Dealing With Vague Date Ranges: A chronology for a Roman Cemetery

by Peter Hinge

Introduction

This paper discusses a method of dealing with a commonly encountered, yet poorly served, problem in archaeological data sets, particularly in certain periods: the vague date range. In the right conditions, datable artefacts allow the relative order of the events with which they are associated to be expressed in the absolute scheme of years. Yet, even if artefacts exist in the most undisturbed condition devoid of intrusive or residual material, the intrinsic error that all but a few date ranges express often renders such a pristine situation impotent for dating purposes, as the period in which the deposit could have been generated overlaps with the creation date of adjacent deposits. Naturally, the problem is compounded if the actual period of occupation is relatively short.

Vague date ranges also provide a conceptual problem for site interpretation because they introduce the unimaginable: a burial takes place in a single day, rather than over the century of its associated pot dates, and rubbish takes seconds rather than a generation to fall into the pit. Yet the apparent conflict between the instant act and its protracted presence in our chronologies is a matter of fact: it reflects our current state of knowledge. This holds true both for objects which have long and well-attested periods of production/availability, and those which receive ranges of similar duration due to great uncertainty about their actual period of use. It is self-evident that, if every episode could receive accurate individual dates, the chronological precision of our dialogues would increase. Yet both fine detail and the more vague information can contribute to archaeological narratives in an aggregated form, with the nature of that aggregation being of great importance to interpretation in general, and to this paper in particular.

Thus archaeologists require tools which enable them to confront the vagaries of their dating evidence in an objective manner. Advances in information processing provide new ways of conceptualising this specialist knowledge, enabling us to further exploit the decades of scholarship that have provided the date ranges used today. The method discussed below attempts to consider that data in an aggregate manner and in conjunction with the stratigraphy, aiming to provide a chronological structure which enables general changes over time to be observed. The aim is, emphatically, not to develop a further method to derive singular dates, as 'best guesses' of the most likely point in time at which a particular event occurred. Rather the approach accepts, and attempts to use, that very vagueness which was the incentive for such 'best guess' initiatives in the first place.

In particular, the paper aims to use the stratigraphy and a computing system to make the most of the available dating evidence in providing valid chronological divisions between which changes in the burial rite may be apparent. The techniques presented were developed as part of an inter-specialist research project into Roman London's
Eastern Cemetery (RLEC), and built on recently completed SERC/CASE research into the application of Relational Database Management Systems (RDBMS) to archaeological data (Hinge 1995 - further details of the computational component are available from the author).

The power of such a RDBMS is that it provides an environment in which the various strands of information, which have been carefully recovered and analysed by disparate specialists, can be re-united in a targeted, analytical manner. It enables the rounded multi-disciplinary nature of the most thorough archaeological interpretation, and realises the compound effect of specialist data analysis. Thomas (1991) has drawn attention to the magnitude of the archive which the field profession has generated. This, and the increasingly commercial environment in which many of us now work, have made the RDBMS a critical IT tool for quality archaeological interpretation. Indeed, relational database software is now of a price and power that even the smallest unit can afford. RDBMSs are interrogated using the Structured Query Language (SQL) which is highly portable, ensuring that tools such as that described here are easily passed between systems, regardless of the particular vendor or platform involved.

The paper begins with a short introduction to the RLEC project and details of data organisation. The two components of the approach devised are then presented, beginning with the means by which stratigraphic relations between burials can be manipulated (“Modelling Stratigraphy”). From this a technique was developed to allow the date range of each burial to be progressively refined by combining the stratigraphy and dating information and interrogating it in an iterative manner (“Propagation of Dates”). The second part discusses the technique by which the date ranges of each burial thus defined were processed in a cumulative manner (“Working the Date Ranges”) to provide a set of four, objectively generated divisions which formed the chronological control for the project. By comparing the incidence of date ranges belonging to burials exhibiting certain rites with the background frequency within a phase as generated by all burials, meaningful changes could then be sought.

**Roman London's Eastern Cemetery and Its Data Organisation**

Archaeologists at the Museum of London Archaeological Service have recently completed an English Heritage funded research project into the Roman Cemeteries on the Eastern side of Londinium (RLEC). The project considered a burial ground that was in use from the second to the fourth century, periods for which pottery provides an abundant, yet frequently widely-dated, data set. Its research aims were essentially divisible into those relevant to the understanding of Roman cemeteries in general, and the cemetery of Roman London in particular.

