Site-finds in Roman Britain

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PREVIOUS WORK

In *Britannia* iii I was able to give a very summary and outline picture of Roman coin-finds in Britain.[1] A year later this picture was extended to France and Italy,[2] and various similarities and differences were noted. At the same time John Casey was working particularly on military coin-finds, and he came independently to very similar conclusions.[3] A framework had been established: there was a British pattern which was different from the continental pattern and all British sites, to a greater or lesser extent, lay within this pattern. The most obvious features, drawn out in diagram form in *Britannia* iii,[4] included low coin-loss on every site from the Claudian conquest to A.D. 260, high coin-loss from 260 to 294, a dip from 294 to 330, a major peak from 330 to 348, and a general high level of coin-loss in the fourth century.

In the last twenty years various methods have been tried in order to separate out the very different types of sites within Roman Britain – forts, temples, towns, and villas for example – into different patterns of coin-loss. The assumption on which this was based, though never made explicit, was that since there was reason to believe that different activities went on at forts and temples this ought to result in different patterns of coin-loss, and these in turn ought to be visible in the archaeological record. There have been some signs of success but, in general, any divisions found were seldom clear-cut and the methods used were judged to be complicated. Several review articles and chapters have summarised this work in detail, with full bibliographies, so that only a short summary will be given here; more details can be found in the works cited.[5]

A major move forward came when it was recognised that, within the overall British pattern, towns had a pattern of coin-loss which was different from all other sorts of site. Since all sites other than towns are by definition in the countryside this gave a separation out into urban and rural patterns of coin-loss. The characteristics of the two groups depended on the number of coins from the late third century (260 to 294) compared with the number of coins from the later fourth century (330 to 402). Towns, in general, have equal numbers of coins from the two periods; other sites have more coins, sometimes three- or four-times more, in the later period. It must be noted that this differentiation

[1] 'A short survey of the Roman coins found on fourteen sites in Britain', *Britannia* iii (1972), 269–76.

[2] 'Roman coinage in Britain and the Western Empire', *Britannia* iv (1973), 227–52.

[3] 'The Interpretation of Romano-British Site-finds', in J. Casey and R. Reece (eds), *Coins and the Archaeologist*, BAR 4 (1974), 37–51.

[4] op. cit. (note 1), fig. 1, p. 272.

[5] N.S. Ryan, *Fourth-century Coin-finds from Roman Britain*, BAR 183 (1988), 1–23; R. Reece, *Coinage in Roman Britain* (1987), 71–113; R. Reece, 'The regional study of coin site-finds,' *JRA* vii (1994), 480–90.

relied on nothing more than simple addition and comparison. For ease the values found, in terms of percentages, were drawn on a simple diagram, and this gave a clear picture of two separate groups. But this method was barely numerical and could certainly not be called statistical.

The use of basic statistical methods such as tests of similarity, tests of significance, and measures of variation and deviation from a mean have all been advocated, tried and eventually rejected.[6] One problem is that classical statistics rely on the assumption that the information being analysed will have a certain orderly distribution. This is not true of much archaeological material, and the methods which need to be used to make the operation valid are complex and seem to produce few good results. A second problem concerns the extreme variability of different groups of archaeological material and the background noise which such variability creates in any numerical study. For example, it is commonplace that different excavations take place using different methods, and this inevitably modifies the total material available for study. Clearance of topsoil by mechanical means cuts down the number of unstratified finds. Although these points are clear and obvious to the archaeological interpreter, they create havoc in any numerical study for they are extremely difficult to build in to any scheme of calculation. In short, archaeologists are used to making allowances for differences in their groups of material which mechanistic numerical studies regard as major differences of high statistical significance. This leads to a reasonable archaeological statement that 'Given the fact that the coins from these two sites were excavated by different people at different times by different methods and have been stored in different museums, they are quite similar'. This statement is probably worth making, for we can make allowances for the excavators and methods and museums, but they are not the stuff of simple classical statistics.

By 1990 I was able to publish summary lists of coins from 140 sites in Britain[7] so it seemed worth making further attempts to separate out groups of sites which had different types of coin-use. The 140 sites were very different from one another in several ways, and the inclusion of several groups has raised again some basic questions of method. Some commentators have always been worried about mixing in one study not only coins from different types of site, but coins of different degrees of reliability. These points have been argued out in full[8] and will only be summarised here. The choice to include all available material in any study is based on my basic belief in analytical rather than deductive archaeology.[9] If my aim is to study the way that different groups of coins cluster together into some sort of pattern then no previous selection can be valid. The whole point is to discover which sets of coins are similar, and which are different. Thus, at Lincoln, the whole of the museum collection, containing many unprovenanced coins, was used in a study of the coins excavated from 1970–79.[10] The result was that the museum collection, imports, collectors' pieces, forgeries, and all formed an excellent summary or average of coin from excavations at Lincoln and was quite unlike several other towns. It was, numerically, a Lincoln collection and the fact that it was included in the study

[6] R. Reece, 'The interpretation of site-finds', *Studien zur Fundmünzen der Antike* (forthcoming).

[7] *Roman Coins from 140 Sites in Britain* (1991).

[8] J.E. Mann and R. Reece, *Roman Coins from Lincoln 1970–9*, Archaeology of Lincoln VI.2 (1983), 64–70; R. Reece in N. Crummy (ed.), *The Coins from Excavations in Colchester 1971–9*, Colchester Arch. Rep. IV (1987), 17–23.

[9] R. Reece, *My Roman Britain* (1988), ch. 8.

[10] Mann and Reece, op. cit. (note 8).

demonstrated the fact. If it had been left out this would not have been known. In the same way, at Colchester there were a number of sites which produced only small numbers of coins. These were amalgamated to form the single group 'Colchester Small Sites'. Clearly the archaeological meaning of such a group is minimal, but it was included not for the information that it could give on a well defined site, but to see to what extent it shared in the general Colchester characteristics.

All recent work has been carried out on the total of the 140 sites published by making as few initial presuppositions as possible. The aim is to interrogate each group of coins to see whether it has evidence in its constitution to express its links to other groups. If the method used is any good the questionable groups will reveal themselves during the process of analysis.

Only one further publication need be mentioned before my main purpose is reached. In 1993 I applied the division between town and country to the 140 sites which had been published.[11] Country sites were divided between forts, temples, and villas, but towns and settlements were split where possible into small and large, and those in the East and West of Britain. The nomenclature of 'good' and 'bad' towns was developed in this work and is easily explained.

Settlements included any sites below the rank of *civitas*-capital down to small clusters of dwellings and were split between the East of Britain and the West. Towns were split between those which follow the general town pattern of equal coin-loss in the third and later fourth century, the good towns, split further between East and West, and the deviant, or bad towns, in which maximum coin-loss happens in the later fourth century. Average values were made for the different groups, and these were plotted on eight simple diagrams against a background made up of all the British sites used in the exercise. The different groups showed different patterns of coin-loss, and changes were caused both by category (town v. settlement) and geography (East v. West). The only problem which remained was the numerical consistency of the different groups; were all temples really similar, and should they have been grouped together? This problem will be further investigated elsewhere at a later date.

AIMS OF THIS PAPER

The 1993 paper[12] took basic archaeological definitions of sites, added some simple divisions between town and country, East and West, and then gave diagrams to show the average coin-loss on each of the types of site which had been defined. This was, to a large extent, a deductive approach and there was the strong danger in it that the basic assumptions made, that settlements should be kept separate from towns, and forts from temples, would twist the results. The opposite approach would have been to throw the 140 sites into a numerical melting-pot and see what groupings emerged. Several attempts have been made on these lines by students in the Institute of Archaeology as exercises in the course on Numerical Methods in Archaeology but the results have always been unsatisfactory. If the crude numbers are used, and sophisticated methods are applied, the results invariably distinguish between sites with large numbers of coins and sites with

[11] 'British sites and their Roman coins', *Antiquity* lxvii (1993), 863–9.
[12] ibid.

small numbers of coins, sites with a few rare coins in a period when other sites have no coins, or sites in which regular and barbarous radiates were not initially distinguished. The background noise, which any archaeologist could discount intuitively, gets in the way of mechanistic application of sensitive methods.

What was needed was a method which would take all the information for each coin-group into account and would then produce a simple visual picture of coin-loss over 400 years for each site. These pictures could then be sorted, initially by eye, to give groups of sites in which coin-loss throughout the Roman period was similar. It might be possible later in the process to learn from subjective sorting by eye how to pick out major points of difference so that a more objective numerical sorting could be established. Though the first aim has been achieved the second step is still in the future.

Two benefits might be expected from such a method if it could be developed. The results would depend solely on the coins collected from each site without the intervention of any assumptions about the nature of the site. Either sites about which there were similar archaeological preconceptions would cluster together, thus confirming the preconceptions, or they would not, thus providing new groupings. The co-occurrence in a well-knit group of two different sites would allow the extension of what was known archaeologically from the one site to the other. Thus in theory the period of occupation of a fort known from epigraphic or historical evidence could be applied to a temple site whose coin-loss was very similar to that of the fort.

There were two earlier publications which suggested possible modes of approach. When I had examined some British coin hoards in a numerical way it had become obvious that, for example, hoards of denarii buried under Antoninus Pius (138 to 161) all had similar profiles of coins of earlier emperors.[13] This suggested that the simple profile was an easy shape to sort. When publishing coins from the centre of Rome,[14] I was able to divide up two main groups of deposits by using a simple diagram of cumulative frequency. This proved a vital link and will be explained further below. As this method was first explained at a day of lectures in honour of Professor S.S. Frere held at the London Institute of Archaeology the examples are worked out on material from Verulamium.

THE METHOD

The first problem is to decide how best to demonstrate the similarities and differences there are between the different groups of coins from the town. Coins from the Frere and Wheeler excavations and the site-finds belonging to Lord Verulam are published in full in the Verulamium report[15] and the coins from the Theatre are listed there in summary form. The method is based on numbers of coins in each group out of coins per thousand and these are given in Table 1 with an average, or mean, value of sites in Britain used in the earlier article in *Antiquity*.[16] The coins are divided into the 21 periods now commonly used in the comparison of sites.

[13] 'Numerical aspects of Roman coin hoards in Britain', in Casey and Reece, op. cit. (note 3), 78–94.
[14] 'A collection of coins from the centre of Rome', *PBSR* l, 116–45.
[15] S.S. Frere, *Verulamium Excavations* III (1984), table I, pp. 4–10.
[16] op. cit. (note 11).

