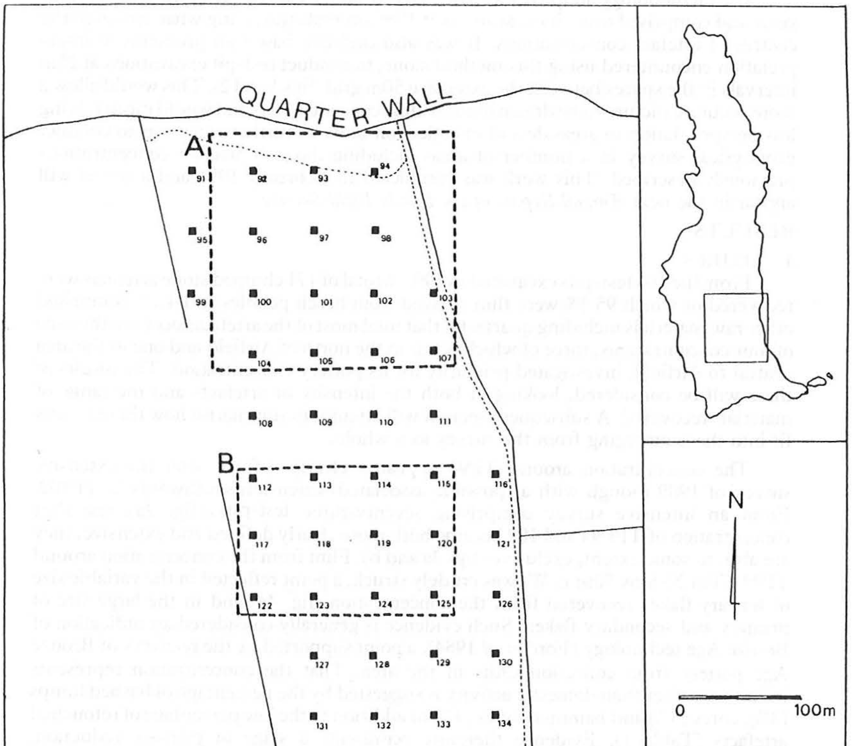

Figure 1: The location of areas for intensive survey in the 1990 season (collection units are drawn at 4x their actual size).

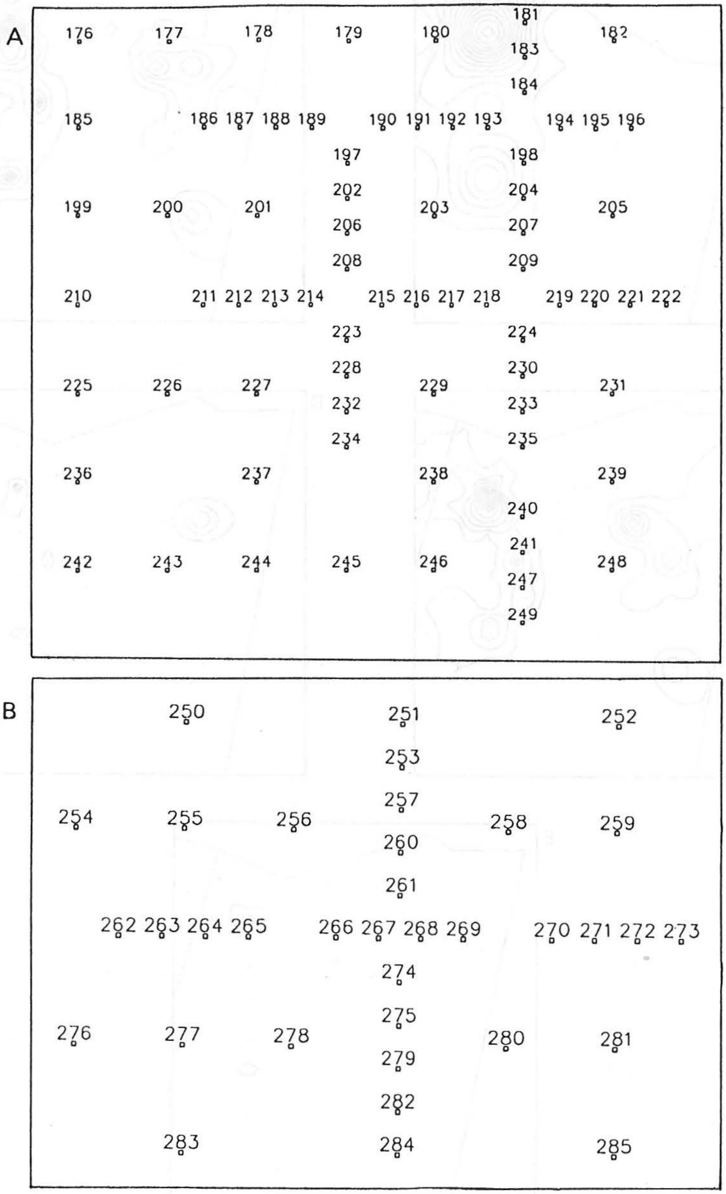

Figure 2: Test-pit locations within the two sample areas; collection units are spaced at 10m and 25m intervals. For location of areas, see fig. 1.