For the latter, the atypical nature of London was of especial interest: a Roman centre without a native British pre-cursor, one of the real 'new towns' of Britannia (Williams, 1990, 51). If an indigenous power vacuum existed in this first century port-cum-capital of Roman Britain, it might have acted as a magnet for the dispossessed, a place in which industrious groups could make good the trauma of invasion by weaving themselves into the fabric of imperial rule: hence the cemetery should provide valuable evidence of a more cosmopolitan burial rite than may be expected at the older centres such as Colchester. Alternatively, the desire to be associated with the ruling power may have resulted in a more overtly Roman material
culture: hence one could predict an accelerated Romanisation that quickly resembled the trappings of life, and the manner of death, in centres like Colchester.

The project involved 10 team members with various specialises, who analysed some 851 burials from 12 sites excavated since 1983, including burials partially recorded during watching briefs or located in the work of other non-MoLAS researchers and antiquarians. 635 yielded suitable data for the work described here (See tables 1 and 2). These operations made extensive use of the ORACLE relational database, resulting in the creation of 67 tables and 17 inputting/validation forms. On completion, some 40,000 rows of data had been recorded.

The various data sets from the sites were organised into database tables, each of which held a generic data type such as pottery, registered finds etc. In normal circumstances, the site-code and context (the smallest excavated unit) would appear in each of the tables to indicate the provenance of each row of data. However, the objects of interest here were individual burials and, as each burial consisted of a number of contexts - cut, coffin, skeleton, coffin fill etc. - a single numbering sequences was devised to refer to all components.

Absolute dating for the burials consisted almost solely of ceramic, glass and numismatic evidence which provided a frequent yet, given the number of burials, not overwhelming amount of dating evidence. As first step, this evidence was compared with that from each burial. The date ranges of each burial were studied and compared so as to generate a single period that became the date range for the burial, and was accordingly termed the burial date range. This became the raw material for the propagation techniques discussed below.

The stratigraphic relationships from each site were loaded into Oracle tables and validated for errors and logical (archaeological) topology using methods devised in the SERC/CASE project (Hinge 1995).

All methods were carried out within the database, required no external applications, and exist for use on any RDBMS platform. Yet they are also interpretative constructions, and thus as open to criticism, improvement or rejection as any of the other interpretations that the RLEC volume will present. What they do offer is a new way of perceiving some of the most fundamental archaeological information.

**Modelling Stratigraphy**

Acquiring useful dates from the above data required a number of steps: modelling the stratigraphy, dating it by association and manipulating the date ranges to reach interpretations. The SERC/CASE research had demonstrated how one could use matrices within a RDBMS to do the first of these, thus allowing stratigraphy to be integrated with other data sets held on computer (Hinge, 1995:244). The initial aim there had been to devise an objective means of identifying cases where the order of stratigraphically related contexts disagreed with the absolute order indicated by the dated material within those contexts, i.e. finding cases of residuality and intrusion.

This was further developed by the creation of tools to display and interrogate the occurrence and intensity of datable artefacts through the stratigraphic sequence. Such work, though in the tradition of seriation discussed by Carver and others (Carver 1985, 1987, Cooper 1987), also strove to make such methods mainstream tools for site interpretation by enabling their production directly from the database itself. In essence
the research provided a means of relating stratigraphic units - and any of their attributes - to those immediately adjacent and to distant stratigraphic neighbours. It was mechanisms of this type that were exploited during the RLEC project.

In addition to the problem of vague date ranges mentioned initially, the RLEC project had to allow for the fact that many of the burials had no dating evidence whatsoever. Naturally, any excavation will produce a set of excavated units, a sub-population of which will be datable, and it is a common procedure to derive dates for the undated portion by associating it with the dated: a pit cut is dated through its association with the datable material it contains (a direct relationship in that the pit literally contains the dates). Using this principle, archaeological chronologies can be propagated.

Thus many Roman ceramics are dated on the basis of their common appearance in association with other types whose dates are already known, for instance because they are found in contexts dated by external sources. Sites on London's waterfront, for example, can enhance ceramic chronologies by providing pottery groups in association with timber waterfront revetments accurately dated by dendrochronology. With more historical 'fixed points' within such networks, the chronology becomes firmer, since there are fewer types dated solely by association with other types. This allows greater chronological cross-referencing, the date of types providing each other with a mutual check.