TABLE 1

COINS PER THOUSAND FOR THE BRITISH MEAN AND THE VERULAMIUM SITES

Period	Date	Britain	Frere	Verulam	Wheeler	Theatre
1	to A.D.41	6.47	18.95	5.76	9.17	0.61
2	41–54	11.73	28.12	6.15	20.18	0.92
3	54–69	5.90	20.17	4.23	16.51	0.92
4	69–96	30.85	59.29	19.22	35.47	3.98
5	96–117	19.90	24.45	12.3	18.35	7.65
6	117–138	15.79	18.34	14.22	15.9	7.96
7	138–161	18.67	18.34	14.22	20.18	7.65
8	161–180	11.52	10.39	11.91	13.46	1.22
9	180–192	4.66	3.67	3.84	4.28	2.14
10	193–222	15.18	11	13.07	15.9	2.45
11	222–238	7.29	7.95	6.53	3.67	2.45
12	238–260	8.08	8.56	3.84	10.4	5.2
13	260–275	144.30	233.5	194.08	387.16	163.4
14	275–296	121.24	177.87	240.97	270.34	126.38
15	296–317	17.49	8.56	11.15	6.12	12.55
16	317–330	44.13	23.23	26.52	10.4	41.62
17	330–348	245.54	157.09	228.29	43.43	301.1
18	348–364	98.22	89.85	100.69	40.98	209.91
19	364–378	118.00	58.68	61.49	39.14	88.43
20	378–388	4.80	0	1.54	2.45	0.92
21	388–402	50.25	22	19.98	16.51	12.55

The next stage in comparison is to add up the coins found in each group so that they show, period by period, what total of coins has been accumulated at each date. This is rather like keeping one museum drawer for the coins from each site and looking at the total number of coin packets as each coin is filed away. Thus each drawer starts empty before Period 1, and the space reserved for each site is full after Period 21 has been reached. If the four drawers are kept side by side, and the coins from each period are put in across the drawers then they will fill up at different rates because the different sites have different proportions of coins in different periods. The Theatre drawer will remain almost empty long after the other three drawers are getting well stocked. More coins will go in each drawer after 260, but the Theatre will still lag behind because the great bulk of its coins belong to the fourth century by which time the Wheeler drawer is almost full.

This is shown on a diagram in FIG. 1 in which the coins from the average British site are added up, period by period. There is slow accumulation until after Period 12 (ends 260), then a sudden rise with the radiate coins, a slackening off, and a further steep rise after Period 16 (ends 330). The last 24 years from 378 to 402, Periods 20 and 21, top up the list to 1,000. The numbers necessary to plot this diagram are given in Table 2 together with the similar numbers for the four Verulamium sites. Any row in Table 2 is formed by simply adding that same row in Table 1 to the coins above it to get a 'total thus far'.

How do the Frere coins compare with the British mean? This can be put in simple visual form by letting the Frere coins add themselves up on the same diagram as the mean. This produces FIG. 2. Going back to the example of the coin drawers, both must start empty, at

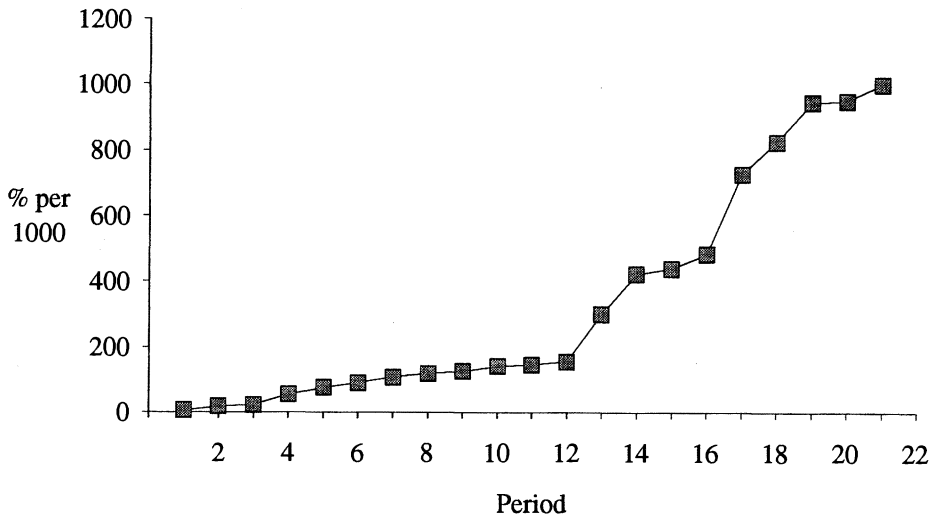


FIG. 1

TABLE 2
COINS PER THOUSAND AS IN TABLE I ADDED CUMULATIVELY

Period	Britain	Frere	Verulam	Wheeler	Theatre
1	6.47	18.95	5.76	9.17	0.61
2	18.20	47.07	11.91	29.35	1.53
3	24.10	67.24	16.14	45.86	2.45
4	54.95	126.53	35.36	81.33	6.43
5	74.84	150.98	47.66	99.68	14.08
6	90.64	169.32	61.88	115.58	22.04
7	109.30	187.66	76.1	135.76	29.69
8	120.83	198.05	88.01	149.22	30.91
9	125.49	201.72	91.85	153.5	33.05
10	140.66	212.72	104.92	169.4	35.5
11	147.95	220.67	111.45	173.07	37.95
12	156.03	229.23	115.29	183.47	43.15
13	300.33	462.73	309.37	570.63	206.55
14	421.57	640.6	550.34	840.97	332.93
15	439.06	649.16	561.49	847.09	345.48
16	483.19	672.39	588.01	857.49	387.1
17	728.73	829.48	816.3	900.92	688.2
18	826.95	919.33	916.99	941.9	898.11
19	944.95	978.01	978.48	981.04	986.54
20	949.75	978.01	980.02	983.49	987.46
21	1000.00	1000.01	1000	1000	1000.01

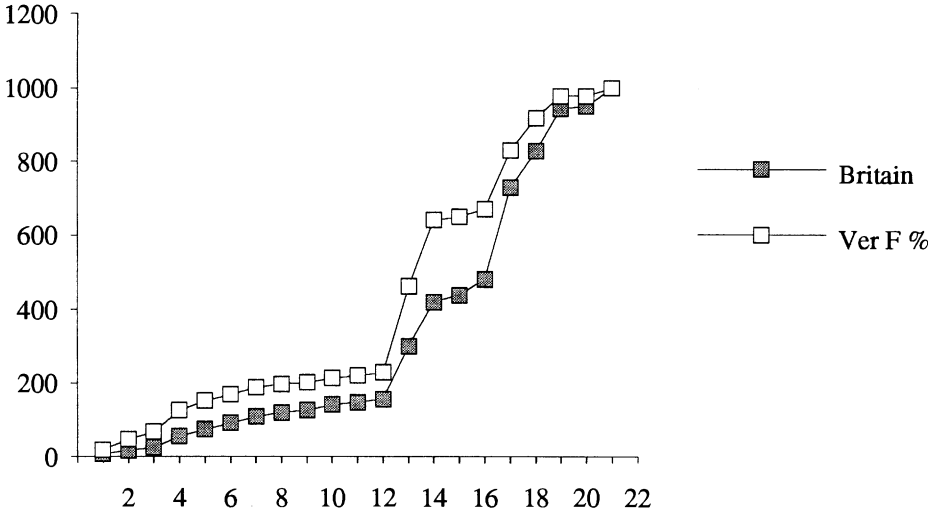


FIG. 2

0 coins per thousand, and both must finish full as the space reserved for each site has been filled up by its coins. Thus the beginning and end of each diagram are fixed, just as the drawers must be empty before any coins are put in, and full when all the coins are in place. The interest lies in how the drawers fill up over time. This comes across clearly in FIG. 2. The Frere coins get off to a good start so that they are clearly ahead by the end of Period 4 (A.D. 96). There is level pegging until the end of Period 12 (260) which means that the drawers are filling up at the same rate, and each site has the same proportion of coins in each period. Frere moves ahead through the radiate periods (260 to 296), but then stays almost level, just as the mean does, and then moves ahead less slowly than the mean in the later fourth century so that the mean catches up as is inevitable.

This is easy to understand and examine on FIG. 2 where only two sets of values are shown, but more difficult for the extraction of detail when there are several lines from several sites all moving in roughly the same direction. It is also difficult to judge whether the gap between Frere and the mean is greater or less in Periods 6 to 10 and 17 to 18. All this can be resolved by drawing a diagram which consists simply of the distance between the two lines. This is FIG. 3, which is produced by subtracting the mean from the Frere values. From this it is immediately clear that the distance between Frere and the mean is gradually dropping from Periods 6 to 12 and that the difference in Periods 17 and 18 is greater than in the earlier periods.

The values necessary for plotting all the Verulamium diagrams in this way are given in Table 3.

Comparison of FIGS 4 and 5 should demonstrate the usefulness of this method of putting the numbers in visual form. FIG. 4 gives the cumulative numbers of coins per thousand in

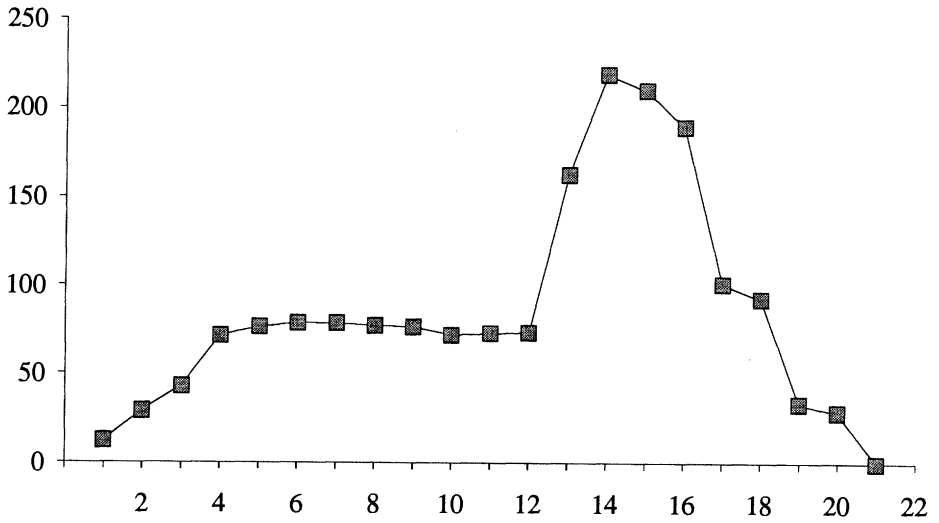
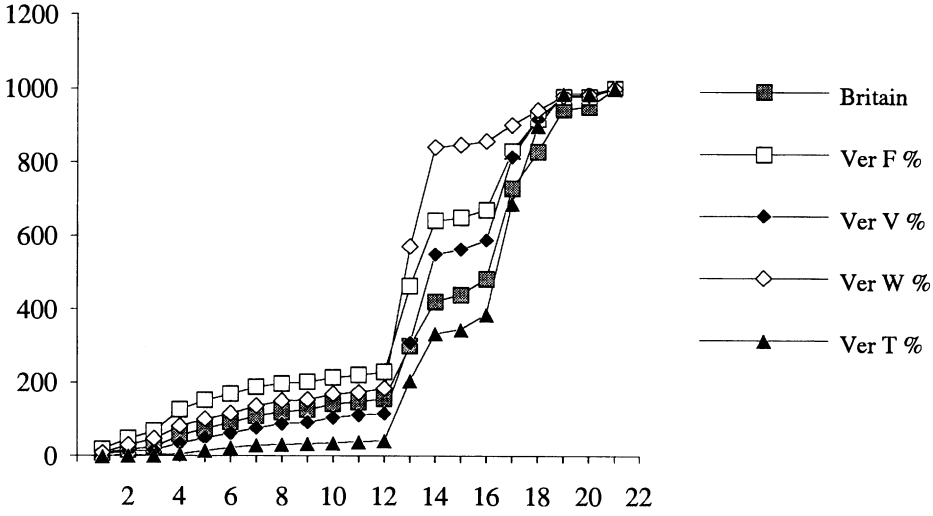