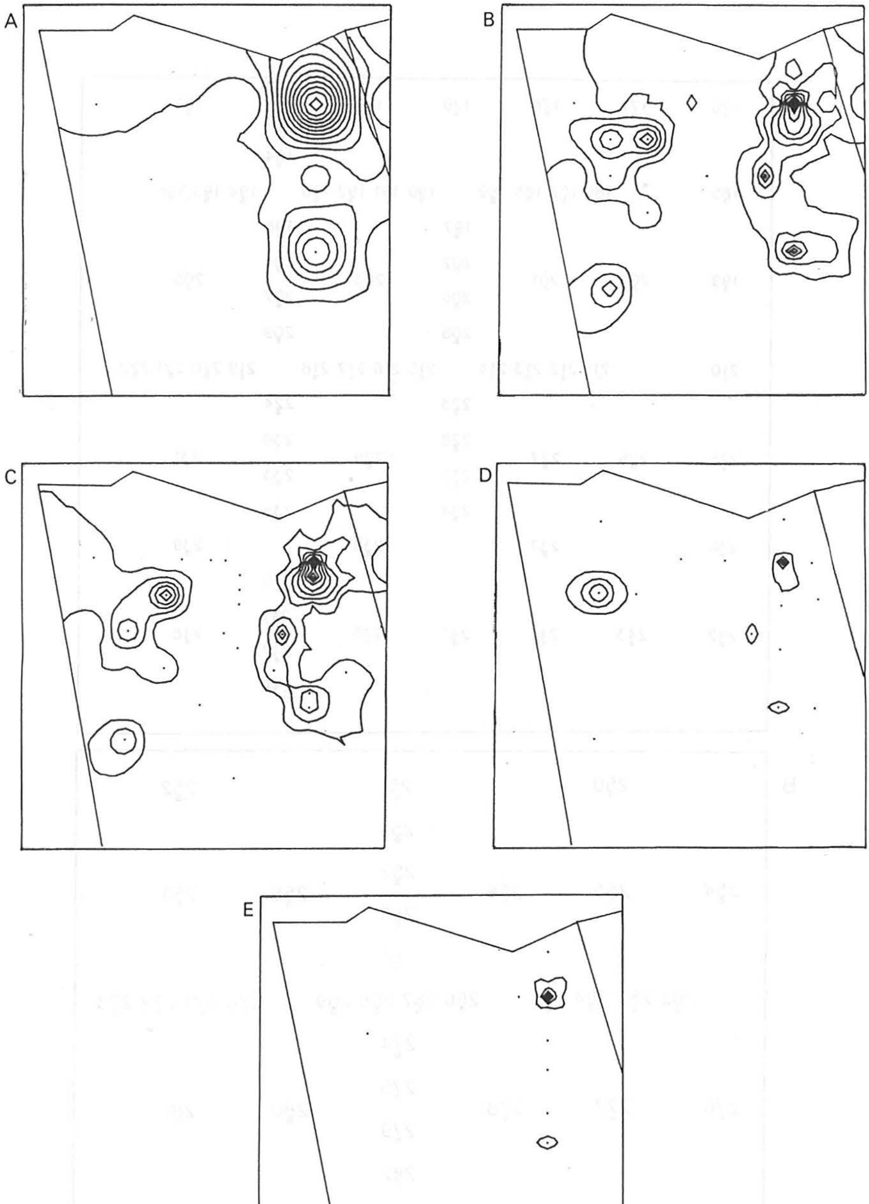

Figure 3: The distribution of flint artefacts in the area at the north end of Airfield. (A in fig. 2) A: all flint after extensive survey (contour interval = 2). B: all flint after both extensive and intensive survey (contour interval = 2). C: tertiary waste (contour interval = 1). D: primary waste (contour interval = 1). E: cores (contour interval = 1).

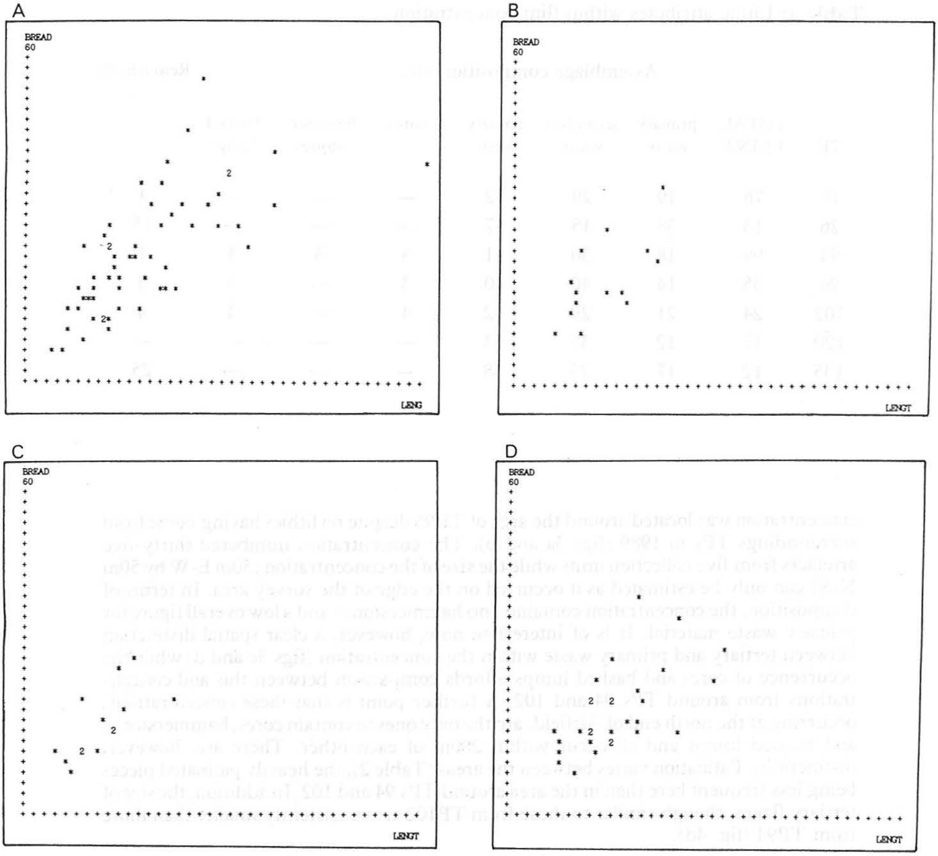

Figure 4: Flake size distributions. Each graph includes only tertiary flakes, expressed as length (mm) on the X axis and breadth (mm) on the Y axis. The upper endpoint is 60mm; the right endpoint 100mm. Individual graphs represent the concentrations from around TPs94 (A), 102 (B), 120 (C), and 96 (D).

structured to minimise the risk of failure, especially as the raw material was only available for short periods of time (Schofield and Webster 1989,42). The flint concentrations around TPs 94 and 102 are considered to represent a part of that system, the area having functioned as a primary reduction site prior to flint being distributed among communities across the island.

