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EVALUATING THE CONTENTS OF SITES AND MONUMENTS RECORDS: AN ALTERNATIVE APPROACH

Nigel Holman

It has become a common-place for archaeological publications of all kinds to bemoan the perceived inadequacies of the extant information about a region and then to present an exposition of an expensive sampling design to remedy the situation. In Britain, Sites and Monuments Records (SMRs) are important repositories for such information much of which has been largely collected by amateur archaeologists and other members of the public and ignored by professional archaeologists. This article sets out to illustrate how these inadequacies might be assessed. Using a series of simple analytical techniques, it aims to provide means of making realistic statements concerning the nature of the surviving archaeological record.

The research reported here was based on a rural section of the Norfolk SMR excluding the large town of King's Lynn (Figure 1). Much of this record is the outcome of individuals working alone and is characterised by a lack of accompanying contextual information of a kind that would make assessment of its value, and its use by others, considerably easier. Although the region was chosen partly for practical reasons of convenience and acquaintance, in features such as its predominantly arable agriculture, it is characteristic of much of lowland Britain. Only a small percentage of the region is inaccessible to fieldwalkers, most notably the parklands of the Sandringham Royal Estate. The database for the study comprised a total of 1321 artefacts.[1] Other, less numerous, categories of finds were omitted. Of this total, 236 (18% of total) were unprovenanced. Also, for 199 artefacts (16%) the name of the finder is unrecorded.

In order to demonstrate the dependence of the contemporary character of the record upon historical trends in field archaeology, the variation through time in the percentage proportions of different artefact-types found in north-west Norfolk was considered using the 1099 artefacts for which this information was available (83% of total). Space does not permit this aspect to be discussed at length, though Figure 2 gives a flavour of the changing interests and perceptions (linked by each being a cause and an effect of the other) of people living in the area and reporting finds. In many respects, these trends are paralleled elsewhere in Lowland Britain, though certain aspects are specific to this area. The important point to remember is that, as exemplified by Figure 2, the present state of knowledge is merely a short-lived composite of historical trends. This is hardly a revelation and serious studies using SMRs will often consider the value of this information in a qualitative manner in the light of the conditions

(Archaeological Review from Cambridge 4:1 [1985])