FIG. 3

TABLE 3

CUMULATIVE VALUES OF COINS PER THOUSAND FOR EACH VERULAMIUM SITE MINUS THE BRITISH MEAN

Period	Frere	Verulam	Wheeler	Theatre
1	12.48	−0.71	2.70	−5.86
2	28.87	−6.29	11.15	−16.67
3	43.14	−7.96	21.76	−21.65
4	71.58	−19.59	26.38	−48.52
5	76.14	−27.18	24.84	−60.76
6	78.68	−28.76	24.94	−68.60
7	78.36	−33.20	26.46	−79.61
8	77.22	−32.82	28.39	−89.92
9	76.23	−33.64	28.01	−92.44
10	72.06	−35.74	28.74	−105.16
11	72.72	−36.50	25.12	−110.00
12	73.20	−40.74	27.44	−112.88
13	162.40	9.04	270.30	−93.78
14	219.03	128.77	419.40	−88.64
15	210.10	122.43	408.03	−93.58
16	189.20	104.82	374.30	−96.09
17	100.75	87.57	172.19	−40.53
18	92.38	90.04	114.95	71.16
19	33.06	33.53	36.09	41.59
20	28.26	30.27	33.74	37.71
21	0.01	0.00	0.00	0.01


1200
1000
800
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200
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Britain
Ver F %
Ver V %
Ver W %
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FIG. 4

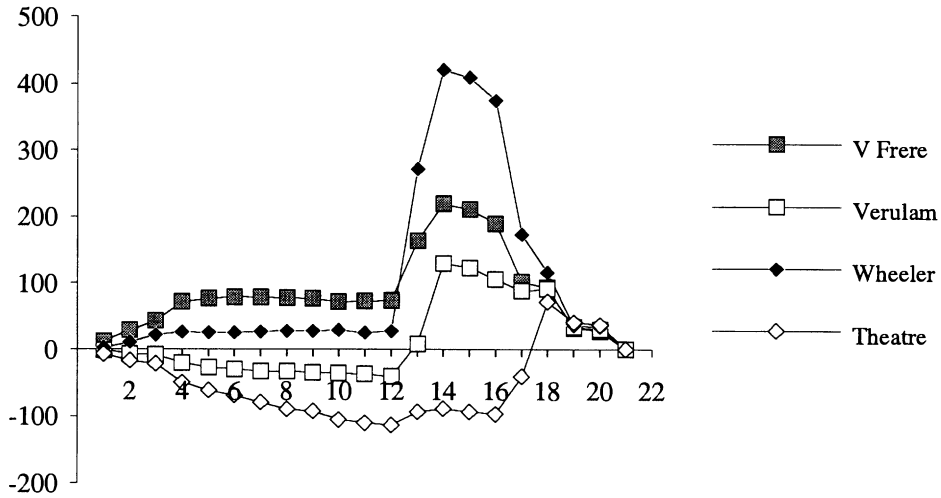

500
400
300
200
100
0
-100
-200
2 4 6 8 10 12 14 16 18 20 22
V Frere
Verulam
Wheeler
Theatre

FIG. 5

full, while FIG. 5 shows only the differences between the British mean, which is the horizontal line at 0, and the four different sites.

At this point some warnings about the interpretation of the diagrams is needed. The absolute position of each dot on the diagram does not give a direct statement about the absolute number of coins in each group. Thus the Frere dots in Periods 6 to 12 are higher up the diagram than the Verulam dots, but this does not necessarily mean that the Frere collection contains a greater proportion of these coins than the Verulam collection. What matters is the fact that both lines, Frere and Verulam, are almost level and parallel. This means that both collections are adding to their numbers at almost exactly the same rate as the average site in Britain. The Theatre collection in these periods is falling, which means that the Theatre coins are added at a slower rate than the average site. When Period 17 coins (330 to 348) are added to each group, three groups move downwards and the Theatre group moves up. This means that the Frere and Wheeler excavations and the Verulam site-finds add proportionately less coins to their totals than the average British site, while the Theatre adds more to its lists at this period than the average. Unity is reached after 348 when all the Verulamium sites move downwards against the average as they add on the coins of the latest periods. The fact that the dots are above the average line in Periods 18, 19 and 20 does not mean that the sites have above average numbers of coins for these periods. The vital point is the direction of movement, and this is uniformly downwards, less than average.

If the Verulamium sites were being classified from FIG. 5 then three sites would belong together and the Theatre would be put in a separate group. The characteristics would be a fair start, then a steady state for the group of three followed by an upward shift in the radiate periods, 13 and 14, and a downward shift in all periods after the end of Period 14 (296). The Theatre group, however, is characterised by a poor showing early on, little shift in the radiate period, a rise above average in Periods 17 and 18 (330 to 364), and a below average movement in the last three periods. We are now in a position where there is a reasonable hope of a total classification of archaeological sites in Britain purely according to coin-loss.

The basis for this study will be the 140 sites which I gathered together and published in 1991.[17] Sites are referred to by the abbreviations (included here with expansion in the Appendix) used in that publication which includes short details of the sites, including full bibliographies. The fact that all the coins from these 140 sites in Britain are published as numbers, and as coins per thousand means that no further tables of numbers are needed in this paper. In any case of difficulty reference can be made to the published material. The only ways in which those basic numbers of coins have been manipulated are demonstrated in Tables 1, 2, and 3 in this paper which I hope can be easily followed.

THE RESULTS

FIGS 6 to 27 show the profiles of the 22 groups into which the sample of 140 sites can be divided. As mentioned above this has been done purely by eye and a further stage of numerical sorting is some way in the future. There are two elements in the divisions, scale and profile. This will only be obvious with close study of the scales of the different

[17] op. cit. (note 7).

figures, for they all vary. It might be suggested that the figures should be drawn to a uniform scale, but since the aim is demonstration of the separation into groups, rather than an absolute interpretation of each profile, it is better to have the maximum separation of the different scales than cramped and almost invisible uniformity. Thus, FIGS 6 and 7 appear to show almost identical sets of profiles, but, since the scale of FIG. 7 is about twice that of FIG. 6, it becomes clear that the sites on FIG. 7 would simply fit beneath and confuse the sites on FIG. 6. The profiles are similar, but the division is created by the scale of difference of each site from the mean. A maximum of ten sites is allowed to each diagram; beyond that there is confusion of symbols and profiles.

The 22 groups can be sorted out through a fairly clear process of subdivision. FIGS 6 to 12 have almost all values above the mean, FIGS 24 to 27 have all values below the mean, and FIGS 13 to 23 all show sites with profiles which move both above and below the mean.

FIGS 6 and 7 include all the sites which start off very strongly moving above the mean. FIG. 8 has sites which reach fairly high values in the years up to 260 (Period 12). FIG. 9 has a peak in the late third and fourth century, and FIGS 10, 11 and 12 drop nearer and nearer to the mean. FIGS 13 and 14 continue close to the mean with some values above and some below, but remarkable clustering around the mean-line. FIG. 15 with only three sites is odd because it shows a sudden burst of activity moving above the mean in the radiate period, but moves below the mean at all other times. FIGS 16, 17, and 18 show a change from moving below the mean to a sharp movement above the mean in the radiate periods 13 and 14 with a gradual drop in the strength of the radiate burst. FIGS 19 to 22 show progressively later moves above the mean from Period 16 (330) onwards with smaller and smaller peaks above the average at the end of the fourth century. FIG. 23 shows moves slightly above the mean up to the radiate period and then moves below. FIGS 24 to 27 show all values below the mean with a move upwards above the mean coming later and later in the fourth century.

When numerical sorting is developed there will be a major problem to be overcome. At present, when the profiles are sorted by eye, this takes in a whole series of values and movements against a mean. The moment the sites are sorted by individual values – the size of movement against the mean when Period 13 is added, for example – the information given by the whole profile is lost. This has been the major problem for so long, to take into account simultaneously all 21 periods of coinage, and their relationship to the mean. This is the great virtue of the new method though it does leave a clear subjective element in the priorities of choices made.

It could be suggested that the whole scheme is too heavily influenced by the early coins and this criticism is valid. Once any site such as Fishbourne has moved so strongly over the mean in the first few periods, even total absence of coins in the later period will not bring the site down below the mean-line. But this does not mean that the later periods have less effect on the profile. It would be possible to create a whole new set of profiles by starting from the year 402 and adding earlier coins, period by period to reach 1,000 coins per thousand before A.D. 41. Luckily there is no need to draw a new set of diagrams for this data because they have exactly the same shapes as these present diagrams, the relationships of all sites to one another are identical, and the whole process is checked simply by looking at each drawing upside down.

Whichever way up the drawings are read the central periods have less visual impact than those at the beginning or end. Sites are sorted, when seen the present way up, first by their early coins. Viewed upside-down they are sorted basically by their latest coins. Coming in the centre the radiate coins can only modify a sorting that has already taken place from either end; they cannot, from the centre, create the categories. This cannot easily be corrected because diagrams starting off from say 260, the radiate period, have

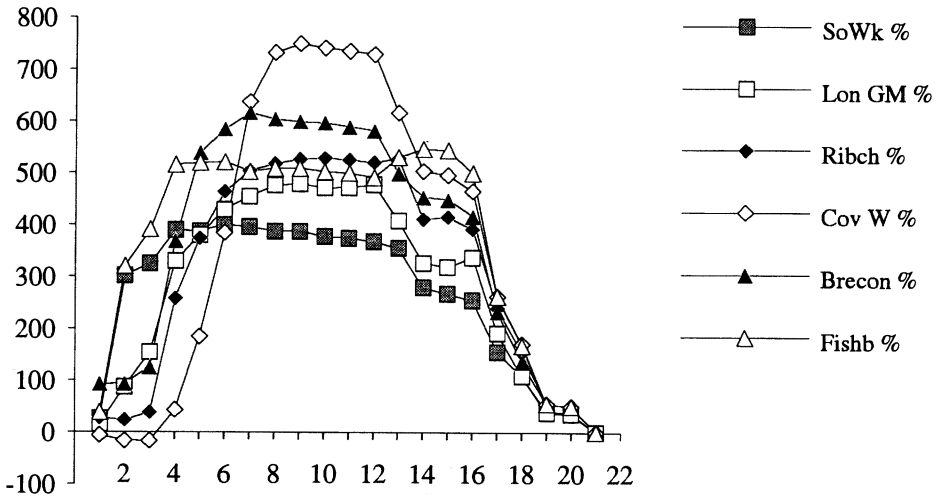


FIG. 6

too few periods for good separation. The profiles clump together in a confusion difficult to interpret.