An indirect association, in contrast, would be where a pit fill's contents are undated but the pit itself cuts another which is dated: here stratigraphy and dating material are considered in unison. For a computerised tool to use the stratigraphy to generate such associative dates, there were two distinct problems to solve, which are considered in order below:

- How to model complex stratigraphy without overwhelming the computer
- How to share and compare dates using the stratigraphy

The complexity of an urban stratigraphy means that there are many possible itineraries through the stratigraphic matrix which illustrates it, even on a simple matrix. These myriad routes, and the ability of machines to deal with them, is a central issue for computerised matrix processing, (Dalland 1984, 134, Harris 1984, 144). Reducing complex stratigraphy to its essential components, in a process christened 'squashing', therefore becomes necessary. The principle followed here is that, if one wishes to stratigraphically compare a sub-population of a complete matrix, it is far more efficient to first establish which members of that sub-population are interlinked.

The RLEC project was interested in comparing the dates of burials with each other on stratigraphic grounds. Naturally, those burials existed in sequences in which a variety of other entities - walls, pits, layers - lay on a stratigraphic route between two burials. Yet, for the purpose of comparing the date, age or sex of those two burials on stratigraphic grounds, the number or type of intervening events is irrelevant: what is important is that one burial occurred after the other. The derivation of a 'burials only' matrix was possible by repetitive interrogation of the complete matrix in a pair-wise fashion, which directed the following question at each relationship:

*If the context which I overlie is not a burial, then substitute the context it overlies in my overlying field, else do not substitute any values.*
Each repetition updated the previous set of relations, which were then interrogated by the next, with the process being complete when every burial overlaid either another burial or un-excavated strata. This enabled the database to cope with the inherent complexity of an urban matrix without being overwhelmed by it (further details of the approach are presented in the SERC report).

**Propagation of Dates**

Once the burial matrix had been generated, the second problem concerned the propagation of dates, in particular how to use the dated component to date the undated. Of the 812 burials investigated by the project, there where 673 for which stratigraphic relationships and appropriate dating evidence was available. Of these, 137 (20.4%) had no dates of their own. The aim was twofold: to give dates to these undated burials on stratigraphic grounds; and to compare the dates of stratigraphically related burials to ensure that, once residuality and intrusion had been taken into account, a logical sequence of dates would exist. The first objective can be achieved by using the *Terminus Post Quem* (TPQ) of one burial to date overlying ones (i.e. “pushing TPQ’s upwards”) and then, more tenuously, to use the *Terminus Ante Quem* (TAQ) to date underlying burials (“pulling TAQ’s downwards”).

To take a hypothetical example for the first technique, if one burial has a date of AD210 and is underneath another that has no date, then one can say that the superior must be dated to some time after AD210. Alternatively, if the superior burial does have a date, then a comparison needs to take place. If it is dated AD260, then this date is retained. If it is dated to AD160, then AD210 becomes its new date and this will be propagated up the string of burials until it is superseded by a burial with a later date. The computerised implementation of this method was a development of that which produced the burial matrix itself, using the same pair-wise processing technique but with dates of burials revised, rather than their stratigraphic relationships. Thus the question posed in the same iterative structure was:

*If the burial which I overlie has a later TPQ than me, then substitute its TPQ for my TPQ, else do not substitute any values*

Each repetition updated the previous set of burial dates, which were then interrogated by the next, with the process being complete when every burial had a TPQ equal to, or later than, the burial it overlay, excepting burials over un-excavated strata. As a result, each burial had a stratigraphic TPQ, while those which had dating evidence also had their original TPQ. Intrusive material would cause problems for this procedure by injecting an artificially late date into the sequence which would then be propagated up through the matrix, superseding what were legitimate dates of superior burials. Thus the generation had to be repeated a number of times following removal of such alien dates, which of course the method served to highlight. At the end of the procedure the following figures were produced (Table 1), showing that c.9% of the undated burials either overlay natural/were at the limit of excavation, or themselves overlay such burials.
Table 1

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>All eligible burials</td>
<td>635</td>
<td></td>
</tr>
<tr>
<td>Undated burials</td>
<td>116</td>
<td>(18.2% of all eligible burials)</td>
</tr>
<tr>
<td>Undated burials receiving dates</td>
<td>56</td>
<td>(48.3% of the undated burials)</td>
</tr>
<tr>
<td>Total dated burials</td>
<td>575</td>
<td>(90.5% of all eligible burials)</td>
</tr>
</tbody>
</table>