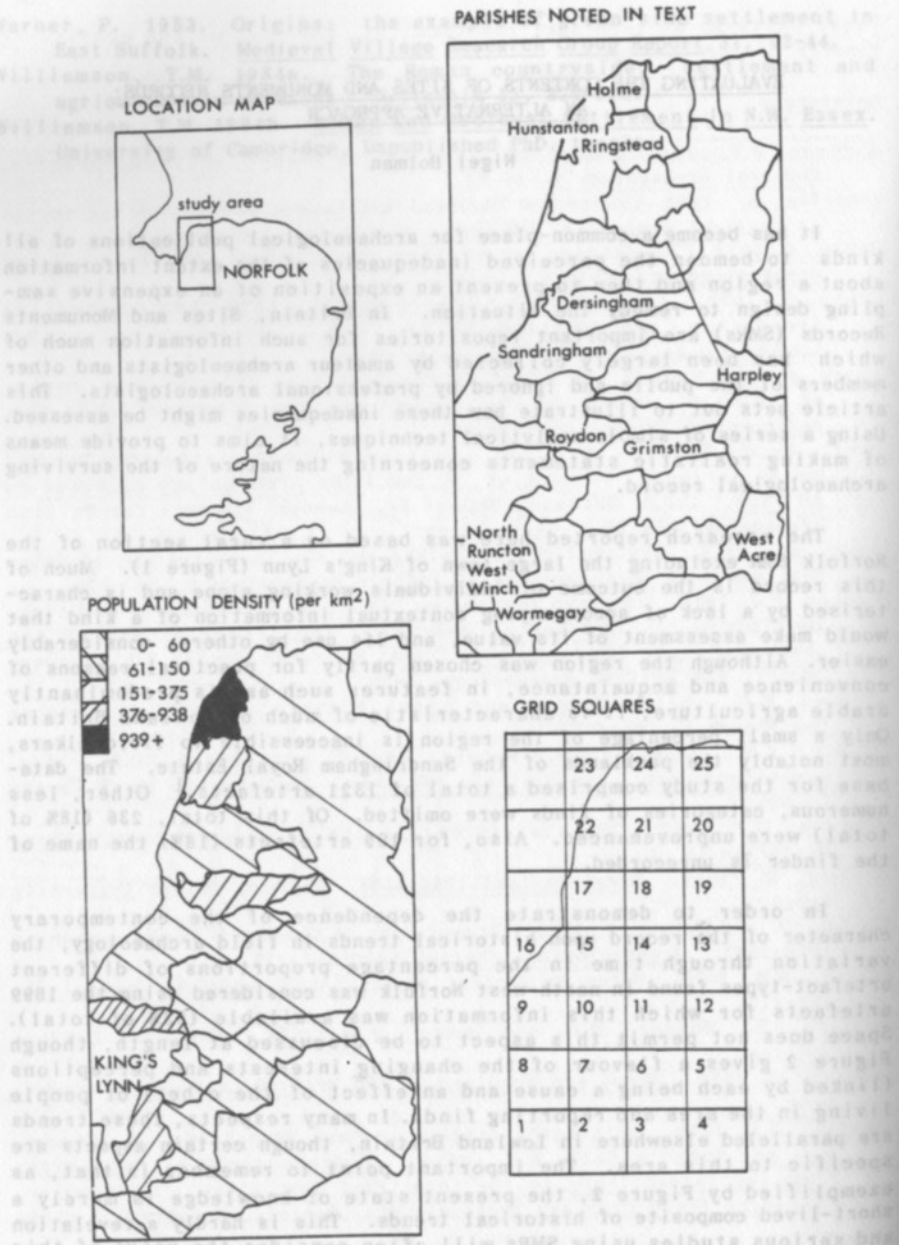

Figure 1: Maps referred to in the text

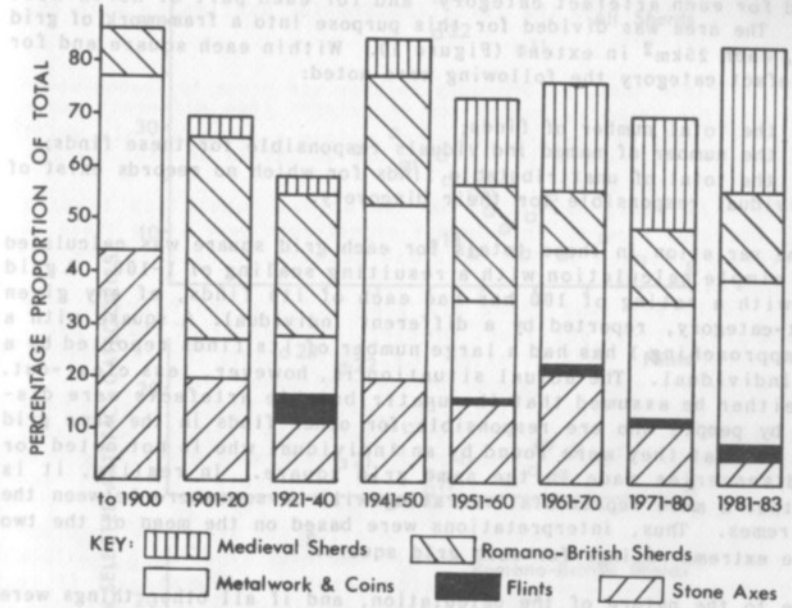

Figure 2: Temporal Variation in the collection of artefacts.

surrounding its documentation. However, alongside this temporal variation as a biasing factor in artefact collections is the variation in the spatial distribution of collecting activities. The remainder of this article aims to outline simple quantitative analyses which were devised with the aim of clarifying the nature of these distributions but which suppress the historical aspect of collecting habits already outlined.

Identifying Variability in Artefact Collection Intensity

The essentially misleading aspect of artefact distribution maps produced from SMR information is that they provide no means of relating the number of find-spots to the spatially variable intensity of fieldwalking. As has already been stated, many amateurs are unable to supply such information. There is, nevertheless, a considerable difference between a cluster of sites found by an amateur in fields which have been intensively studied around his/her home, and a similar cluster of sites recorded as a result of chance discoveries by a number of individuals with little or no interest in archaeology. It is not a case of one being more 'correct' than the other, simply that the interpretation of an archaeological landscape containing either or both situations is complicated by this fact.

The range of variation between the two extremes outlined above was analysed for each artefact category and for each part of north-west Norfolk. The area was divided for this purpose into a framework of grid squares, each 25km^2 in extent (Figure 1). Within each square and for each artefact category the following were noted:

1. the total number of finds;
2. the number of named individuals responsible for these finds;
3. the total of unattributable finds for which no records exist of the individual responsible for their discovery.