One of the lessons of the 1989 survey and a cautionary tale for future work of this kind, was the limitation of both the extensive survey and the transect method of intensive investigation adopted in previous years in defining certain types of artefact distribution. It was felt after the 1989 season, for example, that localised and small scatters could easily be missed with the methodology adopted. A further intermediate stage was therefore introduced in 1990 which involved inserting test-pits at the 25m intervals between those on the 50m grid (fig. 2). By this method a further lithic

Table 1: Lithic attributes within flint concentrations

		Assemblage composition (%)						Retouch (%)
TP	TOTAL FLINT	primary waste	secondary waste	tertiary waste	cores	hammer-stones	bashed lumps	
19	76	19	29	52	—	—	—	4
26	13	38	15	47	—	—	—	15
94	99	18	30	41	5	3	3	1
96	35	14	40	40	3	—	3	3
102	24	21	29	42	4	—	4	4
120	17	12	35	53	—	—	—	—
135	12	17	25	58	—	—	—	25

concentration was located around the area of TP96 despite no lithics having come from surroundings TPs in 1989 (figs 3a and b). The concentration numbered thirty-five artefacts from five collection units while the size of the concentration (50m E-W by 50m N-S) can only be estimated as it occurred on the edge of the survey area. In terms of composition, the concentration contained no hammerstones and a low overall figure for primary waste material. It is of interest to note, however, a clear spatial distinction between tertiary and primary waste within the concentration (figs 3c and d) while the occurrence of cores and bashed lumps affords comparison between this and concentrations from around TPs 94 and 102. A further point is that these concentrations, occurring at the north end of Airfield, are the only ones to contain cores, hammerstones and bashed lumps and all occur within 200m of each other. There are, however, distinctions. Patination varies between the areas (Table 2), the heavily patinated pieces being less frequent here than in the area around TPs 94 and 102. In addition, the size of tertiary flakes, though similar to those from TP102 are consistently smaller than those from TP94 (fig. 4d).

Table 2: Breakage and patination within flint concentrations

	Breakage			Patination (%)		
TP	total flakes	broken flakes	% of broken flakes	heavy	light	none
19	73	29	39.7	38	25	37
26	13	7	53.8	54	15	31
94	87	24	27.6	46	16	38
96	33	3	0.1	20	37	43
102	22	9	40.9	46	21	33
120	16	3	18.8	0	41	59
135	12	2	16.7	25	33	42

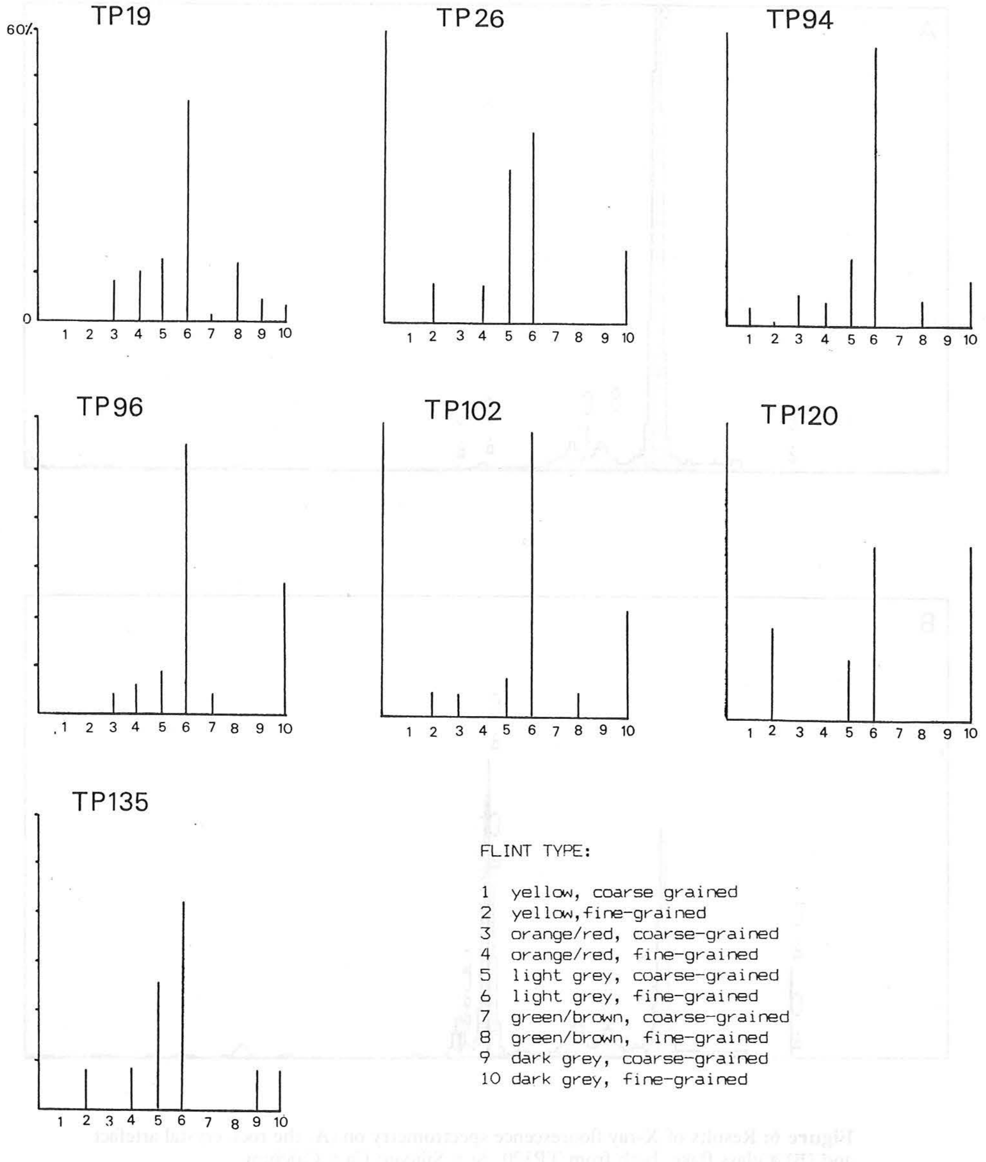

Figure 5: Nature of raw material within the various lithic concentrations.

