Historic England

Devon Cobbled Churchyard Paths

Evaluating their Significance, Survival and Adaptation

A project undertaken by
Keystone Historic Buildings Consultants
for Historic England and SPAB

March 2016

Foreword

Historic England has long campaigned for better recognition of the importance of streets and public spaces in the historic environment.

Cobbles are distinctive features in our historic streets and paths, and they are also widely used in gardens. The term 'cobble' is sometimes used for a wide range of surfacing from hard-wearing surfaces for vehicles, to decorative layouts made up of small stones for amenity areas.

In Devon, there are lots of examples of historic cobbled churchyard paths. Many date from the 18th and 19th centuries. Historic England, working with Society for the Protection of Historic Buildings (SPAB) and the Devon Buildings Group (DBG), commissioned Keystone Historic Building Consultants to advise on the survival and distribution of these paths, and the history and the layouts and designs. The project responded to concerns raised by some parishes about the risks of stumbles and falls where surfaces had become uneven or slippery, and how accessibility could be improved.

The report concludes with some general principles about maintenance of paths drawn out of the research project and the need for technical guidance on cobbles. It also highlights the need for further research on construction and performance of historic cobbled surfaces.

Although the report is specifically about Devon churchyard paths, it will be of interest to others looking after similar historic cobbled paths elsewhere in the country.

In addition to this research report, a 12-minute video was also produced and this is available at https://www.youtube.com/watch?v=8fZpy9FNb0w&feature=youtu.be.

Historic England publishes advice on caring for streets under the banner ‘Streets for All’:
historicengland.org.uk/advice/caring-for-heritage/streets-for-all/
and accessibility ‘Easy Access to Historic Buildings’ and ‘Easy Access to Historic Landscapes’
historicengland.org.uk/advice/technical-advice/easy-access-to-historic-buildings-and-landscapes/

Jenifer White and Alison Henry
Historic England, April 2018

Devon Cobbled Churchyard Paths: Evaluating their Significance, Survival and Adaptation

Project 7023 for Historic England

Keystone Historic Buildings Consultants
3, Colleton Crescent
Exeter
EX2 4DG
01392 435728
keystonehb@aol.com
www.keystone-historic-buildings.com
Report K/863 March 2016

Summary of this Report

The Devon Churchyard Cobbles Project was funded by Historic England and the SPAB, who paid for repair trials. It was undertaken by Keystone with the help of Ray Harrison (advice on construction and analysis of performance), Dr Richard Scrivener (independent geologist) and Jan Loveless (Access Consultant) both specialists, and volunteers from the Devon Buildings Group. It was prompted by a number of requests from Anglican churches in Devon to amend or cover-over cobbled church paths for safety/access reasons. The paths investigated are all designated heritage assets.

The following report by Keystone Historic Buildings Consultants is influenced by the recommended four-part structure of Conservation Management Plans: Understanding; Significance; Defining Issues and Policies. Sections 1-13 represent answers to 'Understanding' (what have you got?); section 14 assesses 'Significance' (why does it matter and to whom?); sections 15-17 'Defining Issues' (what is happening to it and why?). The fourth section of a Conservation Management Plan 'Policies' (what can you do about it?) has been substituted here with a conclusion, section 18, providing some practical advice to churchwardens and the statutory authorities on access, some general principles on maintenance and repair and suggestions for prospects for future funding.

Cobblestones are small stones used for paving, usually un-dressed: waste from quarries and masons' yards could also be used. Cheap and versatile relative to paving slabs, most of the Devon churchyard paths employ hard, water-worn Carboniferous sandstone cobble. These are resistant to polishing (i.e. non-slip) and locally available from the geology of the Culm Measures that extends east/west across the middle and north of the county. Surviving principal paths are mostly distributed in an irregular east/west strip that corresponds with the Culm Measures. There is a wide variation of size, shape and colour but most of these sandstone cobbles have flattish tops. There are fewer paths using domed, pebble-type, mostly quartzite stones from the east Devon pebblebeds and, rarer, limestone, chert and lias examples from Devon's complex underlying geology. 40 principal cobbled church paths survive in the county plus many sub-paths and path remnants and more are likely to have been lost to grass. Designs range from the functional to patterned paths, the lozenge being the favoured pattern. A few examples incorporate dates and initials.

We know less than we would like to know about path construction (few have been excavated in order to investigate this) and its impact on performance. As a technique of vernacular origin, a range of design, methods and materials should be expected and is found. There are distinct differences between churchyard path construction and contemporary road-building. Traditional cobblestone-laying is not complicated but is slow. There are skilled practitioners available in the county and introductory courses are taught by the Devon Rural Skills Trust. The stones are laid touching one another and therefore locked together and rammed into, and jointed with, subsoil. The use of aggregate in the formation layer and the jointing is variable and needs more work to understand it. Cobbled paths need edge restraint. This is provided in churchyards by kerbs, revetment walls or drainage systems. Performance problems (including comfort for users) can arise from edge restraint failure; jointing scour-out; drainage problems; weed, moss and algae growth and the narrowing and shading of paths by adjacent trees. Explanatory drawings by Ray Harrison show some of the key elements of construction.

Cobbled churchyard paths are one variation on the long historical and widespread use of cobblestones for paving and flooring. Although Bronze Age, Roman and 14th century examples have been found by excavation, and some survive in farm buildings, extensive paving of village and town footways probably developed from the 16th and 17th centuries, depending on local

administrative capacity. The 1835 Highways Act continued a system of parish responsibility for paving that had been in place since 1555 but provided a better structure for organisation. Cobbled roads and footways in most Devon towns and many villages were replaced from the late 19th century and into the 1920s, often as part of urban improvements. In the public realm cobbled surfaces were reckoned not only uncomfortable but unhygienic. Some villages retained cobbles and these can be a striking element of villagescapes. From the 1920s there was a movement, associated with the development of tourism, to retain cobbles for their aesthetic appeal and for their contribution to the setting of historic buildings. There was a revival in their use after the introduction of Conservation Areas in 1967. Secular cobbles are still to be found in Devon farmyards, gardens and used for flooring house interiors.

Dating churchyard cobbles is difficult, whether from documentation, structure or context. Documentary research is complicated by ambiguous terminology. It is possible to amend and extend a cobbled path with little evidence of this on the surface and dating from context is not always reliable. It is proposed that the majority of surviving churchyard paths are c.1790-c.1920 and one element of changes to churchyards in this period. Changes were influenced by the arrival of permanent memorials for the middle and working classes – some of these are the products of the Devon slate-engraving industry – and the theory and practice of cemetery design in the 19th century. During this period churchyards evolved as respectful landscapes for the dead and places for reflection and ceased to be used for game-playing and agriculture. Cobbled paths are an important and visually appealing element of churchyards, satisfying both Picturesque and Arts and Crafts interests and contribute positively to the setting of churches.

Jane Loveless, an access consultant, establishes that there are ways and means of addressing the issue of cobbled paths as barriers to access at less cost than amending or covering-over. Access needs to be considered in the round. The statutory framework for access is explained with suggestions for reasonable adjustments that can be made by a church.

Devon's cobbled churchyard paths are assessed for their material, historic, aesthetic and community values. While all the surviving paths are significant on the first three counts there are divided perceptions (as there have been since the 1920s) on their community values. They are reckoned by some to be hazardous and an obstacle to access, but valued by others as contributing to the distinctive character of a place and a sense of history.

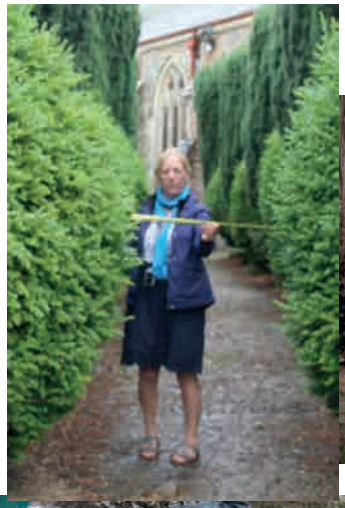
Existing statutory protection is inconsistent for historical reasons and unhelpful to churchwardens drafting statements of significance. It would be beneficial if list descriptions of church buildings made some reference to why cobbled paths are heritage assets.

Most rural churches and many town churches are short of funds for the maintenance and repair of paths. Churches have tackled the access problems in different ways. Interventions include good maintenance and small-scale repairs, patch re-laying in cement (unsatisfactory), gravel scatters, covering over and driving a smooth path of natural stone or cement flags through cobbles: this last is often considered the default position. These interventions are assessed based on casework studies.

The conclusion provides some preliminary thoughts on maintenance and repair in the hope that these may be developed for urgently-needed published advice. DIY repair, particularly after some tuition from a skilled cobblestone-layer, is a possible way forward. Some prospects for funding further work in conjunction with churchyard repairs are indicated.

Table of Contents

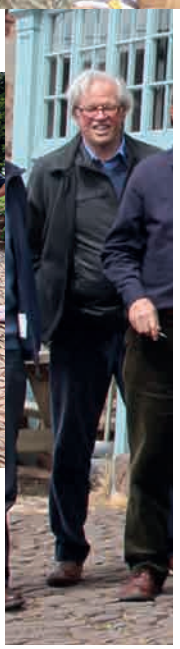
Front cover: The Devon Buildings Group volunteers (minus John Thorp) who visited every Anglican churchyard in Devon. Photographed at Sandford village. JRL Thorp.












Devon Churchyard Paths: Evaluating their Significance, Survival and Adaptation

1 – The Project

This project was commissioned by Historic England from Keystone Historic Buildings Consultants working with Ray Harrison in March 2015, Francis Kelly of Historic England managing the project on behalf of the client. It has been a collective effort involving many individuals and groups [Fig.1]. It was devised as a response to a growing number of requests from Anglican churches in Devon to amend or cover-over cobbled church paths for safety/ access reasons. The Project has four main aims. The first is to understand the paths better: their survival, distribution, design, materials of construction, how they were/are laid, and date range. The second is to assess their historic and aesthetic value. The third is to examine the common issues that prompt their amendment or removal and, by looking at case studies, to evaluate conservation and constructive solutions to date. The fourth is to summarise what the project has discovered as a quarry for what we hope will be a forthcoming guidance note illustrating good practice.

This project is focused on cobbled church paths in Devon, but it is also intended as a pilot study for a national Historic England project on paths made up of, and finished in, local materials. The loss of these paths and historic natural stone paving in towns has caused recent consternation in Dunster, Somerset, and Beverly, Yorkshire. The survival of uneven setts and cobbles and historic brick paths is potentially in conflict with the Equality Act and can be a health and safety worry not only for churchwardens but for those responsible for visited monuments and historic gardens, whether English Heritage, the National Trust or private owners. There are potential links with continental Europe where more natural stone and cobbled surfaces (often relaid) survive in the public realm than in English towns. Anecdotally, the skills for cobblestone laying are particularly strong in Eastern Europe.

From the outset it was hoped that practical work to investigate construction and trial different methods of repair would be undertaken on a path or paths during the course of the project. The Society for the Protection of Ancient Buildings funded this element of the project at the church of All Saints, Merton in Torridge District, working with the Quinquennial Architect for the church, John Alexander of Jonathan Rhind Architects, Simon Cartlidge, an architect who sits on the Diocesan Advisory Committee, Historic England and contractors, William and Burrows of Exeter.

Cobbled church paths came to the attention of the Devon Buildings Group in 2012-13 when proposals for their amendment made up the bulk of the group's annual casework. The group's 2013 *Newsletter* included a seminal article on Devon cobbles by Peter Marlow. This illustrated a wide range of cobbled surfaces in the county and noted that, in spite of their contribution to historic environments, cobbles were under-researched and under-appreciated. The church paths project owes a huge debt to Peter Marlow's energy in pressing both the SPAB and HE to put this right by funding work on cobbles. In 2014, the DBG began a facebook page on cobbles. This has functioned as an evolving record of Devon cobbles and allows interested individuals, whether DBG members or not, to contribute with comments and queries.

This churchyard cobbles project has been a collective effort on the part of HE, the SPAB and the DBG and has worked closely with the Diocesan Advisory Committee. The SPAB have not only funded the trials at Merton but have provided much of the expertise in co-organizing with Keystone, a cobbled church path conference in Exeter in November 2015 that was part of the

HE brief. Thanks to the SPAB Education Secretary, the conference powerpoint presentations were circulated to delegates and those turned away from the fully-booked conference and key points made by the speakers were tweeted during the conference.

Strands of work have evolved that were not anticipated in the brief. At tender stage Keystone judged that, with the help of volunteers from the Devon Buildings Group, it might be possible to sample forty churches for a gazetteer and distribution map of cobbles in churchyards to try and establish exactly what survived and where, some indication of condition and, by noting fragmentary remains, some idea of attrition. The enthusiasm of the seven volunteers, mostly drawn from the DBG Committee, means that almost every parish church in the county (there are more than 600) has been visited, Peter Marlow personally visiting more than 200. A few strays have been assessed on the basis of photographs on the web or picked up by Keystone's administrator, Sandi Ellison. This has been a spectacular effort and resulted in a county map that shows the distribution of principal cobbled church paths – those that have to be negotiated to access the church building (although there may be alternative routes provided) – as well as other cobbles visible in Devon churchyards. These range from small surviving patches of what must have been extensive cobbling schemes to sub-paths through the burial ground that are not perceived as priority access problems for churches. As important to Keystone as the gazetteer, has been the benefit of talking to the volunteers about cobbles and churchyards. Their own special interests and experience have all contributed much more than proforma entries, mapwork and photography to this project.

Given the distinctive distribution of surviving, visible churchyard cobbles, a sampling system, (however sophisticated), would not have identified their close relationship with the particulars of Devon's geology. Dr Richard Scrivener advised on geology. By good fortune (and proof that cobblestone laying skills are alive and well in Devon), a day course of cobblestone laying was run by the Devon Rural Skills Trust in May 2015. This was a welcome introduction for Jo Cox to the practical side of laying cobbles. It was also an encouragement to hope that, with the right guidance, enthusiasm and availability of healthy knee joints, some elements of repair might be undertaken in the future in-house by churches. This could retain an historic feature of parish church landscapes and avoid what are the substantial costs of professional cobblestone repair or relaying, or path amendment in good quality materials, given that covering with tarmac or concrete is unlikely now to be an acceptable solution to the statutory authorities. Francis Kelly is to be thanked for finding extra funds to commission a video of the work at Merton to help explain the significance of cobbles and practicalities of repair. This should be available on Youtube in the course of time.

Churches troubled by the access issues presented by cobbles can be asked by the DAC to provide an access audit prior to requesting formal permission to make changes to a path. Access Audits, covering all aspects of access to churches are also recommended by the Church of England, in the Churchcare Guidance Note: *Accessibility and Disabled People* (May 2013) in response to the 2010 Equality Act. There is church-specific guidance, published in book form (*Widening the Eye of the Needle: Access to Church Buildings for People with Disabilities* by John Penton, 2008) and on the web of how this can be done in-house.[1] In practice churchwardens can feel that an access audit, whether done in-house or by a qualified professional, is a counsel of perfection that may come with a large bill attached for costly work that may take in far more than a path. Obtaining advice and permissions is difficult for Parochial Church Councils without professional advice and can cause anxiety, frustration and a sense that they are working against, not with, the statutory authorities. There is also the difficult and sensitive problem of taking into account all opinion, not only those of all local church-goers, but also local people who do not contribute directly to church funds but who take an interest in changes to church

buildings and churchyards.

The principal cobbled church paths investigated are all (except one) designated heritage assets because they are in the curtilage of listed buildings and therefore considered to be part of the listed building. The National Policy Planning Framework clearly sets out that planning authorities should 'recognise that heritage assets are an irreplaceable resource and conserve them in a manner appropriate to their significance' (NPPF, Para 126). Account should be taken of 'the different character and roles of different areas' (NPPF, Para 17) and planning should 'not simply be about scrutiny, but instead be a creative exercise in finding ways to enhance and improve the places in which people live their lives' (NPPF, Para 17).

The reasons for wanting to amend or dispense with cobbles are diverse but can be prompted by an individual church-goer with a particular form of restricted mobility, or by a fall. A solution for one individual may inadvertently render access more difficult for people with other types of disability. If access is to be tackled sensibly, cobbled paths need to be seen in the context of access for the whole range of disabilities; in relation to any other obstacles to access at places of worship and with a good understanding of what is 'reasonable', given both limited funds and the principles and legislation that apply to listed buildings and structures. For this reason Keystone considered that the project needed the advice of an Access Consultant with a good understanding of the heritage issues and sympathetic to the cash-strapped condition of most churches. We are grateful for the input of Jan Loveless of Access Matters UK.

Keystone is hugely grateful for Ray Harrison's assistance, wise advice, analytical expertise and wonderful drawing skills throughout. Dr Anita Travers helped with research; Sandi Ellison organised the material from the gazetteers and kept a mass of information under control.

Authorship and Navigation of the Report

The text of this report was written by Jo Cox with major contributions from Ray Harrison, Jan Loveless and John Thorp.

This is a long report, going some way, the authors hope, to plug a large gap in understanding and appreciating cobbles. It would be surprising if anyone read it end-to-end. Readers should use the table of contents to select the sections that most interest them and should find that these make sense as standalone documents. For this reason there is some repetition of images and points between sections, but not so many, we hope, as to render an end-to-end read tiresome.

2 – Introduction

Cobblestones are a form of surfacing surviving from pre-history with ancient and contemporary examples found in many places all over the world. At their most simple cobbles were, and are, a method of keeping people, livestock, vehicles or things out of the mud and of easing mobility by providing a hard surface composed of small stones in the raw, not dressed to shape, and rammed down [Fig.2].

Fig.2 . Peters Marland, St Peter. Church (except tower) rebuilt in 1868.

If a source of cobblestones was close at hand and when labour was cheap, this was a very economical form of surfacing. Judging from Neve's *City and Country Purchaser* of 1726 cobbles were cheap relative to flags. He was pricing for pedestrian paving, both external and for interiors. The costs given may have had little relevance to those in Devon, given access to local materials, but are worth quoting. They cover labour and materials. He identified two types of flagging. The first was 'Broad stone' cut into irregular lengths and breadths and suitable for common yards and passages before shop doors and stalls. These cost between 4s and 6s per square yard. The second type was stone slabs cut to a consistent size, costing between 9s and 10s 6d per square yard but if squared and well-polished for kitchens, dairies and 'neat private places' they could cost as much as 11s 3d or 12s per square yard. By comparison, cobbles were a fraction of the cost. He describes paving 'With Pebble Stones, or Bolders' laid in gravel at 15d or 18d per square yard.

At their most ornamental, with stones selected for size, shape and colour and laid in patterns, cobbled surfaces can produce spectacular geometrical or even pictorial effects. Devon's churchyard cobbles range from the sturdy [Fig.3] to dainty examples using smaller cobblestones than surfaces outside churchyards, including modestly-patterned paths [Fig.4]. The range of cobblestone surfaces outside churchyards is wider. Elaborate patterns, designed for maximum visual impact can be found associated with designed landscapes as the setting for

Fig.3. The path to the Church of St Peter, Satterleigh uses large, rustic cobbles similar to those found in farmyards. The cobbled surface is continued into the south porch.

Fig.4. In common with many church paths, the path at the Church of St Michael, Meeth uses smaller cobbles than those used for farmyards and most public footways. The Meeth path, with an internal date of 1818, incorporates lozenge patterns.

buildings conceived or perceived as Picturesque architecture [Fig.5]. At the utilitarian end of their range examples flooring animal houses and farmyards can be very uneven for the human foot but were serviceable for livestock and the rough treatment of mucking out [Fig.6].

Fig.5. Cobbles laid in fans in front of the 18th century Italian gates at the entrance to Bickleigh Castle: the castle (really a fortified house) was restored by successive owners after 1925. Nothing as elaborate as these fan patterns, a continental European tradition, is found in churchyard paths. Dr Stuart Blaylock.

Fig.6. Random-laid granite cobbles of probable late medieval date provide functional rough-surfaced platforms for cattle on either side of a central drain in the shippon end of a Dartmoor longhouse, Higher Uppacott, Poundsgate. The flooring may be as early as the 14th century, the date of the primary phase of the longhouse. J R L Thorp.

3 – Definitions

Defining the Churchyard

Defining the boundaries of a churchyard did not prove as simple as imagined when the gazetteer work was begun. The size of churchyards has often changed over time. In towns large medieval churchyards were subject to shrinkage from encroachment by urban development. Devon's many surviving church houses, some providing part of the churchyard boundary, were often built on ground that was once churchyard. In the 19th and 20th centuries many churchyards expanded with extensions to cope with demand for burial space as populations grew and the earlier system of disturbing burials to make more room for more was abandoned on grounds of sanitation and propriety. Churchyard enlargements are not always immediately visible on the ground.

There are many cobbled paths and sometimes cobbled courts that lie outside the walls or boundary buildings that, at first sight, define the 2015 churchyard. Cobbled paths leading to the churchyard boundary make it highly likely that the path to the church inside was once cobbled, even if it has been resurfaced since [Fig.7]. Cobbled areas at Huish [Fig.8] and Hatherleigh [Fig.9] parish churches are obviously part of the 'churchyard' although outside the churchyard boundary.

Fig.7. Judging from cobbles surviving outside the churchyard boundary, the church path to Beaford, All Saints and St George, was originally cobbled.

Devon churchyard cobbles, March 2016. Keystone.

Fig.8. The court that lies outside the boundary walls of the church of St James the Less, Huish, rebuilt (apart from the tower) by G E Street, is part of a sophisticated Victorian and perhaps Edwardian church landscape. This provided, inside the churchyard, several patterned cobbled paths leading to the church porch, vestry and rectory, but also provided a patterned cobbled court between the lychgate and road beyond which is a World War 1 memorial. The court may have had a ceremonial function as well as providing an area for parking vehicles.

Devon churchyard cobbles, March 2016. Keystone.

Fig.9. At Hatherleigh, St John the Baptist, (top and left), a town church, a cobbled area outside the main gateway to the churchyard from the S continues to be used as part of funeral rituals. The coffin is rested on trestles in its own distinct cobbled enclave, between the town and the churchyard gates, flanked by the gable end walls of Gothic buildings before being carried into the churchyard through the gate and up the cobbled path to the church.

However, the ownership, historic and current, of other cobbles outside the churchyard boundary is not so clear [Figs.10, 11]. Cobbled areas lying between the existing churchyard and adjacent houses may once have belonged to the church but over time have become the responsibility of the County Highways Authority or may be 'orphans' of uncertain ownership and responsibility for maintenance [Fig.12].

Fig.10. The Church of the Holy Cross, Crediton, has a cobbled path outside the churchyard railings from what is now the church car park to the churchyard, as well as cobbled paths inside the churchyard boundary.

Fig.11. At West Worlington, St Mary, picturesque shallow cobbled steps rise between the road and the passageway, spanned by a building, that leads into the churchyard. The steps are not inside what most people would consider to be the churchyard boundary. It was only by chance that it was discovered that ownership is claimed by the church.

Fig.12. A cobbled area, 'the Causeway' immediately outside the lychgate at Upton Pyne, Our Lady, was probably once church property.

The gazetteer has not been consistent in photographing all cobbles outside the modern boundaries of the churchyard, and when they have been photographed it proved difficult to know where to stop. There are many examples of surviving village and town cobbles in Devon in the public realm or visible from it, sometimes remnants only, sometimes very extensive. These may join up physically with churchyard cobbles and represent a considerable contribution to the character and history of a village or small town, e.g. Pilton [Fig.13]. At Buckland Brewer a long, winding cobbled path through the village links the south porch of the church with the former rectory [Fig.14].

Fig.13. A cobbled footway outside the entrance to Pilton, St Mary, connects with cobbles under the 1849 entrance to the churchyard between almshouses and continues as a path through the churchyard to the porch.

Fig.14. At Buckland Brewer, St Mary and St Benedict, a cobbled pathway can be traced from the south porch of the church of St Mary and St Benedict through the churchyard, out through the lychgate, across the village square, as a snicket between buildings, then a footway in front of cottages as far as the former vicarage. Whether this was a particular improvement to keep the incumbent's feet dry en route *to the church (*pers.comm. *members of the history group and an owner weeding the pavement outside his house), or is a surviving remnant of what was once a thoroughly cobbled village, has not been established for this report.*

Defining Cobblestones

A cobblestone is a relatively small stone, usually undressed. According to the *OED* the word is Middle English in origin and may derive perhaps from a Proto-Germanic base *kubb-* something rounded, but this etymology is not certain. The earliest examples of the word cobble or an alternative form, 'coggle', recorded to date turns up in the 15th century. Other terms must have been used before. A variety of names appear in 19th century documentation, including waterstones, pigeonstones, the local to Devon 'popples' (hence Newton Poppleford, though the exact meaning of 'popple' is debated) and 'Budleigh buns' for beach stones from Budleigh Salterton. Any researcher pursuing an internet word search will discover that in the 19th century 'cobbles' also referred to a grade of coal.

The modern geological definition identifies cobbles according to size as a clast (that is a broken piece of an older rock) with a particle size of 6.4 centimetres (2½ ins.) to 25.6 centimetres (10⅛ ins.) The size of cobbles used for Devon church paths is very varied, both within individual church paths and from path to path [Fig.15]. The largest cobbles at Coldridge, for example, are about 25cms x 30cms on the surface. At Petrockstow some of the smallest cobbles are no larger than a digestive biscuit laid on edge and only about 2cms x 5cms on the surface. At the limit of definition by size for this project are paths surfaced with large random-laid stones. Some of these stones are very large, 50cms x 50cms or more and the paths might be better-defined as random rubble paving rather than cobbles. However, they have been included as they present some of the same conservation issues as paths constructed of smaller stones.

Fig.15. The range of cobblestone sizes illustrated in the contrast between the tiny cobbles at Petrockstow, St Petrock, above, and the large cobbles? or should they be called random stones? at Throwleigh, St Mary, below.

Devon churchyard cobbles, March 2016. Keystone.

What we have been clear about is defining cobblestones usually as undressed stones, where shape is usually a matter of geology and selection, not the result of shaping with a tool. ‘Cobbles’ are therefore distinguished from ‘setts’, which are stones that have been dressed before laying, usually to a regular size and presenting a surface of flattish rectangles or squares [Fig.16]. In common parlance these are sometimes called cobbles, but not in this report. This does not mean that cobblestones were never dressed. A tool may be employed occasionally to knock off a chunk in order to make one of an awkward shape fit in better with its neighbours. There have been some cases where there have been debates about whether we are dealing with setts or a cobbles, especially where stones that fracture along straight edges is used, but In most cases the distinction has been clear.

Fig.16. Exeter transit shed, the Quay. Cobbles patched with small granite setts.

There are exceptions to the use of uncut stones: masons' offcuts and quarry waste. The earliest dated cobbles inside a churchyard boundary are interior cobbles flooring a disused porch at Kingskerswell, St Mary. This cobbling is a one-off. It incorporates a very early date of 1712 and a pattern of lozenges and a wreath-like circle, picked out in pink on grey cobbles [Fig.17]. Most of the cobbles have rough sides but very flat, shiny tops, although in the corners the stones are more conventional pebble cobbles laid horizontally. The flat-topped cobbles may be what was left over when South Hams limestone (which can be polished and is sometimes called Devon 'marble') was sawn or split, either at the quarry or in a masons' yard when it was being dressed, the polished appearance coming from footfall (*pers.comm*. Peter Dare, retired Exeter Cathedral mason). South Hams limestone was used locally for footway flags. In Ipplepen, the parish adjacent to Kingskerswell and the site of a limestone quarry, flags of the local pinkish limestone can be found surfacing the footways. It would be thrifty to make use of quarry and masons' waste if they provided stone fragments that could be individually laid, although the careful selection for colour and the patterns at Kingkerswell suggests that no expense of labour was spared in the porch. Some paths may employ quarry waste [Fig.18].

Fig.17. (Above) Kingskerwell, St Mary, dated 1712. Located close to the 'Devon marble' limestone area of South Devon, this is interpreted here as masons' offcuts used for the patterned area in grey and pink.

Fig.18. (Right) Membury, St John. This cobbling may use quarry waste from the nearby Tolcis quarry that produced white lias.

We have found the phrase 'pitched stone' unhelpful. 'Pitch' derives from the Middle English piche, to fix, erect, place etc. Sometimes 'pitching' seems to be used to refer to cobbles in contrast with 'paving', meaning flags. Howeverr, some modern authors take it always to mean setts. Bristol's Commission of 'Pitchers and Paviours' (John Macadam was a commissioner in 1806) probably indicates a mixture of cobbles and setts/flags in the city. 'Pitched', in the sense of 'upright' or 'thrust in', is sometimes used to describe stones where the length of the stone in the bedding is greater than the length that appears on the surface. This makes good sense to ensure that the structure of a path is secure and the stones unlikely to be accidentally kicked out. Judging from what you can see on the surface, most surviving churchyard cobbles in Devon could be 'pitched' on this definition. However, the trials at Merton church established that many of the cobblestones from both phases of a two-phase path were laid horizontally, their length on the surface greater than their depth [Fig.19]. This may be an exception and there are domestic and farmyard examples where this is not the case. At St Peter's church Tiverton, on the N side of the church, degradation of the path surfaces reveals 20th century egg-shaped pebbles laid horizontally [Fig.20], but in most cases we have not been able to see whether church path cobbles are laid vertically or horizontally.

Fig.19. Cobbles excavated from Merton, All Saints, photographed as they were laid and proving that they were not 'pitched' if this is defined as thrust in vertically.

Fig.20. Egg-shaped cobbles used at the church of St Peter, Tiverton, laid in cement in the 20th century. These are laid horizontally.

Ambiguous terminology in text books, dictionaries and documentation

In addition to the 'pitched/pitching' problem, historic terminology has proved very troublesome. 'Paving' is a term that can cover cobbles or flags. Whether pavers (various spellings) paid in churchwardens' accounts were laying cobbles or flags has often been a matter of educated guesswork , based on what we think we know about the stone resources likely to be available at a particular place that date. 'Stones' in churchwardens' accounts seem likely to refer to cobblestones, rather than flags.

'Gravel', as a term used in the 18th and 19th centuries has also proved difficult to define. Does it mean pea gravel, or was it a more general term for small/smallish stones, and how small or large? And when the term is used, does this invariably mean stone that was spread and perhaps rammed or even rolled, or could it ever refer to cobblestones, laid individually? Payments for weeding 'gravel' paths can be found in churchwardens' accounts, but no references have been found to the use of rollers. This suggests that churchyard gravel paths used a very different sort of gravel from the refined rolled and raked self-binding gravel surfacing, researched by Jane Root, used for garden paths in superior Bath houses. Excavation of a 1760s Bath path discovered gravel mixed with clay. Rolled gravel paths required an onerous maintenance regime, rolled once or twice a week and after rain.[2]

Other words have turned up in documentation that we have had to understand from context only: 'wailing in' sand (one example found: 1815-1816), seems to refer to brushing sand into a laid path. Materials for laying roads and footways could be found not only in quarries and pits, but also in 'stoles' (1862). We have no idea what a 'stole' is. The use of the term 'causeway' (various spellings) is common in documentation from the 16th century onwards. Unfortunately, this word has a tricky etymology for our purposes. It can mean a 'raised road' (Middle English, derived from Norman French) across wet ground or a 'paved road' but it has a secondary meaning as a small area paved with cobbles (1481, hence the verb, 'to causey' to pave with small stones), though this meaning is chiefly Scottish dialect in status. When we have encountered the word in documentation we do not know whether it means a path raised high (out of damp ground) or a stone-surfaced path, or both [Fig.21]. We believe, from the context of various sources, that causeways are likely to have been constructed of small stones, not dressed setts or flags, but cannot be certain that these were always cobbles rather than spread stone or whether the word implies that causeways were always paths raised above damp or wet ground.

