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# Intrasite Patterning and the Temporal Dimension using GIS: the example of Kellington Churchyard

## 1 Introduction

The popular image of English rural churchyards is one of quiet beauty, a timeless tranquillity in which the dead lie at peace, tended and remembered by the living. However, the reality is that churchyards are constantly changing to meet the needs of the community they serve. As archaeologists, we are interested in identifying and explaining change, and computer applications using Geographical Information Systems — GIS — are particularly useful in this regard.

The study reported here concerns one particular site, that of the churchyard at Kellington, near Pontefract in Yorkshire. Though not a particularly beautiful site, it has the advantage of having been intensively studied archaeologically in advance of mining beneath the site by British Coal. The whole of the interior of the church has been subject to excavation, as were those parts of the churchyard immediately around the church itself, in advance of major engineering work designed to underpin the building (Mytum 1993). As part of the project, the complete churchyard has been studied, and it is the analysis of graveyard monument distribution which forms the substance of this paper.

English rural graveyards are complex archaeological sites, usually with a historic core where many generations have been buried, and less favoured areas only used in times of population expansion. During the medieval period very few burials were identified by stone markers, and these were often subsequently removed, some being reused in alterations to the church fabric. As the location of burials was forgotten over the generations, areas were reused for burials in a cyclical manner, leading to complex intercutting sequences of burials, and a gradual rising of the ground level. Only with the increasing popularity of stone markers did the practice of reuse of burial spaces become inhibited. The external grave marker became common between the late 17th to late 18th centuries, depending on the region (Burgess 1963), but archaeologists anywhere in England have the benefit of at least two centuries of material culture change in a spatial context. At Kellington the earliest external memorial is of 1703, though there are relatively few monuments from the 18th century, so for the current analysis they have all been grouped together; subsequent

memorials have been grouped by decade and the study ends with the 1980s.

Graveyard memorials are an important category of material culture for archaeological analysis because they are relatively well fixed both in time and space. Though there are exceptions, most stones were erected within a couple of years of the date of death of the first person commemorated on the stone. Moreover, the position of the stone in the graveyard is relatively permanent. Many churchyards have been subject to whole or partial clearance, but this is usually readily recognised. Ad hoc tidying up, straightening of rows, and rearrangement for aesthetic or other reasons can also occur, but is not a major problem. At Kellington some headstones have been removed, and chest tombs have been dismantled, some of the side and end panels being placed on the periphery of the churchyard and the flat tomb tops laid down over the graves as ledger stones. Most of the existing ledger slabs at Kellington were originally parts of larger, more visible monuments, but some were designed as ledgers from the first; however the vast bulk of memorials at the site are headstones.

## 2 Previous computer studies

Graveyards have been subject to computerised analysis in the past, but emphasis has been largely placed on the problems of classification and database management. The seminal work by Dethlefsen and Deetz (1966) in the north-east USA demonstrated changes in fashion of stones, and also the spread of ideas over space and time; this could be developed further if GIS were applied. Similar work has been rare in Europe, with more emphasis on typologies at individual sites such as at the Protestant Cemetery in Rome (Rahtz 1987). Spatial patterning within sites has not been greatly considered in Britain, Europe or America. I have been carrying out site-based and more regional studies in southwest Wales and Yorkshire, but so far published results have concentrated on language use in a bilingual area (Mytum 1994).

## 3 Spatial order in graveyards

A few small graveyards in both Wales and Yorkshire have been examined through manual sorting of records and marking up of graveyard plans to indicate patterns through