The variation in these totals for each grid square was calculated using a simple calculation with a resulting scaling of 1-100. A grid square with a rating of 100 has had each of its finds, of any given artefact-category, reported by a different individual. A square with a rating approaching 1 has had a large number of its finds reported by a single individual. The actual situation is, however, less clear-cut. It can either be assumed that the unattributable artefacts were discovered by people who are responsible for other finds in the same grid square, or that they were found by an individual who is not noted for other discoveries made in the same grid square. In reality, it is likely that a more representative rating will be somewhere between the two extremes. Thus, interpretations were based on the mean of the two possible extreme ratings for each grid square.[2]

Due to the nature of the calculation, and if all other things were equal, a plot of the number of finds of any one artefact-type against the calculated rating from this artefact-type for the 25 grid squares would produce a straight line with a negative gradient (and an angle of slope determined by the numbers of artefacts involved). Figure 3 demonstrates that, for artefact-types apart perhaps for stone-axes (and therefore not demonstrated), all things are not equal. The tendency for the plot of an artefact-type to describe a straight line is inversely proportional to the significance of large individual contributions to the biasing of the knowledge of its distribution. The fitting of regression lines to the data is not warranted but one can tentatively isolate, for each artefact-type, those grid squares where either a high- or low-intensity of artefact-collection can be evidenced

Domesday Survey and the Archaeological Evidence for 11th Century Population Distribution

Under the assumption that there is a comparatively straight-forward relationship between the distribution of ancient artefacts and the population responsible for their production and use, the archaeological record is used to demonstrate population distribution. The extent to which this assumed linkage is valid when using SMR information might be tested using historical demographic data which can be linked to a contemporary archaeological record. The Domesday returns for north-west Norfolk were taken as the only instance where both population and artefact distributions were known. While this involved tackling a number of

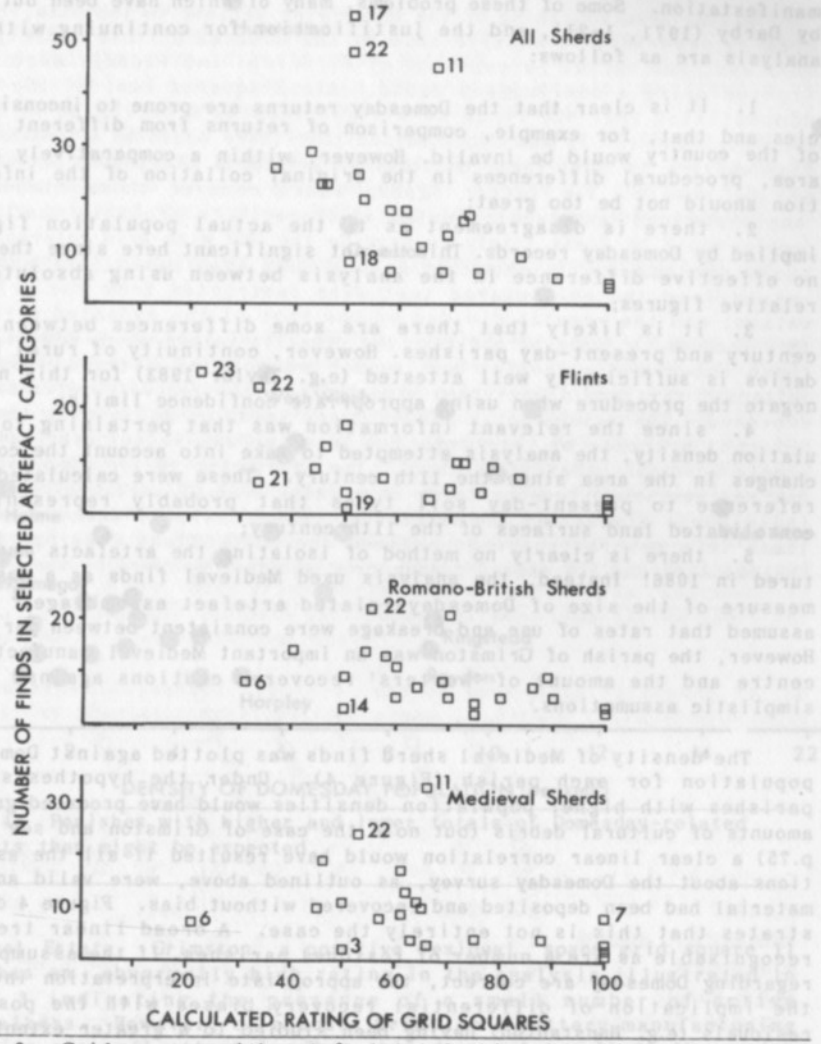

Figure 3: Grid squares with artefact totals biased by high and low intensities of fieldwork.

unresolved problems inherent in the Domesday data, it was felt to be a worthwhile exercise since it was likely to point to instances where the variable intensity of collection highlighted above would be creating a

discrepancy between actual population distribution and its artefactual manifestation. Some of these problems, many of which have been outlined by Darby (1971, 1-21), and the justification for continuing with the analysis are as follows:

1. it is clear that the Domesday returns are prone to inconsistencies and that, for example, comparison of returns from different parts of the country would be invalid. However, within a comparatively small area, procedural differences in the original collation of the information should not be too great;

2. there is disagreement as to the actual population figures implied by Domesday records. This is not significant here since there is no effective difference in the analysis between using absolute and relative figures;

3. it is likely that there are some differences between 11th century and present-day parishes. However, continuity of rural boundaries is sufficiently well attested (e.g. Taylor 1983) for this not to negate the procedure when using appropriate confidence limits;

4. since the relevant information was that pertaining to population density, the analysis attempted to take into account the coastal changes in the area since the 11th century. These were calculated with reference to present-day soil types that probably represent unconsolidated land surfaces of the 11th century;

5. there is clearly no method of isolating the artefacts manufactured in 1086! Instead, the analysis used Medieval finds as a possible measure of the size of Domesday-related artefact assemblage.[3] It is assumed that rates of use and breakage were consistent between parishes. However, the parish of Grimston was an important Medieval manufacturing centre and the amount of 'wasters' recovered cautions against oversimplistic assumptions.

The density of Medieval sherd finds was plotted against Domesday population for each parish (Figure 4). Under the hypothesis that parishes with higher population densities would have produced greater amounts of cultural debris (but note the case of Grimston and see below p.75) a clear linear correlation would have resulted if all the assumptions about the Domesday survey, as outlined above, were valid and the material had been deposited and recovered without bias. Figure 4 demonstrates that this is not entirely the case. A broad linear trend is recognisable as are a number of residual parishes. If the assumptions regarding Domesday are correct, the appropriate interpretation involves the implication of differential recovery biases with the positive residuals (e.g. Hunstanton) having been studied to a greater extent than the positive residuals (e.g. North Runcton). Other parishes can be similarly singled out but with rather less assurance. For example, West Winch is a negative residual parish which has received little attention by amateur archaeologists interested in Medieval pottery. There is, in contrast, a concentration of hand-axes in the area which results from the enthusiastic efforts of a few individuals. Sandringham is another positive residual but is under-represented due to the inaccessibility of

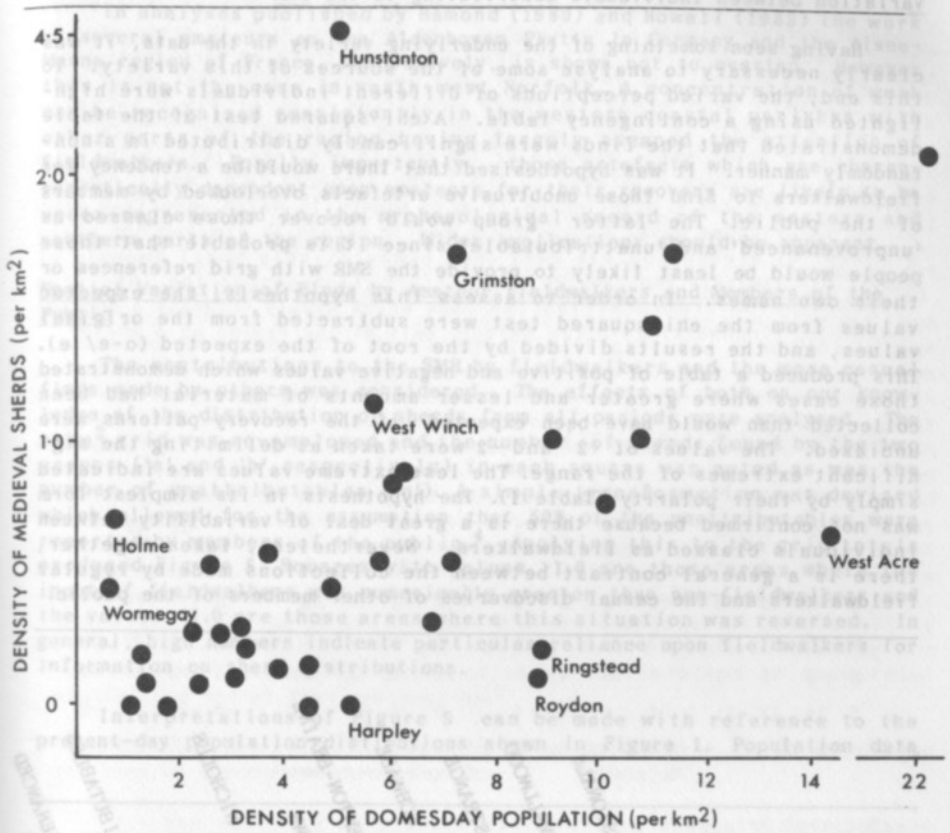

Figure 4: Parishes with higher and lower totals of Domesday-related artefacts than might be expected.

the Royal Estate. Grimston, a positive residual, spans grid square 11 which has an abnormally high rating in the analysis illustrated in Figure 3 indicating the presence of a small number of active fieldwalkers. However, of course, Grimston's pottery manufacturing activities are well attested. That this does not result in the parish being an even more extreme residual is most probably due to the high density of sherds: finding pottery in and around the village is such a common occurence for members of the public that they can see little point in telling anyone about it. One can only speculate as to the effects of such an attitude on the reporting of other artefacts in the region as a whole.