Fig.21. The Steventon causeway, Oxfordshire, a substantial medieval earthwork. One publication suggests that the cobbled surface is early 19th century. Does the term 'causeway' in documentation always mean a raised path like this one? See 'the causeway' at Upton Pyne, Fig.12.

In the 19th century ‘pavement’ generally refers to a road surface as it still does in the US, ‘footway’ being the term used for what would now be called a pavement in UK English or a sidewalk in the US.

The modern terms ‘paver’ and ‘paviour’ can apply equally to someone who paves or to a paving stone. In this document ‘paver’ has been used for a person who paves, and paviour for a paving stone or clay stone for paving, unless we are quoting from historic documentation that self-evidently uses the terms differently.

4 – Geology

A small number of Devon churchyard paths are constructed from pebbles from the E Devon pebblebeds. These are Triassic deposits of mostly quartzite pebbles. The quartzite pebbles are water-worn, not by the sea but in an ancient river running N into E Devon from Brittany before England was separated from continental Europe. These pebbles are rounded, sometimes more or less spherical, sometimes egg- or doughnut-shaped. Their shape means that the surface of a pebble path presents a series of domes or domes with flattened sides above the bedding [Fig.22]. A handful of East Devon churchyards have paths or areas of pebble cobbles. The quartzite pebbles were also used for paths to houses, for roadway gutters and even for facing walls. There is a high concentration of their use in the area south and west of Ottery St Mary, but pebble cobbles sometimes turn up in churchyard paths where they seem likely to have been brought from some distance, e.g. at Poltimore and the 20th century paths on the N side of St Peters, Tiverton.

Fig.22. Quartzite pebble cobbles from the E Devon pebblebeds used for a court outside Salem Chapel, E Budleigh. The domed shape of the stones, rising above the bedding, make these uncomfortable to walk on and they do not provide a secure purchase for a walking stick.

With the help of Dr Richard Scrivener, we know that the majority of surviving cobbled surfaces in Devon churchyards use stones from the geological area known as the Culm Measures [Fig.23]. This is an area of mudstone, siltstone and sandstone across most the centre and north of the county.

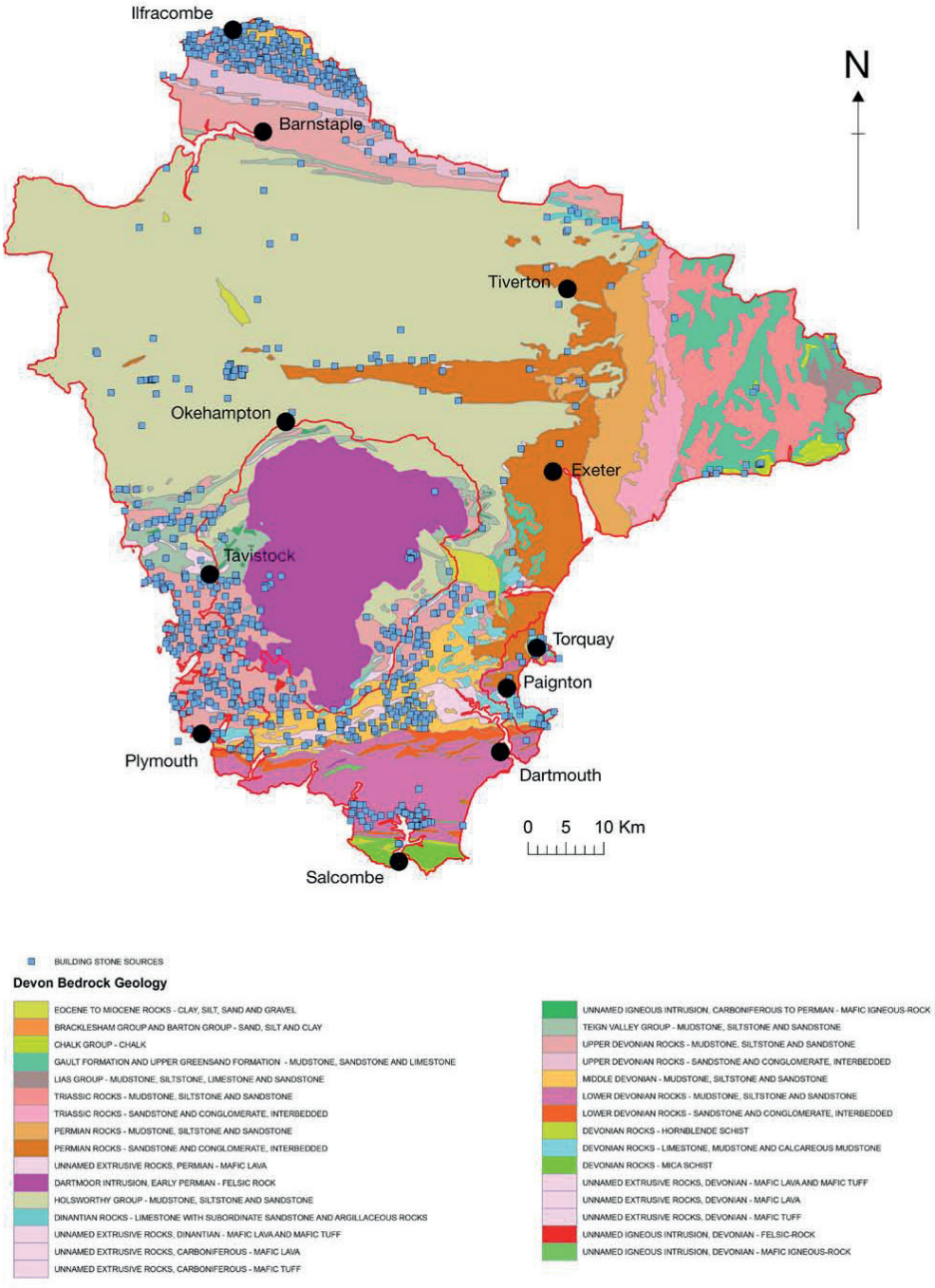


Fig.23. Devon's bedrock geology from Strategic Stone Study: A Building Stone Atlas of Devon*, 2012. There is a close coincidence between the Culm Measures (pale green) and the distribution of surviving churchyard cobbles. Permit Number CP16/013 British Geological Survey © NERC 2016. All rights reserved. Contains OS data © Crown copyright and database right 2016.*

The cobblestones from the Culm Measures are water-worn Carboniferous sandstone from the Bude and Crackington formations. They have been water-worn in ancient rivers knocking off sharp edges and angles and reducing a stone to its hard core. Some are slightly domed [Fig.24].

*Fig.24. Berrynarbor, St Peter. Sandstone/ siltstone cobbles with rounded pebble-like tops, possibly from alluvial gravels but more likely from the beaches of N Devon (*pers.comm. *Dr Richard Scrivener, provisional assessment of geology based only on photos, not on a visit).*

However, they can be a very different shape from the East Devon quartzite pebbles. Some river channel cobbles are approximately tile-shaped, usually quite thin with flattish surfaces and some rounded corners and these were preferred for church paths. The Culm Measures also produce larger and coarser sandstone cobbles with sharp angles. The latter have been subject to slower erosion by water resulting in a more angular product and are sometimes known as 'head cobbles'. These may have been gathered from field-picking. There is a huge variety of size, flatness and angularity and a wide range of colours, through greys and brown with some pinkish stones [Figs.25, 26].

Fig.25. Pilton, St Mary. A unique example of flat-topped and slightly domed Carboniferous sandstone cobbles used side-by-side, presumably two different phases.

Devon churchyard cobbles, March 2016. Keystone.

Fig.26. Carboniferous sandstone cobbles illustrating something of their variety of shape, colour and size. Clockwise from top.
a) Small, flat-topped cobbles were preferred for many church paths, e.g. at Upton Pyne, Our Lady.
b)Much larger and more angular flat-topped sandstone cobbles can also be found, e.g. at Coldridge, St Matthew.
c) In a secular setting, the large (and uneven) cobbles at Clovelly on the N Devon coast were presumably selected from the beach at the N end of the village.

Fig.27. An ancient river terrace above the current course of the River Exe at Brampford Speke. Dr Richard Scrivener pointing out that the face of the terrace is full of Carboniferous sandstone cobbles. A pit dropped on the top of the terrace would produce abundant cobbles.

Culm Measures cobbles could be sourced from rivers, but can also be found in abundance in ancient river terraces, where they could be picked out of the terrace face or gathered from a pit on top [Fig.27].

The project has not had professional geological advice on every site and we may have failed to identify examples using other stone sources. What has survived and what has not may have distorted the picture. However, the sandstone river channel and head cobbles of the Culm Measures make up the majority of Devon's cobbled churchyard paths and these are found in a distinctive strip from the west to the east of the county, with far fewer cobbled paths employing quartzite pebbles from East Devon. The Devon sandstone which produces cobbles is well-known in modern road construction for its good PSV (polished stone value), a measure of an aggregate's resistance to polishing action i.e. it is intrinsically non-slip, although it may become slippery as a result of flora growth. The PSV of quartzite is not as good (resistant to polish) as it is for sandstone.

There is evidence of the use of other sources of stone: the Kingskerswell limestone cobbles are noted above. Offwell church in E Devon has some chert cobbles. Chert is a hard siliceous rock deposited in deep water and found in both north and south Devon. The chert cobbles at Offwell are knobbly and uneven and found in conjunction with areas of quartzite pebble paths [Fig.28]. In short, the makers of cobbled church paths employed suitable material to hand and there was a wide range of what was considered suitable. It is noticeable that although granite cobbles are found in domestic settings and survive used in drainage channels to later surfaced roads, they are uncommon in churchyards even where granite is locally abundant and used for the church building, retaining walls and as flags for the apron round the church, as at South Tawton [Fig.29]. In those areas of Devon which are a blank for cobbled churchyard paths, the south and the south west of the county, we might assume that the most practical stones for cobbling were simply not available.

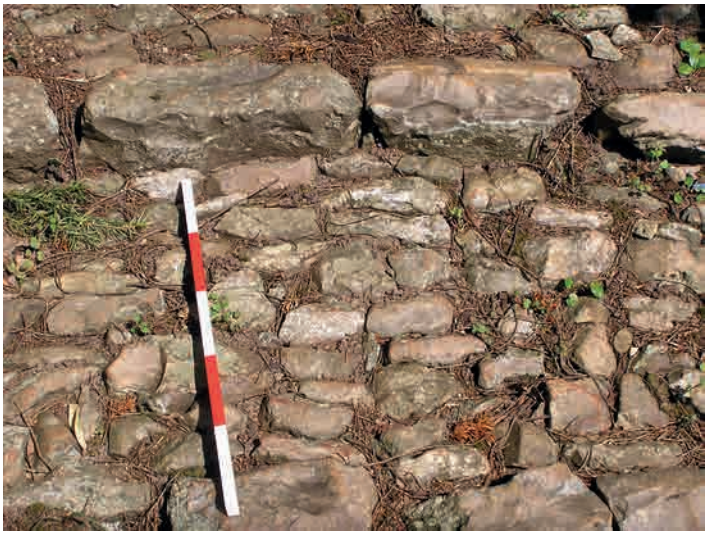


Fig.28. (Above) Chert cobbles at Offwell, St Mary on the S path to the lychgate. The 19th century porch (right) is surfaced with quartzite pebbles.

Fig.29. (Left) South Tawton, St Andrew. Abundant use of granite for the building, for revetment walls to the path and for an apron round the church, but sandstone cobbles used for the path.

5 – The Gazetteer: Survival and Distribution

The seven gazetteer volunteers who visited Devon's churches in search of cobbles are all current or former committee members of the DBG. All have a broad interest in conservation and historic buildings. They include a retired cathedral master mason, a retired county conservation officer, a conservation architect who undertakes church quinquennials, a qualified town planner, two archaeologists, a mills specialist and Peter Marlow, formerly of the Irish National Trust. They were supplied with a ranging rod, a 50cm photo scale and forms to be filled in for cobbled 'principal paths', i.e. paths that connect the churchyard boundary with the principal entrance of the church building [Fig.30]. In some cases there are alternative smooth paths to the building. In others principal path cobbles have to be negotiated for access to the church. The principal paths were understood from the outset to be the conservation priority. The gazetteerers were also asked to take photographs of any other cobbles in churchyards to try and establish levels of attrition.

Fig.30. A principal cobbled path at Dunsford, St Mary.

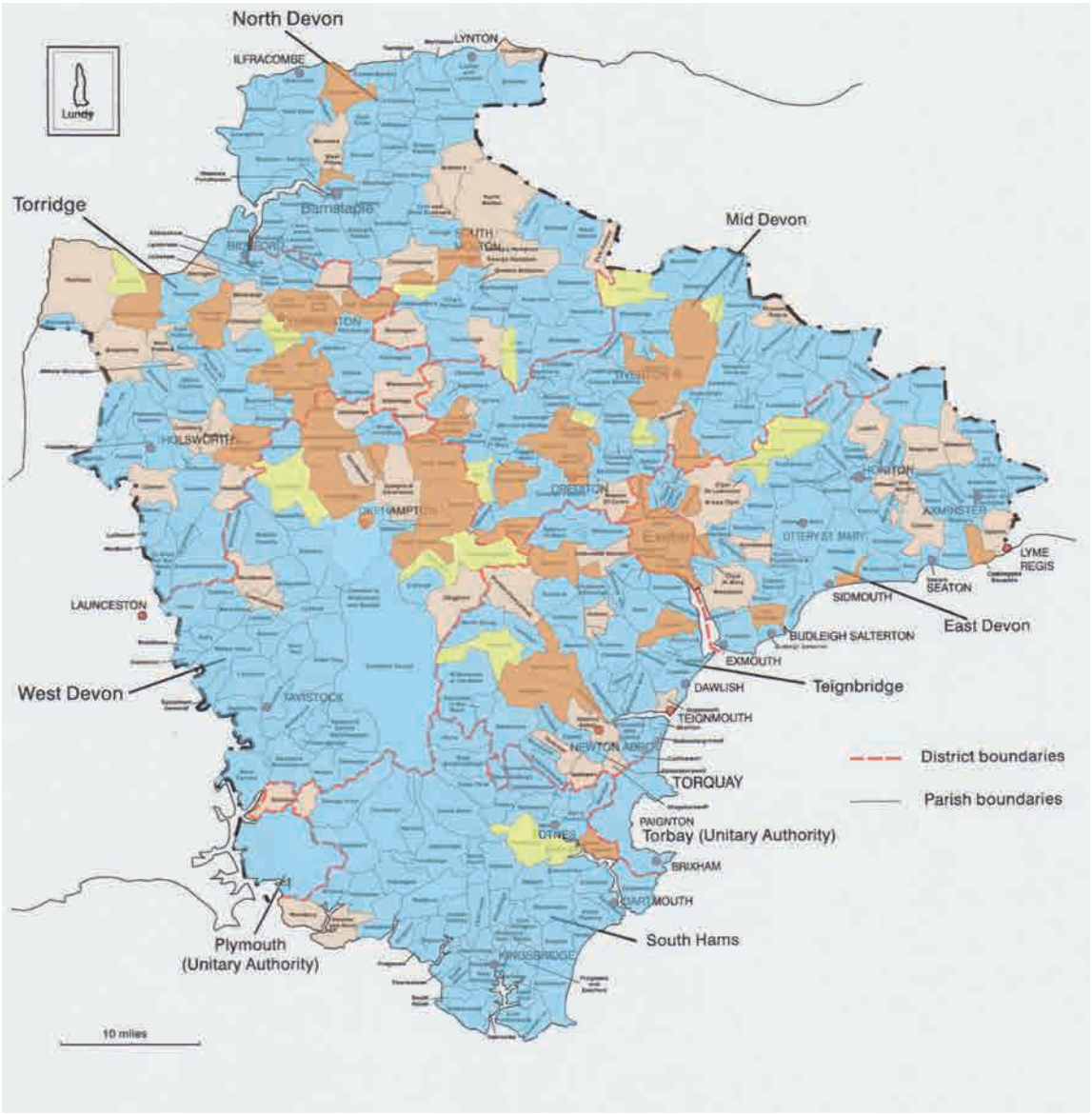


Fig.31. Distribution map of cobbled church paths, derived from the gazetteer. Contains OS data © Crown copyright and database right 2016. Parish boundaries by DALSS, reproduced with permission

Orange = principal paths
Beige = remains of cobbles in a churchyard: this may range from a small patch to a complete sub-path.
Yellow = a cobbled lychgate only.
Blue = no cobbles.

The gazetteer map [Fig.31] was produced using a combination of base sources. There is a very useful map of Devon Civil parishes produced by the Devon Archives and Local Studies Service (DALSS). Sandi Ellison created a list of Anglican churches split into LPAs. This supplemented with a huge list of all Devon places of worship devised by Dawn Honeysett, one of the gazetteerers, using multiple sources and was provided on the web as a table for those undertaking the gazetteer to mark up. This was to avoid doubling up on 'random' visits made en route to designated lists of churches they were visiting and to try and cover non-Anglican places of worship. The gazetteer, as it stands, is almost exclusively of Anglican church paths. A sample of non-conformist chapels have been visited and found not to have cobbles, or, in common with Anglican churches, have fragmentary remains only. Many do not have burial grounds and abut the roadside, which limits opportunities for paths.

As all maps do, the distribution map distorts the evidence. It allows each path or path fragment to colour a whole parish. In reality, an orange-coloured parish may indicate just one path or, in exceptional circumstances as many as six. The map tells nothing of the relationship between a church path and surviving cobbles in a village, a combination that can create an absolutely distinctive sense of place. The gazetteer may have missed some chapels of ease. It is more likely to have missed cobbled sub-paths lost under grass and weeds [Fig.32] or under tarmac or cement. Unless a few patches of cobbles are visible it is difficult to confirm that these once existed.

Fig.32. A sub-path lost to grass at Cheriton Bishop, St Mary.

Cobbles other than principal paths noted on the distribution map range from entire sub-paths, usually from a secondary entrance into the churchyard, to small remnants of cobblestones, whether drainage channels now serving tarmac or concrete paths, complete drainage aprons round the church building or sometimes just a very small patch of surviving cobbles. A number of churches have retained a cobbled 'doormat' immediately outside the south porch even when the rest of a path has been replaced [Fig.33].

Test-driving the gazetteer forms quickly established that cobbled lychgates were in a category of their own [Fig.34]. Judging from dates and inscriptions where these are visible, they were often erected independently of any work on the churchyard paths. In origin, the lychgate ('lych' meaning corpse) was part of the funeral service providing a symbolic and actual sheltered place at the entrance to the churchyard for part of the funeral service: not all funeral

Fig.33. Examples of churchyard cobbles marked beige on the distribution map. These include whole sub-paths, e.g. Holcombe Rogus, All Saints (topleft), a sub-path leading off the flagged path to the S porch to a doorway in the property boundary wall with Holcombe Court. They also include fragments of cobbled schemes, e.g. Iddesleigh, St James (top right) has a concrete principal path but has retained a small patch of cobbles outside the S doorway and the cobbles on either side of a flags in the porch; Torbryan, Holy Trinity (bottom left) where cobbled drains survive, now on either side of a concrete path and Monkleigh, St George. In common with many other churches, this retains only a decorative cobbled 'doormat' to the porch entrance.

Fig.34. The1908 patterned cobbles of the lychgate at Warkleigh, St John the Evangelist. Cobbled lychgates appear usually to have been built independently of work on church paths.

services involved entering the church. The tradition of resting the coffin outside the church before the congregation enters the church first is still current, and sometimes generates cobbled aprons specifically for this purpose (e.g. Hatherleigh, Exbourne and Upton Pyne), and at least two 19th century lychgates have impressive coffin rests [see Fig.15]. However, many 19th and 20th century lychgates are not large enough to contain a coffin and are memorials to a parishioner or the war dead and/or provide a sense of a worthy entrance to the churchyard conceived as a place set apart. Lychgate cobbles have therefore been mapped separately, unless they accompany other cobbled remains in the churchyard. It should be noted that the distribution of cobbled lychgates places most of them in the areas where cobbled paths are to be found, indicating that they were surfaced with locally-sourced cobblestones.

As is usual, even with test-driving and amendment, the gazetteer pro-formas were imperfect and some of the questions asked, e.g. a ranking for the significance of churchyards were more or less impossible to answer. Had the pro-formas been invented later on in the course of the project, the questions would have sought more information on visible systems of drainage for cobbled paths, on the boundaries of the churchyards and on churchyard monuments. However, this would have slowed down the work and compromised coverage.

As noted above, even allowing for the uncertainties of survival, the gazetteer map establishes a close connection between surviving churchyard cobbles and the geology of the Culm Measures. The catchments of the rivers Exe, Taw and Torridge and the Teign are also important features in distribution suggesting that cobbles were taken from rivers and ancient river terraces. The gazetteer has established the rarity of cobbled principal churchyard paths: 40 only in a diocese of more than 600 churches (see Appendix One), plus nine amended with smooth materials or, in the case of Black Torrington, covered but the covering reversible. Judging from fragmentary remains, many more have been lost to tarmac and concrete. The almost complete absence of surviving cobbled church paths or remains of cobbles in parts of South Devon, where tarmac and concrete paths are ubiquitous, produces the unexpected conclusion that, with a tiny handful of exceptions, the cobbled church paths that do survive are the only churchyard paths with historic (c.1790-1910) natural stone surfaces left in the county. The exceptions noted in the largely cobble-free zones are one bedrock path [Fig.35], probably very ancient, and some flagged paths [Fig.36], including the re-use of inscribed stones. It is not clear how paths were treated in parts of of South Devon when cobbled paths were being laid in Mid and North Devon? Or why they have been re-surfaced since? Is this a question of localised survival? Or were the south Devon paths improved with slate flags in the same period? These questions are dealt with in more detail in Sections 9 and 10 of this report.

The South Hams slate industry is best known for providing roofing slates and slates for slate-hanging, but also produced flooring slate, window sills and, in the 19th century, a wide range of slate objects. Large slate flags survive flooring some of the south Devon church porches and some church interiors [Fig.37]. If slate flags were used, were they lost before the cobbled paths because they were slippery ? Did the slate used break down? This is what happened to the largely lost blue lias paving (also now considered very slippery for external use) of 18th century Bath which was replaced with Pennant stone when it became economically available. Alternatively, were the Devon churchyard paths in cobble-free areas constructed of and replenished with waste from the abundant local stone quarries? A small number of churchwardens' account were searched for the areas where no cobbled were found and Modbury, for example, has references to 'chippings' from 1820/21 and by 1822 it is plain that these are for the church path. However, the 1820s entries make a distinction between 'chippings' and 'stones' (drawn, with 'chippings' in 1820-21, but not necessarily for work on a path) and in 1826/7 there is a payment for a cartload of 'pebbels'.[3] These may have been for a path or used for some other purpose. More research is needed to understand the lost churchyard paths of south Devon and why they were so comprehensively replaced with tarmac and cement when cobbled paths further north have survived.

The Gazettter pro-formas for principal paths have been supplied as an Excel Spreadsheet.

Fig.35. Diptford, St Mary, has a lop-sided bedrock path. There have been attempts to level parts of it up with cement.

Fig.36. A rare example of a flag path, Holcombe Rogus, All Saints. The church also has a cobbled sub-path to the garden boundary of the adjacent great house, Holcombe Court. See Fig.33.

Fig.37. Loddiswell, St Michael, in the largely cobble-free zone of the South Hams, has both a slate-floored porch and the body of the church is flagged with slates. Is the tarmac path a replacement of slate flags?

6 –Laying Cobbles and Observations on Design

Who laid cobbles?
Judging from documentation historic cobblestoning was masons' work. At St Michael and All Angels, Great Torrington, the initials 'WBC' picked out in white/brownish cobbles with the date 1813 are plausibly those of Walter Browne Cock, the local architect/mason who rebuilt the church spire and, with a partner, William Dunk, built the town's market hall [Fig.38]. The initials may be intended to record his work on the church building as well as, or rather than, the cobblestone path. Laying cobbles may have been one of those rural skills that many parishioners could turn their hand to, like thatching. Thatching was learnt on ricks and farmbuildings, utilitarian cobblestone-laying may have been learnt in farmyards or private courtyards. Masons may have been employed only for the best cobble work. It is unlikely that a mason would have been employed for some of the cobbled garden paths of smaller vernacular houses.

As slow work undertaken while kneeling, laying Devon cobbles has some legendary and real associations with penance and obligatory work. The ghost of a kneeling monk near what was Cowick Priory in Exeter is reputed to be cobbling for penance.[4] From the 1555 Statute of Highways to the 1835 Highways Act, there was a legal obligation on parish householders (excepting servants) to contribute labour in repairing roads and footways as required by the 'surveyor'. There were fines for non-compliance. The work would have involved cobblestone laying where suitable stones were available. It is well-known that working stone for road-making was a workhouse occupation. In the 1970s the 'causeway' a large area of cobblestones immediately outside the churchyard at Upton Pyne was relaid by different groups of people on probation, the project organised in association with the probation service (*pers.comm.* Paul Bowd). The old cobbles were supplemented with new taken out of the river Exe. The cobbles laid at the corner of Cathedral Yard and Cathedral Close in Exeter in the 1970s were one scheme run by the Manpower Services Commission (*pers.comm*. Peter Dare), designed to provide skills to unemployed young, who were paid a very small 'training allowance' rather than unemployment benefit at a time of high unemployment.

Traditional cobblestone laying in 2015 is usually undertaken by masons who also carry out drystone walling and also have skills in traditional lime and cob repair work.

Repairing Farmyard Cobbles under the tuition of Jennie Godwin of the Devon Rural Skills Trust
A Devon Rural Skills Trust course on cobblestone laying was run in May 2015 [Fig.39], repairing a cobbled farmyard in Mid Devon. The farmyard cobbles used were much larger and more angular (head cobbles, rather than river channel cobbles) than is common for Devon churchyard paths with a more uneven surface. The cobbles were bedded and jointed in red Mid Devon subsoil with no evidence of any aggregate or lime added. The bedding included many earthworms and evidence of their progress through it.

This one-day course provided useful insights into some of the principles of cobblestone-laying explained by an experienced practitioner as understood by Jo Cox, a complete novice, and working on patch repairs rather than laying from scratch. The principles listed below relate to the particulars of the farmyard cobbles on the site in question. They are not a British Standard specification for laying cobblestones. The principles below have been supplemented on the basis of the investigation of the construction of the church path at Merton and in the light of what has been understood of cobblestone construction from research and observation by Ray Harrison and some of the key elements are dealt with in more detail in Section 7.

Devon churchyard cobbles, March 2016. Keystone.

Fig.38. Initials of a local architect/mason at Great Torrington, St Michael with a date of 1813. Walter Browne Cock rebuilt the church tower with spire in 1828 and the market house in 1842. One of the other two examples of initials records, not a contractor, but churchwardens. Note that the dated cobbles abut a late 19th century porch, indicating some relaying when the porch was built. These are the only churchyard cobbles mentioned in Pevsner's Devon.

Fig.39. Above and left. Repairing farmyard cobbles in Mid Devon on a one-day cobblestone-laying course tutored by Jennie Goodwin for the Devon Rural Skills Trust. The cobbles were larger than most used for church paths and expectations were for a rougher surface than churchyard cobbles.

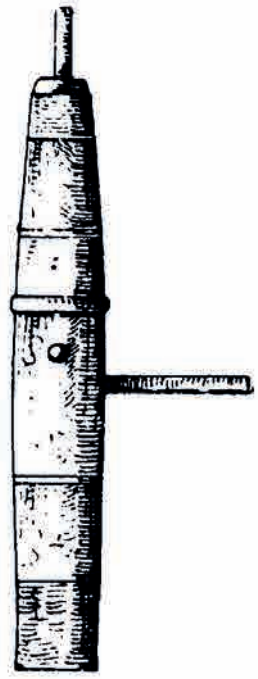
- The 'tray' or bed needs to be deep enough to accommodate the longest (in depth) stone that may be used. In addition its base needs to be formed at or below the point where excavation through the organic soil layer hits the top of the sub-soil or below this if necessary. This will be the formation level.
- A path or cobbled area needs restraint at the edges by walling and/or kerbs.
- Cobbles are usually laid from the lowest point to the highest.
- The bed has to be adjusted by adding more dampish material below to accommodate shorter cobbles.
- The stones are locked together by being laid tight-packed and in contact with one another or made to contact one another by ramming down Individually as they are laid.
- 'Anchor' stones, longer than the average, are distributed through the path to improve stability.
- Cobbles are laid 'dry' the interstices filled with bedding only after a section has been completed.
- Joints running through are to be avoided (as they would be in a rubble masonry wall).
- Each section laid has a final ramming down. This can be done with a mallet, or a board can be used under the mallet to achieve as flat a surface as possible.
- The interstices are filled with dryish bedding material (this was subsoil gathered from the farm) brushed in. More subsoil would probably need to be brushed in after a fall of rain or after watering the cobbles.
- Repairing small patches of uneven cobbles or where cobblestones have been lost is slow and fiddly, as good connections have to be made with the undisturbed sections.
- There is a temptation to knock very small cobblestones, known as 'tigs', into wide joints after brushing in the bedding, for aesthetic reasons. Some wide joints are inevitable when stones are very irregular. They may touch their neighbours several cms below the surface but have a wide joint at the surface. The use of tigs is not good practice, as they are unlikely to be securely locked into their neighbours and are liable to be dislodged.

Additional information on technique from other practitioners notes that the matrix material brushed in should not only be dry but may be sieved and can be mixed with gritty sand.

Laying cobblestones is not complicated. A novice is liable to make mistakes but with a bit of tuition can catch on to the principles. Poor work can easily be undone and laid better. The work is tough on the knees and thighs and slow. 1½ square metres per day has been quoted to the authors by several different practitioners, although 8 square metres for two experienced and quick people working on large farmyard cobbles has also been mentioned. The smaller the cobblestones, and many church paths employ very small stones, the more time-consuming they are to lay.

Tools [Fig.40]
The tools used on site on the Devon Rural Skills Trust training day included anything suitable for easing out cobbles, on this site a plasterer's trowel was sufficient. However a 'digger', a short-handled, single-headed mallet-like tool, thought to be peculiar to Devon and evidently a general-purpose tool, was recommended and the professionals on site also had large multi-purpose wooden mallets. A tool called a 'rammer' in the late 19th century was used both for laying setts and cobbles. In a technical publication of 1895 this was described as hardwood, bound with iron and weighing about 40 lbs. An earlier version, requiring two people, can be seen in use in a late medieval manuscript illumination. The same image shows people working from low stools, rather than kneeling, though this would transfer the strain on the knees to the back. Ray Harrison reports seeing setts laid in fan patterns in Thanet, Kent by craftsmen sitting on one legged stools. The size of the fans was determined by how far a layer could stretch forward and to the sides off the tilted leg of the stool. The workers observed were from continental Europe.

Devon churchyard cobbles, March 2016. Keystone.



Rammer

*Fig.40. Tools. Clockwise from top left. Tools used by experienced cobblestone layers on a Devon Rural Skills Trust training day in 2015: a 'digger', a short-handled tool useful for easing out large cobbles and a wooden mallet for knocking cobbles in. This was made of a single piece of holly. A 'rammer' illustrated in T*he Construction of Carriageways and Footways *by H Percy Boulnois' 1895, p.48, weight given as 40lbs. Rammers being used by workmen re-paving The Strand with setts in 1859 (with a conductor in the foreground),* Illustrated London News*. The parent tool is known from a late medieval manuscript illumination of sett-laying, which also shows setts laid by men working off low stools. The medieval rammer had handles on both sides, rather than one side and one end, and needed two men to use it.*

Useful modern 'tools' are planks of wood for laying over the cobbles before hitting them with a mallet to ensure as much even-ness as possible and also useful for establishing straight lines. String or binder twine can be be used with pegs to keep a straight edge when laying kerbs and to define sections of work (*pers. comm*. Peter Dare).