It might be objected that the mean which is derived from a series of well-documented sites is the wrong mean to use; that a different mean would give different separations. This is not so. The mean, whatever it is, is a constant which is subtracted from the values of each site. While the shapes of the profiles would all differ according to the mean used, their relationship to one another, and therefore their grouping into clusters, would remain constant. So far, the method might be found acceptable, but has it any application, and is it of any use?

Apart from the method itself, and the reasonably objective means that it provides for sorting site-finds in Britain out into groups of similar coin-loss, the main potential lies in the possible implications of the groupings. This is stated in very bland terms because, if the method catches on, it will not be long before tentative suggestions made here turn into firm statements in the papers of others. What appears here is a statement of method and a note that, when the method is applied, certain sites appear to produce similar diagrams of coin-loss. I will return to this important point after drawing attention to some of the more interesting similarities.

FIG. 6 shows a strong general similarity between a series of sites which include Southwark, London (Guildhall Museum), Fishbourne, and Richborough. Southwark is thought of as an early supply-base followed by a suburb, Fishbourne as a supply-base followed by a palace, and Richborough as an early fort. If we had nothing for the archaeology of London except the coins in the former Guildhall Museum there might be reason to expect in London, when it was excavated, a Richborough and a Fishbourne, in other words a palace and a fort. In this case we suspect the suggestions to be true so that there is reason to go ahead and apply the method to sites otherwise uninterpreted.

But there is a further point on FIG. 6 which needs attention. While the six sites grouped

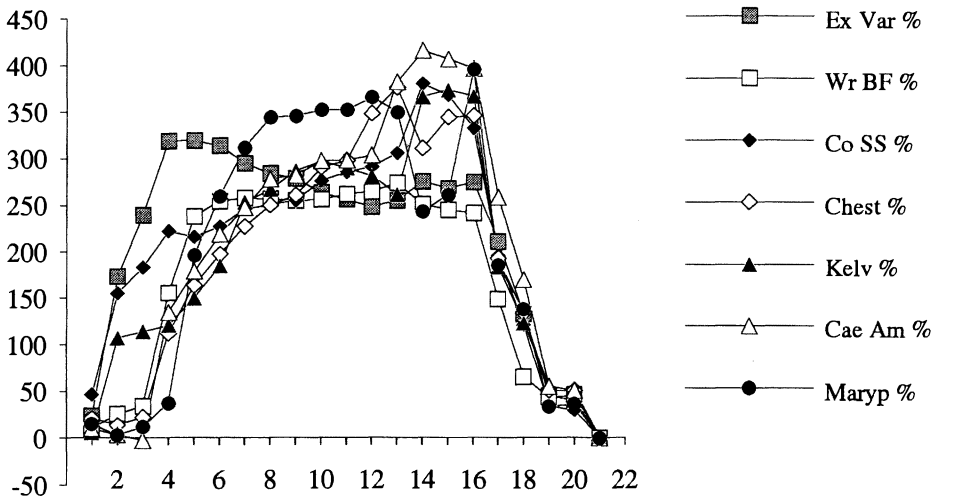
together are closely allied by profile, and quite distinctive in their scale, there are differences. The Claudian bridgehead at Richborough and the supply-bases at Southwark and Fishbourne start off first and are then followed by London with Brecon and Coventina's Well following after. Again, there is no doubt from the geographical positions of Brecon in South Wales and Coventina's Well on Hadrians Wall, and from the excavations at those sites, that there is in the full archaeology the temporal progression seen from the coin diagram. This suggests that the priority of Southwark over London ought to be taken seriously and the site should be seen as early development directly of the Conquest period. The diagram would then give a group of Conquest sites (Fishbourne, Southwark, Richborough), sites of early consolidation (Richborough and London) and sites of different periods of military deployment (Brecon then Coventina's Well). These points come through again on FIG. 8.

FIG. 7, as has already been explained, differs from FIG. 6 mainly in scale. The sites in FIG. 6 go up to a plateau of about 500 whereas no site on FIG. 7 reaches that value. The units throughout are coins per thousand difference from a British mean. Comparison of the two diagrams shows that it would have been possible to sort them differently according to the period in which their steepest rise occurs. Fishbourne and Southwark would then have been grouped with Exeter Various, Kelvedon, and Colchester Small Sites. London GM, Brecon, and Ribchester would join Wroxeter Bushe Fox, Chester, and Caerleon Amphitheatre, while Maryport and Coventina's Well would come appropriately together on the Wall. If the sites in FIGS 6 and 7 had been grouped in this second way then the initial coin surge by date would have been allowed priority over the rest of the profile. But the height of the profiles in FIG. 6 can only be achieved at the expense of all later periods; a very high profile up to 260 means complete collapse thereafter. The grouping given in FIGS 6 and 7 therefore emphasises overall similarity at the expense of historical development in the first century A.D.

FIG. 8 makes the successive waves of coin-loss more explicit in sites in which the early coin-loss is less dramatic than on the sites already considered. Exeter 1971 and 1972, presumably because of the fortress, have the very early start that we have already seen, London Excavations follow London GM on the same time-scale but at much lower values, Manchester follows next, among the western military sites, then Whitton; Housesteads gives the establishment of Hadrian's Wall, and Braintree follows a similar pattern to Hadrian's Wall or Housesteads but one period later. This section will be read by some with a mixture of boredom and irritation. We already know that the West was pacified before the North, we do not need pretentious diagrams to state the obvious. And why on earth include a partly Romanised farmstead in South Wales and undistinguished Essex village with fully functional Roman military sites?

This exactly summarises the interest of the method. The military sites give an excellent backbone of interpretation; to the sceptical, the coin diagrams suggest that the military archaeologists might be right, but then it throws in two very unexpected sites. Whitton, a farmstead, can hardly be in this group of sites because of its own rural-style of coin-use; it must be there as an image of the military with coin-use in South Wales diffusing out into the countryside and forming a slightly fuzzy reflection. Braintree is to me a mystery, one of the many points of possible interpretation to be followed up by others.

FIGS 9 and 10 form a substantial group of towns and eastern settlements, the only exception being South Shields. FIG. 9 has the higher radiate movement, and this seems to be predominantly in the east of Britain. Chelmsford, The Cow Roast Marina, and Wickford seem to be indistinguishable from Leicester, Colchester, and Verulamium. Colchester appears again in FIG. 10, but is now joined by Wroxeter, Chichester, and Gloucester 2.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2
4
6
8
10
12
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18
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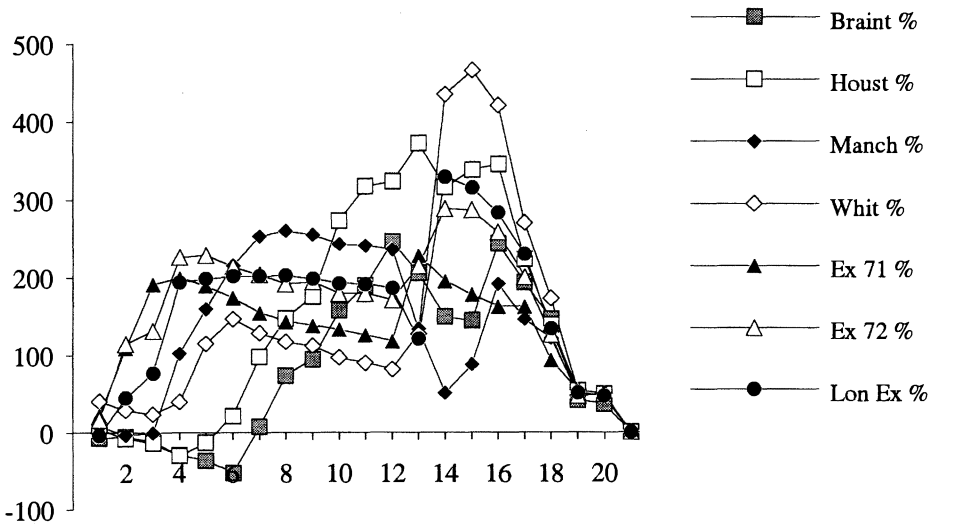
22
Ex Var %
Wr BF %
Co SS %
Chest %
Kelv %
Cae Am %
Maryp %

FIG. 7


500
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200
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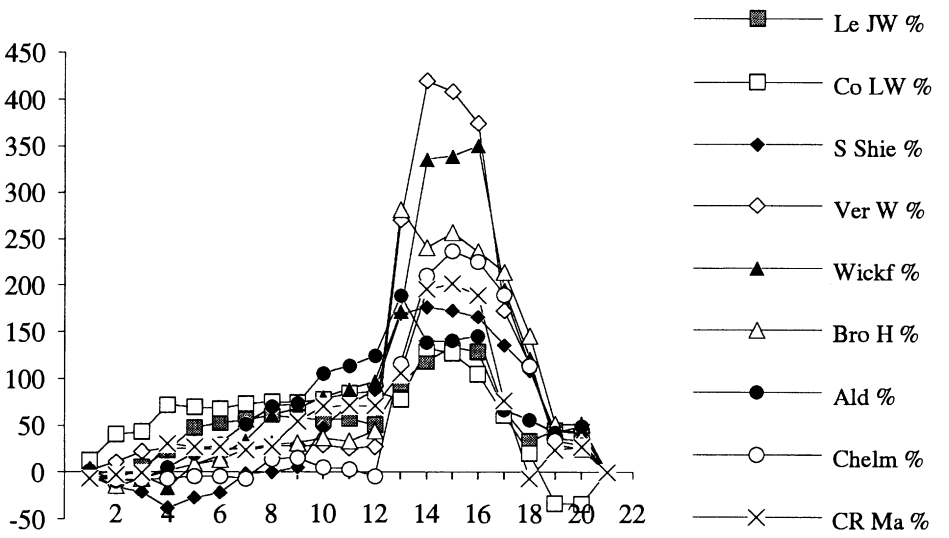
-100
2
4
6
8
10
12
14
16
18
20
Braint %
Houst %
Manch %
Whit %
Ex 71 %
Ex 72 %
Lon Ex %

FIG. 8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4
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8
10
12
14
16
18
20
22
Le JW %
Co LW %
S Shie %
Ver W %
Wickf %
Bro H %
Ald %
Chelm %
CR Ma %

FIG. 9

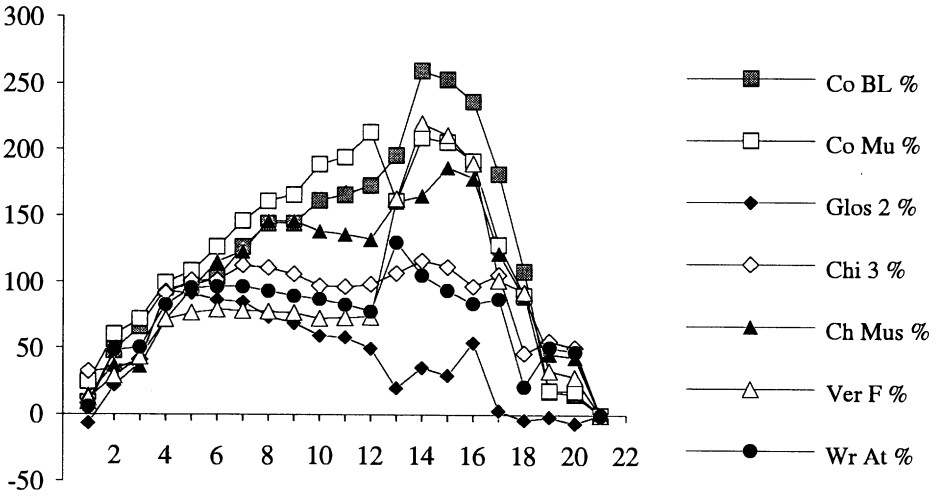

300
250
200
150
100
50
0
-50
2
4
6
8
10
12
14
16
18
20
22
Co BL %
Co Mu %
Glos 2 %
Chi 3 %
Ch Mus %
Ver F %
Wr At %