Variation between Individuals Contributing to the SMR

Having seen something of the underlying variety in the data, it was clearly necessary to analyse some of the sources of this variety. To this end, the varied perceptions of different individuals were highlighted using a contingency table. A chi-squared test of the table demonstrated that the finds were significantly distributed in a non-randomly manner. It was hypothesised that there would be a tendency for fieldwalkers to find those unobtrusive artefacts overlooked by members of the public. The latter group would recover those classed as 'unprovenanced' and 'unattributable' since it is probable that these people would be least likely to provide the SMR with grid references or their own names. In order to assess this hypothesis, the expected values from the chi-squared test were subtracted from the original values, and the results divided by the root of the expected (o-e/ e). This produced a table of positive and negative values which demonstrated those cases where greater and lesser amounts of material had been collected than would have been expected if the recovery patterns were unbiased. The values of +2 and -2 were taken as delimiting the significant extremes of the range. The less extreme values are indicated simply by their polarity (Table 1). The hypothesis in its simplest form was not confirmed because there is a great deal of variability between individuals classed as fieldwalkers. Nevertheless, taken together, there is a general contrast between the collections made by regular fieldwalkers and the casual discoveries of other members of the public.

	PROFESSIONALS	J.P. SMALLWOOD	H. LE STRANGE	P.L.K. SCHWABE	C.H. LEWTON-BRAINE	G. DROWN	J.O.H. NICHOLLS	OTHERS	UNATTRIBUTABLES	UNPROVENANCED
FLINTS	+2.1	+9.6	++	++	--	--	-2.7	--	-2.3	++
PREHISTORIC SHERDS	+4.1	--	++	++	++	++	--	++	--	--
R-B SHERDS	+3.0	-2.2	--	--	++	+3.9	-4.4	--	++	-2.5
SAXON SHERDS	-2.1	--	++	--	+2.2	++	+5.0	--	--	-3.0
MEDIEVAL SHERDS	--	--	+6.9	--	+3.1	++	+3.3	--	+2.6	-3.7
COINS	--	-2.3	--	++	--	--	-2.3	++	--	++
METALWORK	--	--	--	--	--	--	--	-2.8	++	--
STONE AXES	-2.6	-2.3	-2.3	--	-2.5	--	-3.1	++	--	+7.6

Table 1: Contingency table showing the pattern of artefact collection amongst amateur fieldwalkers (named individuals) and others.

In analyses published by Hamond (1980) and Howell (1983) the work of several amateurs on the Aldenhoven Platte in Germany and the Aisne-Marne region of France, respectively, is shown not to overlap. However this is not the case in north-west Norfolk. A concentration of work can be recognised consistently in the western coastal parishes with other parts of the region having largely escaped the attention of fieldwalkers. Equally importantly, those artefacts which are characteristically dependent upon amateurs for their recovery are likely to be under-represented in the archaeological record of the eastern and southern parts of the region. Wider implications should be apparent.

Spatial Variation of Finds by Amateur Fieldwalkers and Members of the Public

The contributions to the SMR by fieldwalkers and the more casual finds made by others was considered. The effects of both on our knowledge of the distribution of sherds from all periods were analysed. The 25km^2 grid was re-employed and the number of sherds found by the two groups ('a' and 'b' respectively) in each square was noted as was the number of unattributables ('c'). A simple transformation was devised which allowed for the assumption that 50% of the unattributables were reported by members of the public.[4] Applying this to the grid totals produced Figure 5. Squares with values >1.0 are those areas where the input of fieldwalkers was numerically greater than non-fieldwalkers and the values <1.0 are those areas where this situation was reversed. In general, high numbers indicate particular reliance upon fieldwalkers for information on sherd distributions.