Sorting and Selection of Stones

It is hard to say just how much sorting before use went on. Most of the cobbled church paths in the Culm Measures area use noticeably smaller cobbles than those used for village footways or farmyards: thus (with some exceptions) the paths are daintier in appearance than those outside churchyards [Fig.41]. To date we have been unable to determine whether the use of smaller cobblestones fits into a specific date range of church paths, e.g. perhaps these are later than the larger cobbles?

Some sources (e.g. a particular pit) may have provided smaller cobbles than others. Sorting seems unlikely to have been carried out at source, more likely on site. There was clearly a preference for the wearing surfaces of the individual stones employed to be as level as possible, this implying at least some sorting at preparation stage. The stones used in some paths fall within quite narrow size ranges, this perhaps also suggesting sorting. Changes in the size of cobblestones within a network of paths is a good indication that sorting did occur, e.g. employing smaller stones for open drains or changes in the size of cobbles either side of kerbstones marking different sections of paths [Fig.42]. The labour available for sorting in the 19th century would have been cheap or free, probably children's work. When a wide range of sizes of stone is employed in one path, some time is likely to have been spent in selecting the next stone from a heap to be used, to ensure a good fit. However, anecdotally 'using the next stone that comes to hand' is a technique that maintains speed in laying and avoids the accumulation of awkwardly-shaped stones that are difficult to fit towards the end of a laying session (*pers.comm*. to Jo Cox from a cobblestone layer in Somerset, working alone and picking cobbles from a bucket collected from a heap).

Surface Design

There are a small number of variations in the surface design of the cobbles in Devon churchyards. Many of these variations are related directly to construction and performance, particularly to water run-off. More detail on construction is given in Section 7.

- Random-laid cobbles (rare) [Fig.43].
- Cobbling at right angles across the short axis, sometimes (but rarely) with a spine [Fig.44].
- Cobbling along the long axis. Few cobbled paths have their cobbles laid longitudinally, unless for drainage channels, although small areas of paths may be laid this way [Fig.45].
- Cobbling herringbone fashion, the cobbles laid to a centre point, which may be notional or material [Fig.46]. If material it is a spine of cobbles, single or (rarely) double. Sometimes the spine is constructed of dressed stones. Sometimes the spine uses cobbles of a different, usually white, colour. The 'arrows' of the herringbone are usually arranged to point in the direction of the church building.
- Patterned cobbles. The common pattern found is the lozenge [Fig.47]. In the sandstone river channel type of cobbles, lozenges are restrained by their own edge stones (internal kerbs) which form a border. The cobbles inside the lozenges are laid at right angles to the rest of the path. The lozenges may add structural stability to the path *(pers.comm.* Richard Burrows) and were probably laid first, the side cobbling then laid from outer path kerbs or a revetment wall up to the lozenges. In all cases but one the cobbles inside the lozenge are laid longitudinally. At Hatherleigh, where the lozenges are unusually large, the cobbles are laid across the path inside the lozenges and along the length of the path outside the lozenges. There are a couple of examples

Devon churchyard cobbles, March 2016. Keystone.

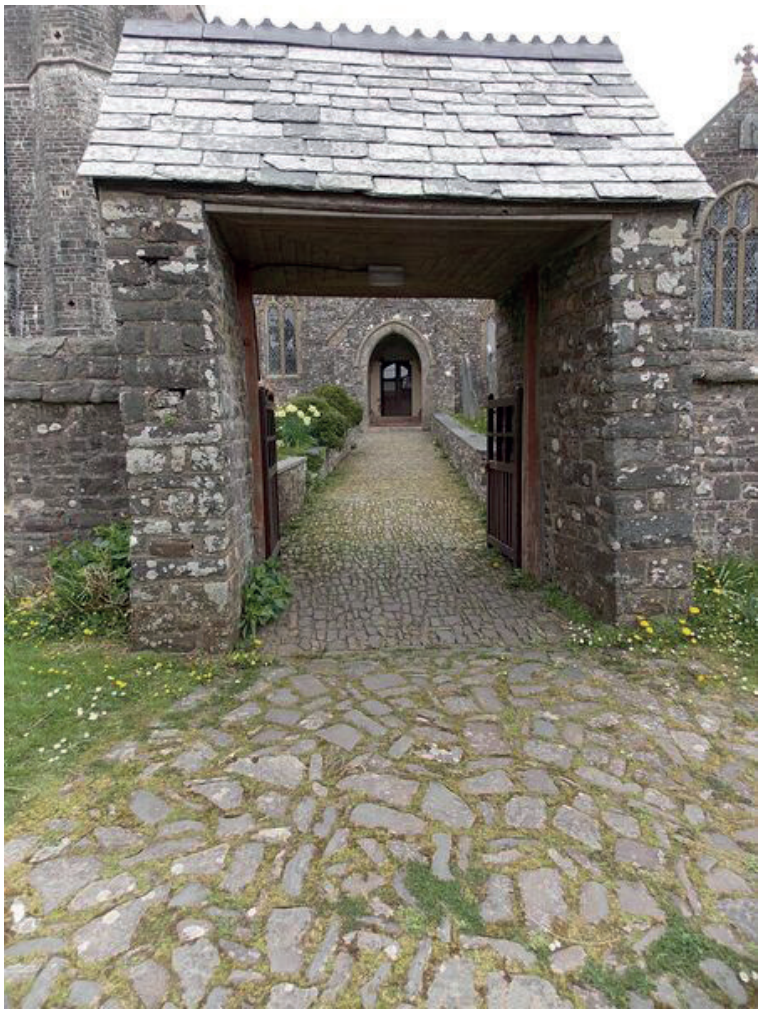
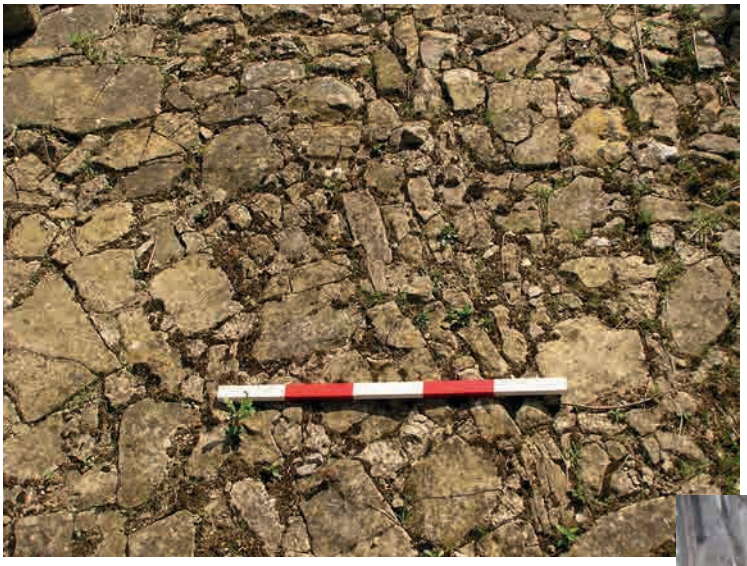


Fig.41. West Woolfardisworthy, Holy Trinity. Smaller cobbles used inside the churchyard boundary compared with large, random-laid cobbles outside reinforce the special character of the churchyard as an enclosed space and the setting of the church building.

Fig.42. Small cobbles selected for a surface drainage channel in 'the Causeway' outside the lychgate of Upton Pyne, St Mary.

Devon churchyard cobbles, March 2016. Keystone.



Clockwise from top left.

Fig.43. Random-laid cobbles at Membury, St John.
Fig.44. Cobbles laid across the short axis of one of the churchyard paths at Tiverton, St Peter.
Fig.45. A rare example of cobbles along the long axis of a surviving section of a cobbled footway at Chevithorne, Tiverton. The cobbles can be no earlier than 1843, when the church was built to the designs of Benjamin Ferrey.

Devon churchyard cobbles, March 2016. Keystone.

Fig.46. Examples of the herringbone design. Sowton, St Michael (top) has a dressed stone spine; Colebrooke, St Andrew, right, has a notional spine. Herringbone paths are usually laid 'pointing' in the direction of the church.

Devon churchyard cobbles, March 2016. Keystone.

Fig.47. Variations on the lozenge pattern. Clockwise from top left. Hatherleigh, St John the Baptist, has very large lozenges; at Inwardleigh, St Petrock, the lozenges are contained by tramlines of internal kerbs. The lychgate at Clyst Hydon, St Andrew has a lozenge pattern contrived in pebbles. These are always less striking than those designed using flattish-topped cobbles.

where the lozenges are laid between tramlines of internal kerbs. Lozenges can also be found decorating the pebble-type of cobblestone but are less visually striking when contrived in pebbles that have a less obvious grain. Larger or longer stones are used to make up the lozenge edges but the patterns lack the linear contrast and counterpoint of the tile-shaped cobbles.

A more ambitious pattern of cobbles laid in circles can be found in the porch of Meeth church (cobbles dated 1818). This is a unique surviving example in a Devon church. A larger and more ambitious version of this pattern can be found used externally at Endsleigh, the 'cottage', designed 1810 by Sir Jeffry Wyatville for the 6th Duke of Bedford, the grounds and ancillary buildings designed by Repton [Fig.48]. The Wyatville/Repton combination in a spectacularly dramatic Devon landscape ranks as an outstanding example of Picturesque design. It includes some cobbling using sheep's knucklebones.

Fig.48. Meeth, St Michael (top). A unique example of whorls, used here in the porch (cobbles dated 1818). A more elaborate version of whorls was used in a secular context at the Picturesque Swiss Cottage at Endsleigh, designed 1810 by Sir Jeffry Wyatville for the Duke of Bedford, with grounds laid out by Repton. Endsleigh cobbles photogrpah by Peter Marlow.

The entrance to the church porch is often emphasised with a pattern, e.g. lozenges or a cobbled 'mat', picked out with a semi-circle or rectangle: these may be subdivided by kerbs into patterns. The cobbled 'doormat' can also be found outside the front doors of domestic buildings. It is notable that the sense of the importance of the church entrance means that the cobbled 'mat' or perhaps just a small section of a cobbled path serving the same purpose, may be retained outside the south porch even when the principal path has been replaced with tarmac or cement [Fig.49].

Cobbles of contrasting colour, usually, but not invariably white quartzite, may be used for modest decorative effects and , rarely, for initials and dates [Fig.50].

Examples of all the above patterns can be found in cobbled surfaces outside churchyards, plus more ambitious surface patterns and motifs ranging from sophisticated designs to naive motifs picked out in white quartz. [Fig.51]

Fig.49, High Bickington, St Mary. A rectangular cobbled 'doormat' incorporating lozenges and white quartzite cobbles. This mat is unusually elaborate. Semi-circular patterns are also often found.

Fig.50. White cobblestones for dates and patterns: Meeth, St Michael (above), 1818 date. White cobblestones used for decoration can also be seen in a Devon farmhouse setting (right). Jonathan Rhind.

Devon churchyard cobbles, March 2016. Keystone.

Changing direction

The small size of cobblestones and the use of internal kerbs allows a path to change direction in several ways and far more easily and economically than a flagged path [Fig.51].

Fig.51. Changing direction. At Newton St Cyres, St Cyriac and St Julitta (top left), the cobbled apron round a vestry of c.1920s date turns a corner of 90 degrees in the form of a fan. At Upton Pyne, Our Lady (right), internal cobblestone kerbs create a junction where a path turns a corner and the cobbles on either side are laid in different directions. At Upton Hellions, St Mary (bottom left), a path turns one right angle before arriving at the lychgate and another as it turns to the church porch. The cobblestones are laid the same way along the whole length of the path, so they lie at right angles across the main section of the path, but on the long axis on the short sections of path before the lychgate and the porch.

Devon churchyard cobbles, March 2016. Keystone.

Gradients

Devon's topography means that some church paths rise steeply to the church porch. This can exacerbate access problems. Some cobbled church paths are quite steep. The steepest gradients are managed with cobbled steps. Examples of steps range from the rustic with large undressed stones used as the risers, to more refined examples with dressed granite or freestone risers [Fig.52]. Gradients may be managed by laying the tread of one step low to a kerb projecting from its surface, and the next step up slightly higher to it. This provides a series of vertically projecting kerbs as risers, helpful in visually identifying the steps but also presenting a series of trip hazards.

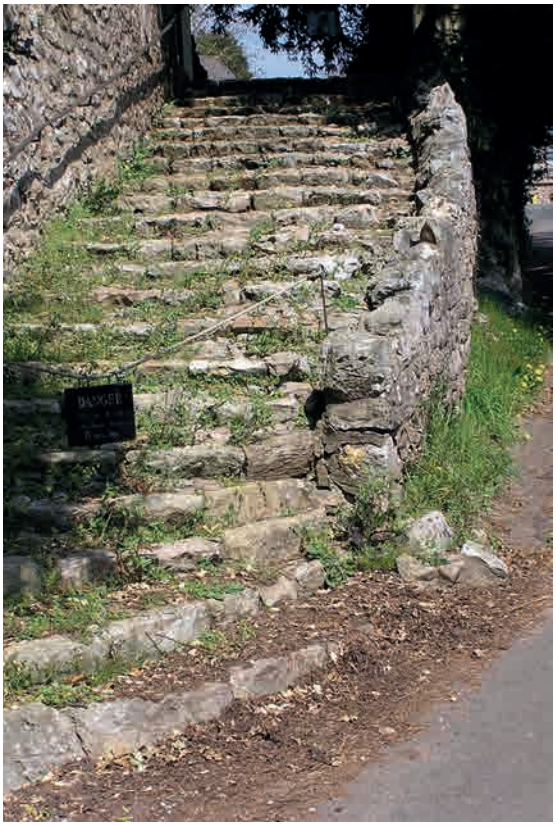


Fig.52. Various flights of cobbled steps. This page. Offwell, St Mary (left), closed for safety reasons; Dunchideock, St Michael and All Angels (right). Nest page (top), Sandford, St Swithun, showing a cobbled village pavement and the steep rise of cobbled steps to the S porch and (below) South Tawton, St Andrew, cobbled steps as part of a very fine Arts and Crafts lychgate of 1903. These examples of cobbled steps show how cobbles can morphe from the vernacular into the polite, satisfying the principles of Picturesque as well as Arts and Crafts architecture.

Devon churchyard cobbles, March 2016. Keystone.

At Great Torrington the roots of a row of trees that separate two cobbled paths in the churchyard are mounded up with cobbles. This mound is reputed to be the site of a Civil War mass burial. An 1831 engraving suggests that the 'trays' for the two cobbled paths on either side of the trees may have been dug out after 1831, the cobbled mound helping to retain the trees, planted at a higher level, by preventing soil round the roots from washing away, the permeable bedding allowing oxygen to reach the roots [Fig.53].

Fig.53. Great Torrington, St Michael. The trees on the left of the 1831 engraving (top, looking W) are on the same site as the trees in the photograph below (taken looking E). The revetment wall to the churchyard turf is not shown in 1831 and, like the tree mound and paths in the photograph is probably 1870s on documentary grounds.

7 – Construction and Observations on Performance

This section is based on papers written by Ray Harrison. It represents a beginning. The vernacular origins of cobbled paving means that a wide range of practices and methods of construction should be expected, employing the unwritten inherited *nous* of what works and what does not work - and where - that tradition brings with it. The continuation of cobbled path construction into the Victorian period brought with it examples of drainage arrangements that are far from vernacular. Every path is therefore likely to be different and where there are failures of performance these may be on more than one front and interrelated.

With the exception of the trials in the churchyard at Merton in Torridge, the project has been entirely non-invasive and the likely variety (within limits) of construction techniques understood from excavation has been limited to two phases of one churchyard path. Future opportunities to examine path construction need to be seized and accompanied by recording and analysis of bedding material. The whole range of drainage arrangements deserves further work and the composition of bedding and how both relate to performance and to failures has not yet been fully understood. The Merton trials with the oppoertunity to excavate and record have been hugely useful to our understanding but insufficient time has elapsed to monitor the performance of the repair techniques employed.

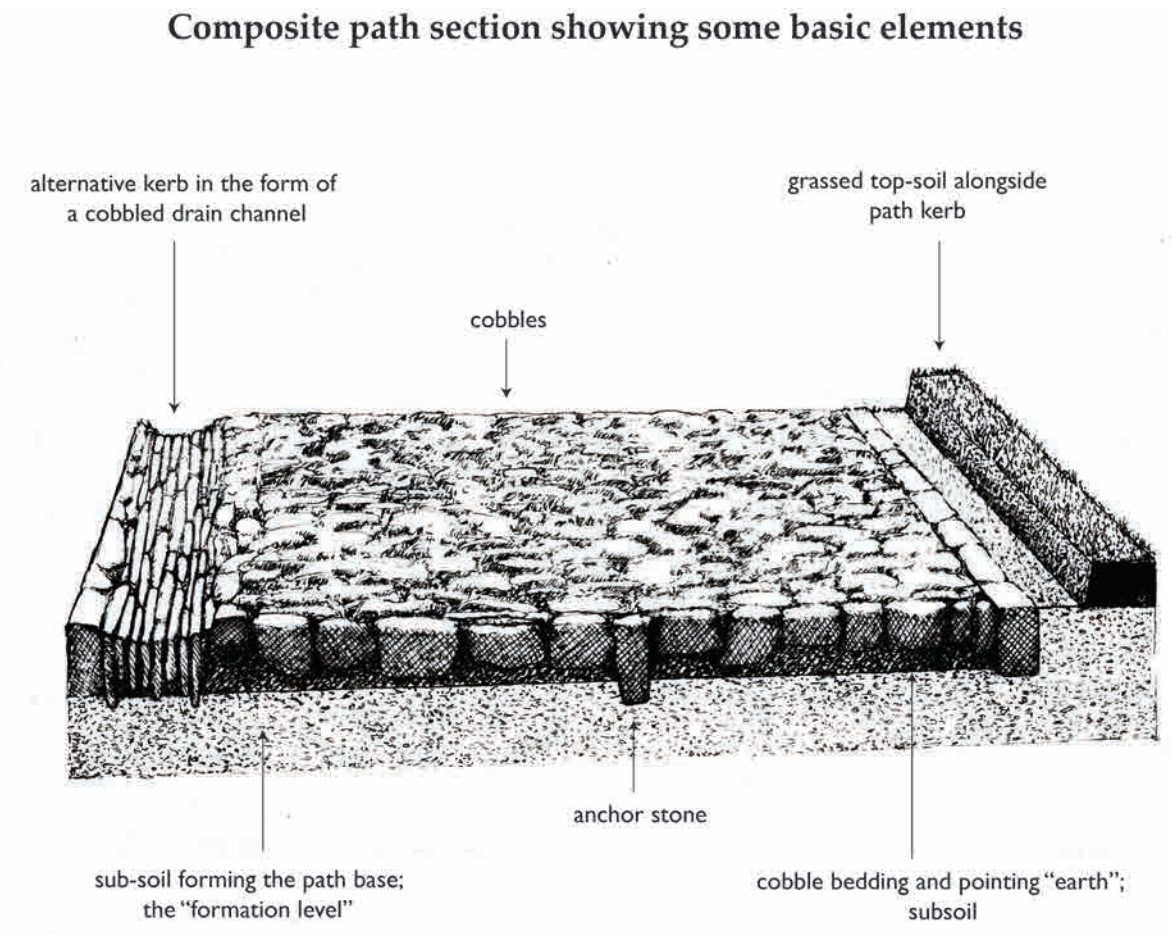


Fig.54. Composite path section by Ray Harrison.

Some Useful Definitions

Subsoil. Above bedrock there is almost always unconsolidated debris or 'regolith'. This may be material weathered from the underlying rock, or may have been transported by wind, water or ice. It can be shallow or hundreds of feet in thickness. It can be described as the 'parent material'. At the top of the parent material is a zone that grades upwards through subsoil to soil. A vertical section of soil in a field shows distinct horizontal layers, or 'horizons' above the parent material [Fig.55]. A depth of 3 or 4 feet for these horizons above the parent material is representative for temperate region soils.

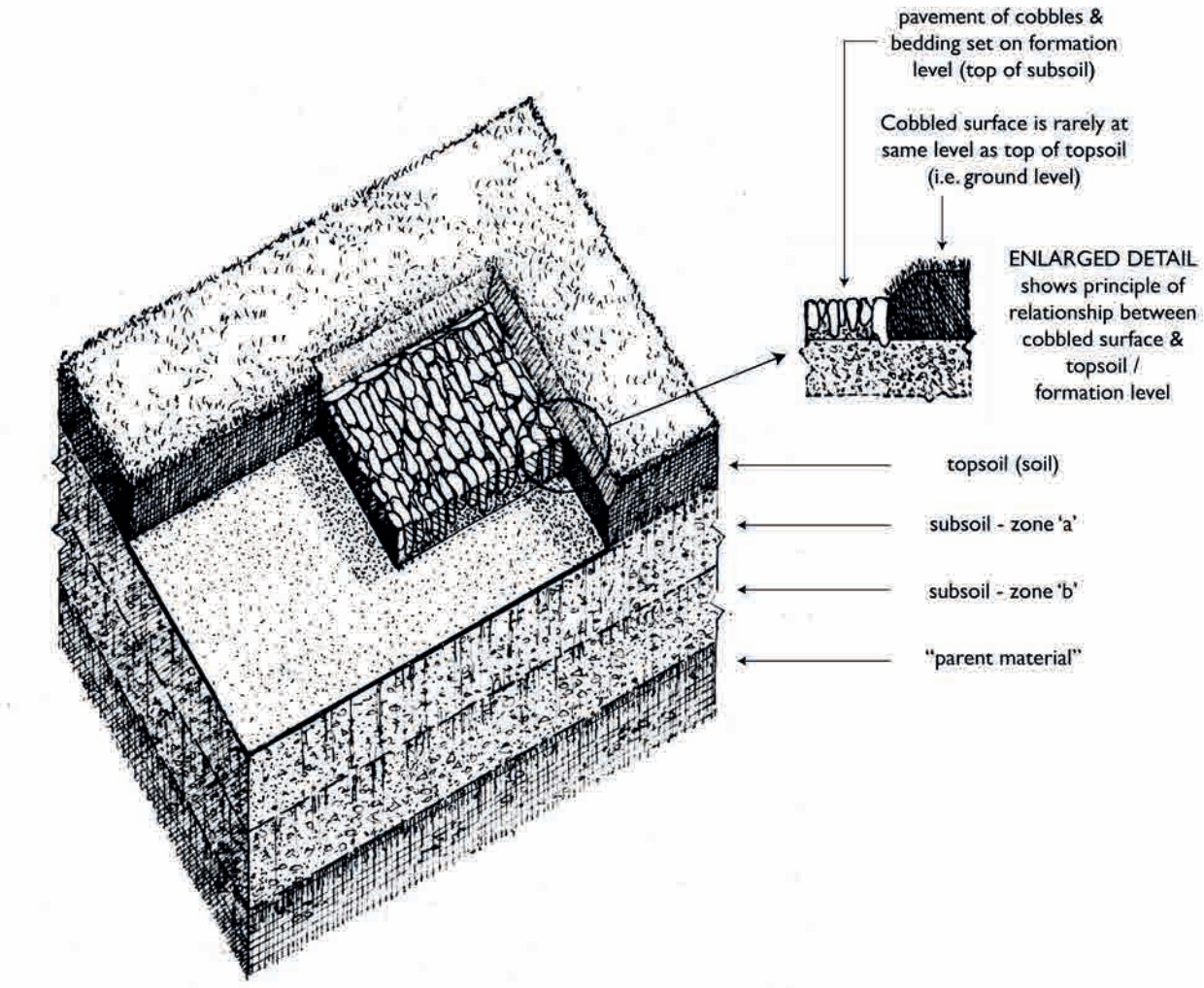


Fig.55. Path construction shown in a drawing by Ray Harrison.

The upper horizons above the parent material contain considerable amounts of organic matter and are usually darkened. The underlying subsoil horizon contains some, but less organic matter and can be divided into two very general belts: a) an upper zone of transition and b) a lower, more stable zone of accumulated compounds, such as iron and aluminium oxides, clays, gypsum and calcium carbonate.

It is likely that the builders of Devon's cobbled churchyard paths cleared off the dark top soil and founded their paths on, or close to, what was exposed i.e. towards the top of zone a). Modern house foundations are often three or four feet deep and digging to this depth for a path base would have been out of the question. The relationship between a) and b) in churchyards is a unique one, given the depth of organic matter resulting from what were sometimes centuries of burial. This particular circumstance is clearly visible in those paths that are deeply sunk below the churchyard greensward. These may represent the level of very early paths through a churchyard that has not been 'levelled' or re-landscaped at some point during its history.

Earthen Material - Matrix and Jointing. 'Earthen material' is used here to signify cobble bedding matrix and jointing material, which are best composed of subsoil, free from organic matter. Sometimes inert material, such as sharp sand and grit may be added to improve performance.

Pavement. a) a general term for a paved surface. b) a term applied specifically to a road. There are two types of road construction: flexible structures and rigid structures. A concrete road is a rigid structure. A traditionally-laid cobbled churchyard path is a flexible structure.

Engineers' Roads [6]
The first well-engineered modern road was the work of the Frenchman PMJ Tresaguet in about 1764. This was a flexible pavement, as were those that followed into the 19th century. It consisted of a foundation with two layers on top, providing the essentials - an impervious surface protecting a dry bed. This was followed in England by the work of John Metcalfe who 'laid a foundation of large stones, covered it with road material having a cambered surface and drained the surface water into large ditches at both sides of the road.' In the later 18th and early 19th centuries Telford's specification involved a bed of heavy foundation stones followed by two layers of much smaller stones. The top was formed to a camber and all was covered by a layer of clean binding gravel. He was succeeded by McAdam with a cheaper solution. His stones were gauged in a 2 ½ inch ring and 'they were put down in three layers of about 4 inches each, well packed and rammed to the correct camber before the next layer was laid'. In all these cases use - the grinding action of wheels and hoofs- was supposed to pack small surface material down into the voids of the top surface, 'making the whole completely watertight'.

McAdam considered 'that it is the native soil [subsoil] which really supports the weight of traffic; that while it is preserved in a dry state it will carry any weight without sinking'. It was generally agreed that rain water needed to be quickly removed from the pavement so that it had no chance of seeping through to the formation level, the base of the road foundation (see further below), and softening it. Hence cambered road surfaces, their edges raised above drainage ditches on each side to carry the water away and to ensure it did not seep into the road base from the sides.

20th century advice on modern flexible road structure from the landscape architect Elizabeth Beazley in her *Design and Detail of Space between Buildings* (1960) was that 'All organic top-soil must be removed and tree roots grubbed up. The depth of the soil that needs to be removed will vary from site to site, but a change in colour (top-soil is generally darker) will indicate depth.' [7]

Beazley goes on to describe how to deal with water traps in, and saturated areas of, the formation, and the practice of rolling it to improve its bearing capacity. Her advice is directed to modern landscape designers and some of it no doubt represents overkill for repairs to church paths in Devon. However, for its eminently commonsense approach it is included here in its entirety at Appendix Two.

The Devon Churchyard Path

Sub-Grade, Formation Level and Pavement-Stone Bedding Matrix.

Devon paths are flexible structures. The surface sinkings in many paths show clearly that because of their soft joints and relatively weak bedding, their small surfacing components can move against one another without the pavement fracturing [Fig.56]. All flexible pavements are built up of three main elements - the 'sub-grade' (the sound native sub soil), the 'formation level' (the top of the sub-grade) and the 'pavement' or structure. Conventional pavement structure is broken down further into 'sub-base', 'base' and 'surfacing'. For today's engineers it is the sub-base which actually does the work of supporting the road [Fig.57].

The Devon Cobbled Path 'Tray'

It seems likely that the need for the formation level of the Devon paths to be free of dark organic matter as noted earlier, and hence for them to be founded at least on the upper levels of native sub-soil, was, and still is, understood at a vernacular level. The base of the traditional Devon path 'tray' set into the ground and within which cobbling takes place, should ideally be on such comparatively undisturbed sub-soil. As noted above, this helps to explain some cases where - perhaps because of the depth of overlying organic, burial-rich soil - a path is sunk well down below churchyard turf level. An earth bank or stone or brickwork retaining wall may then form the transition between the two levels.

The Earthen Path Matrix

From this point the construction strategy of the characteristic Devon church path diverges from the engineers' ideal since the earthen jointing between the cobbles means that its wearing surface cannot be made impermeable. An earthen matrix is used to bed the cobble surfacing of the path 'pavement' within the tray, and is also used to partly fill up between the cobbles, leaving the upper parts of the joints open. These are finished off by filling from above with a dry earthen mix sometimes containing fewer small stones and more fines than the rest, to be watered-in on completion. Watering-in washes the dry material down into the joint; for this reason the operation may have to be done more than once, the builder returning a day or two later in order to fill the joint up completely.

Sound practice would require that the matrix material should be taken from below formation level and hence be largely free of visible organic, and thus degradable and destabilising (shrinkable), matter. It will be made up of varying amounts of clay, silt, sand, grit and small stones etc. and will remain water-permeable to some degree. However, while the clay fraction of the matrix material is the binder for the rest when dry, it also swells when wetted. Thus rain water falling on the path surface might be expected to cause the clay in the joint-filling material to swell to some degree.

Many of the regional sub soils have been used for the cob walls of vernacular buildings, partly because of their relatively good dimensional stability. It may be that in some cases the earthen matrix into which the path cobbles are bedded turns out to be similar to that used in the buildings. Dimensional stability - the drying out of water, or the taking up of water, by the clay element in the mix without excessive shrinkage or expansion - is very advantageous in a building material, whether used in a wall or, it may be, in a path. However, it should be noted that cob walls are kept dry whereas a path accepts rainwater.

Devon churchyard cobbles, March 2016. Keystone.

Fig.56. Slumps in the path at Merton have occurred without fracturing the pavement.