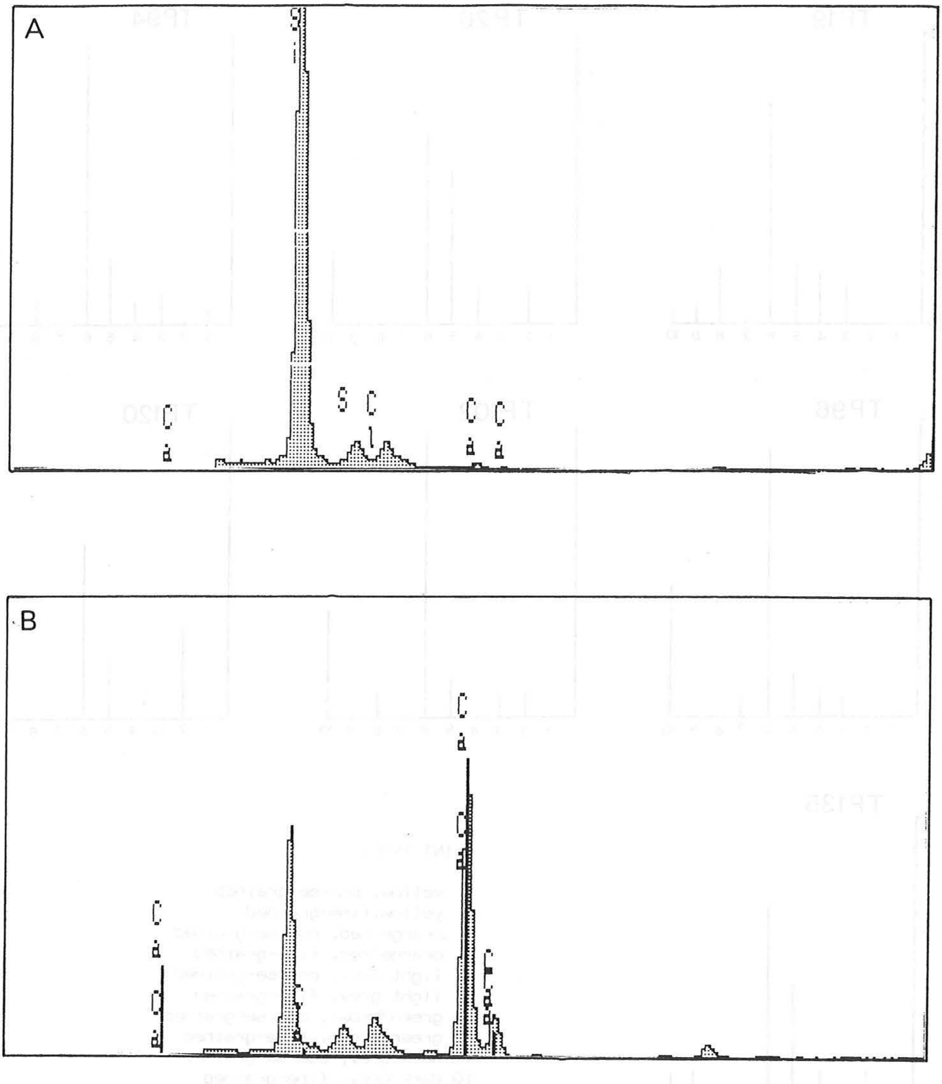

Figure 6: Results of X-ray flourescence spectrometry on (A) the rock crystal artefact and (B) a glass flake, both from TP120. Si = Silicon; Ca = Calcium.

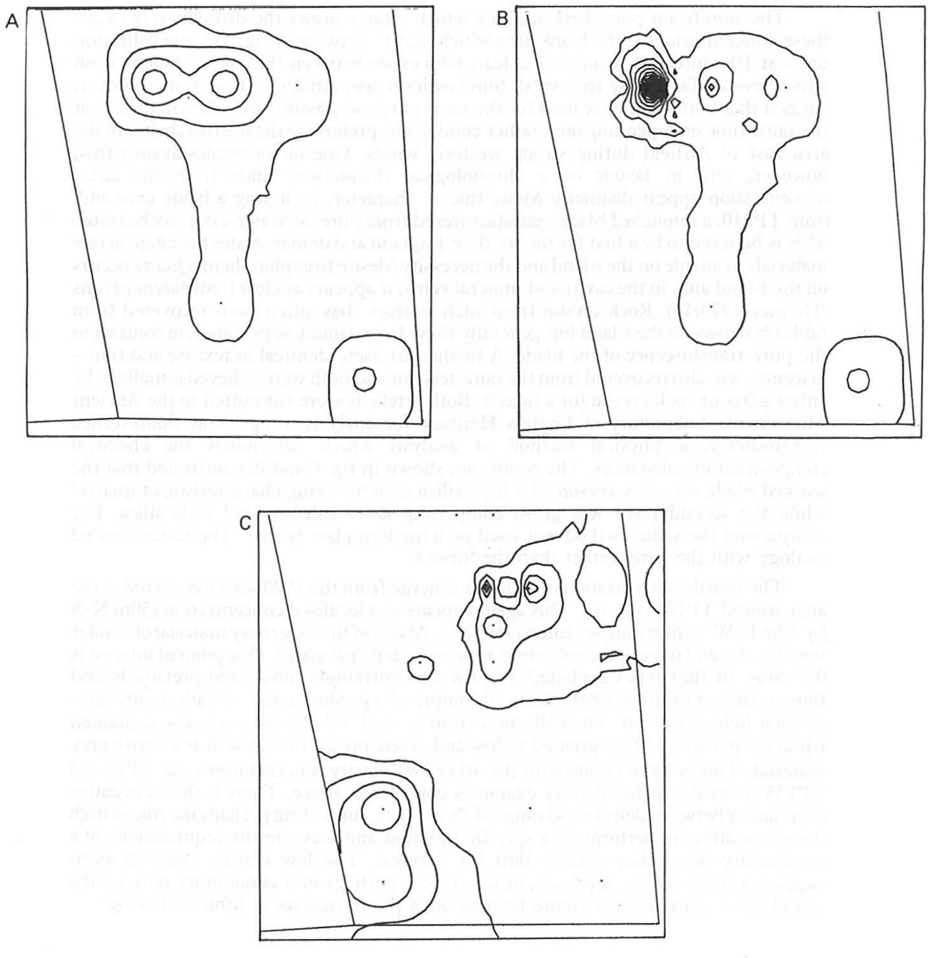

Figure 7: Artefact distributions from the area central to Airfield (B in fig. 2). A: North Devon pottery fabric from extensive survey (contour interval = 5). B: North Devon pottery from extensive and intensive survey (contour interval = 5). C: flint from extensive and intensive survey (contour interval = 1).