Interpretations of Figure 5 can be made with reference to the present-day population distibutions shown in Figure 1. Population data

a) amateur fieldwalkers				b) Members of the public				c) Finder not recorded				d) Mean totals of a/b and a+a/b			
14	8	5		9	13	9		5	3	2		1.3	2.0	0.6	
23	11	1		16	10	5		5	2	0		1.3	1.0	0.3	
20	4	1		12	2	3		17	0	1		1.2	2.0	0.3	
1	3	3	2	0	0	2	2	1	4	1	0	1.0	1.9	1.3	0.8
4	6	11	5	6	5	20	5	4	7	13	3	0.5	0.6	0.5	0.8
1	8	13	3	2	7	6	3	3	1	3	1	0.4	1.1	1.8	0.9
7	11	4	5	1	6	13	13	1	6	1	5	5.3	1.4	0.3	0.4

Figure 5: Spatial variation in the sherd finds reported by amateur fieldwalkers and members of the public.

was only available by parish and it should be noted that in western coastal parishes, such as Dersingham, the built-up area is restricted to their seaward portions rather than being distributed throughout them. In terms of sherds, it is apparent that the most significant input from fieldwalkers (who almost without exception live or lived in these coastal villages) is found just inland from these parishes. This corresponds to areas where members of the public are less likely to be in a position to recover artefacts on their own property (e.g. while digging gardens). Similarly highlighted is grid square 15 which comprises much of the Sandringham Royal Estate where public access is limited but where a number of archaeologists have done comparatively small amounts of work. This analysis can provide more information beyond the intuitive interpretation from distribution maps which simply suggests a concentration of fieldwalking in the western half of the region as a whole.

Romano-British Artefacts:

a) Sherds				b) Coins and Metalwork				c) Expected no. of coins/metalwork				d) Difference			
14	9	5		5	4	4		11	9	9		-3	--	+4	
22	9	0		4	0	3		9	0	7		-13	-9	+7	
26	5	0		12	5	3		26	11	7		++	+6	+7	
0	5	3	2	1	2	3	1	2	4	7	2	+2	--	+4	++
0	7	7	4	2	2	1	1	4	4	2	2	+4	-3	-5	--
2	8	8	3	6	5	4	3	13	11	9	7	+11	+3	++	+4
5	14	13	11	0	2	6	4	0	4	13	9	-5	-10	++	-2

Medieval Artefacts:

a) Sherds				b) Coins and Metalwork				c) Expected no. of coins/metalwork				d) Difference			
11	10	8		1	0	1		6	0	6		-5	-10	-2	
24	11	2		2	0	2		12	12	0		-12	++	-2	
19	3	2		3	1	1		18	6	6		--	+3	+4	
1	3	4	0	0	1	1	1	0	6	6	6	__	+3	++	+6
13	10	33	0	2	1	3	0	12	6	18	0	--	-4	-16	0
4	8	7	2	3	0	1	1	18	0	6	6	+14	-8	+5	-4
3	9	2	4	2	1	5	0	12	6	29	0	+9	-3	+27	-4

Figure 6: The spatial variation of the differential recovery of different artefact categories.

Differential Recovery of Artefacts

It was felt that comparing the distributions of different artefacts deriving from the same period of time would highlight the spatially different recovery of artefact-types. Categories of Romano-British sherds and a combined category of Romano-British coins and metalwork were used (as were the same categories from the Medieval period) as they were felt to comply with the above requirements. The combination of coins and metalwork is justified by reference to similarities expressed in Table 1. In this analysis it is assumed that, all things being equal, the two distributions (at a unit-scale of 25km^2) should be similar in terms of extent, but not necessarily density, though in one case this assumption can be justifiably questioned (see below p.75). The distribution of the two artefact categories was transformed into numbered grids based on the 25km^2 grid (Figure 6). A weighting was employed so that the overall totals of the two categories were the same and the resulting difference between the amounts in each grid square was calculated. Positive totals were obtained in grid squares where, after weighting, the total for coins/metalwork was greater than for sherds and the contrary for negative totals. Totals greater than +2 or less than -2 were deemed to show significant abnormality. It should be noted that, amongst this group, almost twice as many grid squares have the identical polarity in both analyses as have opposite polarities supporting the case that the measure used is appropriate. The single case where, as noted above, the argument of comparative density is demonstrably wrong is grid square 8 where a cluster of iron smelting sites has been included in the sample. This is clearly biasing the results here because the group of sites are involved in commercial manufacture rather than consumption.[5]

The over-representation of some areas in Figure 7 can be considered in terms of a combination of factors:

1. the majority of planned fieldwalking taking place in these areas. Amateur fieldwalkers will find coins and metalwork but will also find proportionately large amounts of sherds. Conversely, sherds are not being recovered with the same intensity in the areas they neglect. In the latter areas the input to the SMR will be derived primarily from chance finds made by members of the public;
2. similarly, the contribution by members of the public will, in all likelihood, largely consist of those relatively conspicuous objects which they conceive of as being 'archaeologically-significant'. Hence, generally speaking, one can presume that in areas of high population density there will be a greater over-emphasis on these conspicuous objects than in areas with a lower population density.