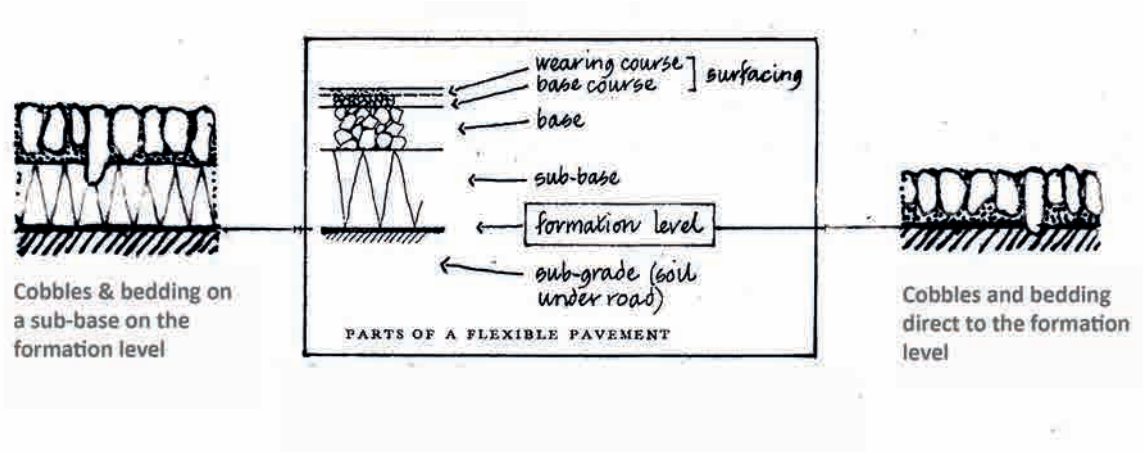


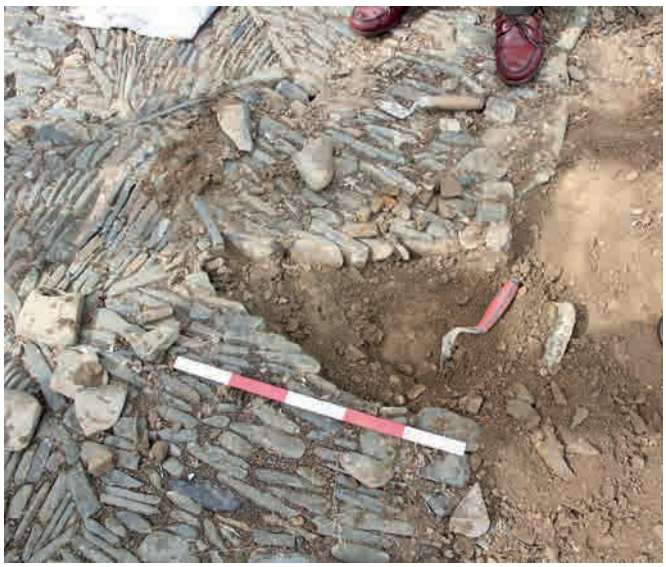
Fig.57. Section through a modern flexible pavement from Elizabeth Beazley's Design and Detail of Space between Buildings*, 1960, 29, supplemented with sketches by Ray Harrison showing relationship to cobbled path construction. On the left a sub-base (this incorporates aggregate or may be a more substantial stone construction); on the right cobbles and bedding are laid direct to the formation layer.*

To date much more is understood of how to lay cobbles than about the earthern material used to bed and joint them, other than it should be sub-soil and certainly come close from the site. Only after some simple sedimentation tests at various sites have been done, to establish comparative levels of sand/silt and clay present in path bedding and joints, will it be possible to safely move towards specification of works. Some tests to examine the amount of water held day-to-day in bedding and joints and to examine scour out could also be worthwhile [Fig.58]. The latter might indicate if the swelling of the clay mineral element in the jointing material actually helps to stop more water passing through it and protects the path bedding and formation levels from becoming saturated.

Fig.58. Analysis by John Alexander of the components of the earthen matrix at Merton. More detailed analysis from this and other sites is needed to better understand the composition of the earthen matrix for bedding and jointing above formation level and how this contributes to performance. John Alexander.

The path sub-base

At Merton where a sunken area in the cambered, patterned path was lifted and examined, foundation material incorporating aggregate was found within the tray. This consisted of an ochre-brown sandy/clay composition containing small blocks of the local hard sandstone, few of which were larger than 3-4cms in both directions [Fig.59]. A number were square or oblong but most were irregular and smaller. It was impossible to be certain, but it may be that in the centre of the cambered path the sub-base was deeper than at the sides. The sub-base was topped by another course comprising the bedding matrix material for the cobbles as well as the cobbles themselves. It is not known how varied the gauge of aggregate in the sub-base may be from path to path. Excavation of domestic cobbles at Moistown, Broadwoodkelly, revealed a substantial layer of large irregular stones below the (external) cobbles [Fig.60]. An agreement of 1804 with builders for Egland House, Awliscombe, east Devon has identical specifications for both the floor of the back kitchen and the 'whole of the court and offices' 'to be pitched with flint stones [chert, presumably] well bedded in gravel and well rammed', clearly requiring gravel aggregate. [8] Unfortunately, none of the cobbles are now visible (*pers.comm*. John Thorp) so the size of the gravel cannot be determined. Bedding in ashes is also recorded and a layer of ashes was found at formation level in an excavated cobbled path at Tiverton, St Peter. Practitioners report examples of no aggregate in bedding or it may be gritty sand only. Merton has a two-phase path and the phase adjacent to the lych gate was characterised by cobbles set directly on about 6 inches of subsoil to which only some gritty sand had been added. The question of how much and what size of aggregate is most effective in the sub-base and/or bedding and jointing material remains to be answered.



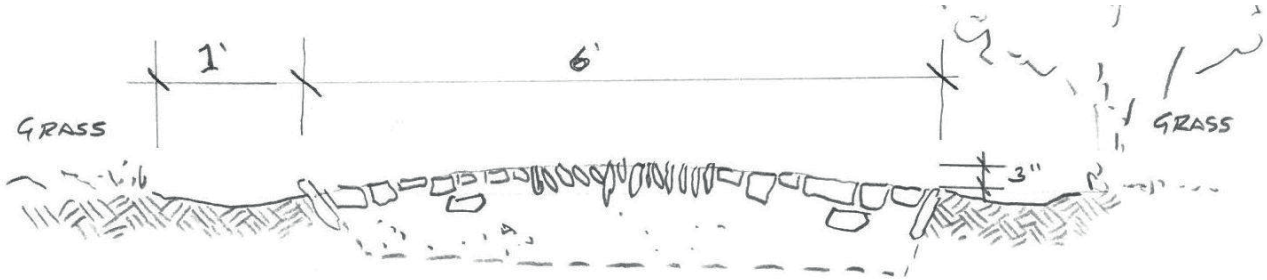


Fig.59. Left, excavation of the 2-phase Merton path revealed a sub-base incorporating small stones above formation level for the cambered, patterned section only. Below, sketch of the Merton camber by John Alexander. The section of plain path had gritty sand only in the bedding.

Fig.60. Recent excavation by ACE Archaeology Club of a wing of a house abandoned by the early 20th century at Moistown, Broadwoodkelly. This revealed a sub-base incorporating large stones beneath large, coarse interior cobbles. Interior and exterior cobbled paving on this site has not yet been phased.

Any sub-base or base using 'earthen' materials should be consolidated, compacted, to avoid differential drying shrinkage within the depth of the finished path. Shrinkage could lead to failures in the pavement surface.

Failures in the earthen path-matrix
Loss of jointing material
In certain circumstances rainwater running over paths was noted to have eventually begun to scour out joints leaving stones standing side by side looking like so many bared teeth [Fig.62]. Cobbles are usually laid across the path at right angles to its direction but occasionally they are laid parallel to it. Scouring-out between joints was often noticeable where path-water was flowing with, rather than against, the grain of the cobbled surface. It was also observed occasionally where cobbles were laid in the favoured herringbone pattern. In addition it seems that in some cases water running the length of a path had picked up sufficient momentum and volume to start scouring-out between cobbles as it approached the path-foot. Localised chronic bedding washout can be found where water drips from the eaves of a church building or lychgate onto a path [Fig.61]

Weed growth followed by weeding (see below) is likely to contribute to bedding loss. Earthworm and insect activity in the sub-base or jointing may loosen it by creating air pockets. At Sowton, small bees or wasps were observed flying in and out of the bedding and throwing up sandy casts on the cobbles [Fig.62]. As with extensive worm activity, losses or changes of composition in the earth matrix may eventually encourage cobblestones to shift position and cause slumps.

Devon churchyard cobbles, March 2016. Keystone.

Fig.61. Examples of jointing scour out. This may be localised, e.g. (top) the sloping cobbled apron to the Victorian churchyard wall at Merton has retained most of its earthen jointing except (top right) where water from the lychgate roof has washed it out, some of the cobblestones eventually falling out of the matrix. (Below) a more general washout of jointing with a deposition of silt and clay which has collected in a shallow gutter between two sections of path.

Given that replenishing jointing by brushing in more material seems not to be practised as an element of maintenance, it is surprising that some paths with considerable losses of jointing have remained intact. Presumably this is due to the practice of laying cobbles touching one another and therefore locking them together when rammed. The shape of pebble cobbles means that they are less likely to be locked together and less able to withstand jointing loss [Fig.63].

Fig.62. Insects at work at Sowton. Bees or wasps are nesting in the jointing material, throwing up casts onto the cobbled surface. As with earthworm activity this will affect the density and composition of jointing material and may make the cobblestones shift.

Fig.63. Some types of cobblestone may be able to withstand jointing loss better than others. Very small pebble-shaped cobbles at Poltimore are easily dislodged if only a small loss of jointing occurs.

The obvious remedy for loss of earthen jointing, but one that has not been trialled during the course of this project, is repeating the system generally used when laying. That is, after weed removal, to brush more dry subsoil, possibly augmented with gritty sand (gravel or hoggin might be better still but should not be so coarse as to jam up the joints) into the joints and water. Watering may need to be done twice. A modern builders' remedy for scoured out joints might be to fill them with cement mortar. This remodels part of the construction of the pavement from flexible to rigid. Shrinkage cracks will show in due course chanelling concentrations of water into the core of the path at intervals. Rather surprisingly, few examples of this were actually found, although there are many examples of water coming off a rigid patch of cement-jointed repair and eroding earthen mortar in the adjacent cobbles [Fig.64].

Fig.64. Well-meaning repairs in cement create rigid patches in a flexible pavement, speeding up jointing scour at the junction with the earthen jointing. This is illustrated at Tiverton St Peter (top) and more comprehensively in a semi-secular context at Cathedral Close, Exeter where the extent of cementitious jointing may eventually damage the path down to and beyond the formation level: note the top right slump.

It has proved difficult to identify the cause of small and larger slumps in paths. The sub-base onto which the Merton cobbles were bedded in the area examined was noted to be poorly laid with uneven pockets of more or less stony material among the rest. On this evidence the large number of discrete sinkings visible in the path surface along its length suggested that poor preparation and laying of the sub-base was not confined to the small area of path opened up. However, further examination suggested that the failures noted were more likely to be associated with the consequences of overturned kerbs (see below) than failure of the sub-base.

It is possible that cobblestones of a very wide range of depth may contribute to slumping because of the differential resistance and shrinkage in the depth of sub-base on which they are laid. Poor laying may also result in air pockets or looser material under some cobbles and cause localised collapses.

Drainage [Fig.65]
As noted above, the permeability of the wearing surface of cobbled churchyard paths is a mark of difference with highway pavements. For these, form, material and layer compaction is designed to keep as much water as possible out of the formation layer so as to prevent softening and slumps in the road surface above. Generally the builders of cobbled paths seem to have understood the need to remove rain water falling on the path as quickly as possible.

There are a couple of visible examples of late 19th century efforts to underdrain paths. At Hatherleigh a grille in the steep path to the S porch (as well as the provision of dished side drains) indicates a more elaborate than usual 19th century system of under-path drainage. Some metal drainage pipes through cobbled paths are visible at Tiverton, St Peter.

Paths without crossfalls
The great majority of churchyards investigated were on sloping terrain so the completely flat path, free from gradients, is rare. The herringbone pattern, pointing uphill, may help to direct water to the sides of paths. There are quite a few places where there is only a modest rise in the ground between churchyard boundary and church porch. The construction of the pavement of these paths could be of the simplest. They do not always have a crossfall to throw water off to one side and away from the pedestrians' feet and pavement surface. Water flows down the length of the path, perhaps to be diverted away at the low point or to simply run out under a lych gate, over a step, or steps, down to a highway [Fig.66]. This is the arrangement also with some of the steeper, and also some subsidiary, churchyard paths.

Paths with cross falls
A standard way of removing surface water swiftly from the surface of a path is to construct a road surface so that it falls across its width to one or both sides. Thus some paths are built with a straight crossfall to one side. Others may fall both ways from a high point in the centre of the path. This second way would probably be the builders' and users', preference when a path runs through level, or near level, ground since it halves the amount of rise, and thus extra material, needed across the path. However, falls to both sides may mean a doubling up of side-drainage arrangements (an expense).

Forming a simple crossfall in a path 'tray' where the base is the formation level - the levelled top of the sub-grade (sub-soil) - might be done in two different ways. The bedding part of the cobble-matrix might be made deeper at one side than the other. Alternatively a separate sub-base, well compacted on the formation level with a fall to one side, might be laid. This would support a constant-depth cobble matrix.

In the slightly more complicated 'straight crossfalls from the centre to both sides' arrangement, a pretty common regional detail is a spine of cobbles set up along the centre line of the path. This is the high point and from it the cobbling slopes straight down to the kerb lines on each side of the path [Fig.67]. Sometimes the spine is omitted, the cobbles of the opposing slopes meeting and butting against each other along the centre line.

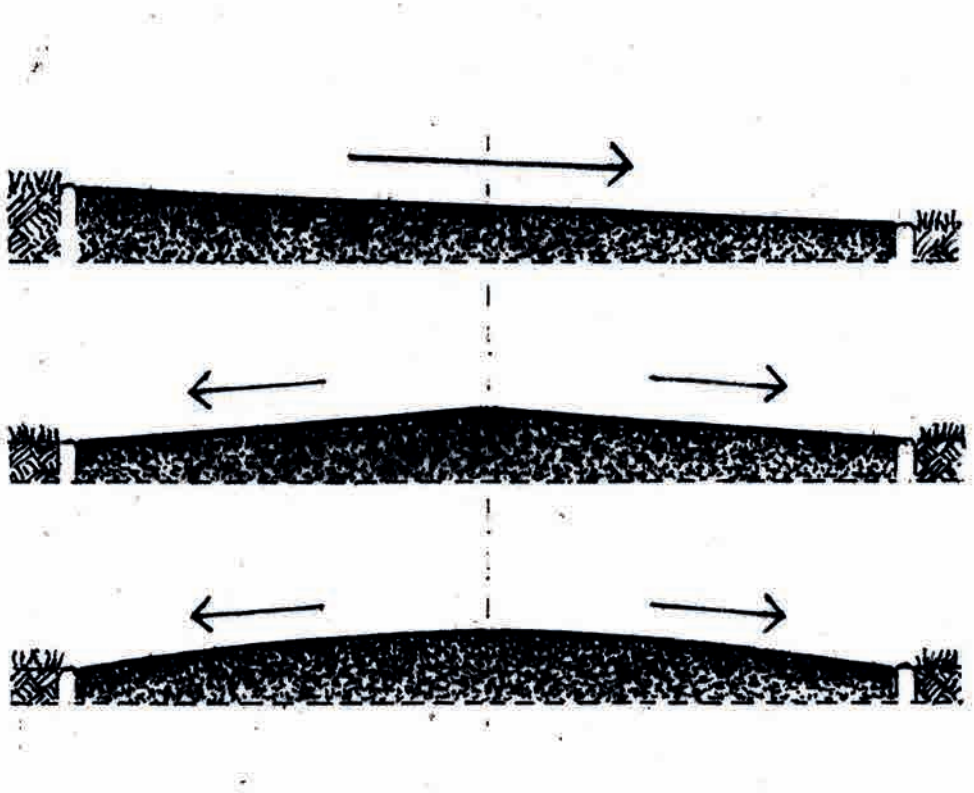


Fig.65. Cross sections by Ray Harrison showing crossfalls.

Top: Path with a crossfall to one side only.

Middle: Typical crossfall arrangement for herringbone paths with straight slopes down from a central high point.

Below, crossfall on a cambered path.

Fig.66. Path drainage here follows the direction of travel of the cobbles making use of a gradient from porch to churchyard boundary.

Fig.67. This path (Upton Pyne) has crossfalls from the centre line to each side. Water falling on it is channelled to a diagonal junction in the paving in the foreground. Here and at the junction with the grass, jointing material scoured out from between the cobbles is deposited. We did not investigate the path edge detail, if any.

Ground gutters

A grasp of the highway engineer's principle that water removed quickly from the path surface should be carried away so that it does not seep back into the path formation level, was recognisable in one or two cases. Some paths have what appear to be primitive open gutters alongside them. Some may be original attempts to carry off path surface water into what is effectively a soakaway at the path edge. However, some may be secondary attempts to manage what can be an untidy and weed-filled churchyard junction between path and greensward. At Tiverton a cambered path surface was combined with kerbs which raised the path above earthen ground gutters running alongside it to carry off the water [Fig.68]. Unfortunately the execution of these works showed a lack of understanding of the construction details involved (see further below); this might be taken to suggest that here local vernacular tradition was being pushed beyond its comfort zone.

Often rainwater might be run off paths onto grass or sometimes into a crude earth channel alongside, such as those at Tiverton. Less common but still clearly part of a developed local palette were cobble lined, or even occasionally worked stone or earthenware, dished ground gutters alongside paths or within areas of paving, all these structures can also function as edge restraints (see below) [Fig.69].

Fig.68. Open gutters either side of one of the paths at Tiverton, St Peter with evidence of disintegrating ashphalt lining. The edge restraint of dressed stone kerbs looks substantial but these are overturning into the gutter, probably for a second time as the cobbles adjacent to the kerbs appear to have relaid after an earlier failure.

Devon churchyard cobbles, March 2016. Keystone.

Fig.69. Examples of open gutters which also function as edge restraint. Clockwise from top left: a cobbled gutter at Petrockstow; a stone gutter at Hatherleigh and a ceramic gutter at North Molton.

Drainage Failures

On the face of it there seems to be an exceptional opportunity for downward water penetration into a cobbled path. Subsoil-filled joints and the similar earthen matrix below must, one would imagine, conduct water straight into the heart of the construction. However, the failures seen (both at Merton, and elsewhere, without the advantage of excavation) do not seem to be formation level failure and in most cases it seems that so long as water passing through the structure is evenly distributed and in not too great a quantity, the sub-grade - the native soil - can take care of it. But this is far from certain. Drainage through the structure of a cobbled path remains something of a mystery but should always be a consideration and assessed when decisions about repair or relaying are made.

At Petrockstow there was an isolated example of a large path depression which filled with water after rain, remaining as a puddle afterwards [Fig.70]. This may have been created or exacerbated by water travelling down adjacent concrete steps to an area of the churchyard raised high above the level of the path. It seems that in this case this reservoir of water may have worked itself down to reach a particular spot in the formation layer, which may have failed. However, this was an isolated example and lasting puddles noted on path surfaces were few.

Fig.70. An uncommon example of a group of water-filled sinkings after rainfall at Petrockstow.

The level of scribing lines and the run out of mouldings on the headstones adjacent to the Merton path show that the churchyard turf had been cut away or, at any rate, angled back from the path, since the headstones were installed [Fig.71]. A change in the relationship of the path and the greensward at Merton is proven by an old photograph that shows the turf alongside revetted with thin stones. Whether earth gutters are primary or secondary on any site, their effect can be to destabilise path kerbs.

Fig.71. The scribing line on this 1870s headstone adjacent to the path at Merton indicates that the expected depth of the installed headstone below turf level has been altered, the turf angled back, altering the form of the earthen gutter alongside the path. An old photo (c.1900) shows that the turf was originally revetted with what appear to be large, thin stones. How much impact these changes have made to the cobbled path is not clear. It is possible that the gutter has lost some form of lining.

There may be cases where poor general drainage of the churchyard ground has compromised the stability of a path or paths. Poor or absent general drainage of churchyards in the 1840s was noted by John Claudius Loudon. He associated this with their insanitary condition and recommended various systems to drain water away from church buildings, under principal paths and out of churchyards altogether.

Huish has several cobbled paths and two, in particular, showed signs of general path disintegration as if the cobbles were floating apart [Fig.72]. It may be that the churchyard topsoil was waterlogged, perhaps due to an impermeable subsoil below and that this had lubricated the movement and spreading apart of the cobbles. The trouble may have come from further below with a high water table rising above the formation layer having the same effect. Either of these might create an unstable 'waterbed' effect in the paving.

Fig.72. The curious 'floating apart' of one of the paths at Huish may relate to poor churchyard drainage. When visited all the Huish paths had fleshy weeds growing out of the jointing.

Path Edge Restraint

Unlike rigid pavements, flexible pavements need a kerb of some kind along their edges to act as a buttress to hold them in. This stops the path spreading sideways when downward pressure - in this case footfall - is exerted. One simple way to contain spread is to construct the path between masonry or brick abutments [Fig.73]. These are used when a path is sunk below ground level, as described earlier. As a general rule these paths were in better order than those with less substantial forms of buttressing.

Cobbles, worked dished stone and dished earthenware channels, can all operate to some degree as restraining kerbing at the edge of paths [see Fig.69] Dished cobble channels are normally formed of a number of long narrow cobbles set into the ground side by side and laid parallel to and abutting a path edge. These appear to form an excellent restraint. Water flowing down these does scour out jointing material and, especially where trees flank a path, and channels can become blocked with dead leaves or needle debris. However, in the cases examined these had not undermined the channel's efficiency to any extent. Stone and earthenware open channels can be found in conjunction with revetment walls, sometimes on one side only of a path.

Alternative forms of edge restraint are cobble-type stones, laid in a row, dressed stones or bricks [Fig.74]. Stability is variable. At Merton a cobbled pathway outside the churchyard leads up to a lych gate. Its edge constraint kerbs, consist of single thin (and no doubt deep-set) cobble slabs, set on edge and in line along the edge of the path. It is certain that, as with all the other similar paths in the region, these are not sustained by any sort of foundation. The tops of the kerbs are flush with the cobbling on one side and almost flush with a modern car park surface on the other [Fig.75]. When combined, as here, with a flat rather than cross cambered path, this arrangement gives the thin kerbs their very best chance to resist 'overturning'- because they are sunk well into quite solid ground they are buttressed most of the way up on both sides. Outward pressure on kerbs from a horizontal cross section path is less than from one with a cambered section.

Devon churchyard cobbles, March 2016. Keystone.

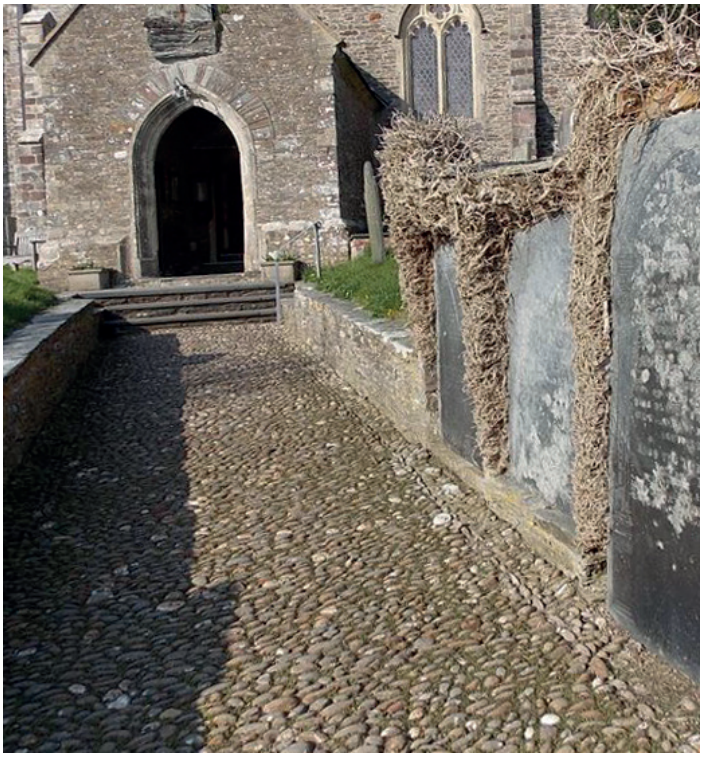


Fig.73. Paths between revetment walls that provide stable edge restraint are generally in better condition than paths with various types of small dressed or undressed stone kerbs.

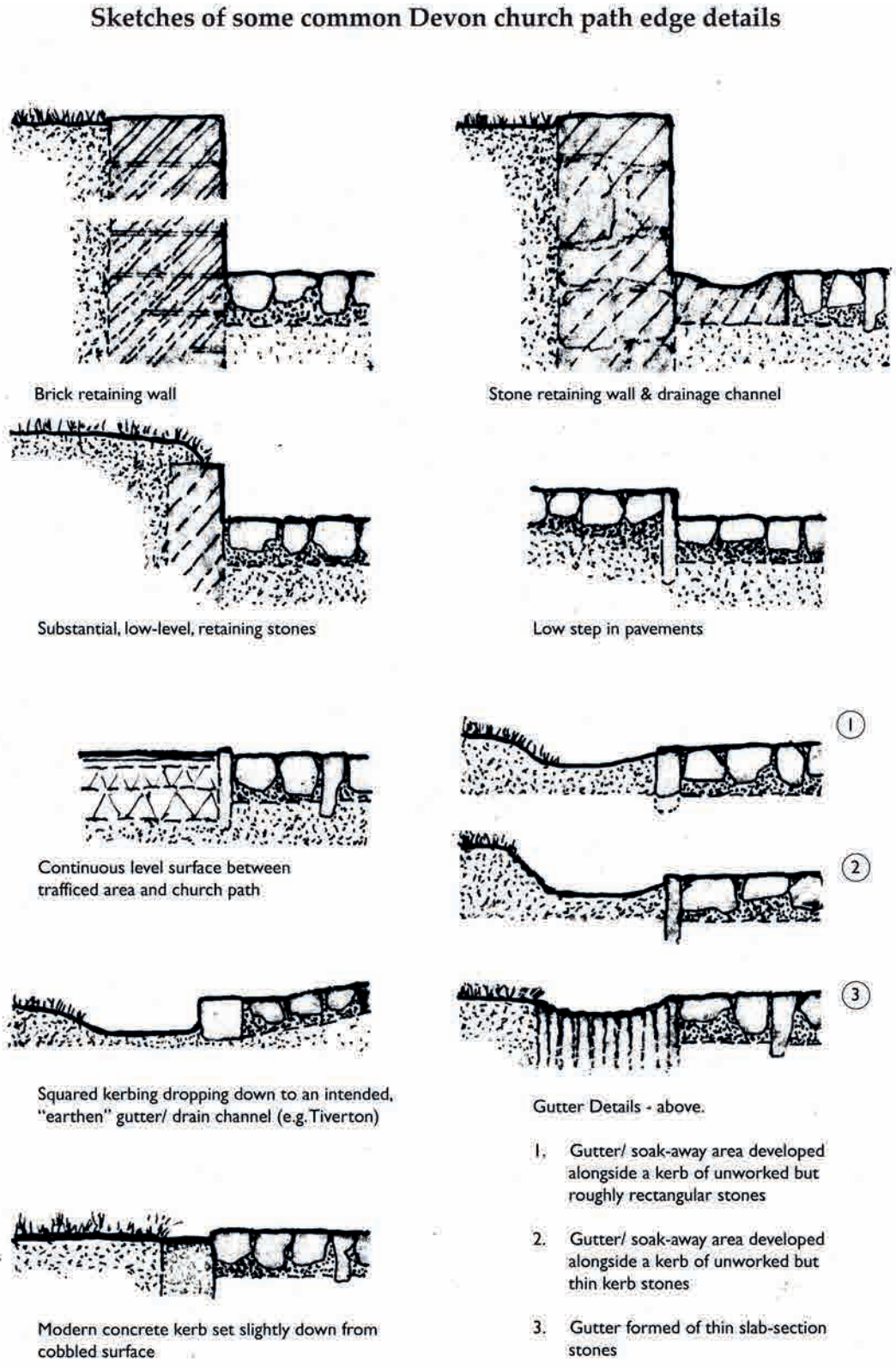


Fig.74. Drawing by Ray Harrison. The arrangements shown below the surface are indicative only.

Devon churchyard cobbles, March 2016. Keystone.

Fig.75. The remains of a cobbled path to the church at Merton through what was once a school playground but is now a car park. This has maintained upright kerbs buttressed by the car park material.

Fig.76. Path kerbs to the churchyard path at Merton have overturned, a common failure and, in this case, dispersed, along with part of the cobbled path surface.

Two forms of natural stone kerb have been referred to so far. They represent the extremes: the single thin 'as found' and set-on-edge form, and the long square cross-section of worked stone. Between these two, kerb form ranges through shorter roughly worked stone more in the proportion of a traditional sett, to partly squared-up and part rounded irregularly shaped stones with a roughly 2 to 1 ratio of length to width and of various sizes in the same run of kerbing, to doubled-up thin set-on-edge slate-like stones. These last when successfully employed to form a step, were arranged in parallel, three and four deep. Whatever form the raised kerbs took, intentional substantial bedding and structural buttressing of them against thrust from pavements, will always have been lacking.

These examples confirm a lack understanding, as suggested earlier, of the need to provide structural support for kerbs. A conclusion drawn from this is that the builders were unfamiliar with the use of kerbs in conjunction with pavements raised up above parallel side gutters - as described earlier an engineers' arrangement intended to keep water away from the path's sub-base. It may be that at a vernacular level this had never been a particular concern. Regional ways of making cobbled paths in churchyards may have involved cobbles and kerbs laid more or less flush with surrounding ground level, as seen in the path leading up to the churchyard at Merton. If path surfaces set down below ground level were unavoidable, then the finished ground level immediately beyond the kerb might remain level with its top, and then, beyond this, might be ramped up to original ground level again. But no examples of this were seen.

Kerb Failure

The failure of kerbs is very common. At Merton, inside the churchyard, the lack of a deep, buttressed, kerb foundation, the extra outward pressure developed within the cambered pavement and the scouring away of soil from alongside the outer faces of the kerbs by rain water coming off the cambered path and flowing downhill on and next to it, had over time combined to cause the kerbs to 'overturn' outwards [Fig.76]. The same problem can be seen in a number of church paths. The outward overturning of much more substantial worked stone kerbs at Tiverton, for the same reasons, has already been noted. Here there had been a definite intention to arrange path-side gutters alongside, and set down from, the path kerbs. But these kerbs appeared to have been laid in 'earth', probably topsoil. Some sections were in the process of rolling down into the earth-formed gutters next to them, loosening adjoining path surfaces in the process. There were signs that at least one length of gutter had once been lined with asphalt [Fig.77].

Kerb failure by rolling, or otherwise moving outward, invariably destabilised the surrounding path surface. Often the effect of rain had caused exposed areas of matrix material left behind by the kerb to slump out too, this in turn dragging out more of the matrix and then the cobbles themselves. At Huish once very attractive and relatively flat paths in various states of failure were observed. Some examples showed the start of the process while others showed its virtual end, this being the dispersal over the ground of all or most of the path components [Fig.78].

Remedies for Kerb Failure

No two cases of failure will be identical. One solution would to supply haunching for support [Fig.79]. However there may be objections to the idea of a concrete pad or the introduction of lime into a traditional earthen construction. However, concern that such impervious structures could block the movement of damp from within the path towards the outside, can be to some extent allayed by the example of existing sunk cobbled paths held between abutment walls which retain the churchyard to each side. Such paths showed no sign of failure due to the

Devon churchyard cobbles, March 2016. Keystone.

Fig.77. Several of the Tiverton gutters formed in the ground surface adjacent to the path were once lined with asphalt. It is not known whether this lining was primary or an amendment.

Fig.78.Path destabilisation at Huish inside the churchyard (left). Curiously, the large cobbled court outside the churchyard boundary, used for car parking, appeared to be in very good order (above), perhaps benefiting from the weight of vehicles.

Fig.79. Trial re-laying of kerbs at Merton by Williams and Burrows, trials funded by the SPAB and undertaken under the supervision of John Alexander. On the S side of the path the kerbs were reinstated with haunching using lime. The N side kerbs were relaid using subsoil and some buttressing with small stones.

prevention of the migration of damp from them through the abutments. On the other hand shallow concrete foundations such as those envisaged here would be conventionally seen as vulnerable to frost and this needs further consideration. Close attention at repair stage to the drainage arrangements alongside the paths, if these exist even informally, is as important as the management of the kerbs themselves, for reasons both of practicality and appearance.

Weeds, grass, moss and trees [Figs.80, 81]
Many paths observed were surprisingly free from weeds. Other paths, particularly little-used sub-paths or paths at remote churches with few users and visitors, were disappearing under grass. Over time weed growth (along with any rotting organic matter that stays on a path) will turn sub-soil jointing into humus-rich topsoil, encouraging more plant life. Footfall helps to keep plants from gaining a hold. In the past salt was commonly used to keep pavings clear. Today weedkiller can do the job, although substantial dead weeds and grass may need to be brushed or pulled out afterwards and this can deplete jointing material. Laborious hand-weeding is also employed on some paths *(pers.comm.* Churchwarden from Meeth).