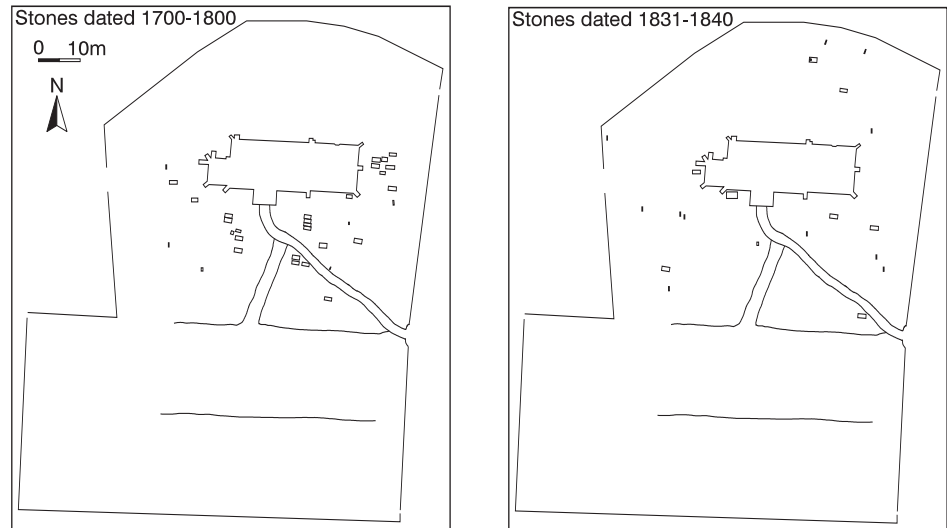


Figure 1. Left: 18th century monuments; Right: new monuments of the 1830s.

time, and these have shown definite trends in the way graveyards can develop spatially over time. Three elements can be discerned: dispersed clusters; cyclical reuse; and expansion into new areas, usually also involving ad hoc infilling of historic areas.

By using GIS at Kellington, a large graveyard could be examined, and these various elements considered. In conjunction with data sorting by Paradox and simple statistical analysis it has proved possible to identify first dispersed clusters, then cyclical reuse, and finally expansion. Interpretations of these patterns, and other trends in memorial and graveyard use can also be offered.

#### 4 Data sources and collection

The gravestones were recorded using a standard recording form, with measurements for the size of the monument and coded data concerning shape, material, decoration. The inscription was also transcribed. There is also room on the form for a photograph (Mytum 1988). In addition, further forms were filled out, not on site, regarding the personal information of each individual commemorated on the memorials. A detailed plan of all memorials, structures, paths and trees, was produced with EDM equipment. This was then digitised and linked to the database for GIS analysis. In total there were 701 in situ stones. Of these, 651 were in good enough condition for the date to be deciphered, up to 1989.

#### 5 Data problems

Some of the data problems relate to graveyard recording in general — the ease with which errors and omissions can be made, inconsistency, problems of legibility, and partial monuments as with the chest tombs.

Kellington was unusual for a graveyard in the number of gravestones with plain kerbs which defined the burial plots. Though occurring occasionally in most graveyards, these purely functional near-ground level kerbs are normally found in large numbers only in cemeteries. They considerably added to the survey work, and complicated both the digitising and linking to the database as we wished to be able to analyse the graveyard either including them or not. Eventually it proved possible to mark them separately, and call them up only if required. More elaborate kerbs, with inscriptions, are a very different phenomenon, and a common early to mid 20th century type of some significance.

#### 6 Results

The GIS analysis has been most effective in displaying the process of dispersed clusters then cyclical graveyard infilling, eventually leading to first one graveyard extension and then a second.

Excavation has shown the greater density of medieval and later burials to be found on the southern side of parish churches, and at the eastern end. Fewer occur at the west, and least on the north side. The 18th century memorials display a similar bias, also supported by the excavated evidence at this site. The south has higher social value in that the main entrance to the church, via the porch, is on the south wall of the nave, and so the main path runs across the graveyard to this from the gate (fig. 1, left). There are also ideological reasons for avoiding the north, associated as it was with death and damnation rather than salvation; the north door was termed the 'Devil's door'. In contrast the eastern end is near to the altar and so a popular medieval burial location. Quite a cluster of 18th century memorials can be noted beyond the chancel. The areas of popularity