FIG. 10

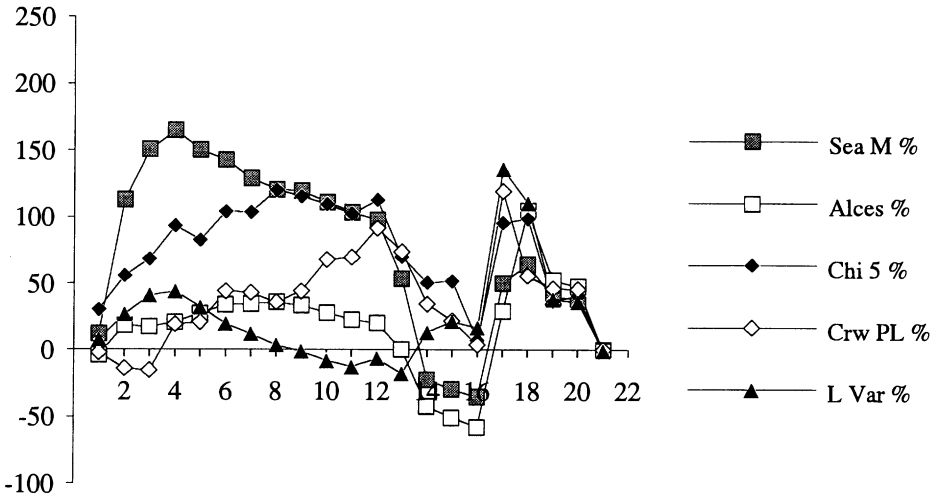
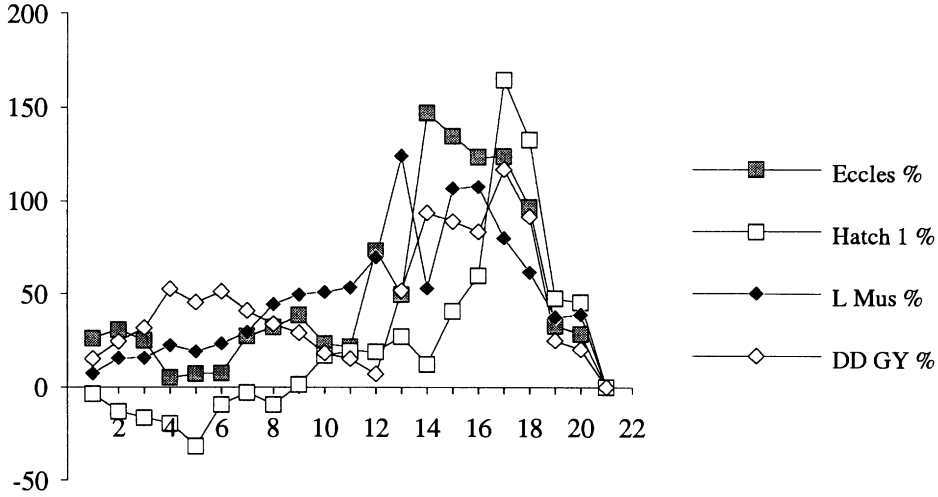


FIG. 11

FIGS 11 and 15 can be taken as an odd pair forming vaguely mirror-images. FIG. 11 contains five sites which are difficult to lodge elsewhere because they have a sharp movement down from relative success in the early and late periods to a trough in the radiate period. FIG. 15 has only three sites which show the reverse, low movement early and late interrupted by a sharp upward-movement in the radiate period. Sea Mills, near the Bristol Channel, has always been thought of as an early supply-base, and it would indeed at that period fit well with Fishbourne or Southwark; it also moves reasonably above average after 330. It could be that it is a site of two main phases, first-century, tailing off, and newly appointed in the 330s, with a third-century period of disuse. Lincoln Various, a summary of smaller sites has little to contribute here, but the particular sites in Chichester 5, Alcester, and Caerwent Pound Lane, might be found to follow such a path of activity and disuse. I can give even less guidance on the early excavations at Dorchester Dorset, Canterbury Group B, or the Wotton-at-Stone excavations, but the points are there to be followed up in the future.

FIGS 12, 13, and 14 hang together more by their scales than anything else. If they had been printed at the same scale as FIG. 6 they would simply form a blur about the mean-line since few sites ever go more than 100 coins per thousand away from a British mean. Printing them at the larger scale, which makes them appear rather varied, does at least give the possibility of sorting out different categories of profile. FIG. 12 is predominantly above the mean, FIG. 14 predominantly below and FIG. 13, erratic in a very gentle way. With so little variation in numerical values comes total variety of site. The Lincoln Museum is close to the first season at the East Anglian settlement of Hatcheston, Greyhound Yard at Dorchester is quite close to Corbridge, Lincoln St Marks is similar to the Gloucestershire village of Kingscote, and the Cemetery and Amphitheatre at Cirencester compare well with Caernarfon or the Humberside villa of Winterton.


200
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50
0
-50
2
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6
8
10
12
14
16
18
20
22
Eccles %
Hatch 1 %
L Mus %
DD GY %

FIG. 12

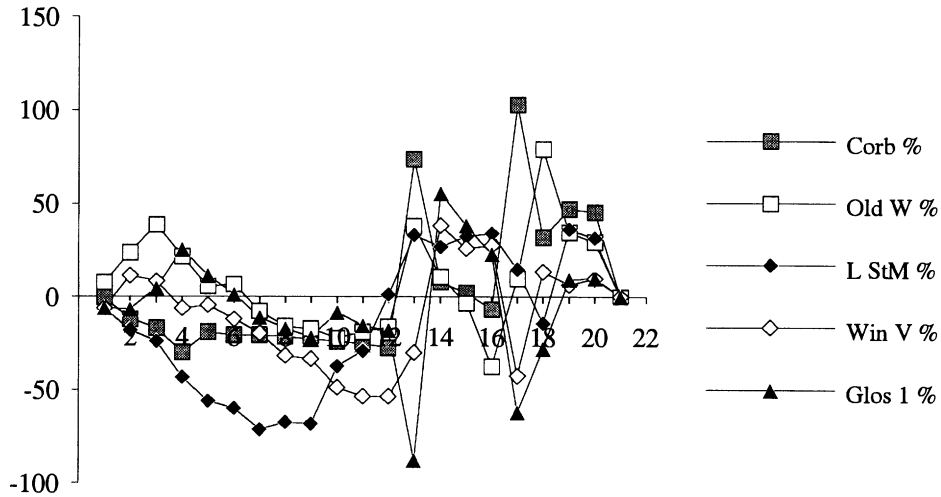

150
100
50
0
-50
-100
2
4
14
16
20
22
Corb %
Old W %
L StM %
Win V %
Glos 1 %

FIG. 13

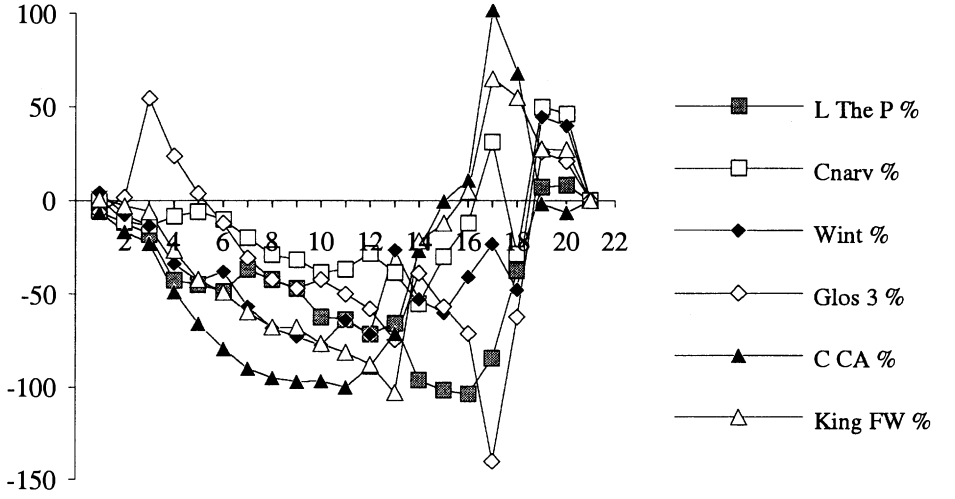
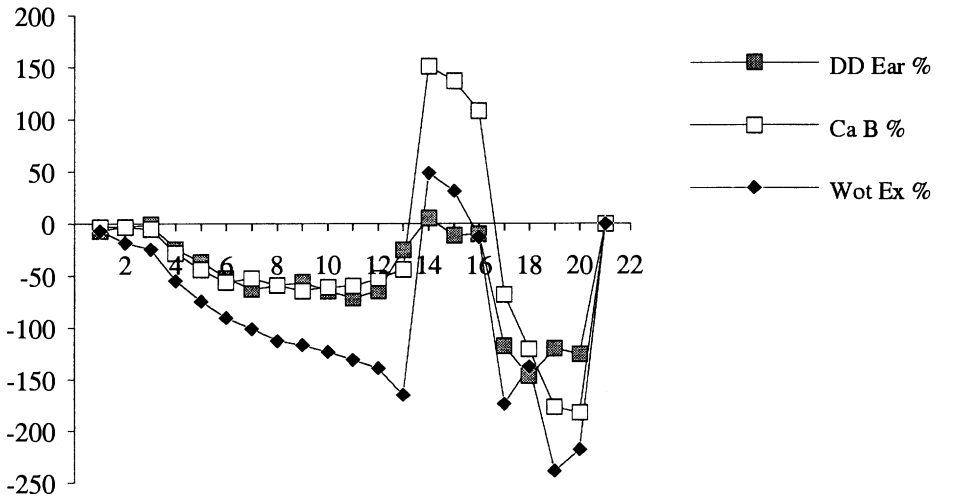

100
50
0
-50
-100
-150
2
4
6
8
10
12
14
16
18
20
22
L The P %
Cnarv %
Wint %
Glos 3 %
C CA %
King FW %

FIG. 14


200
150
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0
-50
-100
-150
-200
-250
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16
18
20
22
DD Ear %
Ca B %
Wot Ex %