During construction the setting of the cobbles in non-organic earthen material might help ensure that the joints did not later sprout plant seedlings. This happened at the Merton repair site suggesting that the sub-soil selected for jointing may have included more humus than had been intended.

In the churchyards where grass had been allowed to colonise paths or parts of paths, its short roots did not appear to be disrupting the paving - they may even help to reinforce the surface

levels of the earthen cobble jointing against wash out by rain. Usually grass invades from the sides. As noted earlier this tendency may be another reason for the presence of the earthen ground gutters found alongside paths, perhaps produced by the repeated chopping back of grass at the path edges, although some may be primary features of paths. If left completely unattended-to, paths can disappear beneath grass which will cover the cobbles as well as the bedding. One or two of these were noted in the gazetteer and it is suspected that many more survive but were not identified. Providing deep rooted weeds do not gain a foothold as well, and perhaps if the grass is cut occasionally, this may not necessarily be damaging to cobbled surfaces and provide a reasonably firm surface for footfall in dry weather, but a potentially slippery grass surface in wet weather.

In the right enironment moss will take hold in the very narrow joints between modern block paving, so it is has no problem with cobble joints. It succeeds best in at least partial shade and was regularly encountered during fieldwork, especially under avenues of trees lining a path. It is unlikely that it harms the surfaces in any way. Like grass it may give some degree of protection from wash-out of earthen jointing material. It is generally considered to be slippery underfoot when wet, and thus a safety hazard and, usually found on the outer edges of paths, and can therefore be a discouragement to use handrails.

The 19th century fashion for tree-planting alongside paths can be very attractive but has several undesirable impacts on cobbled paths. Shade and obstacles to ventilation encourage moss and other plant growth in the joints between the cobbles. Leaf litter or needle litter from yews, if not cleared away, will create humus in the jointing material. Tree roots can disrupt cobbles. Trees and shrubs planted close to a path and not kept cut back can eventually narrow a path to the extent that it may be unusable for any processional purposes and tricky for an individual to negotiate.

Fig.80. A sub-path at Crediton disappearing as grass invades from the sides. Next page (top), a highly-Romantic route to Buckland Brewer church beneath coppiced trees. The cambered path is carpeted with moss and most church-goers prefer to use an alternative route. Below. A fleshy weed growing out of the jointing of one of the Huish paths.

Devon churchyard cobbles, March 2016. Keystone.

Devon churchyard cobbles, March 2016. Keystone.

Fig.81. Top. Tree roots disturbing cobbles at Meeth. Below, the narrowing of the Petrockstow path from the spread of yews interplanted with box.

8 –Cobbled surfaces outside churchyards

Cobbled surfaces, whether paths, pavements, courtyards or interior flooring, make a special contribution to the setting and character of many individual buildings and streetscapes in the county. The Historic England publication, *Streets for All: South West* (2006), notes that in the south west 'Some of the best remaining cobbles can be seen in Devon and the western half of Somerset, where colour and texture differences are celebrated in patterns'. The following is a brief account of the development of cobbled surfaces outside churchyards with a focus on Devon. This is intended to contextualise the churchyard paths. It is also hoped that it will contribute to a greater interest in cobbles and may be of use to others investigating natural stone surfaces in other contexts and other counties.

Early Cobbled surfaces in the county

The earliest evidence of cobblestone surfaces in the county is known from archaeology and comes from middle Bronze Age pebble platforms under earth mounds. These were first identified by George Carter in Aylesbeare parish in 1937 and in 2010 the East Devon Pebblebeds Project examined and recorded a platform revealed by swaling [Fig.82]. Apart from being the earliest example of cobblestone paving known in Devon, the method of construction is of interest. Large pebbles form restraining kerbs to the platform: these are laid horizontally. The pebbles inside the kerbs are laid long side down in a sub-base of clay mixed with reddish sand laid on the grey natural subsoil. The pebbles are laid with only their tops showing. Archaeology has identified cobbled Roman street surfaces in Exeter. A fragment of one of

Fig.82. The middle bronze age cobbled platform is 2.8m long and wide enough to accommodate a body, narrowing at one end where there are two curious pebble 'horns'. Radiocarbon dates from birch charcoal 1460-1310 BC and 1390-1120 BC have established a middle Bronze Age date. The pebble platforms may be part of a ceremonial complex related to earlier prehistoric constructions and it has been suggested that they might have been used for excarnation (removing the flesh and organs of the dead). Reproduced with the permission of the Devon Pebblebeds Project.

these, found during redevelopment, was relaid in cement in 1981 in an obscure corner of what is now a shopping precinct [Fig.83]. The ritual Bronze Age pebble pavements of East Devon and the Roman street surface cannot be taken as evidence for any continuity of cobbled surfaces from prehistory up to the surviving cobbled church paths. To date we have found no medieval documentation for cobbles in Devon, whether church paths or other footways or roads. Little enough survives in the way of medieval written records for the construction of major buildings, so it is unsurprising that road and path surfacing would fall below the documentary radar. Exeter cathedral is the great exception in Devon with detailed medieval fabric accounts. These cover not only the cathedral building but also expenditure on utilitarian items including thatched workshops and water supply but has nothing that we have been able to identify as cobblestone surfaces.

Documentation we have found for Devon cobbles is post-1500 and the bulk of the datable physical evidence (although not all of it) begins in the 16th century. This may simply be a case of the date range of documentation, not of cobbles.

Fig.83. The relaid cobblestones from a Roman Road surface in Exeter are large, some more than 20cms on the surface and include irregularly-shaped pieces of the distinctive red conglomerate found at Heavitree on the eastern outskirts of Exeter, some purplish volcanic stone, found on the south west side of the city (Poccombe stone) and one or two water-worn stones probably pulled out of the River Exe. Poccombe stone was used in the Roman City walls.

Roads and Public footways

Church paths are one variation on the evolution of hard surfaces for pedestrians. This is related to the development of road surfaces for vehicles and horses. Historic England acknowledges that: 'Historic street and other surfaces such as paving are an under-researched aspect of the historic environment. Their contribution to the historic environment can be considerable...' (*Listing Selection Guide: Street Furniture*, October 2011).

There is a large literature on the history of roadway surfacing. As a key element in the development of transport and communications it has attracted research and publication. It was responsive to the development of the road network, of vehicles and related to the ever-widening choice of materials brought from a distance. These became available as transport and technology (e.g. the mechanical cutting of stone) improved. Footways, the best comparison with churchyard paths, generally receive no attention. W T Jackman's thoroughly-researched publication on English transport history reveals something of the diversity of 'paved' surfaces for roads and in towns before and after the 17th century.[9] A royal visit could prompt an outbreak of work to make a place fit for royalty. The City records for Bath show that Queen Elizabeth's anticipated visit in 1602 meant calling in pavers from Sodbury, Chichester, Bristol, Frome and Warminster to supplement the efforts of the single Bath paver. Whether the urgent effort to upgrade Bath applied to footways as well as road surfaces is not clear.

Archaeological excavation has found medieval cobbled surfaces, including in Devon, pre-dating the first known use of the word cobble. However there may be a risk of overestimating their use for roads and footways in towns and villages before the 17th century. The cross town

routes of Roman London were local gravel with compacted rubble and ballast foundation and side drains. These were constructed by a disciplined workforce operating under military instructions. Nothing comparable followed in the way of administering and executing road construction and maintenance which, after the 1555 first Statute of Highways, was the responsibility of English parish vestries. This was not an effective system. The more complicated history of town administration meant that there were variations in urban paving responsibilities. Some towns had designated pavers, in other places individual householders were responsible for footways outside their properties and the roadway up to a centre line. Failures to do this led to fines and these generated documentation.[10]

Wooden overshoes called pattens were commonplace in the medieval period. They were designed to lift pedestrians out of soft ground, although they continued to be worn on paved and cobbled footways in the 18th and 19th centuries, presumably because these were often dirty and cold for thin-soled shoes. Pattens had two little stilts carved out of the sole. As archaeological experimentation has shown, they were very effective for walking on soft ground [Fig.84]. In 1390, the Diocese of York forbade clergy from wearing pattens or clogs in both church and in processions, considering them to be indecent "*contra honestatem ecclesiae*". Alphington church on the outskirts of Exeter (with some remaining cobbles) retains a probably early 19th century notice in the porch 'please to take off your pattens': perhaps the clattering noise was considered inappropriate.

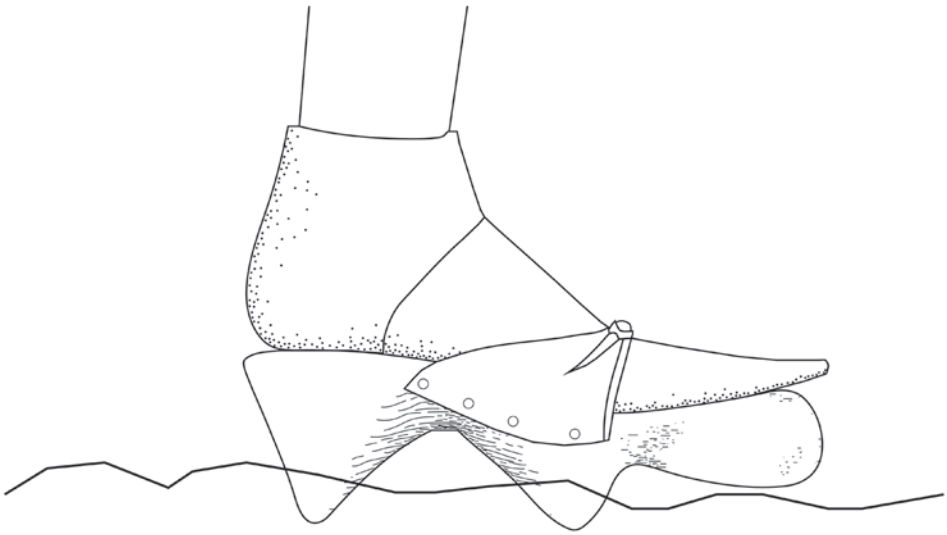


Fig.84. Drawing illustrating a patten. These were very effective on soft ground. The design of the 'stilts' grips the ground uphill and acts as a brake downhill. The shape of the stilts reduces the likelihood of mud sticking to them. Archaeological experimentation has proved that walking on hard ground, including cobbles, is manageable in pattens, once the technique is acquired. Drawing based on Fig.5 in 'Patten' from Goubitz, 2007, 256.

London may have been exceptionally filthy and had no local sources of stone for paving apart from Thames cobbles but research for this project has not found enough evidence to suggest a medieval picture of extensive cobbled streets or footways in medieval Devon provincial towns. This may simply be a shortage of documentation, not of cobbles. Many streets in London were cobbled in the aftermath of the great fire of 1666 as the city was rebuilt to a higher standard. Limited archaeological excavation suggests that before this the major streets were surfaced, if at all, with periodic dumps of layers of gravel and builders' rubble spread over the commonplace filth of horse muck and household detritus tipped into the street. Whether or not cobblestones were locally available, the problem was the absence of administrative systems capable of implementing urban paving schemes. These do not seem to have developed until the late 16th and 17th centuries in some prosperous and well-administered towns and probably much later in villages, in some perhaps not until after the Highways Act of 1835.

The organisation of great houses, monasteries and abbeys may have presented a different picture, or perhaps these are sites where archaeological excavation is more likely to have discovered early cobbles. Excavation by Stewart Brown at Buckfast Abbey has found examples of medieval cobbles surfacing a trackway and in two animal houses. The 14th century trackway is made up of river cobbles of a wide range of sizes in a clay matrix, with a very rough, rubbly and uneven surface [Fig.85].

In Chudleigh, a borough town, stones were acquired in 1561 for making the 'Exeter Way' and 'heling [often interpreted as 'roofing' but presumably meaning surfacing in this context] of the cawsse', perhaps the first paving of a raised path? In 1563 stones were brought for paving by the 'Cheaphouse' (later the term Markethouse is used) and other places. In 1594 the Chudleigh churchwardens 'Payed to John Guye paver for syxe hundred fourscore and fower yeardes of pa[blot]ment for the streete of the boroigh of Chudligh after penny hapeny the yearde' £4 5s 6d and carriage of stones at 36s 9d; 12s; 10d.[11] We have no way of knowing whether this was the first paving of the borough or a re-paving.

Cobbles at Bayard's Cove, Dartmouth, have an internal date of 1667. This may have been preserved through phases of re-laying what is now a very patched surface, but the form of the numbers is convincing and makes this the earliest example of internally dated cobbles known in the county [Fig.86].

The creation of Bridgeland Street in Bideford is well-documented.[12] The intention was to build a street of large fashionable houses for the town's mercantile elite between 1692-4. The development was controlled by the Trustees of Bideford Bridge as the surviving original leases demonstrate. They include very tight building controls to ensure an overall harmonious design in terms of floor heights and building materials, etc. used, perhaps following London building conventions perfected by N Barbon in the mid 17th century (*pers.comm*. Francis Kelly). Lessees had a responsibility to pave the street in front of their properties up to the middle of the street. This would imply that hard-surfaced streets were expected by the merchants and associated traders in a high quality new-built late 17th street.

Primary and secondary sources show that Devon was late in the provision of metalled road surfaces. Packhorses rather than vehicles were commonly used for freight. John Ogilby's *The South-West Highway Atlas for 1675* refers to a single stretch of paved road amongst those in Devon he mapped for travellers, 'the long causeway' a mile of it, on what was then the route between Silverton and Tiverton, presumably surfaced for a local landowner.[13] Celia Fiennes' record of her travels in the west country, written in about 1702, confirms the unpaved state of Devon's roads between towns, describing only the 15 miles between Exeter and Honiton as an 'all fine gravell way' and 'the best road I have met with withal in the West'. She enthusiastically compares Exeter, thriving then on the wool trade, with London and considered it worth noting

Devon churchyard cobbles, March 2016. Keystone.

Fig.85. The Buckfast Abbey trackway. This could be defined as a surface of spread stone or partially spread stone, rather than individually-laid cobbles. Stewart Brown.

Fig.86. Dated cobbles at Bayard's Cove, Dartmouth. The form of the numbers making up the date is convincing, even if there has clearly been much re-laying over time. These are the earliest internally-dated cobbles in Devon known to the authors of this report. Dr Stuart Blaylock.

Devon churchyard cobbles, March 2016. Keystone.

'the streets are well pitch'd spacious noble streets'.[14] Perhaps this Exeter paving (cobbles or setts?, presumably 17th century or earlier) was an indicator that well-adminstered towns in this period were, for the first time, acquiring a sense of 'decency' as part of a distinctive urban character arising not only from cultural pursuits not found in rural areas, but also higher standards of urban cleanliness. Fiennes' account of surfaces in the villages she passed through between Ashburton and Plymouth is puzzling: 'this country being almost full of stones the streetes and roades too have a naturall sort of paveing or pitching, tho' uneven'.[15]

The first Turnpike Trust in Devon was not established until 1751. Turnpiking an existing road was no guarantee that it would receive any more attention than filling potholes and dumps of gravel on places vulnerable to wear. The comments of the agricultural improver, William Marshall, in 1796, suggests that improvements to Devon's roads in the 18th century had been patchy, at best. The county's hilly topography and wet climate were major obstacles. Devon was full of 'hollow ways', muddy tunnels deep between hedgebanks. Less than half a century before his publication, he writes, the west Devon roads were 'mere gullies, worn by torrents in the rock which appeared in steps, as staircases, with fragments lying loose in the indentures... Speaking with little if any latitude, there was not then a wheel carriage in the District'.[16] Nevertheless, know-how in construction was demonstrated in the roads between Totnes and Ivybridge, 'The materials stone; beaten tolerably small, ---and covered, when fresh laid, with earth or rubbish, to soften and bind the rough materials'. Marshall goes on to describe this as almost 'the only instance I have met with, in common practice, of this most eligible method'.[17] The Exeter to Plymouth road, although too narrow, was well-kept in parts and 'exceedingly well-formed' using 'blue marble' (probably Plymouth limestone) and a 'hard rust-coloured stone' and designed with a considerable camber for drainage, compared to a barrel by Marshall. He was critical of the lack of management of the trees and hedges alongside the road. These reduced the road width and prevented its surface from drying out in wet weather. In dry weather the overhanging trees prevented dust from blowing away.

The 1835 Highways Act makes interesting reading. It consolidated and amended the existing requirement that made parish vestries responsible for maintaining the parish highways. What was novel was a clear and detailed system of administration. Parish surveyors, chosen from amongst categories of rate-payers, were the key personnel, backed up by Justices of the Peace. The Act set out the surveyors' obligations, powers and funding (raising a rate: this brought obligatory labour for repairs to an end); how materials for maintenance were to be acquired; the annual management of trees and hedges lining the highways and even some rules of the road, including the requirement that all wagons should be painted with their owners' names and addresses so that the misbehaved could be identified and fined. Widths for roads, horse ways and footways (3 feet) were also given. The only element of the surveyors' work not covered was any sort of specification for construction and surfacing, presumably the assumption being that this would make use of local materials. There is no indication in the act that Macadam's system of layers of stone, graded for size with little in the way of large stones in the sub-base and well-known by this date, was to be used in preference to any other system for surfacing roadways.

In Sandford, which, like Clovelly, preserves abundant footway cobbles including several cobbled paths and cobbled steps in the churchyard, surveyors were letting out the maintenance of all 27 miles of the parish roads in 1852 and 1862 for three year periods [Fig.87]. The Sandford documentation does not, unfortunately, establish the date of the wealth of surviving cobbled footways in the village, one raised high above the roadway in causeway fashion, others not. There are cobbled snickets and private garden paths and yards, as well as a surviving network of paths in the churchyard [Fig.88].

SANDFORD, DEVON.

To Road Contractors

AND OTHERS.

The SURVEYORS of the HIGHWAYS of this Parish, are desirous of receiving TENDERS from Persons willing to

CONTRACT

FOR THE REPAIR OF THE

PARISH ROADS,

For a Term of 3 years from Ladyday 1852, in 4 Districts.

The Conditions of the Contract which will be ~~received~~ required to be executed, can be seen at the House of Mr. WELLACOTT, Junr., where any further Particulars may be known.

Separate Sealed TENDERS for each District, are to be delivered to either of the SURVEYORS, on or before the 7th day of APRIL next.

The Surveyors do not pledge themselves to accept the lowest or any Tender.

Dated, Sandford, March 30th, 1852.

Luxmoore, Printer, Crediton.

Fig.87. Advertisement for a maintenance contract for Sandford parish roadways and footways in 1852. A surviving contract of 1862 repeats some of the wording in the 1835 Highways Act and shows that the roads had been surveyed by five parish surveyors. The contract was between the surveyors, vestry and ratepayers as employers and a mason and labourer. The contractors were responsible for the 'roads and footpaths, bridges, covered drains, causeways, rails, fences, posts, trunks, tunnels or plats' belonging to the highways. The previous contractor was to be paid for materials left beside the highway for use. The contractors would be responsible for any damage resulting from working quarries, pits and 'stoles' (definition not understood) when acquiring materials. The contract refers to pending legislation, passed in 1863, that created Highways Districts by combining several parishes into a district. DALSS, 12358A/PS 4, reproduced with permission, contract DALSS, 1238A/PS 6.

Devon churchyard cobbles, March 2016. Keystone.

Fig.88. Sandford village has many surviving cobbled footways, providing a distinctive character to the village.

Cobbled paths across gardens and cobbled private yards are presumed to have been the work of the householders. It seems unlikely that all this Sandford cobbled paving is the same date and likely that the parish had particularly good access to sources of cobbles that were exploited, for both public and private use, throughout the 19th century and perhaps earlier. Some of the existing cobbled pavements of Thorverton village must have been laid, or relaid, in the late 19th century as they neatly abut late 19th century brick houses and include arrangements for draining the house roofs across the pavement and into an open drainage channel [Fig.89].

Fig.89. Thorverton village (top) also has a wide range of cobbles. Some of these are evidently late 19th century. The raised cobbled pavements in Bow village (below) are probably earlier.

Devon churchyard cobbles, March 2016. Keystone.

By the 1840s the drawbacks of Macadam's system for road construction were well-known and rehearsed by an author writing in *Blackwoods Magazine*. The system was quieter than, or at any rate made a different sort of noise from granite setts and cobbles. It was assumed that any road surface was slippery in winter, but in busy streets in the dry months small stones, 'polished and rounded by so many wheels , were each like a convex mass of ice and caused unnumbered falls to the less adroit of equestrian portion of the king's subjects'.[18] However, Macadam's system in winter was vulnerable to ruts and mud and horse muck were difficult to clear from it. In dry periods dust rose from the construction and found its way into houses as well as filling the streets.

In London, softwood paving on a concrete base, first laid in 1839 in Whitehall, was extensively used by 1850, mostly in fashionable areas. It was also used in continental Europe and America. It was popular because it was quiet, although experience showed that it absorbed horse urine and stank and was short-lived. In some areas these drawbacks prompted the reintroduction of granite setts. As with all the other surfacing options, the life of wood paving could be extended and slipperiness remedied by the use of tar and sand. In the 1880s and 1890s there was a revival of wood paving for roadways, this time using hardwood imported from Australia. It was used in some Devon towns: Exeter and Barnstaple, for example. Barnstaple first used it in the 1880s. Wood paving appears to have been for roadways only and the associated footways may have been cobbled, or surfaced with setts or flagged.

By the late 1850s there was a clear distinction in textbooks between cobbles robust enough to take vehicles and those for pedestrians only, where ornament was possible:

> **Pebble-paving**, which is done with stones collected from the sea-beach, mostly brought from the islands of Guernsey and Jersey; they are very durable, indeed, the most so of any stone used for this purpose. They are used of various sizes, but those which are from six to nine inches deep are esteemed the most serviceable. When they are about three inches deep, they are denominated *bolders* or *bowlers*; these are used for paving court-yards, and other places not accustomed to receive carriages with heavy weights; when laid in geometrical figures, they have a very pleasing appearance.[19]

Conscientious searching of 18th century Devon prints has turned up scarcely anything of value in illustrating road and footway paving. Village and other cobbles were sometimes recorded in the era of photography [Fig.90]. The best evidence for proving that many Devon towns and some villages had cobbled footways by the late 19th century comes from the newspaper reports covering proposals to replace them: the period of greatest activity being c.1890-1940, including the early period of the widespread use of the bicycle and the use of the motor car. In 1894 the Local Government Act had passed all the powers, duties and liabilities of existing highway boards or surveyors to the newly created rural district councils. However, as the newspaper reports reveal, the decision to modernise and improve by lifting cobbles could also be made by town councils, sometimes acting as the Sanitary Authority, or by charitable trusts who owned tracts of urban property.

By 1900 there were plenty of publications on techniques and materials for roadway surfacing, though few cover footways. An exception is the work of H Percy Boulnois, surveyor for Exeter, then Portsmouth and eventually Liverpool and author of several publications on roads and sanitary subjects. Boulnois was an enthusiast for wood paving for roadways. He was scathing about 'boulder pavements' (meaning roadways) describing boulders or cobbles as 'a most unsuitable and insanitary material, they ought to be discouraged in every possible manner'. It was not only that they were noisy but they could not be jointed closely, so an extra crossfall

Fig.90. Moretonhampstead in a photograph of the 1870s showing a cobbled street, roadway and footway, in a Dartmoor town. The footway is on one side of the street only. Where buildings have been extended by front outshuts, presumably for shops, this is only a narrow strip. Moretonhampstead History Society, reproduced with permission.

was required 'in the vain endeavour to drain them properly'. They were almost impossible to keep clean and 'filthy moisture' accumulated between the stones. They jolted vehicles and horses legs and hooves and were almost impossible to repair when disturbed. As we might expect from the Victorians, science had been applied to determine relative surface efficiencies. An experiment had proved that it took 280lbs 'tractive energy' to move one ton on a boulder pavement as against only 30lbs on ashphalt. Nevertheless, Boulnois includes a general specification for a cobbled roadway. This was for stones of uniform size on a hand-pitched foundation 6 inches deep, the cobbles to be laid in rock sand, the joints crossed and racked with pea gravel and the surface covered with sharp shingle. When it comes to footways, he does not even mention cobbles, but recommends York or Lancashire flags for all three categories of streets he identifies, first class to third class.[20]

The removal of footpath and road cobbles was a national issue and shows that, whatever Devon's geological advantages in sourcing stone for cobbles were, cobbles, or stone surfaces called cobbles, were widespread and found e.g. in Kent, Sussex, Lancashire and Scotland. 'The paving question' in the early 20th century became a matter of public discussion reported in the local press because the costs of improvement continued to fall on local ratepayers and there were choices of improved surfaces. The larger towns were replacing cobbled main thoroughfares in the late 19th century. In Plymouth, George Street was cobbled until the 1880s. This may first have been cobbled, or re-cobbled, in the early 19th century as part of the work by John Foulston, the London-trained architect who, in the period 1813-1829, provided Plymouth with an urban heart of cutting edge classical public buildings. Foulston also involved himself in a road scheme designed to better connect two of Plymouth's urban centres. His drawings show that he provided flagged footways where his new buildings were erected, providing superior footpaths for a very fashionable area.

Before the 1920s most voices in the paving question debate were in favour of removing cobbles. Sometimes anxieties were expressed that the introduction of concrete, tar and steam engines for crushing stone would remove work for the idle poor. However, there were powerful arguments for removing cobbles. It was not only that they were uncomfortable to walk on – one commentator suggested that the only contribution they made was to the chemist selling remedies for corns – adjacent to highways they could be dangerous. Road surfaces were usually made smooth before footways and pedestrians chose to walk on them in preference to cobbled footways (this is the case in 2015 in Thorverton village) risking traffic accidents. Cobbles laid in sub soil were considered unhygienic. Schemes for their removal were often part of improvements to urban sewerage and effective forms of urban drainage. These were likely to require lifting sections of paving anyway, as was the introduction of gas. It is clear from the newspaper reports that several of the cobbled roadways improved in the late 19th and early 20th centuries had been designed with an open gutter down the middle and

cobbles on either side plus cobbled footways, much as survives (listed Grade 2) on Stepcote Hill Exeter [Fig.91]. This design was detested by Medical Officers of Health for contributing to water pollution and outbreaks of cholera and typhoid.

When Okehampton replaced some of its cobbled pavements in 1893, hygiene was a consideration.

Fig.91. Stepcote Hill. A survival, somewhat altered, of a commonplace type of urban street surface with large roadway cobbles either side of an open drain and smaller footway cobbles. It is probably 19th century. The drain has been partly undergrounded and the risers of the steps of the cobbled footways, now stone, were timber at one time.

Devon churchyard cobbles, March 2016. Keystone.

> No doubt a great improvement in the public health has been caused by the new sewerage, drainage and footpath work, although a number of people cannot see what influence the latter can have. It is a fact, however that in other towns a marked improvement has followed the adoption of impervious pavement and a moment's reflection will show that to have the areas outside the doors and windows kept dry and free from putrid soakings, as was the case with the old cobbled pavings, must make a great difference over the area of a township. The Surveyor was instructed to defer for a time the repair of the footpath and the Clerk was asked, in the meantime, to point out to the County Authority the desirability of substituting cement for the cobble stones.[21]

In 1895 Barnstaple Town Council, acting as the Sanitary Authority, were seeking a loan of £4,500 for a schedule of town improvements that included laying new sewer pipes, road improvements, buying a steam roller and stone crusher and erecting a bandstand. Several pitched stone roads and footways were up for improvement, to be replaced either with granite setts or covered with tar. The existing wood paving at the South end of the High Street was to be replaced with more wood (laid on a concrete bed) with granite channels on either side, even though it had only lasted for 7 years.[22] The cobbles in Duke Street, South Molton were removed in 1901. The cobbled pavements in Cullompton High Street were removed before 1904.[23] In 1906 an outbreak of typhoid in Ottery St Mary prompted a discussion with the Medical Officer of Health about the unhealthiness of the old cobblestone footways, the subsoil beneath described by Dr Reynolds as 'hot beds of the germs of disease'.[24] Some of the Ottery cobbles seem only to have been tarred over, the cobbles poking through the tar by 1946. All the cobbled footways in Ashburton were proposed for replacement with concrete paving in 1907.[25] In 1908 it was reported that:

> Crediton is being slowly but surely modernised. The footpaths, until quite recent years, were entirely of cobbles. Possibly the older generations of the townsfolk saw some affinity between cobbles and cobblers, the name given to shoemakers, who form a numerous section of the population of Crediton. But, whatever their view, it is certain that nothing could be more uncomfortable for walking upon than cobbles. A scheme for replacing them by nicely levelled concrete was initiated some years ago and is being continued at the present time. The work will not only effect a great improvement but, together with the laying of a new sewer in Alexandra Road, provide employment for a number of men who would otherwise be idle.'[26]

As tourism in Devon developed, there was a counter argument for the retention of footway cobbles on the grounds that they attracted visitors and artists by contributing to the antique character and quaintness of villages and towns. There are parallels with the perceptions of thatching in Devon, regarded by many residents in the 1920s and 1930s as insanitary 'rats' nests', hazardous (the fire risk) and a burden to maintain relative to slate or other roofing materials. The counter arguments for both thatch and cobbles were made not only by local individuals and groups but also by national campaigning organisations. The arguments in favour of cobbles were not solely for retaining historic street surfaces, but street surfaces associated with historic buildings and distinctive historic character. The cobbled streets of places on the coast with steep hills and sea views were especially treasured as attractive to tourists. Clovelly, a small fishing village on the North Devon coast with a startlingly steep, stepped cobbled street down to the harbour, from which motor vehicles were necessarily excluded, seemed to become even quainter and more attractive as other places of resort became busy with charabancs and motor cars travelling across smooth surfaces. The effort

to get up and down the hill to the harbour across very uneven paths cobbled with sandstone cobbles was (and still is) reckoned a key part of its charm, along with the chance to hire a donkey, or now a landrover to do the hard footwork [Fig.92]. There is now an admission charge of £6.95 for visitors entering the estate-owned village. The charge put to village repairs and conservation including the cobbles. These were much relaid in 2010 after major flood damage when a river above the village burst its banks and dislodged many of the cobblestones, but these are still very uneven, as explained on the Clovelly website. Residents favour shoes with thick rubber soles (*pers.comm*).

A heated debate about removing cobbles in Looe, Cornwall, carried on from the late 1920s into the 1930s. The Campaign to Protect Rural England addied its voice on behalf of preservation to that of the Old Looe Society. Those in favour of retention pointed out that cobbling was not a lost art, uneven cobbles could always be relaid as they had been from time immemorial and the only people inconvenienced by cobbles were ladies wearing 'exaggerated heels' 'an eccentricity that is quite out of place in Looe'.[27] The SPAB argued for the retention of the steep cobbled roadway and steps on Stepcote Hill, Exeter in the 1920s, as part of a campaign to retain historic buildings that had survived, downgraded to a working class slum in the 19th century. The assumption made, both in Looe and in Exeter, was that the cobbles were contemporary with the surviving 16th and 17th century buildings in the streets. This may have been mistaken. In 1933 a gravel surfacing placed over the cobbled footways of Gilbert White's village, Selborne, Hampshire, 'caused a minor storm', the villagers protesting that this destroyed the village's 'old-world charm' until the County Council agreed to remove the gravel.[28]

After World War 2 there was something of a revival of the use of cobbles in urban hard landscaping as this account in the *Architectural Review* of 1957 shows:

> **Use**: Cobbled paths have been on the way out since high heels were on the way in. The labour costs of laying each cobble by hand would have, it might be thought, finished cobbles as a paving material in any case, but lately they have revived in popularity. In addition to the fact that cobbled paving is one of the most attractive-looking paving materials we have, and one whose small scale and deep texture have not been imitated by any new material, there are three practical reasons for its use:
>
> Like setts, cobbles are most efficient discouragers. Where setts will suggest to the motorist that he would do better to drive on a smoother surface, the pedestrian can be unconsciously restrained from wandering off paved areas by the judicious use of cobbles. Therefore to discourage people from cutting corners, straying on the road or over grass, cobbles can be invaluable.
>
> Cobbles are also very handy for small areas, of awkward shape in plan or section, which tend to get left in corners by gullies, or re-entrants of buildings. They are small enough to fit in where a paving slab might be difficult to cut, or where a plane surface is impossible.
>
> Loose cobbles can be useful round trunks of trees, particularly if for some reason the level of the ground has to be raised. They will allow air as well as moisture to penetrate to the roots.[29]

The trend for pedestrianizing town centres in the 1960s and 1970s saw the replacement of many natural stone surfaces with ashphalt, clay or concrete block paving. Cobbles, if used

Devon churchyard cobbles, March 2016. Keystone.