The significant point here and one which clearly draws the distinction between these concentrations is the blank area which occurs between them. Despite collection units at 10m intervals, a space of at least 60m exists between the concentrations from which few artefacts were recovered. Similarities in assemblage composition, however, suggest that both areas were used for the same purpose, possibly by different groups at the same time or depending on weather conditions, preferring the relative shelter of the area east of Airfield during strong westerly winds. One factor argues against this, however, and in favour of a chronological distinction: finds from the latter concentration appear distinctly Mesolithic in character, including a blade core and, from TP210, a retouched blade manufacturered from pure (ie. water-clear) rock crystal. This is believed to be a first for the south of England and demonstrates the range of raw materials available on the island and the necessity/desire to exploit them. Quartz occurs on the island and, in the cavities of mineral veins, it appears as clear transparent prisms (Holmes 1978,46). Rock crystal from such sources has often been recovered from rabbit burrows on the island but generally these have a milky appearance, in contrast to the pure transluscence of the blade. A further artefact, identical in texture and transluscence, was also recovered from the same test-pit and both were believed initially to be either glass or rock crystal (or a hoax!). Both artefacts were submitted to the Ancient Monuments Laboratory of English Heritage for analysis using X-ray flourescence spectrometry, a physical method of analysis which determines the chemical composition of substances. The results are shown in fig. 6 and demonstrated that the worked blade was rock crystal (the high silica content being characteristic of quartz) while the second piece was glass, comprising more calcium and little silica. For comparison the same method was used on a modern glass beaker. The result showed analogy with the latter rather than the former.

The fourth concentration of lithics to emerge from the 1990 season occurred in the area around TP120 (fig. 7c). This again appears as a localised concentration (50m N-S by 30m E-W) comprising seventeen artefacts. Much of this is tertiary material of similar size (fig. 4c) and none of the collection appears heavily patinated. One point of interest is the range of flint-types exploited. For the concentrations considered previously and those resulting from the 1990 season, all comprised a predominance of high quality fine-grained light-grey flint. The collection from around TP120, however, also contained equal proportions of fine-grained yellow and green-brown flint as well as a coarse grey material. This is more in line with the other low density concentrations (eg. TP26 and TP135) than the higher density examples considered above. There is thus a negative correlation between density and range of flint-types, suggesting perhaps the role of high density scatters in performing a specific function and meeting the requirements of a community demanding quality flint for survival. The low density concentrations suggest a more *ad hoc* approach, characteristic perhaps of a community only on the island for a short time and more familiar with the intricacies of lithic technology.

Table 3: Variations in composition of lithic collections from concentrations and background scatter.

	Number of occurrences (%) within:	
	Concentrations (n=276)	Background (n=74)
cores	2.5	12.2
hammerstones	1.1	6.8
retouch	4.0	14.9

In summary, it is suggested that the larger concentrations represent industrial areas used in the Bronze Age as part of an organised approach to the supply of lithics among communities on the island. The smaller concentrations comprising a wider range of flint types, however, appear to suggest a less rigorous approach to lithic technology while at the same time maintaining the stylistic requirements of a society geared to hunting and foraging within a coastal environment. This corresponds with results from previous years. The concentrations from around TPs 26 and 135, for example, contained a relatively low density and overall quantity of artefacts, the size of tertiary flakes was consistently small (figs 8b and c) while the range of raw materials was wider than that occurring elsewhere. It is interesting, however, to note the high percentage of retouched artefacts occurring in the areas around TP26 and 135 and the distinction between composition in concentrations and background scatter (Table 3).

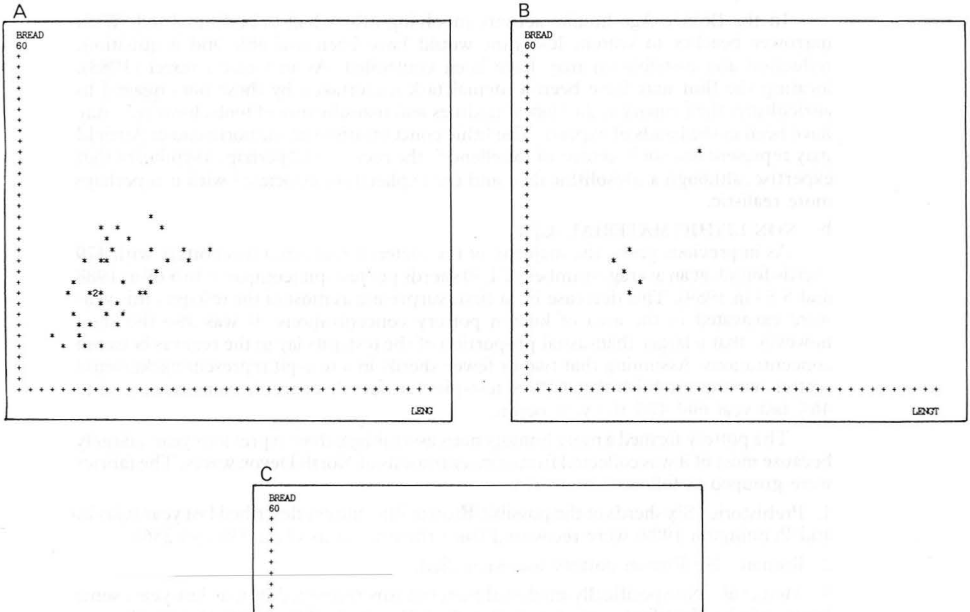

Figure 8: Flake size distributions from concentrations around, A: TP19. B: TP26. C: TP135 (key and details as for fig. 4).

Here a significant difference is displayed in the percentage of key artefact types, all of which occur with greater frequency away from concentrations. Indeed all of the hammerstones and cores listed as coming from concentrations stem from the areas around TPs 94, 96 and 102 while most of the retouched material derives from TPs 26 and 135. What this suggests is that much of the core reduction and general foraging activity occurred either on-site at the north end of the Airfield or off-site across the remainder of the survey area. Combining this with the evidence previously discussed, the suggestion is that Mesolithic activity was essentially off-site with the exception of a monitoring station positioned on the cliff-top in the area of TP19. The high frequency of retouched material and cores deriving from either background scatter or low intensity concentrations is believed representative of this. It should be stressed, however, that for the Mesolithic only a partial view of human activity on the island is likely to survive. The beaches were extensive at this time and much in the way of settlement evidence and off-site activity would have occurred there.