A further development modified the procedure again, to enable that other archaeological constant, the TAQ, to be utilised. Given that the basic date ranges being dealt with were rather vague, the propagation of stratigraphic TAQ’s down the matrix would allow a narrower stratigraphic date-range to be specified. For this exercise only the TAQ’s coming from grave goods were used, involving 23% of the burials, as these could be securely related to each burial and formed the strongest source of dating. However, using TAQ’s from ceramics in this way still constitutes a tenuous process because of the unknown factors in the treatment and life-cycle of a pot, i.e. its average use life, availability, desirability, affordability. In defence, it can be argued that the date range allows for the fact that some examples of a type will be especially long-lived, although this assumes that a range is that of common usage, as opposed to indicating the dates of production, or dates of availability. As the method was essentially a reversed version of that used for stratigraphic TPQ’s, the iterated question became:

"If the burial which I underlie has an earlier TAQ than me, then substitute its TAQ for my TAQ, else do not substitute any values"

Each repetition updated the previous set of burial dates, which were then interrogated by the next, with the process being complete when every burial had a TAQ equal to, or later than, the burial which it overlay, excepting burials over un-excavated strata. If a burial could not be given a stratigraphic TAQ in this manner, then the default date of AD400 was given to it. As a result, each burial would have a stratigraphic date range, which was then available for further interrogation.

**Working The Date Ranges**

Notwithstanding the processes discussed, the date ranges generated were still comparatively vague, and a means was required to provide general phases for the sites without relying on the rather blunt and overly exact TPQ. The aim here was to look at general trends over the period of the cemeteries use, and to accept the uncertainty in the data set rather than ignore it. Thus the whole date range of each burial was taken into account, rather than simply the TPQ. However, it would have been no solution here to take a derivative of the TPQ, such as the date range mid point that a burial contains, or the weighted average mid-point of all its date ranges. These would fail in exactly the same way as the straight TPQ, in that they would directly provide an over-exact date, and a false sense of the periodic intensity of cemetery use as a consequence, indirectly echoing the uncertainty of the start and end points of certain dated types, (Figure 1: this is a particular problem in the late Roman period. If much of the pottery found in burials has mid- and late-third century start dates, it
would appear - on the basis of the single-point-in-time approach - that AD250 and AD280 were particularly fashionable years in which to die! In reality, the burials could have taken place at any point during the period bracketed).

Figure 1

![Graph showing frequency of TPQs in the RLEC Burial Dates Table.]

*Frequency of TPQs in the RLEC Burial Dates Table*

Hence the chronological profile derived from such use of TPQ's and TAQ's was dropped in favour of a less exact, yet more representative, profile which offered a more accurate reflection of the underlying knowledge base being used. The strategy adopted here was to first generate a background based on all of the burial date ranges, which was then divided into four periods, with a known percentage of those ranges within each (the division into four periods was an intuitive choice, based on what was thought reasonable given the typical length of many ceramic date ranges).

The behaviour of a certain burial rite over time - inhumations with grave goods, for example - is then considered by comparing the incidence of the dat the date ranges belonging to such burials within the four periods to that of all burial date ranges i.e. to the general background. To facilitate this, three stages were required:

- generation of the general background from which the four periods would be defined.
- for each burial date range, the description of how much of it was incident on each of those periods.
the actual comparison of certain rites on the basis of the distribution of date ranges of burials in each period belonging to burials of different types.

First, in order to break the whole period of cemetery use into four general periods, the data to identify those broad divisions had to be collated at a more detailed level, because the decision on where those divisions should fall would be based on the points in time at which a certain, pre-defined percentage of all the burial date ranges had accumulated. Short periods allowed this to be more accurately specified, thus intervals of a decade were chosen (Figure 2).

Figure 2

Division of Date Ranges into Decades
For each burial a factor was generated by dividing a constant equally amongst all decades in which a range started, finished or spanned. This figure became the 'amount' that the date range would contribute to those decades it impinged on. Thus a date range of AD150-250 would contribute one-tenth or 10% to the ten decades it spans, while one of 180-210 would provide 33.3% to the each of the decades AD181-190, 191-200, 201-210. By expressing the proportion of a whole range that fell in each period as a percentage, one is taking account of the fact that we have greater certainty about shorter date ranges. Thus in the above examples, the 100 year range contributes 10% to the decade AD181-190, while the shorter 30 year range provides 33%. The factors of all those burials whose date range began, ended or traversed the decade in question were summed and these summations were then themselves expressed as percentages of those from all decades, such that the percentage of all burial date ranges in each decade was produced (Figure 3).