Fig.92. Clovelly is an outstanding cobbled village/small town in Devon, its cobbled streets a key attraction for tourists. The cobbles are maintained by the estate that owns the village. Built on a steep slope down to a harbour on the N coast, most of the houses are mid/late 17th century in origin, perhaps providing a date for the origins of the cobbled streets. Residents in 2015 use wheeled trolleys to pull shopping to their houses and wear rubber-soled shoes.

at all, were principally of the 'keep off' variety, laid so that each stone emerges high above the concrete bedding to provide maximum discomfort to the feet in the cause of safety and controlling pedestrian flow [Fig.93]. This familiar use of urban cobbles has surely contributed to the perception that they are all an obstacle for pedestrians. The artificial materials with which they were associated in urban landscaping in the 1960s and 1970s were considered, relative to natural materials, 'simpler to specify, less expensive to maintain and seen as safer for vehicles and pedestrians'. [30]

By the 1980s and 1990s there was a gradual return to high quality traditional materials in sensitive urban locations, especially in Conservation Areas, which had first been introduced in 1967. This was part of a more sophisticated understanding of what hard landscaping could

Fig.93. 'Keep off' 20th century pebble cobbles on a traffic island in Blackboy Road, Exeter, part of a hard landscaping scheme to control pedestrian movement. Large pebbles/ small boulders are laid in cement, their irregular domed tops presenting a surface that no-one would choose to walk on.

contribute to the public realm, but also a developing interest in traditional and localised forms of paving. In the 1980s, tar was removed from the cobbles in some streets in the Conservation Area of Topsham in Devon as part of an enhancement scheme (*pers.comm*. John Clark). A series of 1990s articles in *Context,* the journal for Conservation Officers, covered general principles and local examples.[31] It was understood that quality materials added to the prestige of an area. There was envy of the character of paving in continental European countries where paving skills 'protected by craft qualifications and apprenticeships' were highly -regarded. The greater expense of natural paving materials could be partly offset by their longevity and salvage value when they were taken up.[32] As the study of, and interest in, locally distinctive vernacular buildings developed it was natural to examine locally-distinctive forms of paving and, in some cases, seek to reinstate them (e.g. pea shingle in Suffolk villages) as part of Conservation Area or townscape enhancement schemes. These schemes included adjustments in technique and construction to reflect contemporary wear and adjustments to routing to reflect contemporary understanding of how changes in surfaces could be used to manage pedestrians. Cobbles

were described in one of the *Context* articles as a widely used traditional material with regional variations:

> usually laid on end pointing upwards, but in some parts of the country they are laid on their side. In Bath coaldust is mixed with the mortar, primarily to waterproof it, but in doing so it gives a quite distinctive quality. In Chester cobbles are laid in pulverised slag; elsewhere they are laid in sand or cement. Not only will this give a different appearance to the street; it will also encourage or discourage the growth of moss and algae. In Chepstow peat was deliberately mixed with sand to encourage growth.[33]

In the 21st century cobbles have survived in the public realm, sometimes re-laid, sometimes as new areas of cobbles established for their contribution to the character of historic places (e.g. Totnes; Chulmleigh). The path to the former Roman Catholic church off Mint Lane, Exeter, was revealed during redevelopment to convert the building into apartments and has been retained and extended to create a courtyard garden [Fig.94].

Interior Cobbles in Churches

There are several cobbled Devon church porches. No examples of cobbled flooring beyond the porch can be seen in any Devon church, apart from one 20th century introduction. This

Fig.94. Cobbled path at the Mint, Mint Lane, Exeter. Rediscovered by excavation during 1990s redevelopment, this was restored and extended to provide a garden/ courtyard setting for three historic buildings including the former Roman Catholic church shown here.

is unsurprising given their 18th and 19th century modernisations, and especially Victorian re-floorings, often associated with underfloor heating systems. Cobbles might be expected before in poorer or earlier churches in those areas without access to local paving flags or those without generous patrons. Two references to cobblestones used for church flooring have been noted. Cobbles were used for flooring Woodbury Church before imported stone was laid in 1621.[34] The aisles of Kennerleigh Church were paved with 'a mixture of cobbles and roughly squared stone' as late as 1895, prior to the restoration of the church.[35]

Cobbled Surfaces outside churchyards

Surviving examples of cobbled surfaces used to pave domestic interior and external garden or agricultural yards require some consideration to put church paths in their wider contex. Simplistically these can be divided into exterior working spaces, gardens and interior domestic rooms.

Farmyard cobbles

There are many surviving examples of visible cobbled surfaces in farmyards throughout much of the county. Tim Bucknall draws attention to the chert cobbled yards of the Blackdown Hills on the east Devon border *(pers.comm)* but there are also many from Dartmoor and mid north Devon, and no doubt many more survive under concrete or grass. Some examples are spectacular and have been repaired for non-farming owners who regard them as part of the character of their properties [Fig.95]. These and the remains of many more are characterised by the use of much larger stones than are seen in church or even village/ town paths and are relatively rough and uneven, sometimes containing larger slabs. John Thorp reports seeing the yard in front of the medieval barn at Batworthy in Chagford flooded to a low level with stepping stones above the water level between the barn and the cider house (converted from the old house). Given Devon's wet climate and the steep slopes of many of the county's farmyards, external cobbles must have helped to prevent yards turning into a complete mire and livestock and carts and wagons from slipping, as well as allowing muck to be periodically shovelled off the surface. One thing is certain, whatever their original date, surviving cobbled farmyards have been mended over and over again, a substantial number within living memory.

There has been no attempt, as far as we know, to date these farmyard cobbles, if indeed that is possible. One might assume that, like church paths, they probably date from the late 18th or more likely the 19th century. Peter Child has suggested that this might be due to the late arrival in Devon of wheeled vehicles, farming produce and fodder traditionally moved about on foot or using packhorses (*pers.comm.*). Excavation of a pre 18th century abandoned farmstead might provide some answers and there are precious few of these.

Without historical or archaeological proof we might consider an earlier general spread from the gentry mansions, or institutions like monasteries and castles, down the social scale from, say, the late medieval period onwards. Whilst there are currently no datable examples to support such an assertion the historic economy must be considered. The high quality of the rebuilding of Devon houses, both in towns and the countryside, from the late medieval period through to the early 18th century was based on the prosperity created from a burgeoning export trade from the Devon ports of woollen cloth. The county includes a massive number of smart houses from the lower gentry and richer farmers from this period which display architectural pretension. These were all associated with working farmyards and some contemporary farm buildings also survive. The conscious show of these farmsteads is difficult to comprehend without external hard surfaces.

Devon churchyard cobbles, March 2016. Keystone.

Fig.95. Cobbled farmyards: Gotham, Tiverton (top left) on a steeply sloping site; a mid Devon farmstead with cobbled footways and cobbled interiors to the buildings (two right-hand photos); cobbles in the farmyard at Great Heale, Colebrooke (below). Great Heale by JRL Thorp.

Interior Cobbles

Farm Buildings

Buckfast Abbey provided very extensive and superior 14th century accommodation for guests. A stable associated with the Abbey's Southgate is, like the Buckfast trackway, dated to the 14th century [Fig.96]. Stewart Brown comments that its cobbled stable floor was so uneven that it was difficult to walk on, even in diggers' boots and must have been covered with straw litter most of the time (*pers.comm*.). Presumably the cobbles made it easier to muck out than an earth floor and may have prevented horses from slipping. A late medieval animal house in an agricultural complex in the outer court of the abbey also had a multi-phase floor with cobbles [Fig.97].

Extant, probably late medieval cobbles can be found *in situ* in the shippon end of some unconverted Dartmoor longhouses, where these survive as platforms for cattle on either side of a central drain [see Fig.6]. These late medieval Dartmoor shippons use medium sized granite cobblestones kerbed with large moorstone slabs. The classic examples are Higher Uppacott in Poundsgate and Sanders, Lettaford in North Bovey, but there are others such as the longhouses which make up the hamlet of the Ancient Tenement of Pizwell in Lydford on the High Moor. Higher Uppacott dates from the early 14th century on stylistic grounds and Sanders from the 15th.

Excavations at Sourton Down Okehampton between 1986-1991 uncovered the remains of a medieval longhouse which was probably abandoned the late 14th-early 15th century with a secondary cobbled shippon.[36]

Similar medium-sized cobblestones commonly survive in post-medieval Devon farm buildings. Scribbles, in Lamerton (formerly known as Lower Chaddlehanger), originated as a 14th century longhouse. We know from documentation that this was abandoned for domestic use probably in 1787 when the whole building was converted to a shippon. The conversion introduced a number of slatestone flooring slabs and cobbled flooring [Fig.98].

Houses

Extant cobbles, sometimes covered over but known from oral history or photographs, are found as interior flooring in domestic buildings in Devon from at least the 17th century. The alternatives for domestic flooring were earth, lime-ash, or flagstones. Earth floors can be fugitive during archaeological investigation but were recognised in the living room/ hall of 'House A' of the pair of probably mid-late13th century longhouses excavated on Sourton Down in 1990: it was set on stone rubble base over drains.[37] The owners of Laployd Barton in Bridford told John Thorp that major works from around 1990 uncovered a medieval lime ash floor associated with the stone setting for an open hearth fire (*pers.comm*). An archaeological excavation of two medieval town houses on Wolborough Street in Newton Abbot concluded that the better preserved example, labelled 'House B', was built in the late14th-early15th century with a two-room and cross passage plan. The hall, the room with the open hearth fire, had a 'mortar' floor, whist the passage and eastern (service end) room had floors of 'pebbly clay'.[38] Many old houses in eastern Devon in the Blackdown Hills have hard floors of local broken limestone flags. Those at Membury Court and Townsend in Stockland appear to date from the 17th century or earlier. It would therefore seem likely that contemporary houses of equivalent status with access to the Culm Measures cobbles of mid and north Devon would install hard floors at the same period.

Domestic cobbled floors do survive in old farmhouses. For reasons rehearsed above it is difficult to date any farmhouse cobbled floor to before the second half of (maybe the mid) the 17th century with absolute certainty. Obviously there are no building accounts for these houses, and it is also difficult to find early floor levels in archaeological excavations since floor

Fig.96. Buckfast Abbey. 14th century stable floor. Stewart Brown.

Fig.97. Cobbled flooring of a late medieval livestock building at Buckfast Abbey. The soft clay ground was first consolidated with a sub-base of tightly packed pitched stones (local slate stone) then another similar layer was set on top, and finally a stone rubble floor. There were two post-medieval floors on top, the last probably 19th century. Stewart Brown.

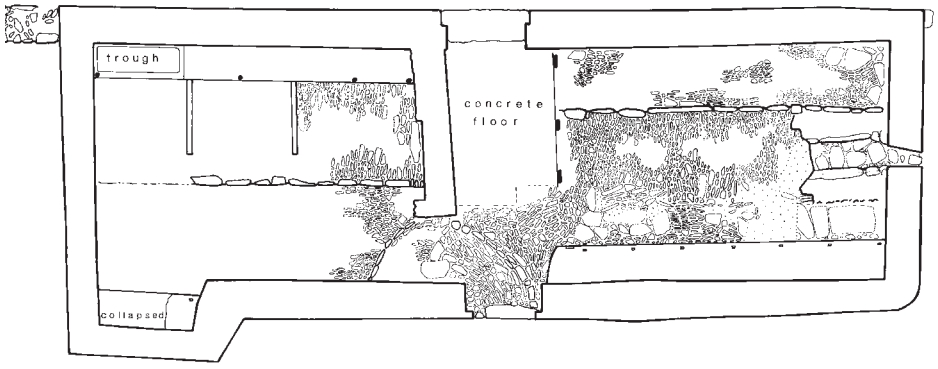


Fig.98. Drawn record of the cobbles at Scribbles, Lower Lamerton. The domestic use of this medieval longhouse was abandoned in c.1787 and it was re-floored throughout as a shippon. Keystone Report K/349, June 1990.

levels tend to stay the same. Therefore each floor repair takes out some, or all, of the previous floor. Thus the few examples of excavated late medieval farmhouses from Devon (e.g. Brown and Laithwaite 1993, and Thorp and Alcock , forthcoming) produce no datable medieval floor levels. Current archaeological excavation at Moistown, Broadwoodkelly is noted above. The interior cobbles were smaller and more neatly-laid than those outside [Fig.99].

Interior cobbled survive most commonly in cross passages and service rooms. These have escaped the fashion from the 1960s through to the 1990s for replacing or screeding over indoor cobbles. At Dunstone Manor in Widecombe, a late medieval former longhouse, the floor is medium-sized granite cobbles, much smaller than those used outside in the former farmyard. Dartmoor is not a place where one might naturally seek out cobbled floors but, the medieval hall of Hill in Christow reveals granite cobbles where the mid 20th century concrete screed has failed. When we move to mid Devon we see much smarter work. It must be stressed that there is no way of dating cobblestone surfaces simply by looking at them. Context, discussed below in connection with churchyard paths in Section 9 is not always reliable but can be helpful. There is, for instance, the cross passage floor at the minor gentry house of Prowse in Sandford which is associated with a fine mid 16th century oak screen and ceiling. The floor is made up of tightly-laid, small sandstone cobbles. There are so many cobbled cross passages from 15th, 16th and 17th centuries date that surely some must be primary.

There are many anecdotes associated with cobbles in farmhouses, communicated by farming families during the 1983-6 re-listing project - 'the accelerated resurvey of rural England'. One farmer claimed that his cross passage cobbles were re-laid on a sub-base of empty bottles underneath the bedding to provide warmth and ventilation (*pers.comm*.to Jo Cox). At Nymet Barton Farm in Bow the farmer told the fieldworker that he would have liked to screed over the tightly jointed small cobbles in his kitchen, but his mother, who kept the floor scrupulously clean, would not allow this and pointed out a small damp patch in one corner from which she claimed to forecast the weather as the patch expanded or reduced. Presumably it acted as a kind of crude barometer. The resurvey fieldworker visiting the house was told it would rain in five hours time, which it did (*pers.comm*. John R L Thorp). A 1923 article in the *Transactions of the Devonshire Association* reports the use of flagstones to tell the weather: they became slimy before rain. The Nymet Barton kitchen floor has since been covered or replaced but the quality of the small grade cobbling can still be appreciated in the cross passage [Fig.100].

There is some evidence for cobbled floors in superior interior spaces. Like thatch, cobblestones crossed status boundaries. In a reversal of late 20th century fashion the new owner of the smart mid 17th century Chaffcombe Manor removed the concrete screed in the hall/ dining room to reveal a fine floor of tiny tight-set cobbles just as good as those at Nymet Barton [Fig.101]. The owner of Coltsfoot Farm in Clannaborough, a 17th century house, stated to a resurvey fieldworker that he had laid a tiled floor over the an existing cobbled floor in the parlour which features a Tudor rose motif picked out in white quartz stones and was noted in the list description.

At superior social levels cobbles are sometimes found flooring the service rooms. Take, for instance, Bowhill, Roger Holand's grand c.1500 gentry mansion, now enclosed within the western outskirts of Exeter. Evidence of primary cobbles or 'pitched stone' were revealed by archaeological excavation in the western service room and were suspected in the kitchen although excavation stopped at a secondary 'fine cobbled pavement' [Fig.102].[39] Service rooms floors continued to be newly-cobbled in the 19th century. In 1806 Thomasine Anne Elliot built a small Georgian mansion at Awliscombe near Honiton in east Devon. The original building contract survives in the Devon Archives and Local Studies Service. It specifies boarded floors to the domestic ground floor rooms, paved flags ('broadstone') for the kitchen, lime and sand for the footman's pantry and larder and the floor of the Footman's Pantry and Larder to

Devon churchyard cobbles, March 2016. Keystone.

Fig.99. Moistown, Broadwoodkelly. Excavation by the ACE Archaeology Club of the wing of an abandoned house has revealed extensive interior and exterior cobbles.

Fig.100. Cross passage cobbles at Nymet Barton, Bow. Peter Marlow.

Fig.101. A smart cobbled floor at Chaffcombe Manor in the context of a 17th century parlour and thought to be contemporary with the 17th century features in the room. JRL Thorp.

be laid with Lime and sand, and 'The Floor of the Back Kitchen to be pitched with flint stones well bedded in gravel and well rammed'.[40] Some humble house were still fully-cobbled inside in the early 20th century. In 1908 Lord Iddesleigh was in trouble with the Rural District Council for having tenanted cottages in Okehampton that were still cobbled throughout inside and, by this date, considered insanitary.[41]

Fig.102. Bowhill, Exeter, kitchen cobbles, probably early 18th century. David Garner for Historic England.

Garden and Entrance paths to Private Houses

In general these use smaller cobbles than those found on public footways, though there is a wide range from the plain to the fancy. Endsleigh Cottage (in fact a substantial house for an aristocratic patron) is a key example in Devon of a range of cobbled surfaces in a context described by Pevsner as 'one of the most revealing testimonies to the strength of the Picturesque movement'. The surface designs are tellingly adjusted according to the architectural status and likely wear and tear of different locations [Fig.103].

At the vernacular level, garden paths are often very similar to church paths, employing much the same range of surface designs [Fig.104]. The influence of Arts and Crafts garden design on the later churchyard paths has not been investigated in any depth for this report, although the pebble cobbles at the chapel of St Lawrence, Crediton, restrained by blue rope-finished tile kerbs would look equally comfortable in a secular garden setting [Fig.105]. Gertrude Jekyll's designs tended to favour flags, either squared or random, or fine gravel.[42]

During the course of the Devon Cobbles Project Keystone were also undertaking an archaeological watching brief during repairs to the mid 17th century Gatehouse (listed Grade 1) at Bradstone Barton on the Cornish border. Conversion to a holiday let involved the insertion of a service trench. Although this was designed to approach the gatehouse from outside the main steading it involved disturbing a cobbled surface across the southwest front and extending north eastwards along the outside of a probably late medieval faux-defensive crenellated wall to an earlier block (now a stable). It is made up of medium to chunky blocks of slightly water-rolled stones (grey in colour but otherwise not unlike the sandstone cobbles

Devon churchyard cobbles, March 2016. Keystone.

Fig. 103. A range of cobbled surfaces at Endsleigh, Milton Abbott, designed 1810. These employ flat-topped cobbles, including patterns (top); pebble cobbles with coloured patterns for the shell house (bottom right) as well as sheep's knuckles in a highly self-conscious Picturesque context (bottom left) Photographs by Oliver Bosence and Peter Marlow.

Devon churchyard cobbles, March 2016. Keystone.

Fig.104. Left, a herringbone garden path to 19th century estate cottages at Upton Pyne and, right, a path to a farmhouse, Sweet Sigford where the cobbles are, unusually, laid along the long axis of the path.

Fig.105. The pebble path to the chapel of St Lawrence, Crediton, radically restored in the 1920s, is indistinguishable from a garden path.

used in the Sandford village pavements). The individual cobbles were between 10-13 cms deep (over half were closer to 12cm). To lay the cobbles the topsoil had been removed down to a shilletty subsoil 12-13 cms below the present surface. The cobbles are laid in a clayey loam containing some small chippings on top of the formation level. Dating is impossible, but a mid 17th century date might be proposed from the context. At the gatehouse entry there are mid 17th century wheel-protecting bollards set into the cobbles and a mounting block [Fig.106]. The main entry to the house through the gatehouse was superseded by a new wagon-size gateway a short distance to the south east in the early 18th century. The service trench also cut through a smaller section of much smarter cobbles which occupied an outer set up to the gatehouse wagonway. These comprise very small tightly-set white quartz stones. The cobbles measured between 5-11cms deep although the great majority were between 7-8 cms. They were laid over a clayey sub-base containing a high proportion of small stone slivers (looking like the discarded chipping produced from dressing the local Bradstone): cobbles and bed were 11cms deep. There is clear evidence for an early-mid 19th century refurbishment of the gatehouse which involved converting the upper floors into a kind of romantic Gothic-style chapel. It is assumed that it was at this time the former forecourt was converted to a garden containing the pretty white cobbled path [Fig.107].

Fig.106. Bradstone Manor. Judging from context the sandstone cobbles in the foreground may be 17th century. The more dainty quartzite cobbles of the step are thought to be 19th. JRL Thorp.

Devon churchyard cobbles, March 2016. Keystone.

Fig.107. The quartzite cobbled path through the former forecourt of Bradstone Manor, transformed into a garden, is assumed to be 19th century. JRL Thorp.

9 – Dating Churchyard Cobbles

Dating from observation of the paths

Dating cobbled paths from observation presents the same problems as dating a masonry wall but without any of the advantages of datable features, e.g. windows and doorways, or prospects for mortar analysis or tool marks. A traditionally-laid path presents to view only undressed stones and what jointing can be seen on the surface. The use of dressed stone rather than cobbles for spines or kerbs seems likely to indicate a late 19th century date and brick kerbs or revetment walls are late 19th or 20th century.

The relationship of the surviving paths to earlier paths, to the historic levels of the soft landscaping of the churchyard and to the floor level of churches has not assisted with dating. Rather it has raised some interesting questions about the frequency with which churchyards were re-landscaped in the 18th and 19th centuries. If a cobbled path has been laid on the same route as its predecessors, as one would expect for many principal paths, it might be assumed that it would be a sunken path, the level of the churchyard having risen with burials over the centuries, assuming the path was not regularly raised or built over earlier paths. Some cobbled paths are indeed sunk in a deep 'tray', well below the existing level of the churchyard greensward, which may be revetted alongside the path with single stones laid on edge or masonry or brick walls [Fig.108]. The path at Copplestone makes use of monuments to revet one side of the principal path [Fig.109]. However, other paths are constructed scarcely below the level of the churchyard turf [Fig.110] raising the question of whether these churchyards have been levelled/re-landscaped and when? The relationship of the ground level outside the porch to the porch and nave floor level has also proved a conundrum. There may be steps down into the porch (a potential problem for access, e.g. Church of the Holy Cross, Crediton) as would be expected in a churchyard raised over time with burials, but where medieval outer porch doorways survive, the mouldings and their stops generally relate well to outside ground levels. Some churches have a flat surface from a cobbled path straight into the church porch (e.g. Satterleigh).

Tiverton, a thriving town in the medieval period as well as in the 16th and 17th centuries and with a population that nearly doubled between 1801 and 1851, indicating much pressure on burial space, has paths with, in some areas of the churchyard, only a drop in level of about 10cms from the churchyard turf and there is no step down into the early 16th century south porch (rebuilt in 1825). However, the surface of other paths in the churchyard are nearly as close as this to the level of the turf on one side, but dropped considerably below on the other. The published churchwardens' accounts include a 1646 reference to a considerable payment, £5 4s 10d for 'covering the churchyard'. This was associated with labour and the cost of two wheelbarrows and must have been re-landscaping, even if this was only a dump of earth. This was the year after the town was affected both by a royalist skirmish, requiring the making of 205 graves at 4d each, and by a plague.[43] The extent to which Tiverton and other churchyards were re-landscaped in the 18th and 19th century seems likely to be discoverable only from archaeology. At Tiverton the minor collapse of a path in the 21st century revealed that it was constructed over a burial vault (*pers.comm*. Dr Stuart Blaylock). Throughout the 1870s Great Torrington was busy about their churchyard, which was a 'disgraceful' and needed transforming from 'a reproach to the town' into an 'ornament to the town'. There was a churchyard wall committee and a churchyard improvement committee. Amongst the improvements planned was 'levelling, smoothing and planting the ground'.[44] At Merton, the turf flanking the existing path was growing out of earth full of small stones, very different from the composition of the subsoil dug from just outside the churchyard for bedding the repaired cobbles during trials. This may be evidence of re-landscaping, perhaps only adjacent to the path.

Devon churchyard cobbles, March 2016. Keystone.

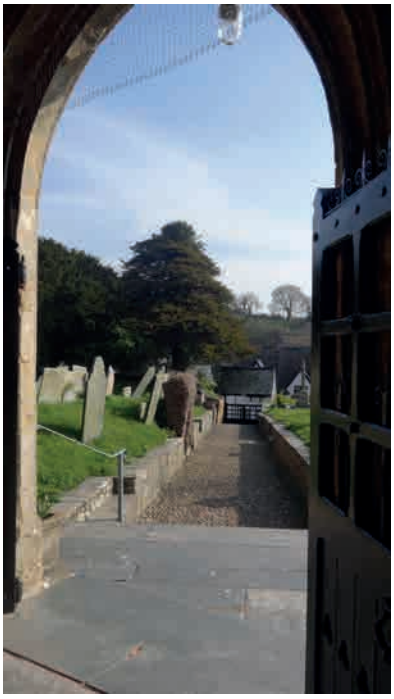


Fig.108-111. The relationship of paths to the churchyard greensward. Clockwise from top left: Berrynarbor, sunk in a 'tray'; Colebrooke, monuments revet one side of the path; Upton Pyne, path and churchyard turf nearly level; Tiverton St Peter, path only slightly sunk and level with the porch floor.

Given that paths, as practitioners explain, were laid in sections where the joins are usually difficult to make out, it is possible to extend a path without any evidence on the surface. A change of materials or design and/or, if a path is excavated, a change of sub-base, are indications of phasing. To date, and on the limited evidence of two churchyard paths investigated when re-laying and from talking to practitioners, lime has not been found in the cobblestone matrix. Patching or laying or re-laying in cement is an indication of a 20th century intervention or phase.

If there is a dating sequence in design, e.g. herringbone paths being earlier than those cobbled across the short axis, we have not succeeded in establishing this. The existence of patterns does not appear to be a guide to date. A small number of paths have internal dates contrived out of cobblestones of contrasting colour. The earliest dated path with lozenge patterns is 1818, other lozenge-patterned paths can be dated with some confidence to the end of the 19th century.

Drainage arrangements can provide approximate evidence for dating. It seems likely to the authors of this report that the earliest churchyard paths relied on drainage via gradient and the the direction in which the cobbles were laid and/or cambering. The four paths dated before 1820 all rely on this, as far as can be seen, including the Upton Pyne path from lychgate to porch, with several known phases of late 19th century re-laying. It is suggested that, after the mid 19th century the vernacular tradition morphed into more studied examples and there was an increasing preoccupation with drainage systems including open metal box gutters; drainage pipes laid under the paths; open stone drains or cobbled drains outside the kerbs. Box gutters and drainage pipes could, of course, be introduced after the path was laid by simply lifting and re-laying the cobblestones.

Internal dates in cobbled churchyard paths are 18th (one) or 19th century, with one dated 1969. We must bear in mind that early dates may have been transferred from an earlier path into a relaid one. The cobbled porch at Kingskerswell has a date of 1712, as noted above. The path to the south porch at Poltimore is the earliest dated path, 1743, with initials [Fig.112]; the latest date in any path seen is 1969 (N side of St Peter's church, Tiverton).

Fig.112 The earliest and latest dates in dated paths. Left, Poltimore, 1743 and right, a sub-path of pebbles in cement at Tiverton St Peter, dated 1969. Both paths are atypical.

Both the Poltimore and Tiverton paths are exceptional. Poltimore makes use of very small pebbles that appear to be carefully selected for colour and size and were probably brought from a distance (*pers.comm*. Dr Richard Scrivener): the 1969 Tiverton example is one of several 20th century paths on the N side of the churchyard. These follow the same routes as paths mapped on the 1890 OS map (minus one that has disappeared), but are evidently re-laid, being constructed of pebbles laid in cement in contrast to the network of c.1868-1874 cobbled paths which employ river channel sandstone cobbles.[45]

The three paths dated in the first quarter of the 19th century are Upton Pyne, 1811 (date lost under grass); Great Torrington, 1813 (with initials of a local architect/mason, William Cock) and Meeth, 1818. It is often said that all cobbled church paths were constructed by Napoleonic prisoners of war: this has been claimed at both Meeth and Crediton. The prisoners were kept in Dartmoor Prison, Princetown, especially built to hold them. Prisoners of war (French and then American) were held from 1809-1816. While the first phase of Princetown church, 1813, is said to have used prison labour in its construction, the current curator of the prison museum states that non-commissioned prisoners of war were confined inside the prison, with no evidence for working parties in other places. Officers could be granted parole and lived in identified parole towns, e.g. Tavistock, Okehampton, Moretonhampstead, Crediton, on condition that they reported and identified themselves regularly and had signed documents saying they would not leave the parole town or try and get back to France. Most had funds and lived reasonably comfortably and sociably. It seems highly unlikely that they would have taken up cobble-laying. Meeth is too late to have been constructed by prisoners and although the date of the cobbled paths at Crediton is unknown, some may have been laid in the 1830s when parts of the churchyard boundary were upgraded.

Dating from Documentation

The search for documentary records for dating paths has not been a fruitful one. Some of the problems of terminology are indicated in the introduction section of this report. The survival of early churchwardens' accounts is patchy and, when they do survive, there may be several inches thickness of records to look through. Payments to individuals do not always identify what work they had done. The blunderbuss terms 'paving' and 'pavier' are a chronic problem for interpretation. In the 16th and 17th centuries the first documentary records for what may have been cobbled paths of some description survive, e.g. at Crediton, 1551, where a pavyer was paid 20d for making the 'caurse' (causeway) in the churchyard with carriage of stones, 6d and sand, 6d.. 1551 is the first surviving year of the churchwardens' accounts, and of course there may have been an earlier 'causeway'. The churchwardens' accounts for Tiverton St Peter have been (selectively) published. The originals appear to be missing. There is a 1658 record that, like Crediton, does not use the word cobbles but refers to what appears to be an existing 'causey' , from the South 'Trimtram' (lychgate) to the little door: 30 yards by 6 ft. This had been 'new made' in 1658 by Edward Palmer a 'pavior' and partners. It seems unlikely that at this date there were any flagged paths in the Tiverton churchyard, given that stone suitable for flags would have to be transported from a distance and this therefore seems to be a reference to a tradition of using small stones for the churchyard paths. Tiverton lies on the River Exe and the river, and/or the terraces of its ancient predecessor, would have supplied plenty of cobbles. Mr Palmer and his partners were also to make a 'cawsy' from the 'little door', presumably on the N side of the church, 'towards the castle' – Tiverton Castle lies immediately N of the churchyard. This may have provided access to the church building for residents and owners of the castle, who were described in mid 19th century documentation as having a right of way through the churchyard.