In the Bronze Age human activity involving lithics had to be formalised. With narrower beaches to search, less flint would have been available and acquisition, reduction and distribution may have been controlled. As in Crace's novel (1988), locating the flint may have been a menial task undertaken by those not engaged in agriculture; the primary reduction of nodules and manufacture of tools, however, may have been in the hands of experts. The lithic concentrations at the north end of Airfield may represent one such 'centre of excellence', the rock crystal perhaps a symbol of that expertise, although a Mesolithic date and the explanation associated with it is perhaps more realistic.

b NON LITHIC MATERIAL (CJW)

As in previous years, the majority of the material recovered was pottery with 479 sherds found, at an average number of 4.30 sherds per test-pit (compared to 5.69 in 1988 and 5.85 in 1989). This decrease is, at first, surprising as most of the test-pits this year were excavated in the area of known pottery concentrations. It was also the case, however, that a larger than usual proportion of the test-pits lay in the regions between concentrations. Assuming that two or fewer sherds in a test-pit represent background scatter, we can establish that 61% of test-pits lay outside concentrations compared to 46% last year and 42% the year before.

The pottery formed a more homogenous assemblage than in previous years, largely because most of it was collected from concentrations of North Devon wares. The fabrics were grouped as follows:

1. Prehistoric : Six sherds of the possible Bronze Age pottery described last year (Gavira and Pennington 1989) were recovered from three test-pits (215, 235 and 256).

2. Roman : No Roman pottery was identified.

3. Medieval : No specifically medieval material was recovered but, as last year, some forms may be identified as medieval when the full analysis of the North Devon fabrics is complete.

4. Post-medieval: North Devon wares again predominated forming 86.7% of the assemblage. This is higher than in previous years for the reasons given above. The forms were again bowls and jars. Very little other material of this date was recovered.

5. Modern: A small amount of developed white earthenware was recovered forming 4.4% of the assemblage (last year's report should have read 6.1% for this category).

6. Other fabrics: Only five sherds of the brick fabric were recovered together with fourteen sherds of tile. The remaining sherds could not be identified.

No new concentrations of the North Devon wares were discovered but the distributions within four of the known ones were clarified (figs 7a-b and 9). Concentration A, first noted in the west of Brick Field in 1988, was further investigated by four test-pits positioned in the quadrants defined by the cruciform transects excavated last year. The effect of this has been to confirm the north-south spread of the distribution. It also adds weight to the suggestion made two years ago (Webster and Schofield 1988,40) that the distribution was limited by a geophysical anomaly which may have formed an early trackway. The western edge of the spread was also confirmed by additional test-pits in the Airfield.

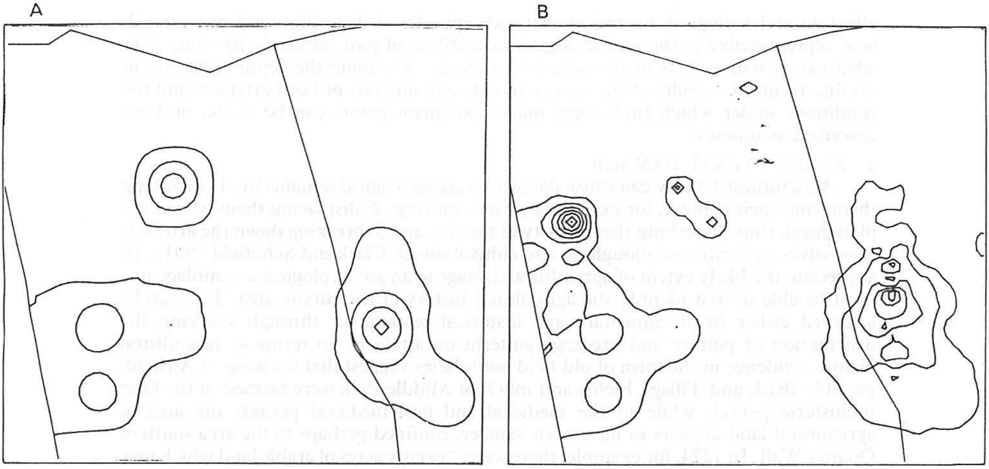

Figure 9: Distribution of North Devon pottery from the north end of Airfield (A in fig. 2). A: from extensive survey. B: combined results from extensive and intensive survey. Contour interval in both cases is five sherds.

Concentration B (in the north of the Airfield) which, it was suggested last year, may have been formed by the breakage of a single vessel was investigated by test-pits at 10m intervals. Its very localised distribution was confirmed.

Concentration C (to the west of the Airfield) was investigated by test-pits at 25m intervals, infilling the 50m extensive survey. This was confirmed as an amorphous spread with large numbers only in TP226.

Concentration D (in the centre of Airfield, fig 7a-b) retained its overall shape when the new data were added, though internally its form was clarified. The spread to the south is of very low density and the high values to the north can be seen to form two areas. One, to the west, is centred on TP266 (with ninety-four sherds) with a lower area around it spreading to the east where higher numbers were found in TP119 (twenty-three sherds). This very localised core with an extensive lower region around it is unlike the distribution around the supposed settlement at concentration A and may be related to some other type of activity, for example a manuring dump or compost midden such as those described on Orkney and Shetland in the late post-medieval period (Fenton 1978,281). These were conditioned by the need to empty byres and were features which would leave little in the way of structural remains. In Orkney and Shetland the cone-shaped midden was surrounded by a ring of stones 3-4m across though this was probably a local variation on a broader theme. Preliminary results from the geophysical survey conducted in this area do not seem to indicate any structures; sherd size analysis is therefore required to pursue this possibility.

The final concentration noted last year (E) was not further investigated and its interpretation as manuring spread from the area of modern settlement stands.