FIG. 15

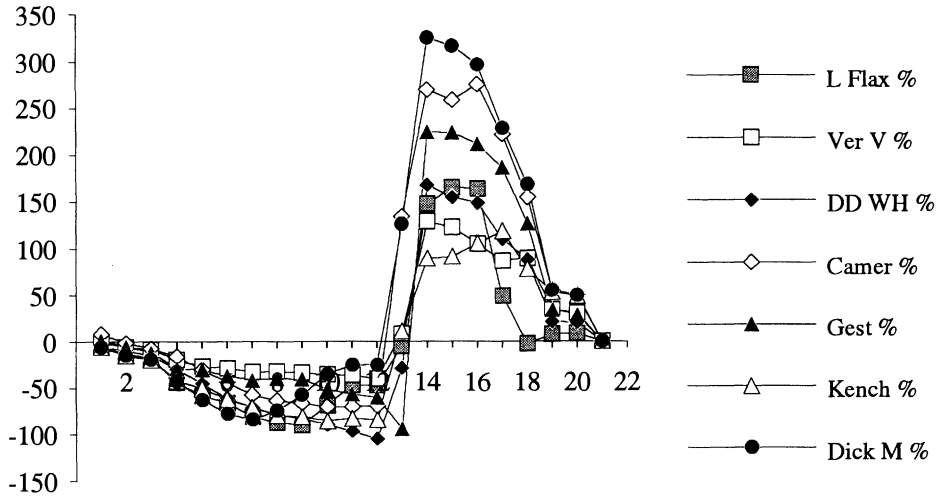
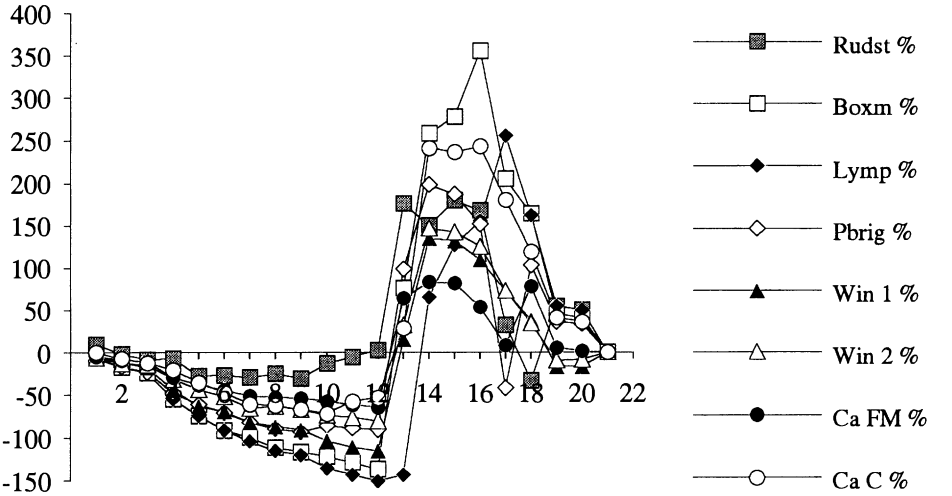


FIG. 16

FIGS 16 to 22 show a gradual progression from a high peak in the early fourth century to more and more below the mean-values, ending up in FIG. 22 with only a small positive peak in the late fourth century. FIG. 16 groups together three clear-cut towns in Lincoln Flaxengate, Verulamium Lord Verulam, and Woolaston House Dorchester, but then goes on to an East Anglian villa (Gestingthorpe), a villa deserted in the fourth century (Dicket Mead), and the Herefordshire small town of Kenchester. Up to FIG. 19 it would be fair to say that towns are accompanied by military sites and eastern villas and settlements. From FIG. 20 the western villas and settlements begin to be better represented. The one site which has so far not been seen is Cirencester; all the intramural sites there belong to the very last FIGS. Canterbury clusters with Winchester, and Lympne with Piercebridge (FIG. 17); the fort at Malton seems to compare well with the rural Somerset site of Catsgore (FIG. 18); the Caerwent coins in the Newport Museum are rather like those from the fort at Binchester or the villa at Gadebridge, demolished around 350 (FIG. 19).

On FIG. 21 Portchester and the Verulamium Theatre show strong similarities, and here the archaeology fully supports the association of two sites which show virtually no coin-loss before the 270s. In FIG. 22 the Gatcombe Excavations seem closely allied to the Lydney finds.

In FIGS 23 to 27 the geographical centre of gravity has shifted firmly to the West as the bulk of the coins on each site gets later and later. Silchester and Canterbury Group A are the only 'normal' towns to appear in this section, but Cirencester is firmly situated among a selection of villas, small settlements, and temples. The similarity between Gatcombe Excavations and Lydney has already been noted on FIG. 22 so it comes as no surprise to see the more general Gatcombe site finds firmly sandwiched on FIG. 27 between the temples of Uley and Lamyatt. Lullingstone, as a pagan and then a Christian temple, is presumably properly placed in this group. Gatcombe was dug by Barry Cunliffe as a small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-100
-150
2
6
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10
12
14
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18
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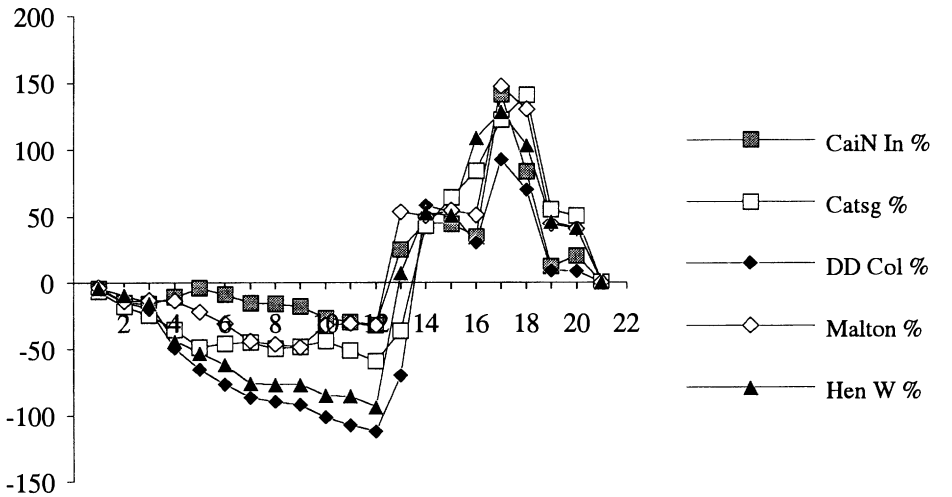
22
Rudst %
Boxm %
Lymp %
Pbrig %
Win 1 %
Win 2 %
Ca FM %
Ca C %

FIG. 17


200
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-100
-150
2
4
6
8
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12
14
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18
20
22
CaiN In %
Catsg %
DD Col %
Malton %
Hen W %

FIG. 18

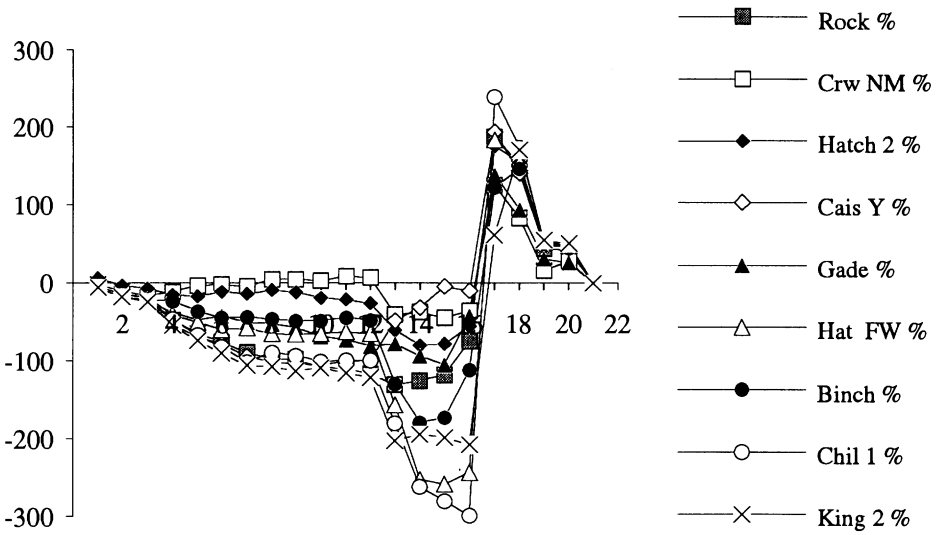
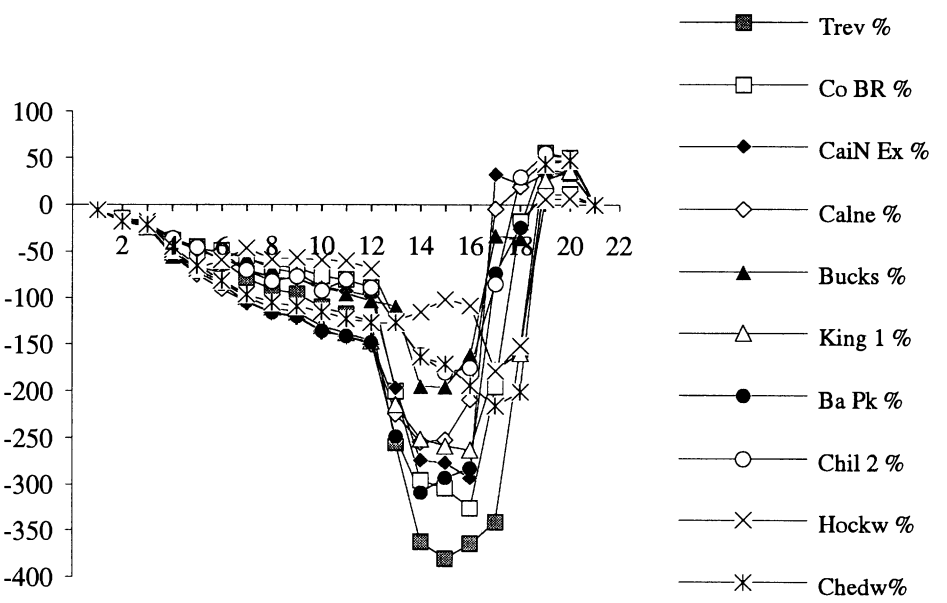

300
200
100
0
-100
-200
-300
2
14
18
20
22
Rock %
Crw NM %
Hatch 2 %
Cais Y %
Gade %
Hat FW %
Binch %
Chil 1 %
King 2 %