The Merton churchwardens' accounts investigated illustrate the difficulties of interpreting documentation. It has been tempting to date the patterned section of the Merton path to the early 19th century on the basis of its similarity to the path at Meeth, just one parish away and

dated 1818. The word 'causey' appears in the Merton churchwardens' accounts for 1739 when John Adams is paid for weeding it and £5 5s 6d is spent on 'gravelling the Cocey', a substantial sum in excess of £1,500 if converted into early 20th century values (no information for 21st century values has been found). Exactly what is meant by 'gravel' or 'gravelling' at this date, is unclear. Perhaps the 1771-2 Merton reference to 8s paid for 8 horses carriage of gravel for the churchyard path means a spread stone surface. However, something different seems to be indicated in the 1815-1816 entry of 6s for 'drawing sand and stones for the church path, six butt loads, plus stone I butload, 1s. 2d. 2s was also paid for 'wailing in' sand in the church path. Is this a reference to the patterned path that survives at Merton in 2015? The sub-base of the patterned section of the Merton path, investigated during the trials in August 2015, revealed little sand, but a foundation layer of small stones shaped (rather ineffectively) to provide the path's camber. In 1825/26 £1 0s 6d was paid for drawing stones for the pavement and plants for the hedge and in 1830/31 4s 8d 'for stoneing the Church Yard'. One of these entries seems likely to refer to the existing church path, unless it was constructed later, when the churchwardens' accounts cease to provide any detail for work done, merely listing names and what they were paid. An 1851/52 payment is of interest, as it may relate to a surviving path outside the churchyard boundary. This is made up of small stones between kerbs. What can be seen on the surface in 2015 suggests that this path may have been spread and rammed down, rather than the stones laid individually, but this is not entirely clear. The entry records 'Lord Clinton for 7 loads of gravel for the path leading to the churchyard gate, 2s 4d, laying 5s 10d, carriage 10s 6d.'

The churchwardens' accounts for Petrockstow are also difficult to interpret. The church was wholly rebuilt, apart from the tower, in 1879. There is a long principal cobbled path from the east rising quite steeply to the rebuilt south porch, round the W end and continuing across the churchyard to exit on the north side. In the churchwardens' accounts there seems to be a distinction in the late 18th century and early 19th century between the church 'walks' and 'paths'. In 1790 William Arnold (a mason) was paid 'for Paving the Walk leading to the Churchyd' (presumably outside the churchyard boundary) with William Sillivant paid 'for carrying stones for do £2 2s 0d'. There was also mason's work on the church path and gates £17 8s 7d in 1817/18. In 1822/23 there was a payment of 2s for clearing grass out of the churchyard path, and then considerable expenditure: 'For 2 Men, 4 Horses, 2 Butts drawing gravel' for the church walks 2s and, for the same, drawing 'water stones' for the churchyard path 10s. In 1826/27 there is another bill for drawing 'water stones' for the churchyard path, 2 men, 4 horses and butts three days £1 10s. The 'waterstones' seem likely to be cobbles and these are the first uses of this term in the accounts. There are further payments for stone, sand sometimes gravel, for the church path. Oddly, a small payment for 'trespass' for the gravel becomes a feature. It is shortly after these 1820s entries that payments for cleaning the path rise. From 1860 buying salt for the church path becomes a regular expense, 3 or 4 cwt at a time, and in 1867/68 Lord Clinton (the local landowner) financed a salt house. From the 1860s the accounts become increasingly laconic and likely to name men and bills without specifying the work. Cleaning the path as a distinct task disappears in the 1880s. There is nothing in the accounts to indicate what appears to be logical, that the existing path must, at the very least, have been adjusted round the new 1879 south porch, if not re-laid, after a major rebuilding scheme.

Newspaper accounts of churchyard improvements, laborious to search, have provided more information than primary sources. At Great Torrington, where there is a date of 1813 in the cobbles outside the south porch, reports of the various committees occupied with churchyard improvements in the 1870s (after the churchyard had been closed for burials) record plans to lower one of the paths, but also to build walls and railings, provide a new iron gate and re-arrange the tombstones 'which would be agreeable to the surviving relatives'. It is not clear whether this meant separating the burials from the headstones that marked the spot, or

moving burials, too. An 1830s engraving proves that the turf of the burial ground at the east end was later revetted and, it seems, the path alongside dropped and it is highly likely that at least some of the surviving cobbled paths were laid at the same time, adding to the dated 1813 cobbles.

Early 19th century engravings of churches have proved disappointing. Cobbles are laborious to draw and views of churches frequently omit the paths, or give no indication of how they were surfaced. A selection of churches drawn by William Spreat was published as engravings in 1842 as *Picturesque Sketches of Devon Churches.* This is generally a very good source for illustrations of churches before the great wave of Victorian restorations in Devon, where churches were restored early and then often. Spreat is careful to show architectural finishes, whether pegged slates, or render falling off towers, and even thatch in poor condition, showing its fixings, on adjacent buildings. However, he seems to have fallen back on a convention for drawing churchyard paths (and roadways) with what appear to be slightly rutted surfaces with a few loose stones, sometimes in rows, shown on top. Spreat does occasionally draw a few cobbles (usually unconvincingly large) in the village settings of the churches and clearly shows a

Fig.113. Examples of Spreat's 1842 engravings of selected Devon churches. The only churchyard where cobbles are definitely shown is Whitestone, just outside Exeter (top), with detail. These have disappeared. His engraving of Chudleigh (left) shows cobbled footways and an uneven road surface. The churchyard has a stile and a thatched building, perhaps a church house, built partly inside the boundary, which is part masonry wall and part wooden fencing.

patch of cobbles in one churchyard, Whitestone, also drawn very large [Fig.113].
A thorough search of 19th century plans can be helpful where these exist, but there has not been time to investigate these in any depth. Crediton, for example, has plans showing extensions to the east and north side of the churchyard, the latter establishing that the north end of one of the cobbled church paths cannot be earlier than 1872 [Fig.114], although this may be a seamless extension of an earlier path. An early (pre-1913) photograph of Merton church is unusual in helpfully showing the cobbled path before the removal of a revetment to the churchyard turf [Fig.115].

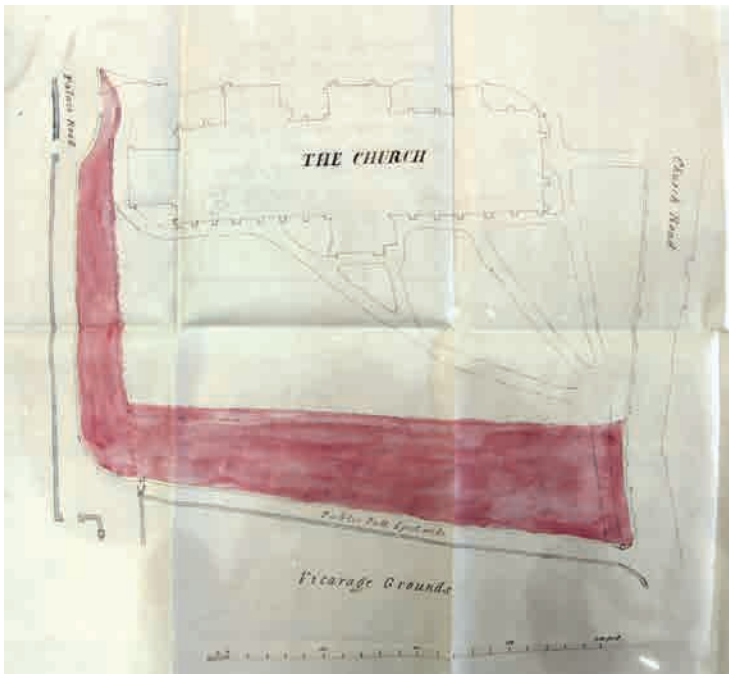


Fig.114. Crediton, church of the Holy Cross. A churchyard extension of 1872 (in red) proves that part of one of the cobbled paths can be no earlier than this. DALSS, 1660 A/383. Reproduced with permission.

Fig.115. An old photograph (c.1900?) hanging in Merton church is difficult to make out but shows that there was a revetment to the churchyard turf which has disappeared since.

Devon churchyard cobbles, March 2016. Keystone.

Dating from Context

Some paths, or parts of paths are fitted to dateable parts of the church fabric, particularly Victorian rebuilds, and can at least be identified as contemporary with or post-dating elements of the church architecture. Incomplete paths at Chevithorne, near Tiverton, cannot be earlier than 1843, the date of the building of the church to the designs of Benjamin Ferrey. However, caution needs to be exercised in making assumptions that a major 19th century restoration of a medieval church building, or a dateable element of a building can be used to date paths or abutting cobbles. At Sowton the whole of the church except the tower was rebuilt in 1844-45. At first sight it seems likely that the existing herringbone path with a dressed stone spine between the south porch and gate was built after the disruption of a major building project and perhaps as part of the work to complete it. However, what may have been needed or done to make good the churchyard following major works seems never to be mentioned in faculties. Schemes to rebuild churchyard boundaries, upgrade gateways or add 19th or early 20th century lychgates and relay paths may not have been part of even a major scheme of restoration and left to churchwardens. At Tiverton St Peter, for example, the church was massively restored in 1853-56 to the designs of a local architect, Edward Ashworth. The nave was given a new roof; the medieval arcades were taken down and rebuilt from the floor; an outer N aisle was added and the chancel rebuilt. The churchyard paths must surely have suffered from contractors' traffic. The church has many surviving paths and one is dated 1874 in the fabric, with the initials of the churchwardens at that date. Newspaper research reveals that although the state of the churchyard was giving concern in the 1850s, at the same time as anxiety was being expressed about the poor condition of the church, the churchyard project was not tackled until the late 1860s and must have been carried out over several years.

The Chapel of St Lawrence, Crediton, was completely restored from a previous incarnation as a cottage in 1920-21 by Sir Charles Nicholson and here it would be surprising if the pretty pebble cobbled paths, associated with rope-finish edging tiles, were any earlier [Fig.116].

Fig.116. This path leading to the chapel of St Lawrence and in the setting of a chapel restored from a cottage in 1920-21 is unlikely to be any earlier.

Conclusion on Dating

Taking all the dating criteria into account, including the changes to churchyards in the 19th century (see below) the most likely date range for the majority of the surviving paths proposed is c.1790-c.1920, from the Georgian period, right through Victoria's reign and beyond. Given the problems of dating outlined above, this judgement must be taken as provisional. Many people assume that the paths are earlier and some may be. There is a risk that the available secondary sources for 19th century churchyard changes means that we have underestimated the numbers of 18th century paths for which there are no newspaper reports.

If the proposed date range is correct, the earliest paths pre-date the great wave of early Victorian church restoration for which Devon is well-known, and some of the later paths were being laid only just before, or during, the period when cobbled footways in towns were being replaced.

By 1790 the know-how for constructing cobbled paths would have been well-understood in parishes where there was good access to sources of suitable stones as a result of the long history, before the Highways Act of 1835, of the statutory requirement that householders would provide labour for repair for parish roads and footways. What these paths replaced has proved difficult to establish but, on balance, seems as likely to have been spread stone, 'gravel', rammed down, or grassed walkways, or some early, coarse version of cobbles.

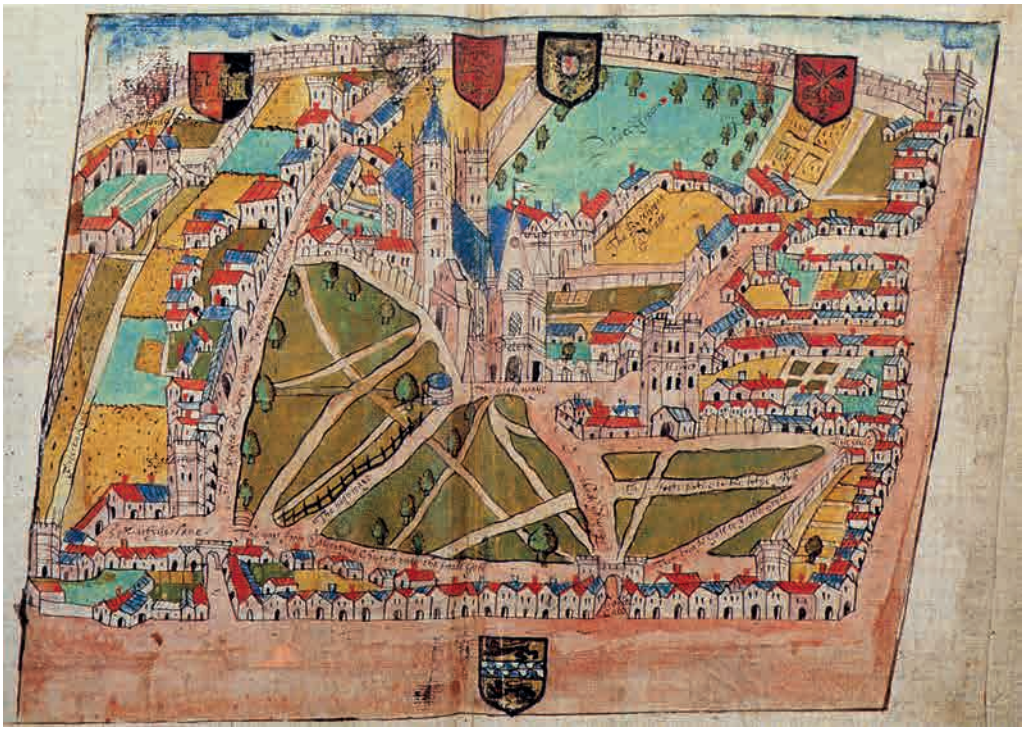
10 - Cobbled Paths in the Churchyard Landscape

Paths inside churchyards were liberated from many of the drawbacks of cobbled surfaces in the public realm. Used by pedestrians only, construction and maintenance did not need to consider the weight or wear of vehicles, apart from perhaps a wheeled bier. The sanitary problem of muck and urine penetrating the bedding was only an issue if livestock continued to be kept in churchyards.

The provisional dating of cobbled church paths above places them in the context of changes to churchyards in the late 18th and 19th century. Churchyards are places that have changed dramatically over time. There is a long history of tension between respect for a place of the dead and multiple secular uses of an open space, often centrally-located in a village or town, including agriculture, commerce and game-playing. In 1267, Bishop Quinil of Exeter signed a statute insisting that all cemeteries in his diocese should be securely enclosed, and that no animal should be allowed to graze on the grass which grew there. The clergy were warned not to permit their cattle to graze 'in the holy places, which both civil and canon law ordered to be respected ... All churches and cemeteries must be guarded from all defilement, both because they are holy (in themselves), and because they are made holy by the relics of the Saints'.

The statute does not indicate anything exceptional about churchyards in the diocese of Exeter but is one of a large number of thirteenth century statutes in different dioceses that borrowed their wording from one another. Most of them share the insistence on enclosure, whether by ditch, bank or fence and some refer to the need to keep 'brute animals' from entering a cemetery. Trampling animals, especially pigs, could bring corpses, mostly buried without a coffin, to the surface. The conventional wording of the 13th century statutes means that they cannot necessarily be taken as an indication of what was really happening in churchyards [46], but there is plenty of place-specific documentation that shows that, both before and after the Reformation, churchyards were spaces with multiple uses, religious and secular. In Bristol in 1409, St James's fair was held partly in the churchyard of St James's Priory. Richard Gladwyn, a hosier, leased a site for a stall for the fair in the churchyard that included a tombstone.[47] A goldsmith, presumably needing more security than a hosier, rented a stall contrived inside the church. At Exeter cathedral, the green on the N side of the building was the city's cemetery but also a place of work, trade, animal-grazing, the playing of games and occasional brawling.[48] The Exeter clergy were regularly in trouble for playing games there and naughty people used the hollow elms for mischievous purposes.

If the mixed uses of churchyards before the Reformation are well-understand, so is the need to periodically clear human bones to bone-houses or chapels to make room for more burials. Much less has appeared in print about either multiple uses or re-landscaping afterwards or about the material and cultural changes to churchyards in the 18th and 19th centuries. There are some examples of urban churchyards that had become places of fashionable perambulation in the 17th and 18th centuries, presumably after they were closed for burials. Some were extended with planting to create town walks in the 17th century. An early 18th century painting of Presteigne churchyard shows promenading individuals in their best finery using a network of walks in the churchyard itself with just a couple of chest tombs shown.[49] Exeter Cathedral green was closed for burials and levelled in 1637. All signs above ground of its ancient history as a place of burial had been erased by 1744 and it was laid out with walks and avenues (following the routes of pathways that were in place when it was a burial ground) and divided into compartments and paths by post and rail fences [Figs.117,118] and then in the 19th century by iron railings, removed in 1942. Most churchyards, however, seem to have continued to be unrefined places of agriculture, social gathering and game-playing. In the 17th century at Tiverton, St Peter, regular payments were made for keeping both 'beestes (1611) and 'boys' (1647) out of the churchyard. Jerry Sampson's work on churches in Somerset and



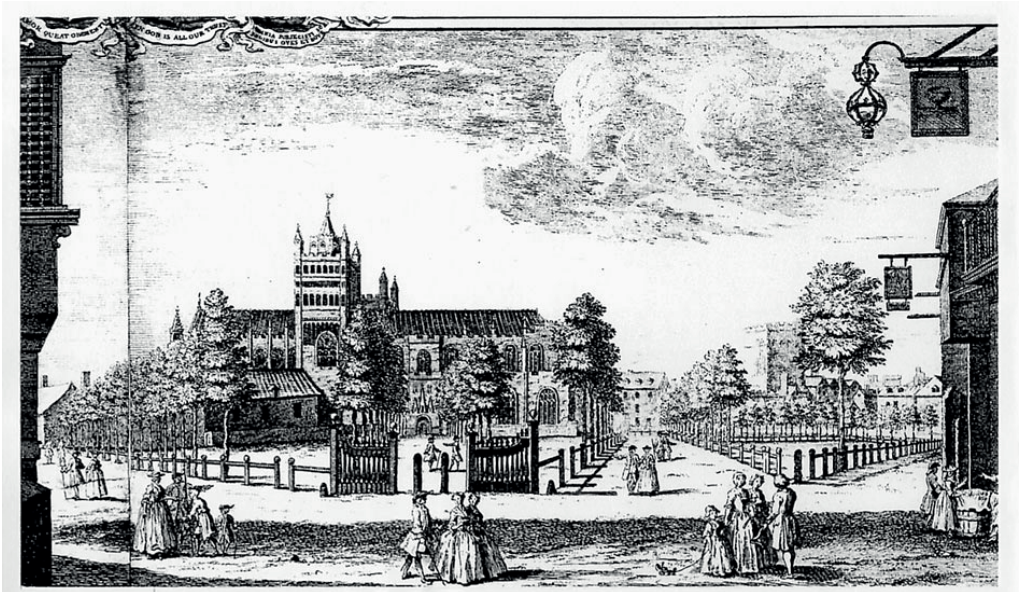


Fig.117 (top). John Hooker's c.1600 plan of Cathedral Green, Exeter City's burial ground from the 5th century to 1637, when it was closed and levelled. Hooker does not illustrate a single monument, D&C 3530 ff. 59/60. Reproduced with the permission of the Dean and Chapter.

Fig.118. A vignette from Roque's 1744 map of Exeter shows fashionable perambulation in and around Cathedral Green The medieval Treasurer's house was still standing, attached to the N side of the cathedral: this was not demolished until the 1820s. The route of the 1744 paths and roadways appear to follow those recorded by Hooker.

Devon churchyard cobbles, March 2016. Keystone.

Wiltshire has established that some churchyards in the 17th and 18th centuries (and probably before) were used as sports grounds for the game of Fives, a type of handball [Fig.119] which could be played against the church building. Churchwardens sometimes responded with external shutters and lattices to protect the church windows. It seems to have been a Welsh and West Country speciality but may have been more widespread. After 1750 there was a concerted effort by clergy to eradicate the game from churchyards. Some churchyards continued to function as a convenient place for various sorts of agriculture, usually practised by the parson, whether as pasture or for storing root crops. Parsons might make use of them for agricultural storage, pasture, or fell trees for timber.


46 The *great* M Play.

FIVES.

WITH what great Force the little Ball
Rebounds, when ſtruck againſt the Wall;
See how intent each Gameſter ſtands;
Mark well his Eyes, his Feet, his Hands!

Fig.119. The game of Fives illustrated in My Little Pocket Book, *1744*

While there is a risk of distorting the evidence by over-generalising, c.1750-1920 is the period when churchyards became what most of them still are, places set apart, from which games, agriculture and commerce are excluded, beginning slightly earlier than the (provisional) date of cobbled church paths. 20th century clearance, partial or total, of headstones (which arrived in numbers from the mid 18th and through the 19th century) and the 20th century fashion for 'wilding', illustrated in the work of the charity, 'Caring for God's Acre', have not lost the widely-held idea of the churchyard as a dignified and solemn place for marked burial and reflections on mortality, whether they contain the recorded mortal remains of family members or of a local community of strangers.

The influences that eventually excluded 'beestes and boys' and dogs and smoking (Loudon) from churchyards are numerous and complex. One strand was the Romantic movement. Graveyard literature which, as Chris Brooks analyses in *Mortal Remains,* travelled through a thrilling and ghoulish early 18th phase (no doubt the familiar sight of human bones in churchyards was relevant) through to a Romantic focus on the churchyard as a place generating memories, imagination and reflections on mortality. This was associated with the increasing importance in the 18th century of the sentimentally-attached family unit expressed in the increasing numbers of the marked graves of middle and working class families.[50] This overlapped with the earnest Victorian approach to the management of the public health, moral and spiritual aspects of death.

Houlebrooke argues that durable monuments in churchyards were not erected in large numbers until the early 17th century, mostly chest tombs for the well-off.[51] The earlier

preferred location for those of high social status was burial inside the walls of the church. Graveyard burials for lesser mortals were often marked only with a turf hump over the earth dug out for the grave. Gray's 1750 *Elegy Written in a Country Churchyard* refers to this:

> Beneath those rugged elms, that yew-tree's shade,
> Where heaves the turf in many a mouldering heap,
> Each in his narrow cell for ever laid,
> The rude forefathers of the hamlet sleep.

It was not until the second half of the 18th and 19th century headstones marking the burials of the middle and working classes became fashionable and affordable, linked both to the expansion of literacy but also to the developing sense of the importance of family ties. The grim messages of early 18th century burial markers were softened into expectations of the family reunited in heaven [Fig.120].
The Devon (and Cornwall) slate headstone industry provided many memorable localised

Fig.120. Changes in churchyard messages. A 1715 vault marker at Bondleigh church offers the somewhat threatening: 'Prepared be to follow me'. An 1846 inscription on a headstone in Great Torrington churchyard hopes for a reunion with family members: 'Farewell my Dear and Loving Wife/my Children and my Friends/ I hope in Heaven to see you All/Where all things have their ends'. Both are examples of Devon's distinctive and localised slate-engraving tradition.

Devon churchyard cobbles, March 2016. Keystone.

Fig.121. Devon slate-engraving in churchyards with cobbled paths is an engaging combination of local traditional skills. Great Torrington (left) and Merton (above).

examples of slate headstones, the earliest - from the c. mid 18th century - usually of thinner, local slate than the later. The 18th century and early 19th century examples range from the very simple to displays of beautifully-cut lettering reflecting the wide range of fonts used in the hand-set typefaces of the title pages of contemporary publications. Sometimes they are decorated with inscribed classical pilasters, elegant scrollwork and naively drawn symbols: cherubs, hour-glasses, skulls etc. The relationship of these locally-produced headstones to a cobbled church path can be an important partnership of local craftsmanship and materials [Fig.121].

The presence of headstones, rather than turf humps, changed the use and population of churchyards, not dramatically, but incrementally. Headstones were fixed things of monetary and sentimental value that needed to be cared for and were visited. This brought a much more numerous population into the churchyard than the occasional graveyard poet or antiquarian of the early 18th century and by the late 19th century churchyards were populated, not only with headstones, but flower-laying relatives and early church crawlers [Fig.122].

Permanent churchyard memorials were only one element in a series of material and cultural changes to churchyards. After the mid 19th century there was also the influence of 19th century cemetery design. The first commercial cemeteries on the outskirts of London, 'the Magnificent Seven' had all been established by the 1850s in response to the disgraceful state of urban burial grounds in a period of population explosion, London's churchyards literally bursting with corpses. All aspects of cemetery design, from efficiency and hygiene in the layout of graves, to planting, walkways, boundaries, vistas and proper atmosphere, had been considered, published and exemplified. This may seem a long way from Devon's cobbled churchyard paths but provincial urban and rural churches also had problems of full churchyards. Philip Rahtz estimated that a church site 1,000 years old in a community of 200 would acquire 6,000 burials by the late C20, presumably he took into account population increase. Crediton churchyard was averaging about 100 burials a year in the late 19th century Dealing with the physical decay of human remains was a national public health concern. For

Devon churchyard cobbles, March 2016. Keystone.

Fig.122. Victorian prints show that monuments marking burials in churchyards encouraged flower-laying by relatives and attracted middle-class church crawlers.

sanitary reasons the old system of digging up or disturbing existing burials to make room for more ceased, as a better understanding of hygeine and disease developed. In the second half of the 19th century, many churchyards, or parts of churchyards were closed and new cemeteries on the outskirts of towns were established and, where possible, old churchyards were extended [Fig.123].

In 1843 John Claudius Loudon, a major contributor to early cemetery design, published *On the Laying Out, Planting, and Managing of Cemeteries and On the Improvement of*

Fig.123. A churchyard extension at Alphington, now a suburb of Exeter, is unusually legible for retaining the walls and piers of an earlier boundary. There are cobbles to both phases. The path through the earlier phase has been amended with concrete slabs driven through. Cobled steps (not shown in the photograph) are part of the extended churchyard.

Churchyards. He noted that in rural areas livestock were still present in some churchyards. He refers uncritically to sheep used to crop the churchyard grass but also comments, under the heading 'Desecration', that cows, horses and pigs were still to be found pastured in some churchyards.[52] The presence of stiles in Devon churchyard boundary walls of 19th century appearance must be an indicator of livestock kept there [Fig.124].[53] 18th and 19th century references in churchwardens' accounts to locks both for the churchyard and 'church' gates (the outer doorway of the porch), indicate that some churches were not readily accessible except for services [Fig.125]. This may indicate protection of the building from livestock but perhaps also a sense that the churchyard landscape had become a valuable place.

Fig.124. Church of St George, Monkleigh. One of several surviving stiles in Devon churchyard boundaries. Some churchyards have more than one. These indicate livestock pastured in the churchyard, though whether these were sheep used primarily as mowing machines or solely exploitation for agriculture is not known.

Fig.125. The jambs of outer porch doorway of many churches preserve fittings for gates or doors. Few survive: the example at Poltimore St Mary is probably early 19th century. Documentary references sometimes distinguish between the 'churchyard' gate and the 'church' (presumably porch) gate. These gates may have designed to keep livestock out of the porch.

Devon churchyard cobbles, March 2016. Keystone.

Loudon's opening remarks in his section on 'country churchyards; their present state and means of improvement' may seem comically snobbish in the distinction he makes between the educated Victorian church crawler, the first in a long line of dedicated middle class visitors to churches, and the local rural people, but shows just how seriously the Victorians took the moral and educational potential of a properly-arranged and managed churchyard:

> What traveller or tourist is there who does not make the churchyard of the village one of the first scenes which he visits; and does not receive from it his first impressions of the clergyman, the people and consequently the general character of the inhabitants? If such be the effect of a glance at the churchyard on the passing stranger, what must it be on the those to whom its image is constantly present, and by whom it is associated with all that is reverential in feeling? To the local resident poor, uncultivated by reading, the churchyard is their book of history, their biography, their instructor in architecture and sculpture, their model of taste, and an important source of moral improvement. Much, therefore, must depend on the manner in which churchyards are laid out, and the state in which they are kept...there is not one countryman that does not understand the difference between slovenliness and neatness, between taste and no taste, when applied to walks, grass ground, and gardens. All of them therefore, may have their taste for neatness and order improved, or their habits of slovenliness confirmed, by the weekly impressions made on them while passing through the churchyard to the church and...by viewing the graves and monuments of their friends and relations neatly kept or utterly neglected, and reflecting that they also must soon take their place among them... The intellectual and moral influence which churchyards are calculated to have on the rural population will not, we think, be disputed.[54]

He commends the fashion for headstones: 'it is gratifying to observe, in the neighbourhood of the metropolis, and of other large towns, that as they increase in number they are improving in taste'. His references to churchyard paths are only a small part of his 21-page illustrated analysis of all that was wrong with country churchyards and how to put it all to rights, plus another 21 pages on lists of trees and plants suitable for both churchyards and cemeteries. He always refers to paths as 'gravel' and is silent on cobbles.

Loudon's section on churchyard paths comes under the heading 'Want of Order' and begins 'The cause of this evil in churchyards is that they have not been originally laid out on any regular systematic plan. Not only is there no gravel or paved walk round the churchyard in many cases, but in some there is nothing more than a footpath from the yard-gate to the door of the church'. The avoidance (for sanitary and respectful reasons) of the centuries old system for disturbing existing burials, was crucial to improvements. He first recommends a dump of earth to raise the areas between turfed mounds marking existing burials. This would level the churchyard without having to level the mounds. The course of a gravel walk through the graves could then be established, existing gravestones or monuments by-passed by 'varying the direction of the path and expanding, branching, divaricating, and inosculating it'. Any monuments not reached by the gravel path should be reached by grass paths 2 or 3 feet wide. The gravel path should give access to monuments, but should also be carried round the inside perimeter of the churchyard leaving a border between it and the wall. This would help correct the 'obnoxious' churchyard corners, damp with the putrefaction of bodies and an encouragement to lush weed growth [Fig.126].

Drainage was a key element in this systematic approach. Surface water should be carried off by falls to gratings connected with drains or to surface gutters which would carry water right out of the churchyard. 'The tile-draining system [earthenware drainpipes butted together and laid

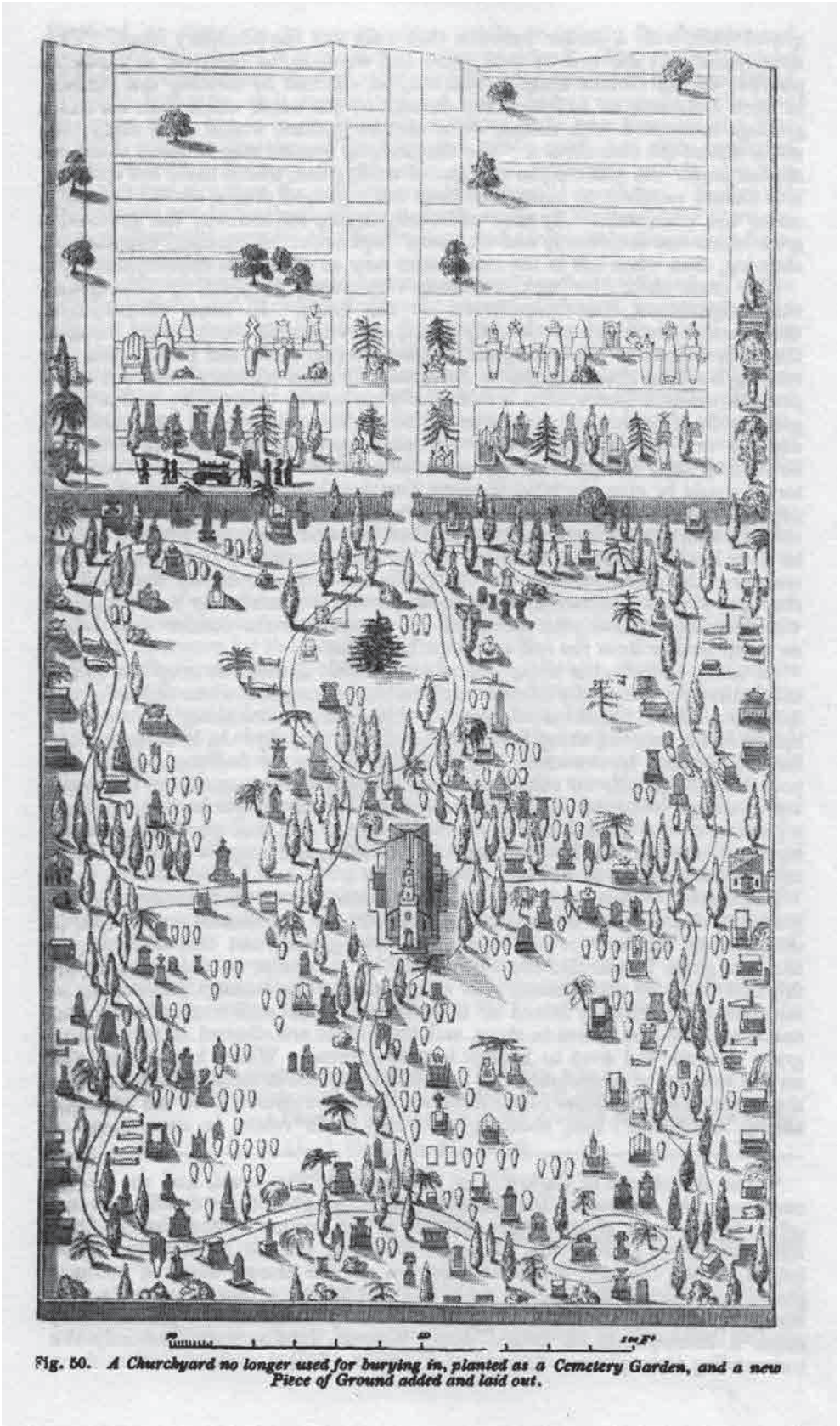


Fig.126. Loudon's plan for a country churchyard, the old portion closed for burials. An extension is hown at the top with burials laid out to maximise efficient use of space, 1843.

in trenches] may in many cases be applied under the green paths and gravel walks; and, where there are springs, it is almost needless to state that deep underground drains should be made under the main walk'. Loudon also recommends a cleared space, 2 or 3 feet wide all around the church with tile-drains beneath: 'The grand essential object is to get a level base for the walls to rise from, the surface of which shall be 6 inches lower than the surface of the floor in the church'. He acknowledges that this will create level problems at the entrance, first a slope down and then the necessity of a step up into the church porch. This is not an arrangement that was noticed in churchyards visited although the provision of sloping cobbled aprons or drainage channels round the building is common.