DISCUSSION: THE FORMATION OF SURFACE DISTRIBUTIONS

Much attention has been paid in recent years to the question of formation processes (eg. Schiffer 1976) and, to a lesser extent, the retrieval of archaeological information (eg. Shennan 1985), in an attempt to answer the following questions: 1) what processes affect an archaeological assemblage between episodes of deposition and recovery; 2) how representative is the archaeological assemblage of past human behaviour; 3) to what extent will aspects of the collection strategy determine the representativity of results. From the results of the survey to date and analysis of both artefacts and the conditions under which finds were made, two main points can be made, and are described as follows:

a AGRICULTURAL DAMAGE

Agricultural activity can cause damage to archaeological remains by, 1) divorcing them from their context, for example by earth-moving; 2) displacing them within the ploughsoil, thus disturbing the integrity of the site, and 3) breaking down the artefacts themselves by continued ploughing and cultivation (cf. Clark and Schofield 1991). To appreciate the likely extent of agricultural damage to an archaeological assemblage one must be able to first identify the agricultural history of the survey area. This can be achieved either by documentary and historical research or through studying the distribution of pottery and breakage patterns on artefacts. In terms of agricultural history, evidence in the form of old field boundaries suggest that the areas of Airfield, possibly Brick and Tillage Fields and much of Middle Park were farmed in the later prehistoric period, while in the medieval and post-medieval periods the area of agricultural land appears to have been smaller, confined perhaps to the area south of Quarter Wall. In 1274, for example, there were, "twenty acres of arable land which may be sown with barley or oats" (Langham and Langham 1970,37). However it is recent mechanised agricultural activity which tends to have a more detrimental effect on archaeological material. This has apparently been confined to Brick and Tillage Fields and it is therefore in these areas that damage, in the form of a higher percentage of breakage to artefacts and the greater displacement of concentrations, is liable to occur.

Results in Table 2 illustrate the first point with a breakage rate of between 39.7% and 53.8% of all flint flakes from concentrations within this part of the survey area. This contrasts with a range of between 9.1% and 27.6% in the areas of Airfield and Lighthouse Fields, the exception being the figure of 40.9% from the concentration around TP102. This discrepancy is hard to explain although it may either be the result of limited agricultural activity, for example during the war years, or it may be that the larger flint artefacts from this area were more likely to get in the way of the plough and therefore a higher incidence of breakage may occur. The figure of 27.6% from the large concentration around TP94 could be explained either way. The second point, that of displacement, is less straightforward as, without excavation, the original form and extent of the concentration is impossible to determine. The fact that the concentration around TP26 is widely spread may, however, be significant.

Additional evidence for agricultural activity may also be presented in the form of pottery distributions. Although the results from Lundy are problematic, numerous examples can be quoted where a distinction could be drawn between pottery fragments resulting from discard within the household and that incorporated within farmyard manure and spread on fields (Gaffney and Gaffney 1988,85).

From the scale of agricultural activity suggested as occurring within the survey areas, it is believed that the effect on the archaeological distributions described in this and previous reports, though not severe, may have distorted the picture to a limited degree, particularly in the area of Brick and Tillage Fields. It is consequently a factor which cannot be ignored in interpretation.

b COLLECTION BIAS

This is a factor rarely discussed in the presentation of results from archaeological field survey though it does clearly have an effect (eg Shennan 1985). At the planning stage of the field survey described here and in previous issues of the *Annual Report of the Lundy Field Society*, it was felt that to maximise the value of the archaeological results, attention must be paid to the effects of collection bias. These were reflected in the design of a survey recording sheet (fig. 10), the most obvious factors likely to produce variations in retrievability being weather conditions (ie. temperature, dryness, surface conditions), the skill and perception of individuals (ie. variations in their ability to

LUNDY FIELD SURVEY DAY RECORD

Date

Collection unit number

Grid Reference　　　　　　　　Field Name

Transect Number　　　　　　　Size of Collection Unit

Method of Collection　test-pit excavation/surface collection/other

Purpose of Survey　preliminary survey/detailed survey/other

Surface Conditions　wet/damp/dry/frozen

Weather Conditions　dry,sunny/dry,overcast/damp,overcast/wet, drizzle/wet,rain/other

Temperature　cold/warm/hot

Local Topography

Time Started　　　　　Time Finished

Names

FINDS RECORD

Finds Class　　　　Total　　　　Weight

flint
pottery
burnt flint
clay pipe
glass
brick/tile
other

Figure 10: Survey record sheet showing variables recorded for each collection unit.

identify pottery, worked flint, glass etc.) and the speed at which they worked. Only after excavating c.275 test-pits are the results felt to be of value.

Tests were conducted using the Analysis of Variance and Student's t-test to determine significance. Variables included, on the one hand, the time spent completing work on individual collection units, the identity of the individual teams (a coded identifier, not individual's names!) and the weather conditions prevalent at the time and on the other hand, recovery rates for various finds classes, expressed as a number per test-pit. Only the time and team identification variables proved useful as weather conditions were much the same (ie. warm and dry) over the four weeks worked between 1988 and 1990.

The amount of time spent on collection units is presented in Table 4 and varied between twenty-three and 100 minutes, the mean being 49.5 minutes. Such considerable variation is the result of differences in speed capability between individual teams and, although there is no correlation with weather, temperature or surface conditions, these do account for some of the longer times taken. Not surprisingly, time does have an effect on the recovery rate for finds classes. The amount of pottery, for example, was not significantly influenced by variations in speed although the quantity of glass fragments and flint artefacts did display significant variation by ANOVA at a confidence level of 0.005. In short, the longer the time taken, the more glass fragments and flint artefacts were found. That said, there does appear to be a threshold above which the rule does not apply: from the eighteen test-pits which took over seventy-six minutes, no glass was recovered. A further reflection on this may be the fact that more finds slow down the excavation process while another may be the tendency to look more carefully in areas where finds are likely to occur with greater frequency. Both may influence the level of significance although some disadvantage to high speed archaeological fieldwork may often be found in the validity of results.

Although speed of collection had no significant effect on the recovery of pottery, the composition of individual teams did (Table 5), the relationship being significant by ANOVA at a confidence level of 0.05. It should be stressed, however, that some teams spent most of their time working within the artefact concentrations and this is perhaps reflected in the mean sherd frequencies recovered by teams 11 and 12. Conversely some only worked in areas of background scatter, possibly resulting in the low figures for teams 1, 3, 5, 6 and 19. Team selection had little effect on the recovery of flint flakes or glass, although the fact that team 11 found no glass in nine test-pits may be significant.