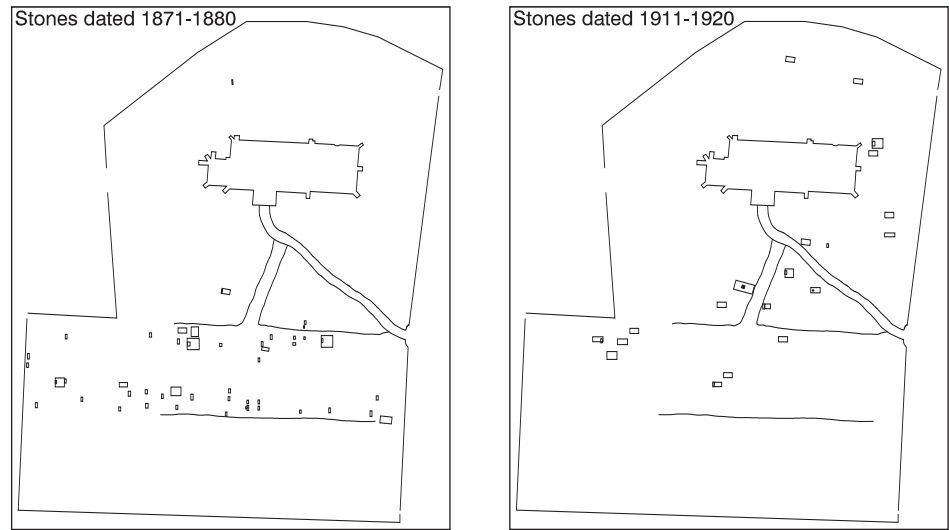


Figure 2. Left: new monuments of the 1870s; Right: new monuments of the 1910s.

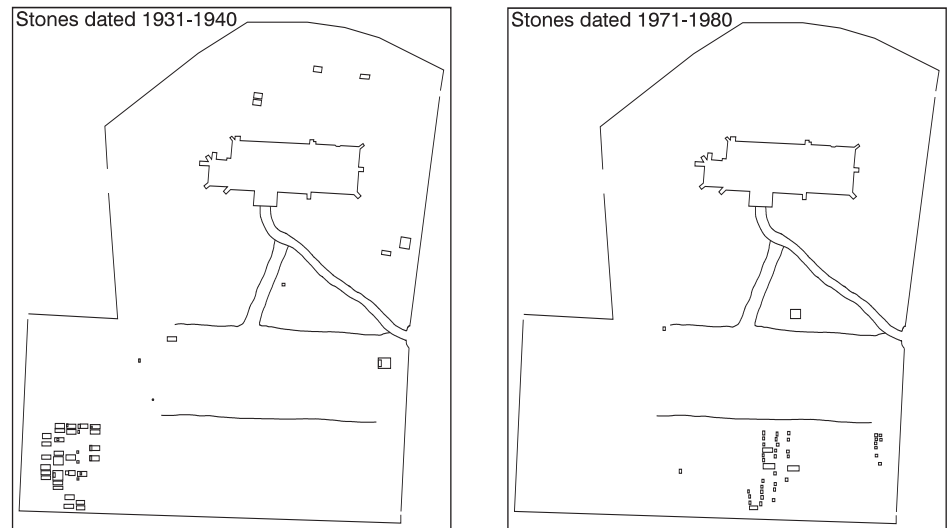


Figure 3. Left: new monuments of the 1930s; Right: new monuments of the 1970s.

remain similar through the 1820s, though there is a gradual expansion of the areas being used for memorials towards the gate and to the southwest. It may be of some significance that throughout this time headstones are only found on the periphery of the burial area marked by ledgers and tombs, suggesting that the lesser status families that could nevertheless afford some permanent markers were placed in slightly less favoured areas of the churchyard. Clearly only a small number of burials are being marked by memorials, but these are in dispersed clusters.

Up to the 1840s the ledger (or chest or table tomb) was the dominant burial monument, and this can be equated during the 18th century with the introductory phrase 'Here lies', emphasising the presence of the actual body,

protected by the substantial monument overlying it. 'In memory of' and 'Sacred to the memory of' are more dominant in the 19th century, and on a wider range of monument forms.

From the 1830s the north is gradually utilised from the more desirable east end, with some infilling elsewhere (fig. 1, right). However, pressure on burial space was intensifying, reflected in the increasing popularity of kerbs to mark the full plots. The solution to perceived overcrowding in the old graveyard was expansion, with an extension opened to the south. From the 1870s the graveyard extension is extremely popular (fig. 2, left). The burials were laid out in much more organized rows, the whole area obviously having been laid out in advance.

This efficiency in the use of space is inspired by cemeteries, something also noted in the continued frequent use of kerbs to mark plots. The business of burial has become more commercialised, a mirror of Victorian interests and obsessions. This pattern continues through to the 1910s, when as the extension begins to become full, cyclical reuse comes into play (fig. 2, right). Some attempt is made at infilling in the old graveyard. This involves the reuse of burial spaces without memorials, and so considered suitable for use at this time. Once again, the southern and eastern areas are most desired, a process continued through the 1920s.