As the second step, these percentages were added in a cumulative fashion, which allowed the point at which a certain percentage of all the burial date ranges had accumulated to be identified, thus providing an objective means of describing the spread of dates. The cumulative frequency was used to determine the break points between four general periods. For the RLEC project, this was decided as the decade by which 16.5%, 33% and 66% of the ranges had accumulated (Figure 4: the rationale for selecting these particular divisions was to allow slightly better definition in the cemeteries earlier phases where the dating evidence was at its best).
These four general periods then became the new sub-periods, and the first half of the procedure was repeated. However instead of sharing the 100% of a burial’s range equally over the periods it impinged upon, the actual portion of the range that fell into each sub-period was calculated. Thus if the division between two periods were AD197, then a burial date range of AD150-250 would have 47% of its range in the first period and 53% in the latter (Figure 5).

**Figure 5**

*Division of Date Ranges into Each Period*
All the percentages from all burial ranges in each period where summed, and themselves expressed as percentages. Following slight adjustments to the period break points and re-runs of the algorithm in order to make the proportions in each period come as close to the ideal as possible (i.e. 16.5%, 16.5%, 33% and 33% in Periods 1-4), figures of 16.28%, 17.1%, 32.47% and 34.15% were obtained - it was neither possible, nor necessary, to be more exact. The actual break points between the periods were:

<table>
<thead>
<tr>
<th>Period 1</th>
<th>39-197 AD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period 2</td>
<td>198-250 AD</td>
</tr>
<tr>
<td>Period 3</td>
<td>251-325 AD</td>
</tr>
<tr>
<td>Period 4</td>
<td>326-410 AD</td>
</tr>
</tbody>
</table>

Thirdly, with the dating evidence stored in this manner, it became possible to consider various aspects of the burial rite over time. This was done by first taking the date ranges of burials which exhibited the rite of interest and then summing, and expressing as a percentage, the incidence of those date ranges in the four periods defined previously. Table 2 show the type of data produced: the first row gives the percentage of date ranges in each period for all burials; subsequent rows provide the percentages of date ranges in each period for each of the rites listed; and the final column lists the number of dated burials that exhibit the rite in question (Figure 6 gives the first three rows of this data as plotted).

Figure 6

*Incidence of Date Ranges from Inhumations and Cremations in Each Period*
This clearly demonstrated, for example, that
the distribution of the date ranges belonging
to cremations is at odds with the overall
trend and that of inhumations, with 14.42%
more cremations than inhumations occurring
in the earliest period. In addition, these
trends could be further broken down, as
shown in the subsequent rows of table 2.
For example the distribution of date ranges
belonging to inhumations with grave goods,
though only a sixth of the total inhumations,
is very similar to the overall pattern,
suggesting that the provision of grave goods
is no more temporally specific than the rite
of inhumation itself. Finally, the distribution
of the range belonging to the last three rites
illustrated are at variance with their 'parent'
population. However, these are the product
of a small number of burials (<28):
interpreters may see what they will in such
distributions, but the magnitude of these
figures should urge caution.

Table 2

<table>
<thead>
<tr>
<th>Rite</th>
<th>Period 1</th>
<th>Period 2</th>
<th>Period 3</th>
<th>Period 4</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall/Ideal</td>
<td>16.5</td>
<td>16.5</td>
<td>33</td>
<td>33</td>
<td>635</td>
</tr>
<tr>
<td>Inhumations</td>
<td>13.32</td>
<td>16.06</td>
<td>33.98</td>
<td>36.64</td>
<td>513</td>
</tr>
<tr>
<td>Cremations</td>
<td>27.74</td>
<td>21.62</td>
<td>26.33</td>
<td>24.31</td>
<td>122</td>
</tr>
<tr>
<td>Inhumations with grave goods</td>
<td>11.34</td>
<td>18.39</td>
<td>33.48</td>
<td>36.79</td>
<td>129</td>
</tr>
<tr>
<td>Cremations with grave goods</td>
<td>12.47</td>
<td>28.29</td>
<td>34.85</td>
<td>24.39</td>
<td>26</td>
</tr>
<tr>
<td>Male inhumations with grave goods</td>
<td>7.41</td>
<td>9.45</td>
<td>38.38</td>
<td>44.75</td>
<td>19</td>
</tr>
<tr>
<td>Female inhumations with grave goods</td>
<td>21.9</td>
<td>12.52</td>
<td>35.95</td>
<td>29.62</td>
<td>28</td>
</tr>
</tbody>
</table>

Distribution of Date Ranges by % Belonging to Burials Exhibiting Various Burial Rites

A further example of where this work enabled
temporal changes to be observed is in relation
to the location of the head (Table 3 and Figure
7). The biggest disparity between a specific
head location and the average distribution of
date ranges for all burials is for those with
head to the south.