What the results of this section therefore suggest is that speed will determine quality of results while individuals will express variation in their ability to identify certain classes of artefact, in particular pottery. As specific team combinations tended to produce the fastest times, varying team selection was considered the most appropriate response to prevent excessive bias to the results. Although some variation has occurred it is not considered serious in terms of the value and representativity of the results.

CONCLUSIONS

The results of the 1990 season achieved their aim of supplying interpretation and explanation for the artefact concentrations identified in 1989. The methodological limitation of aligning collection units in transects across the apparent centres of concentrations was revised and further test-pits included within the distribution. These enabled a more complete picture to emerge and greater reliability to be placed on the results. The value of a second stage to this form of field evaluation was again demonstrated and a detailed picture of intra-site structure, the types of human behaviour represented and factors responsible for the distribution was produced.

ACKNOWLEDGEMENTS

The following were involved in the 1990 season: Dominic Barker, Clive Harfield, Simon Mays, Sorrel Pennington, Janet Schofield, Rachel Seager Smith and Henry Stevens. We are grateful to all for contributing to a most constructive and enjoyable week. The rock crystal artefact was examined by Gerry McDonnell at the Ancient Monuments Laboratory of English Heritage. Without this help many would still regard it as a piece of glass.

Table 4: Time spent excavating collection units and finds recovery rates.

Time (mins)	frequency	percent	mean finds per TP pottery	glass	flint
21-25	3	1.10	1.28	0.00	0.28
26-30	21	7.72	5.96	1.06	1.06
31-35	21	7.72	3.60	1.13	0.83
36-40	23	8.46	5.58	0.96	0.74
41-45	31	11.40	3.90	0.25	1.71
46-50	30	11.03	8.42	0.72	1.39
51-55	33	12.13	4.52	1.08	1.95
56-60	24	8.82	4.93	0.62	1.40
61-65	36	13.24	6.17	0.39	1.56
66-70	25	9.19	6.00	0.66	1.77
71-75	7	2.57	9.28	2.42	5.00
76+	18	5.62	1.36	0.00	2.27
MEAN			5.25	0.65	1.43

Table 5: Team identification vs. finds recovery rates
(qualification: seven test-pits per team)

Team number	No. of TPs excavated	Mean finds per TP pottery	glass	flint
1	30	2.93	0.70	2.26
2	12	8.66	0.50	1.08
3	10	2.70	0.50	0.80
4	13	6.15	0.76	1.15
5	8	1.75	0.25	2.25
6	29	2.51	0.69	1.41
7	19	9.73	0.47	1.73
8	11	9.00	1.72	0.90
9	17	4.64	1.00	1.29
10	7	4.00	0.28	1.28
11	9	13.22	0.00	0.33
12	8	11.37	0.12	3.50
13	9	3.55	0.33	1.22
14	18	2.50	0.66	0.88
15	8	7.37	1.37	1.12
16	11	5.72	1.18	1.09
17	7	6.85	1.28	0.14
MEAN		5.46	0.70	1.40

The fieldwork described in this report would not have been possible without the financial assistance of the Lundy Field Society, the British Academy and the Royal Archaeological Institute and permission from the National Trust and Landmark Trust. Cooperation and enthusiasm from those on the island, especially John Puddy, Andrew Gibson, Mary Gade and Bob Farrah and the loan of equipment from the Department of Archaeology, University of Southampton made it run all the more smoothly. We are grateful to all for their support.

REFERENCES

Clark, R.H. and Schofield, A.J. 1991. By experiment and calibration: an integrated approach to the archaeology of the ploughsoil. In A.J. Schofield (ed), *Interpreting Artefact Scatters: contributions to ploughzone archaeology*, 93-105. Oxford: Oxbow Monograph 4.

Crace, J. 1988. *The Gift of Stones.* Secker and Warburg Ltd.

Fenton, A. 1978. *The Northern Isles: Orkney and Shetland.* Edinburgh: John Donald.

Ford, S., Bradley, R., Hawkes, J. and Fisher, P. 1984. Flint working in the metal age. *Oxford Journal of Archaeology* 3, 157-173.

Gaffney, C.F. and Gaffney, V.L. 1988. Some quantitative approaches to site territory and land use from the surface record. In J. Bintliff, D. Davidson and E. Grant (eds), *Conceptual Issues in Environmental Archaeology*, 82-90. Edinburgh: Edinburgh University Press.

Gardner, K., 1957. Report on flint implements found in the Brick Field, 1957. *Annual Report of the Lundy Field Society* 11, 32-34.

Gavira, A. and Pennington, S. 1989. Petrological analysis of Lundy pottery. In A.J. Schofield and C.J. Webster, Archaeological Fieldwork 1989: further test-pit excavations south of Quarter Wall. *Annual Report of the Lundy Field Society* 40, 44-5.

Gould, R.A., 1980. *Living Archaeology.* Cambridge: Cambridge University Press.

Hietala, H.J. (ed) 1984. *Intrasite Spatial Analysis in Archaeology.* Cambridge: Cambridge University Press.

Holmes, A. 1978. *Principles of Physical Geology.* Van Nostrand Reinhold (UK) Co. Ltd.

Langham, A. and Langham, M., 1970. *Lundy.* Newton Abbott: David and Charles.

Schofield, A.J. 1986. The ASDA Factor: core reduction, resource stress and the nature of lithic assemblages in central-southern England. *Lithics* 7, 17-29.

Schofield, A.J. 1988. Archaeological Fieldwork 1988: the results of test-pit excavations and geophysical prospection south of Quarter Wall. *Annual Report of the Lundy Field Society* 39, 31-45.

Schofield, A.J. and Webster, C.J. 1989. Archaeological Fieldwork 1989: further test-pit excavations south of Quarter Wall. *Annual Report of the Lundy Field Society* 40, 34-47.

Shennan, S.J., 1985. *Experiments in the collection and analysis of archaeological survey data: the East Hampshire survey.* Sheffield: Sheffield University Press.

Schiffer, M.B., 1976. *Behavioural Archaeology.* New York: Academic Press.

Webster, C.J. and Schofield, A.J. 1988. Geophysical prospection. In A.J. Schofield, Archaeological Fieldwork 1988: the results of test-pit excavations and geophysical prospection south of Quarter Wall. *Annual Report of the Lundy Field Society* 39, 37-41.