FIG. 19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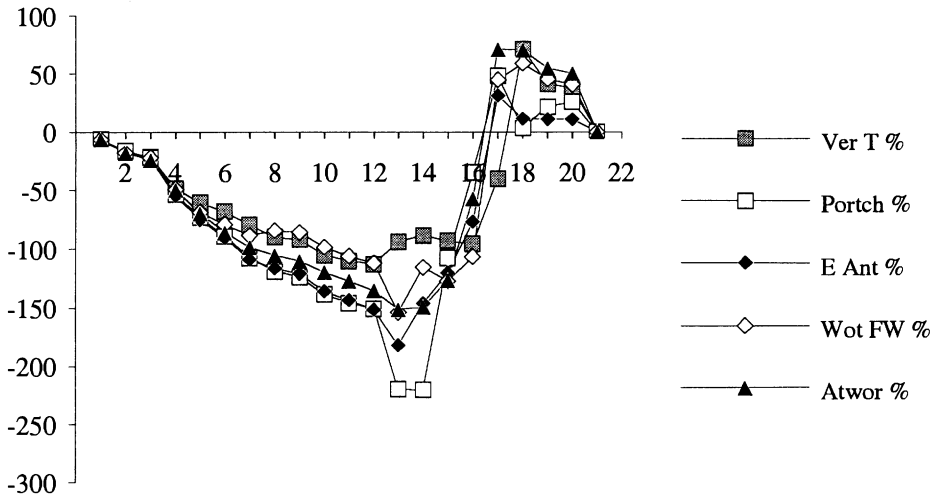
-200
-250
-300
-350
-400
2
4
6
8
10
12
14
16
18
20
22
Trev %
Co BR %
CaiN Ex %
Calne %
Bucks %
King 1 %
Ba Pk %
Chil 2 %
Hockw %
Chedw%

FIG. 20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-100
-150
-200
-250
-300
2
4
6
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12
14
16
18
20
22
Ver T %
Portch %
E Ant %
Wot FW %
Atwor %

FIG. 21

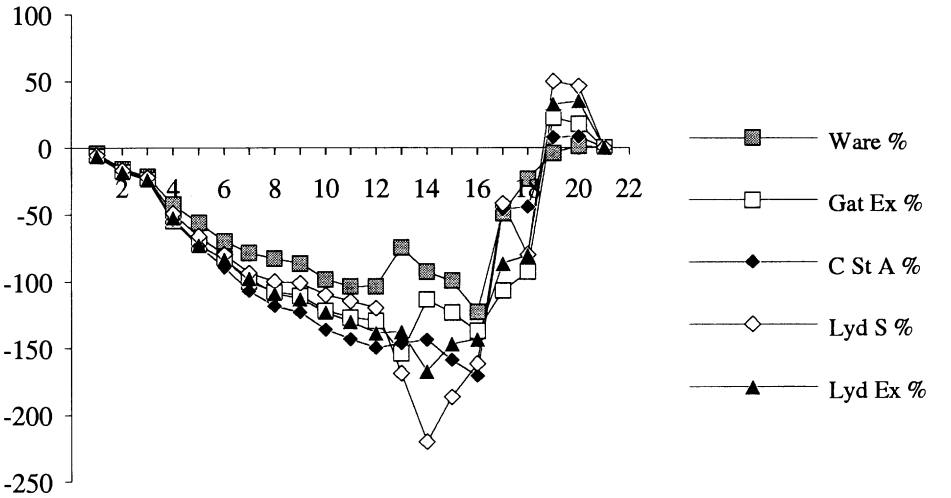
100
50
0
-50
-100
-150
-200
-250
2
4
6
8
10
12
14
16
18
20
22
Ware %
Gat Ex %
C St A %
Lyd S %
Lyd Ex %

FIG. 22

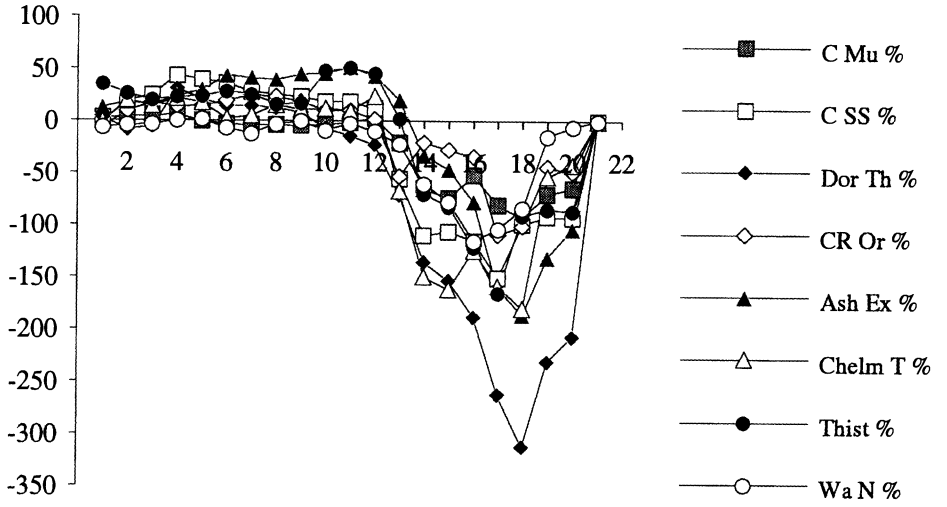
100
50
0
-50
-100
-150
-200
-250
-300
-350
2 4 6 8 10 12 14 16 18 20 22
C Mu %
C SS %
Dor Th %
CR Or %
Ash Ex %
Chelm T %
Thist %
Wa N %

FIG. 23

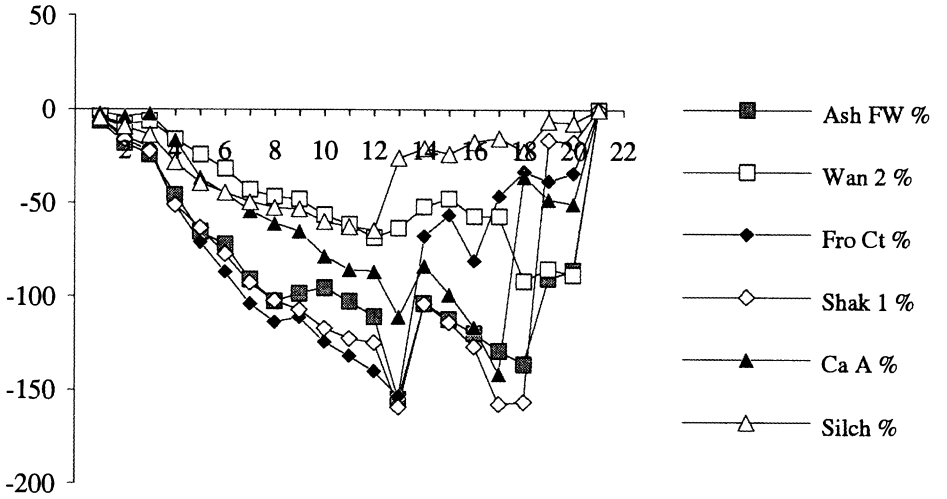
50
0
-50
-100
-150
-200
2 4 6 8 10 12 14 16 18 20 22
Ash FW %
Wan 2 %
Fro Ct %
Shak 1 %
Ca A %
Silch %

FIG. 24

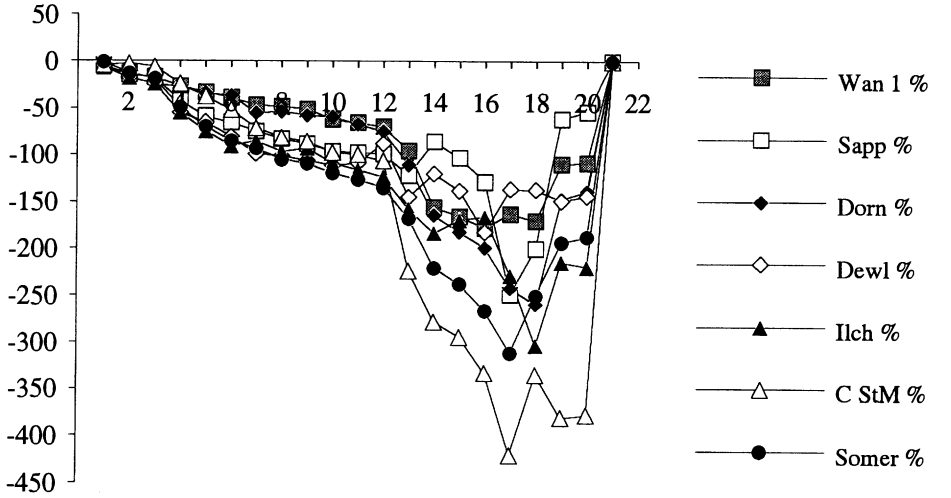
50
0
-50
-100
-150
-200
-250
-300
-350
-400
-450
2
10
12
14
16
18
20
22
Wan 1 %
Sapp %
Dorn %
Dewl %
Ilch %
C StM %
Somer %

FIG. 25

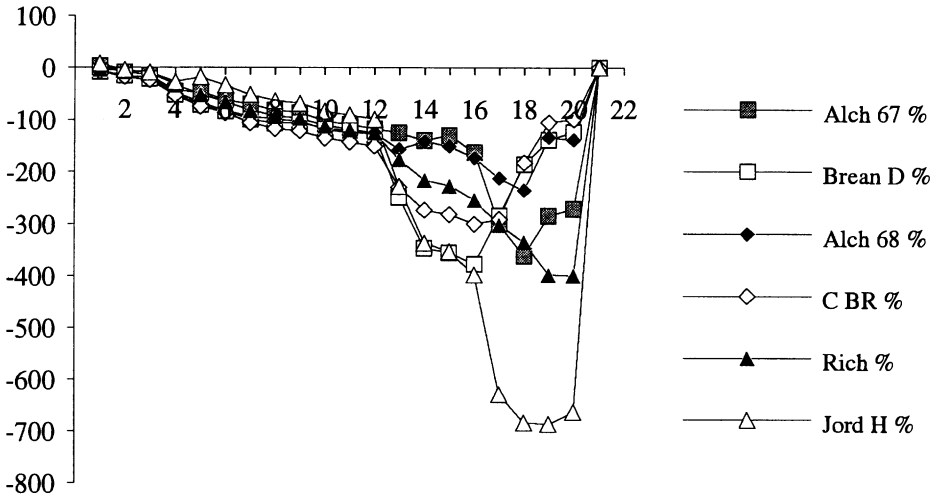
100
0
-100
-200
-300
-400
-500
-600
-700
-800
2
12
14
16
18
22
Alch 67 %
Brean D %
Alch 68 %
C BR %
Rich %
Jord H %

FIG. 26

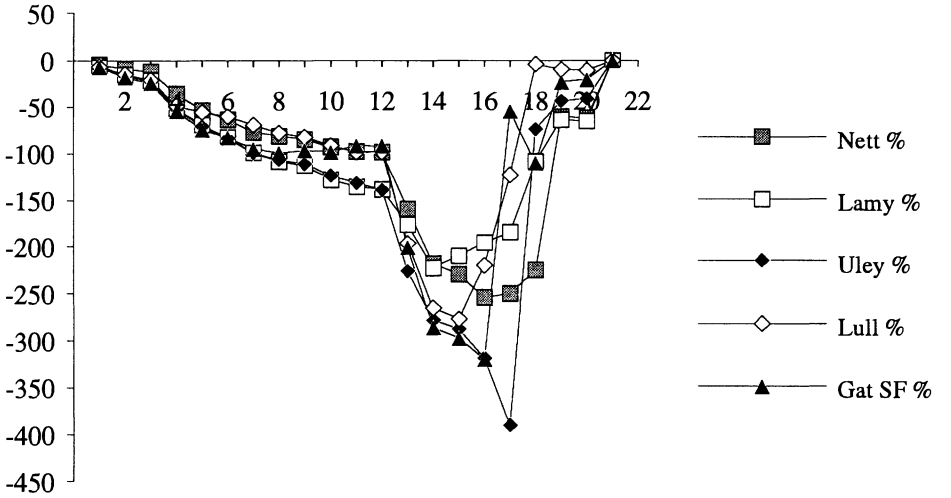

FIG. 27

settlement, part of which had been destroyed by a railway cutting; Keith Branigan dug it as a villa enclosure in which the actual villa building had been destroyed by a railway cutting. It seems fair to suggest that an alternative explanation is that of temple enclosure with ancillary buildings like Uley or Nettleton from which the railway extracted the actual temple but only after the general site-finds had been distributed round the whole area.