Table 3

<table>
<thead>
<tr>
<th>Head Position</th>
<th>Period 1</th>
<th>Period 2</th>
<th>Period 3</th>
<th>Period 4</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Inhumations</td>
<td>13.32</td>
<td>16.06</td>
<td>33.98</td>
<td>36.64</td>
<td>513</td>
</tr>
<tr>
<td>To the East</td>
<td>15.82</td>
<td>13.93</td>
<td>32.52</td>
<td>37.73</td>
<td>33</td>
</tr>
<tr>
<td>To the West</td>
<td>10.72</td>
<td>13.97</td>
<td>34.7</td>
<td>40.61</td>
<td>219</td>
</tr>
<tr>
<td>To the North</td>
<td>13.50</td>
<td>17.07</td>
<td>35.58</td>
<td>33.85</td>
<td>131</td>
</tr>
<tr>
<td>To the South</td>
<td>22.83</td>
<td>19.34</td>
<td>30.52</td>
<td>27.30</td>
<td>60</td>
</tr>
</tbody>
</table>

Distribution of Date Ranges by % of Inhumations Grouped by Head Location

As a technique to help identify changes in rite
over time, the method relies on the
assumption that the divergence in the relative
percentages of all date ranges against just
those of burials exhibiting a certain rite is
diagnostic. Such divergence, and the diagrams
derived from them, have to be intelligently interpreted however. In this respect the last column in Table 1 is of importance. If there is a small number of burials exhibiting a certain rite, then the likelihood of a wayward range having a marked effect on the percentage-within-period figures is high. Alternatively, if the rite is a very popular one, then the percentage breakdown will be very close to the ideal. This latter effect is shown in Figure 6 where the proportions of date ranges from inhumations are very close to the ideal. Clearly, however, the fact that the proportions of date ranges from cremations is markedly different to that of inhumations, is not simply a function of their being fewer cremations.

**Figure 7**

*Incidence of Date Ranges from Inhumations Grouped by Head Location*
Conclusion

This paper has discussed different ways of viewing data which archaeological sites have been generating since the primacy of the stratigraphic observation was realised, and the notion of a 'closed group' of finds, or the individual archaeological context was conceived by Thomsen and Worsaae in the middle of the last century (Clark & Hutcheson 1992, 65). Such data has been collected from hundreds of archaeological sites in London alone, and the volume of data, coupled with the diminishing resources available for its investigation, can insidiously motivate its narrowing, if financially expedient, under-use. To both maintain the research initiative and exploit the fullness of our data sets, intellects need to be exercised in applying appropriate information technology at source, less hindered by reductionist perceptions of data which older information systems have shoehorned. Moreover, such initiatives should be founded in the belief that it is not simply there to allow old jobs to be done more quickly.

It can be argued that, in concentrating on the TPQ as the main ingredient of our chronological constructions, we are using a codified, reductionist shorthand for something which decades of scholarship have told us is actually more complex. The reason for this, while laying partly in the undoubted logic of what a TPQ means, is also derived from the lack of an implemented method that allows a more holistic consideration to take place within workable timescales.

The method discussed here has shown how an objective chronological structure can be generated for a group of sites on the basis of dating evidence which is also often itself general. The vague date range, sharpened by interaction with the unequivocal stratigraphy, is thus embraced as a resource. It enables one to observe some of the other chronological possibilities that a site will always have, as long as we attempt to date them using material that cannot be dated to the second. The uncomfortable bluntness of the TPQ is avoided as the whole date range is given the space it deserves, to contribute more fully to our discussions of social development, change and evolution.

Bibliography


Dalland, M (1984) "A Procedure For Use In Stratigraphic Analysis" Scottish Archaeological Review 3 (ii), 116-27


Thomas, R (1991) "Drowning In Data?: Publication And Rescue Archaeology In The 1990s." *Antiquity* 65, 822-28