From the 1850s there is an increased diversification in the memorials. Though within a limited number of forms and supported by a far from imaginative repertoire of decorative motifs, variability increases dramatically. From this time to the present day 'In loving memory' is the most popular introductory term. With a combination of choices in form, decorative motifs, forms of introduction and lettering styles, as well as increased choice in material, every 19th century memorial could be an individual statement. Every family could express its identity within the range of choices made possible by industrialisation which improved transport, increased mass production of blank stones, and allowed for the support of professional masons within the elaborate funeral industry of the time.

The problem of limited available burial space in the graveyard was resolved in the 1930s once again by expansion further to the south (fig. 3, left). As kerbed monuments are popular at this time, and many more individuals desired and could afford memorials, the filling up here is even more obvious. Gradually the burials spread from west to east across the narrow strip of burial ground with the only change being the shift from kerbed monuments back to headstones in the 1960s, and at the same time the appearance of cremation plots. These are much smaller, and are marked only by a small slab. A separate area in the east was reserved for them, though the cremations and inhumations are now about to meet and a third graveyard extension will soon be needed (fig. 3, right). The impact of increased memorialisation is to prevent reuse of graveyard spaces, and at Kellington this has led to expansion into neighbouring agricultural land. If memorials were biodegradable, then the situation would be different! The memorials of this period, however, are sadly extremely resistant to decay. The marbles and granites almost completely replace the local sandstones; white marble reached its peak of popularity in the 1950s, with grey and black granite now being by far the most frequent choice for both headstones and cremation ledgers. However, the decorative motifs now have a predictability brought about by mechanised production of catalogue items (for a critique and alternatives, see Burman/Stapleton 1988).

The small size of the cremation ledgers precludes much use of decoration. Memorialisation has been reduced to a formulaic set of designs, though the language on the stones has moved away from the formal descriptions of the past. In the Blackburn diocese the use of familiar terms on gravestones is not generally allowed. However this is certainly tolerated at Kellington within the Wakefield diocese where terms such as Mam, Dad and Gransha occur on the recent memorials.

## 7 Conclusions

The use of GIS to interrogate the data spatially has allowed the development of Kellington churchyard to be understood in a fine-grained way. Further analysis is planned to examine the development of family plots, particularly in the 18th and 19th centuries. Analysis of material type and shape of memorials would also show clear distributional trends, but these are due to changes in popularity through time, and so will be found in those parts of the graveyard in use at a particular period. However, the differences in memorial choice between those in the normal burial area at a particular phase, and gravestones marking infilling in old areas, may be informative of the social strategies being employed through burial at Kellington in the 19th and early 20th centuries. Further analysis at Kellington will consider whether the decade is the most appropriate analytical unit, with implications for phasing and interpretation on other types of site. More contextual study of the graveyard itself will consider its development as a text — as each stone was added, it reinforced existing patterns or introduced new features. By considering overall burial activity, not just linked to the erection of the stone, but subsequent use of family plots, even more complex spatial patterns of graveyard use can be considered, in which the GIS applications will be the major tool for data ordering and preliminary analysis.

Although there are further analyses which can be undertaken, the study of the Kellington graveyard has already produced very significant results. The pattern of graveyard development has been discovered and displayed. Patterns of dispersed clustering, cyclical reuse and expansion have all been demonstrated. The apparently informal but in fact highly socially regulated earlier scattered groups of memorials, reflecting socially significant local families, can be contrasted with later developments where dense packing, high degree of organisation, and conformity of memorials are the norms. The celebration of death has become a less significant arena for social statements during the later 20th century. Control by the church has become stronger; familial loyalty is weaker and the average number of individuals recorded on a memorial declines during the 20th century.

Ideological, social and economic forces acted upon the graveyard, and in the 18th and 19th centuries at least, the monuments played an active social role. They reinforced group identity and class structures, and were active in their visible locations between the gate and the porch in reminding the living of the familial legacies. Old established families with their lines of tombs spoke of their legitimate and enduring position; the poor were consigned to oblivion.

With the spread of wealth down the social scale it is no surprise to see more and more people obtaining monuments, even if the quality of designs leaves much to be desired. Whatever their aesthetic appeal, however, all the memorials at Kellington contribute to our understanding of social, economic and ideological developments over two centuries in this rural Yorkshire community.

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