Cross-corroboration of Artefact Distributions

Artefacts in close proximity to each other with similar physical properties and conspicuousness could very possibly have similar chances of being recovered by the same individual. Clearly, factors relating to

the different lengths of time which the artefacts spend in the ground prior to recovery are being consciously, but perhaps not unfairly, disregarded. One might be able to assess whether the opportunity has presented itself for the recovery of a certain artefact by reference to the distribution of another artefacts with similar properties: if one only is absent, the implication is that it would likely have been found if it were indeed present. However, if the others are absent also, there are no grounds for suggesting the validity of an insignificant

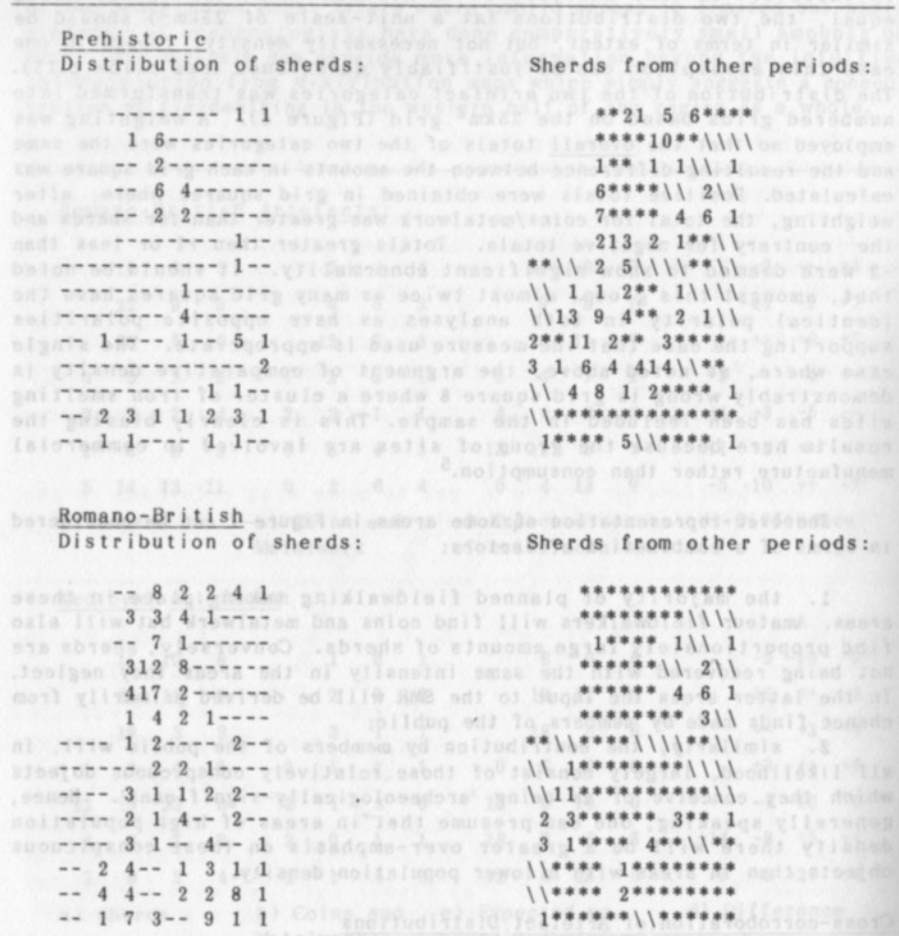

Figure 7: Corroboration of sherd distributions with reference to the presence/absence of other distributions.

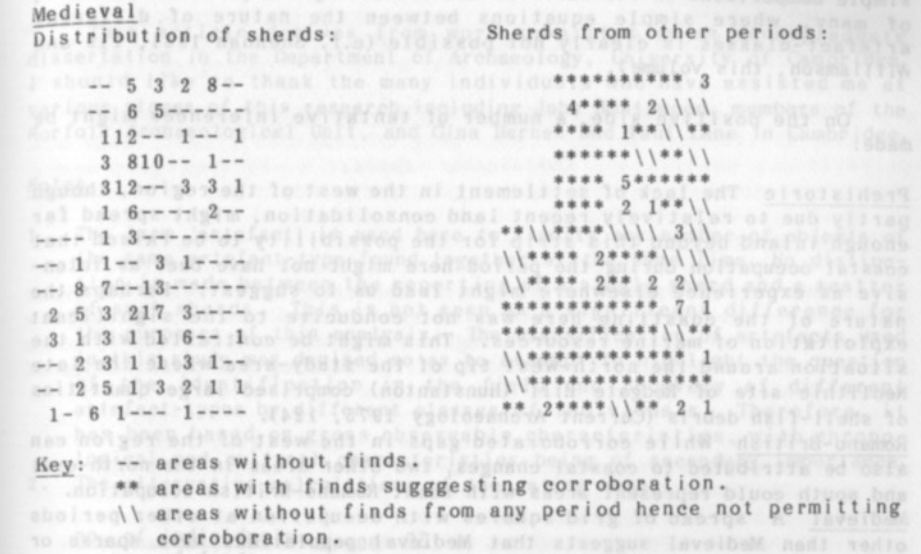

Figure 7 continued:

visible distribution. Statistical thin-ice is encountered when numbers of corroborating find-spots are small and when there is a possibility that fieldwalkers have selectively investigated and/or recorded sites of a particular period. This latter may be the case but is impossible to verify without field notes. At least one active fieldwalker in north-west Norfolk has intimated that for him this has not been the case.

An analysis was run to demonstrate the kinds of information which might come from adopting such a perspective. Greater resolution was obtained by reducing the area of the grid squares (Figure 7). By comparing the grids of sherd counts from different periods it is possible to identify those areas where all except one category was present. Hence, the missing category might be considered as having its absence corroborated. Figure 7 demonstrates those areas where one of the categories is absent and the values noted are the sums of the sherd-finds of the three other periods. The reason for citing these values is to indicate where interpretations are likely to be most valid since, as has been suggested above, higher values would imply greater reliability. A first point to come from the comparative analysis of artefact distributions is that over large areas it is not possible to draw conclusions due to an absence of sherds from other periods. In the west this results from the recent consolidation of former coastal marshes. However, in the east, this is certainly not the case and it is rash to infer a lack of occupation for any of the periods concerned. The

particularly fragile quality of much Saxon pottery clearly negates simple comparisons in its survival and visibility and provides one case, of many, where simple equations between the nature of different artefact-classes is clearly not possible (c.f. Shennan 1981, 119 and Williamson, this volume).

On the positive side, a number of tentative inferences might be made:

Prehistoric The lack of settlement in the west of the region, though partly due to relatively recent land consolidation, might spread far enough inland beyond this strip for the possibility to be raised that coastal occupation during the period here might not have been as intensive as experience elsewhere might lead us to suggest. Perhaps the nature of the coastline here was not conducive to the significant exploitation of marine resources. This might be contrasted with the situation around the north-west tip of the study-area where the late Neolithic site of Redgate Hill (Hunstanton) comprised large quantities of shell-fish debris (Current Archaeology 1975, 124).
Romano-British While corroborated gaps in the west of the region can also be attributed to coastal changes, two other areas in the north-east and south could represent areas with scant Romano-British occupation.
Medieval A spread of grid squares with occupation at other periods other than Medieval suggests that Medieval populations were sparse or absent from this part of north-west Norfolk. However, further to the east, this absence cannot be corroborated.

Conclusions

The purpose of this article has been not merely to demonstrate that the information contained within an SMR is structured by both the past and the recovery of that past, but also to illustrate how it is possible to make some kind of quantitative assessment of these patterns of recovery. Objective assessments of the human element of the recovery process would serve to outline those areas where natural conditions might be masking portions of the archaeological record or where the lack of archaeological remains reflects a situation which actually existed in the past. The ideas outlined here would also allow for the surviving archaeological record to be reviewed, prior to the setting-up of a research design, in a manner other than the intuitive 'eye-balling' characteristically associated with such assessments.

Finally, it is possible to see how analyses of the kind described above would assist cooperation between the professional and amateur archaeological communities. Contributions by the latter group commonly involve the simple accumulation of data which reinforces the recovery biases which are highlighted in this article. Not only can these analyses point to how the biases might be counteracted, but hence also to how the work of these amateurs might be made more relevant to questions of general concern.

Acknowledgements

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Notes

1. The term 'artefact' is used here to signify any number of objects of the same artefact-type found together at the same time. No distinction is made between the reporting of a single sherd and a scatter of such sherds. This is not seen as a significant difference for the purposes of this analysis. The classification of artefacts used in this study was devised so as to attempt to highlight the question of the identification in the field and recovery of different artefact-types by different classes of individuals. Therefore, it has been based on gross observable characteristics, with chronological and cultural characteristics being of secondary importance.
2. The alternative calculations of the rating were:

$$\frac{\text{no. of individuals}}{\text{no. of finds}} \times 100 \quad \text{or:}$$

$$\frac{\text{no. of individuals} + \text{no. of unattribuatable finds}}{\text{no. of finds}} \times 100$$

3. The small number of late Saxon sherds prevented their inclusion as an alternative measure in this analysis
4. The transformation used was as follows: $\frac{1}{2}\left[b+\frac{b}{c}\right]$
5. Other Romano-British smelting sites are known from the area but were disregarded at the inital data-collection stage of this project.

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