I finish with two diagrams which suggest how the method might be applied in the future. John Davies and Tony Gregory collected and published a superb set of information on coins from field-walking in Norfolk.[18] Both Davies and I have pointed out several times the way that coins from inside towns seem to belong to the town group, while sites only just outside the walls belong to the country group.[19] FIG. 28 shows the results of applying this method to the coins from two fields inside and outside the defences of Caistor-by-Norwich. The sites part company with the radiate coins of Period 13; the interior of the town goes above average, the exterior below. After 330 with the addition of Period 17 coins both sites move strongly upwards against the average, but the exterior moves more strongly. After this the interior drops against the mean while the exterior holds up.

FIG. 29 appears similar to FIG. 28 but it represents very different information. The two sets of coins come not from internal and external sites in one town, but represent the total

[18] 'Coinage from a *civitas*', *Britannia* xxii (1991), 65–102.

[19] op. cit. (note 7), 102–7; J. Davies, 'The Study of Coin-finds from Romano-British Towns', in S. Greep (ed.), *Roman Towns, the Wheeler Inheritance*, CBA Res. Rep. 93 (1993), 123–33.

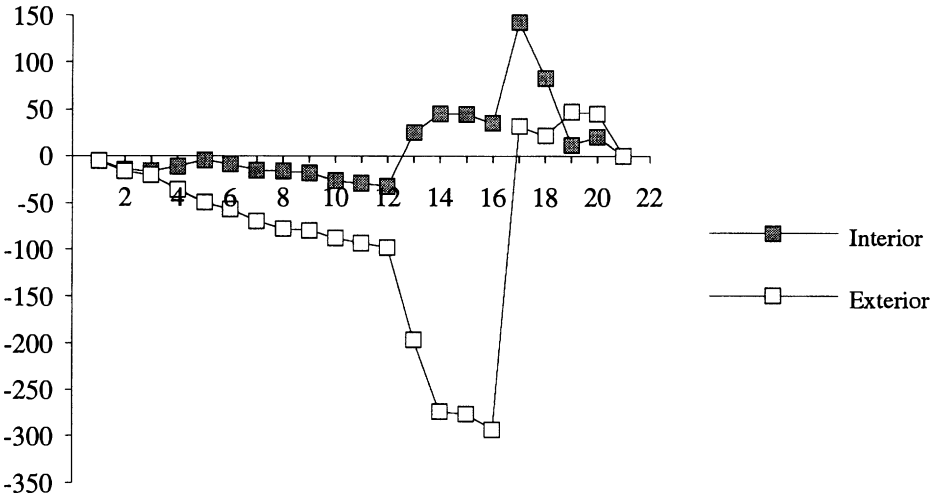
150
100
50
0
-50
-100
-150
-200
-250
-300
-350
2
4
6
8
10
12
14
16
18
20
22
Interior
Exterior

FIG. 28

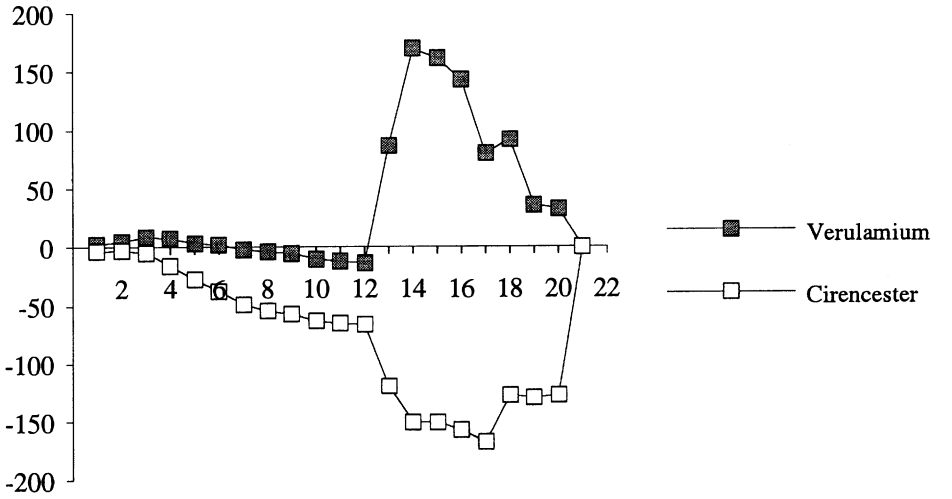
200
150
100
50
0
-50
-100
-150
-200
2
4
6
8
10
12
14
16
18
20
22
Verulamium
Cirencester

FIG. 29

coins found in two very different towns, Cirencester and Verulamium. Judged against the mean the two towns diverge radically around 260: Verulamium greatly exceeds the mean, it has more coins than usual; Cirencester drops below the mean. By the 330s Verulamium's peak has been past and Cirencester's depression has been weathered and their move back towards the mean is remarkably similar. I have no ideas at present on the cause of these differences; this is work for the future.

I leave this as the last diagram in order to illustrate the use of the method in making clear in visual terms a whole series of similarities and differences in the coin-finds of Roman Britain. I also like to use it to illustrate the way in which Sheppard Frere and I usually have mirror-image views of Roman Britain. I offer this paper to Sheppard in admiration and affection.

APPENDIX: THE 140 SITES AND THEIR ABBREVIATIONS.

For all further details see *Roman Coins from 140 Sites in Britain* (1991, available from Oxbow Books, Oxford).

A: Certain and possible *civitas*-capitals and *coloniae*

L Mus	Lincoln Museum
L TheP	Lincoln The Park
L Flax	Lincoln Flaxengate
L StM	Lincoln St Marks
L Var	Lincoln small sites
Ver F	Verulamium Frere
Ver V	Verulamium Verulam
Ver W	Verulamium Wheeler
Ver T	Verulamium Theatre
Ex 71	Exeter 1971
Ex 72	Exeter 1972
Ex Var	Exeter small sites
Glos 1	Gloucester to 1967
Glos 2	Gloucester 1974–5
Glos 3	Gloucester 1967–70
DDEarly	Dorchester early excavations
DD Col	Dorchester Colliton Park
DD WH	Dorchester Wollaston House
DD GY	Dorchester Greyhound Yard
Win 1	Winchester 1961–1964
Win 2	Winchester 1966–1971
Win V	Winchester various sites
Ch Mus	Chichester Museum
Wr BF	Wroxeter Bushe-Fox
Wr At	Wroxeter Atkinson
Le JW	Leicester, Jewry Wall
Ca FM	Canterbury Frere sites and Museum
Ca A	Canterbury earlier excavations
Ca B	Canterbury later excavations
Ca C	Canterbury later excavations
Lon GM	London Guildhall Museum
Lon Ex	London Excavations
Ilch	Ilchester
Co Mu	Colchester Museum
Co LW	Colchester Lion Walk
Co BR	Colchester Butt Road
Co BL	Colchester Balkerne Lane
Co SS	Colchester small sites
C Mu	Cirencester Museum
C CA	Cirencester cemetery/amphitheatre
C BR	Cirencester Beeches Road
C StM	Cirencester St Michaels
C SS	Cirencester smaller sites
Wa N	Water Newton
Silch	Silchester
Ald	Aldborough
Bro H	Brough on Humber
Chi 3	Chichester 3rd. report
Chi 5	Chichester 5th. report
SoWk	Southwark 1972–74
Crw PL	Caerwent Pound Lane
Crw NM	Caerwent coins in Newport Museum
CaiN	In Caistor by Norwich internal
CaiN Ex	Caistor by Norwich external

B: Rural sites not otherwise classified

Calne	Calne
Bucks	A site in Buckinghamshire
Somer	Somerton
Camer	Camerton
SeaM	Sea Mills
Wickf	Wickford
Alch 67	Alchester 1967
Alch 68	Alchester 1968
Alces	Alcester
Wan 1	Wanborough first group
Wan 2	Wanborough second group
King1	Kingscote first excavation

King 2	Kingscote second excavation
King FW	Kingscote field-walking
Chelm	Chelmsford
Catsg	Catsgore
Dor Th	Dorchester on Thames
Brain	Braintree
Kelv	Kelvedon
Cais Y	Caister by Yarmouth
C StA	Coln St Aldwyns
Sapp	Sapperton
CR Or	The Cow Roast Orchard
CR Ma	The Cow Roast Marina
Trev	Trevelgue
Ash Ex	Ashton excavations
Ash FW	Ashton field-walking
Ware	Ware
Wot Ex	Wotton-at-Stone excavations
Wot FW	Wotton-at-Stone metal-detecting
E Ant	East Anton
Dorn	Dorn
Kench	Kenchester
Hatch1	Hacheston 1973
Hatch2	Hacheston 1974–5
HatFW	Hacheston field-walking

C: Villas

Chedw	Chedworth
Lull	Lullingstone
Ba Pk	Barnsley Park
Fro Ct	Frocester Court
Gest	Gestingthorpe
Dick M	Dickets Mead
Rock	Rockbourne
Wint	Winterton
Shak 1	Shakenoak vols I to III
Gat SF	Gatcombe excavation and site-finds
Gat Ex	Gatcombe later excavations
Eccles	Eccles
Dewl	Dewlish
Gade	Gadebridge
Atwor	Atworth
Chil 1	Chilgrove 1
Chil 2	Chilgrove 2
Rudst	Rudston
Boxm	Boxmoor
Whit	Whitton
Fishb	Fishbourne

D: Military sites

S Shie	South Shields
Cae Am	Caerleon Amphitheatre
Brecon	Brecon
Maryp	Maryport
Pbrig	Piercebridge
Binch	Binchester
Portch	Portchester
Rich	Richborough
Lymp	Lympne
Cnarv	Caernarvon
Chest	Chester
Corbr	Corbridge
Cov W	Coventina's Well, Carrawburgh
Houst	Housteads
Malton	Malton
Manch	Manchester
Old W	Old Winteringham
Ribch	Ribchester

E: Temples

Hen W	Henley Wood
Nett	Nettleton
Chelm T	Chelmsford temple
Lamy	Lamyatt Beacon
Thist	Thistleton Dyer
Jord H	Jordans Hill
Brean D	Brean Down
Lyd S	Lydney site-finds
Lyd Ex	Lydney excavations
Hockw	Hockwold
Uley	Uley

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