As a professional horticulturalist, Loudon has much to say on planting. He describes this as an improvement beginning to take place in England and calculated to 'diffuse a taste for order and neatness' among parishioners. The paths of existing churchyards would have to be irregular, to avoid further disturbance of corpses. Trees and shrubs should be planted at irregular distances, but only in parts of the churchyard where there was no more room for burials. Planting should reinforce vistas but these should never be from boundary to boundary. Large deciduous trees should be avoided in favour of fastigiate evergreens with branches more or less parallel to the main stem. Churchyard extensions should arrange burials in neat rows to maximise the use of the space.

Loudon includes guidance on churchyard layout for newly-built churches [Fig.127]. Here, without the inconvenience of existing burials determining the width and plan of path routes, and without the inconvenience of a strict east/west alignment of an existing church, which he reckoned created too much shade on the north side, the systematic approach could be fully-applied and the design of church and churchyard could be rationally managed together. The principal path from boundary to church door should always be in a straight line and at right angles to the building. It should be proportionate to the size of the church and churchyard, but never less than six feet wide 'because this is the least width which will allow two persons abreast, carrying a coffin between them on handspokes, to pass solemnly along...nothing is more indecorous than to see a funeral procession crowded and huddled together for want of room'. Sub-paths for the convenience of viewing tombs and graves and for funerals (which strangers might wish to observe) should be no less than 6 feet wide, the same width as the path inside the churchyard boundary. Burials, in contrast to the old random system, would be arranged in rows, to maximise use of the space. This is the pattern found in churchyard extensions of the late 19th and 20th century and, as in the 1870s Great Torrington example, noted above, could be imposed on the ramshackle (from a Victorian point of view) burial arrangements of existing churchyards.

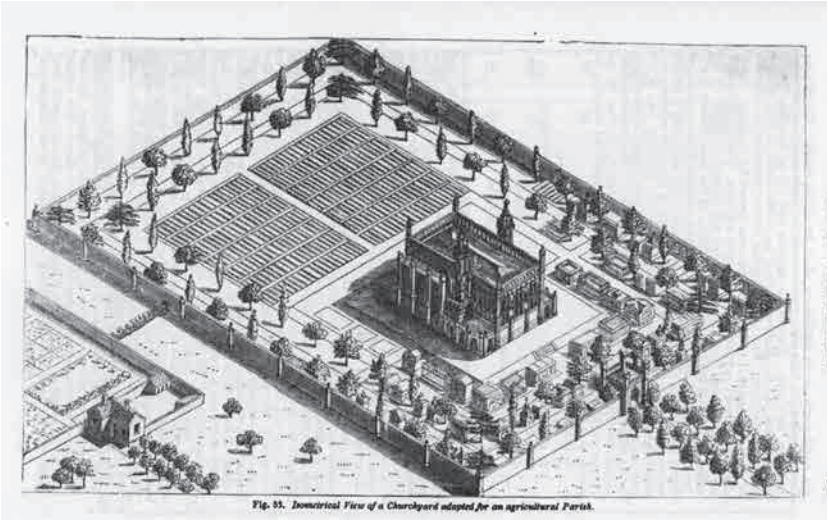


Fig.127. Loudon's plan for a new church and churchyard in an agricultural area, designed with all the enthusiasm of an improver with a preference for straight lines.

The history of the large town churchyard of St Peter's Church, Tiverton illustrates the influence of 19th century cemetery design on the Victorian transformation of the setting of the fine late medieval and 1850s church. Tiverton has a masonry churchyard boundary with three entrances: two with gates and one with an unusually tall lychgate [Fig.128]. Inside there is a network of cobbled paths, those on the south side using sandstone river channel cobbles, some flanked by yew trees providing multiple vistas, and stands of specimen trees [Fig.129]. Late 19th and early 20th century photographs show that, before the yews matured, the vistas were simply punctuated by verticals: now they are more tunnel-like. The pattern of path routes allows for arrival from any of the three entrances both to the very splendid early 16th century south porch (rebuilt in the 1820s) but also to a south east doorway, which has a sizeable cobbled apron in front at the meeting of several paths [Fig.130]. It seems likely that this relates to the seating set aside for the town corporation on the N side of the eastern arm of the church, a reflection of Tiverton's sense of 19th century civic pride. The path that extends from the north-east corner of the churchyard may be connected with access for residents of the castle, who had a right of way through the churchyard before it was re-designed. The path routes tell something of the story of the church's connection to the town and the castle.

Fig.128-130. Tiverton, St Peter. Clockwise from top left. The lychgate; a view across the S side of the churchyard, looking NE; one of the cobbled paths (forked) in the early 20th century; the large cobbled apron where paths meet outside the SE doorway.

In 1851 it was claimed in a newspaper report that the churchyard had no boundaries. It is not clear what this meant: boundaries are shown on the tithe map and Spreat (1842) shows a wooden fence on the N side with the Tiverton Castle property. It does seem to have meant that the townsfolk had free access to the churchyard, uninhibited by gates and locks. They enjoyed what must have been a spectacular walk through the churchyard along the steep ravine that leads down to the Exe to west. Houses for the clerk and sexton, shown on the 1842 tithe map, survived in the churchyard on the east side but were cleared away some time after 1850 [Figs.131-132]. In this year the vestry appointed a sub-committee to look into the provision of built boundaries, to negotiate with Sir W P Carew for an alternative right of way outside any new boundaries and to investigate the demolition of the two houses. The *Western Times* commentator was not happy with the idea of boundaries '..to propose closing the churchyard, and preventing the inhabitants viewing the fine old fabric, or enjoying the magnificent views which its western walk affords, is too bad.' This would be the loss of a public right of way and the denial of access to the church fabric, except at certain times.[55] Whatever may have been done by this committee is unknown but there were more grumbles about the state of the churchyard in 1852. A newspaper correspondent protested about a rookery in the big trees and begged for them to be pollarded or the nests removed: 'Then will the walks leading to the sanctuary of the Holy One and the garments of the worshippers , will no longer with their filth be contaminated'.[56] By 1857 Tiverton had acquired a town cemetery and the parish churchyard was officially closed for burials.[57] As Loudon notes, closure for burials was an opportunity to re-design a churchyard. After the completion of the restoration and extension of the church, the churchyard was tackled. Some work had been done by 1869, but human bones were still visible in the 'chorl' the ravine down to the river. A photograph of 1871 shows the existing stone boundary wall on the S side complete and the yews (fastigiate trees, as recommended by Loudon), if planted by that date, too small to be seen over it.[58] The churchyard works must have extended over several years given the 1874 date in the path from

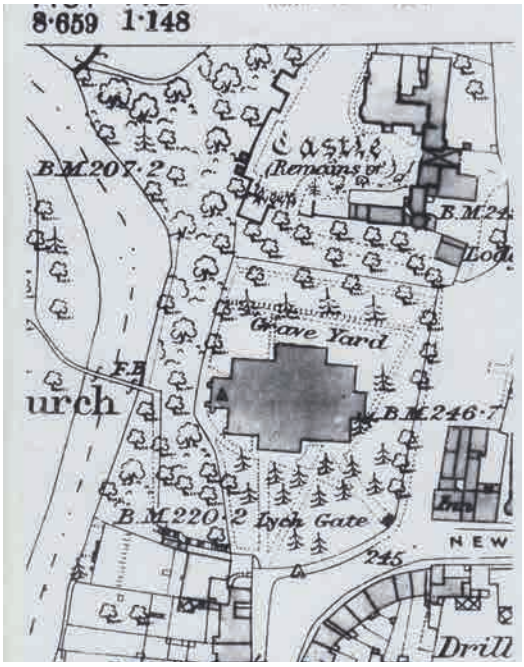


Fig.131. Tiverton St Peter on an extract from the 1842 tithe map, DALSS reproduced with permission.

Fig.132 Tiverton St Peter in an extract rom the 1890 OS map.

The tithe map shows the buildings that were inside the churchyard on its E side. The OS map, more detailed, of course, shows the the churchyard after these were demolished and the network of paths in the graveyard and planting - conifers to the S and deciduous trees on the

the lychgate. This is shown in a photograph of 1890 not only with the existing timber gates, but a (now missing) wrought iron outer gate, suggesting a more proprietorial approach to the churchyard by the churchwardens, as had been feared in 1851. A comparison of Spreat's 1842 engraving [Fig.133] with a photograph of the churchyard in 2015 from more or less the same angle strongly suggests that the existing cobbled paths are not late 19th century re-layings of paths in place in 1842 but paths on new routes [Fig.134].

Fig.133. Spreat's 1842 engraving of Tiverton church

Fig.134. The existing path from the SE (dated 1874). Even allowing for some artistic licence in the Spreat engraving it seems clear that that existing path does not does not follow the same route as its predecessor.

Devon churchyard cobbles, March 2016. Keystone.

The 19th century history of the village churchyard of the Church of Our Lady, Upton Pyne is unusually well-recorded in a 1890 publication by John Stafford Northcote. It illustrates just how many amendments might be made to a small village churchyard in order to create a landscape that sat comfortably with the need for sufficient outside burial space; to make adjustments to a Victorian church restoration and to provide a sense of architectural dignity in the boundaries and lychgate entrance. The church has a surviving cobbled path from the lyychgate to the S porch [Fig.135], with evidence (disappearing under grass at the time of a visit in 2015) of a cobbled apron for a coffin rest outside the south porch, used in living memory. Other cobbled paths are said to lie beneath grass, including one with a date of 1811.[59]

Fig.135. Upton Pyne, Our Lady. This has a visible surviving cobbled path from the S porch to the lychgate and probably more lost under grass. The porch was rebuilt to the designs of William White in the 1870s.

In the 18th century a vestry or perhaps priest's house was attached to the W tower - this had been removed before the 1842 tithe map, which appears to show the main entrance into the churchyard in the north-east corner. Spreat's 1842 engraving shows paths in existence in a view from the south west [Fig.136]. In 1861 a small piece of land at the east end 'where a path used to be' was taken into the graveyard with a wall carried round the E end. In 1873 a piece of ground on the west side was added for the Northcote family vaults. In earlier days the Northcotes would have been buried inside the church, but the nuisance - both the disruption to an interior and 19th century anxieties about disease emanating from the corpses in reopened family vaults - pushed new burials outside, however superior the family. The treatment of internal vaults by Victorian church restorers re-flooring medieval churches reflects the contemporary concerns with public health, e.g. the vaults at Salisbury, St Thomas were emptied by Gilbert Scott and back-filled with sand (*pers.comm.* Francis Kelly).

During the Upton Pyne restoration of the 1870s by William White, the south porch was rebuilt and the (presumed) early 19th century cobbles adjacent must, at the very least, have been re-laid to fit it. A lychgate was added during the restoration to provide a more dignified entrance to the churchyard from the SE and this involved re-laying a path. In 1887 a churchyard repair fund was established by Countess Iddesleigh, who transferred an investment of $1,000 held in the St Paul Minneapolis and Manitoba Railway Co into a bond for keeping the churchyard and monuments in good order. Following this paths were cut from the Northcote vault and from the W door and churchyard round the west, north and east sides of the churchyard, repairing the old path near the S door and near the lychgtate at the same time. The path from the south porch to the lychgate is visible.

Shrubs were planted at the E end of the churchyard to hide the backs of the cottages and on the west and to hide the parsonage stableyard. The north and east sides of the churchyard 'being full of graves' with those near the church having been 'obliterated' (presumably marked only by humps in the ground), azaleas and rhododendrons were planted to the east, ornamental shrubs scattered about with cotoneasters and other shrubs planted 'by the wall against the causeway'. The 'causeway' survives in part as a cobbled area outside the lychgate. The old rough hedge along the north side of the churchyard was rooted up and light iron railings and beds of flowers planted there. The churchyard was extended on the S side, removing cypress trees and palings and replacing them with firs and other shrubs. A straight path through the churchyard was remade and a new wall built at the E end with a new gate and palings. A line of light iron railings, with two gates was placed within the consecrated ground beside the thoroughfare. It is assumed here that all the late 19th century paths at Upton Pyne were cobbled, but this could only be proved by investigating under the churchyard grass, assuming that the paths were not lifted. Comparison of the tithe and 1889 OS maps shows chnages to the churchyard boundaries and the OSmap some of the disappeared paths referred to in John Stafford Northcote's publication, but not all [Fig.137].

Upton Pyne was clearly a well-funded village churchyard in the late 19th century. Good local access to river channel cobbles and enthusiasm for their use by the local landowners, the Iddesleigh family (19th century estate cottages in the village have cobbled external paths) probably played a part in the re-landscaping of the churchyard. The work done to the churchyard at the end of the 19th century probably represents more than could be afforded at most churches, and the results more shrubby and garden-like than most, but it is revealing in showing how, phase-by-phase, the churchyard was transformed into a 'garden' with subpaths, adjacent buildings screened off and substantial architectural boundaries provided. This was close to Loudon's recommendations, although he was keen that burial grounds were not too garden-like.

Devon churchyard cobbles, March 2016. Keystone.

Fig.136. Spreat's 1842 engraving of Upton Pyne, Our Lady.

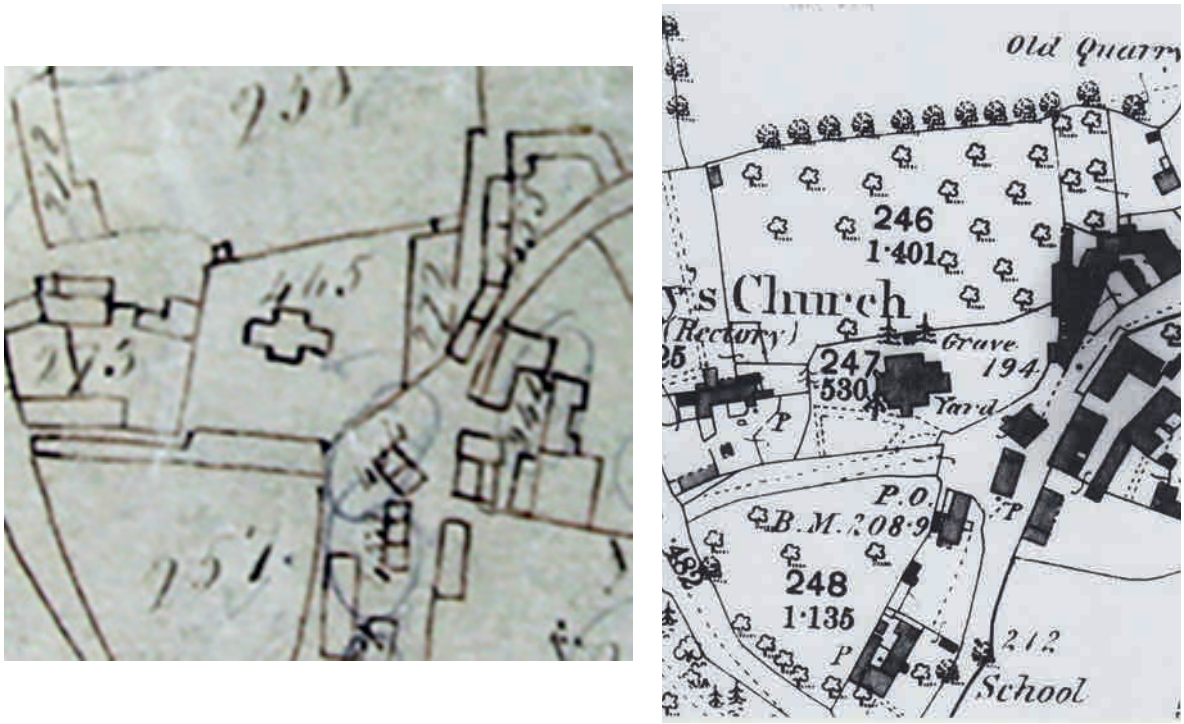


Fig.137. A comparison of an extractfrom he 1842 tithe map of Upton Pyne, DALSS, reproduced with permission and an extract from the 1889 OS map shows the churchyard enlarged with extensions.

It would be mistaken to assume that all churchyards were disorganised, unplanned and undignified before late Georgian and Victorian interventions or that all churchyards were transformed in a single campaign. A rare (because so early) c.1770 plan of the North Tawton glebe shows the rectangular churchyard neatly laid out with tree-lined boundaries, paths to the church from four entrances and a grand avenue from a lychgate between a north doorway to the church and the King's Highway [Fig.138]. The avenue is directly linked to a route into the massive parsonage on the north side of the highway with a property boundary that extends the whole length of the N side of the churchyard. This is perhaps a reminder of the importance of the incumbent's right over and influence on a churchyard, which was usually held freehold by him. On the one hand livestock pastured in the churchyard, or piles of turnips, or churchyard trees felled for timber, were usually a case of the incumbent treating the churchyard as his own land to do with what he wished, or he might receive rent for agricultural activities in the churchyard. On the other hand, a resident incumbent of means might consider the churchyard as an ornament to his residence, as Loudon notes: 'the churchyard may be so united with the grounds of the parsonage as almost to seem a continuation of them'.[60] Francis Kelly notes that Canon Ellacombe of Bitton published *In my Vicarage Garden* in 1902 (*pers.comm.*) The rather unusual major N route into North Tawton churchyard has survived. It is cobbled but flanked by late 19th century brick walls retaining the churchyard turf [Fig.139]. Both town and church saw major changes in the 19th century with two drastic fires in the 1830s, one of which destroyed

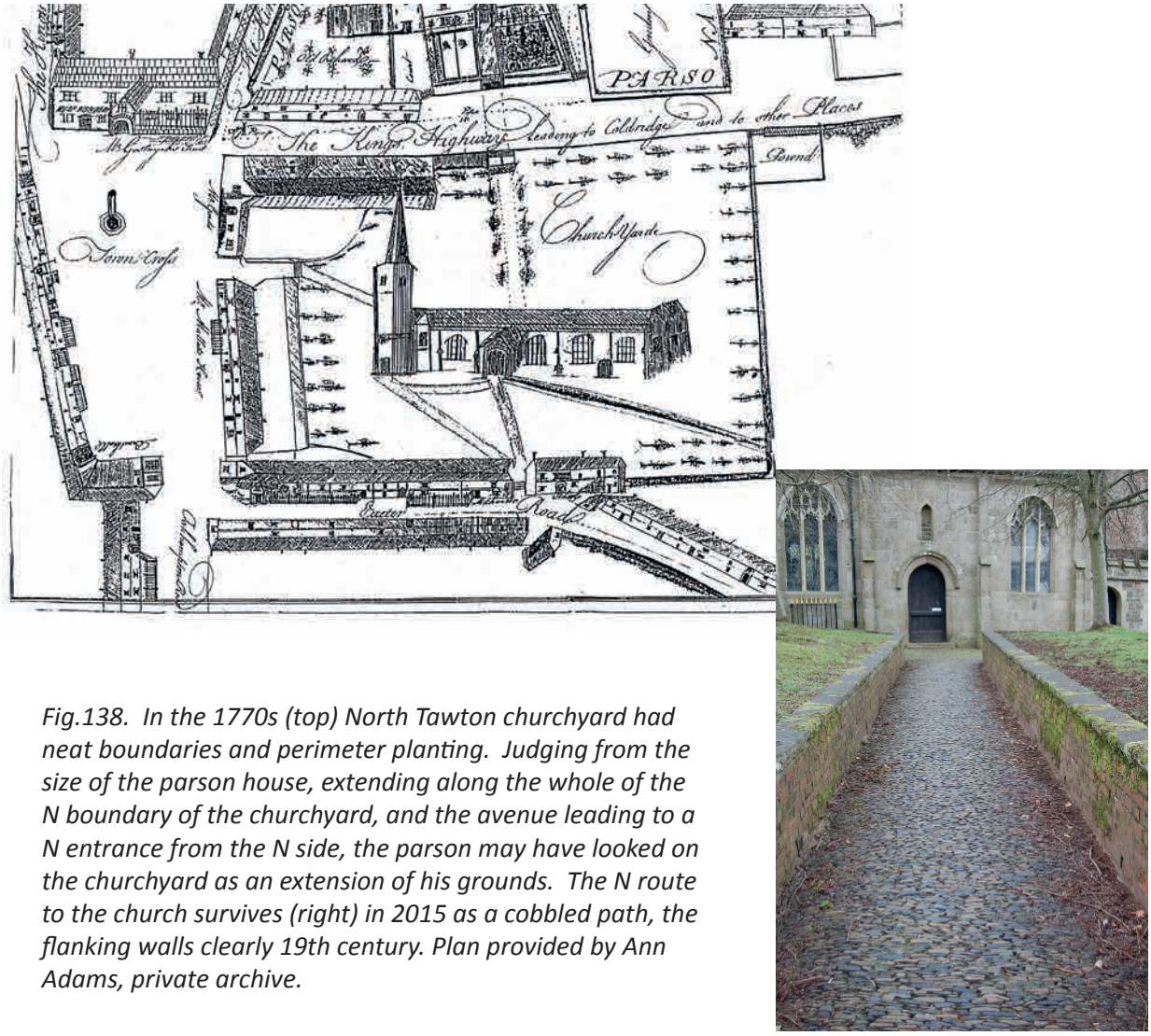


Fig.138. In the 1770s (top) North Tawton churchyard had neat boundaries and perimeter planting. Judging from the size of the parson house, extending along the whole of the N boundary of the churchyard, and the avenue leading to a N entrance from the N side, the parson may have looked on the churchyard as an extension of his grounds. The N route to the church survives (right) in 2015 as a cobbled path, the flanking walls clearly 19th century. Plan provided by Ann Adams, private archive.

Devon churchyard cobbles, March 2016. Keystone.

the church spire and the church was extended E in 1832 and restored again in 1900. Spreat's engravings of Devon country churchyards in 1842 remind us that many had few headstones at that date and the boundaries sometimes look in need of care and attention, but they are not depicted as wholly chaotic or insanitary places: that perception of churchyards is to be found, with gruesome evidence, in the writings of the early 19th century. A prime example is George Alfred Walker's 1839 *Gatherings from Graveyards Particularly those of London: with a Concise History of the Modes of Interment Among Different Nations, from the Earliest Periods, and a Detail of Dangerous and Fatal Results Produced by the Unwise and Revolting Custom of Inhuming the Dead in the Midst of the Living*. On the other hand, late 19th century descriptions of some churchyards refute the idea that all had been put into good order and were well-kept but prove that some continued to be used for multiple secular purposes decades after Loudon's publication and often long after massive expenditure on church building restoration. Newspaper correspondence about the disgraceful state of North Tawton's churchyard in 1865 prompted the following:

> It is a common thing in our villages for mothers to tell their children, "Go and play in the churchyard" . The "louts" of the parish make it their lounging corner-the place for insults and coarse jests all throughout the Sunday, while their younger brothers swing on the gates, dance on the graves, and play at leap-frog over the tombstones. Parishioners say that it is no use planting flowers on the graves of their friends, for they will be stolen, and in short it is no use to try and do anything towards making the churchyard decent, for ignorant or mischievous persons will run riot all over it, and spoil everything. Now compare all this with our quiet well-kept extra-mural cemeteries, and the contrast is great indeed'.[61]

As late as 1891 a newspaper correspondent complained that sheep and ponies grazed in part of Buckland Brewer churchyard, hay was ricked there and hens basked on the headstones.[62]

11 - The Visual Appeal of Churchyard Cobbles

As structures made using simple materials, simply used, traditional cobbled paths are visually appealing. Thatch is a good aesthetic comparison, sharing the same qualities of self-evident flexibility and versatility as a 'forgiving' material. Cobbles provide small-scale texture to a church landscape and an immediate sense of the labour of construction [Fig.139]. Used for principal paths they provide a sense of an entrance, sometimes reinforced by ornamental 'doormat' provided in front of the porch.

The colour of cobbles is usually harmoniously within or close to the tonal range of colour as the exposed masonry of the church building, Devon's churches having a wide range of stone colour [Fig.140]. Cobbles fit comfortably with modest and high status church church buildings [Fig.141]. The fall of light on the multiple surfaces of cobblestones is attractive [Fig.142]. There are churchyards where the colour, local geological distinctiveness and 'hand-made' qualities of cobbled paths relate directly to the products of the local slate headstone industry [Fig.143]. The aesthetic qualities of cobbles can be lost if they are unsympathetically relaid [Fig.144].

Historically cobbles satisfied a sequence of evolving aesthetic preferences. Like thatch, they satisfied the Picturesque requirement of being rustic and irregular in form and colour. Their sense of antiquity and ruggedness suited the Gothic Revivalists. They chimed with Arts and Crafts thinking, as derived from Ruskin, providing simplicity, truth to materials and materials from the locality and the visible marriage of design and craftsmanship. Some of the visual appeal of cobbles in the 20th and 21st century has been magnified by the low aesthetic quality and dreary utilitarian look of tarmac and concrete, which are the standard existing alternatives [Fig.145].

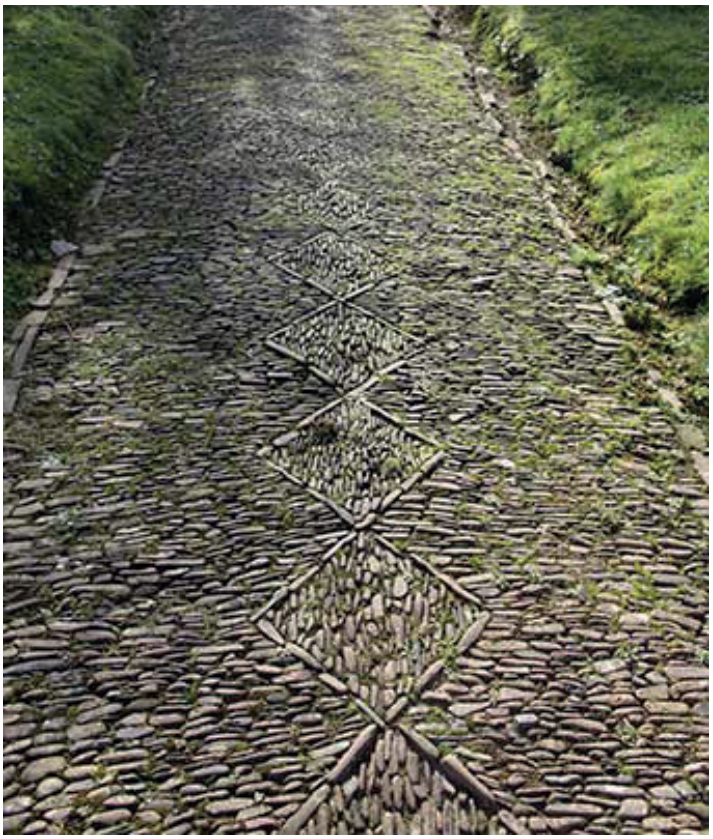


Fig.139. Cobbles at the Church of St Michael, Meeth.

Devon churchyard cobbles, March 2016. Keystone.

Fig.140. The neatly-laid sandstone river channel cobbles at the Church of St Mary Exbourne (top left) provide a harmonious and subtle colour contrast with the granite church and also suit the reddish and purple colours of the church of St Swithun, Sandford. These compare favourably with the shrill colour contrast between the brick path and the Church of St Mary, Payhembury.

Devon churchyard cobbles, March 2016. Keystone.

Fig.141. Cobbles contribute to the sense of a grand entrance at the grade 1 church of Sts Peter, Paul and Thomas at Bovey Tracey (top) The unlisted 1845 Chapel of St Peter (right) is a modest place of worship built in 1845 halfway down Clovelly's steep main street to spare residents the gruelling walk up the cobbled main street to the parish church. The cobbled path to be negotiated is not a churchyard path, but simply one of the town's ubiquitous cobbled streets.

Devon churchyard cobbles, March 2016. Keystone.

Fig.142. Light falling under the lychgate of West Worlington reinforces the simple pattern of individually-laid stones. The tarmac path at Silverton looks industrial by comparison.

Devon churchyard cobbles, March 2016. Keystone.

Fig.143. Slate headstones in a churchard landscape with cobbled paths at Great Torrington.

Fig.144. A cobbled 'doormat' outside the porch of Trusham St Michael (top left) has been relaid in cement losing the visual liveliness of traditionally-laid cobbles. This can be seen in more extreme form in a cobbled secular footway relaid in cement with cement kerbs at Sandford (right) which can be compared with other surviving Sandford footways (left), which have had some cement repair but are largely traditional.

Devon churchyard cobbles, March 2016. Keystone.

Fig.145. Examples of cement and tarmac path surfacing leave a church 'high and dry' in its setting and, unlike cobbles, do not provide a pleasing link with the churchyard landscape. Clockwise from top left: Alwington; Iddesleigh; Ipplepen.

12 - Path Users in 2015

Footfall on paths in 2015 varies dramatically from church to church and this has an impact both on wear and tear but also on the risks of stumbles and falls. Some rural church paths away from tourist areas may have a service only once or twice a month and a congregation of less than ten receive very little footfall apart weddings and funerals. These may involve special ritual uses of church doorways and paths: resting a coffin; coffin carrying; using a west door that may not usually be used. Undertakers carrying a coffin cannot look down and need a wide path. Shoes with thin high heels may be worn on these occasions (and at services). As the church guide at Coldridge St Matthew, notes, their cobbled path, of which they are proud, is not ideal for 'Sunday best' shoes. Even at Exbourne church, where the path is wide, flat, even and well-maintained, brides wearing stilettos need to tip-toe down the path (*pers.comm*.).

Paths to urban and some busy villages churches with a busy programme of events and mutiple uses will have heavy footfall. Churchyards may be used locally as short-cuts, especially in towns. This is the case at North Tawton (*pers.comm.* Francis Kelly) and Crediton, Holy Cross (*pers.comm*. Dawn Honeysett). At crediton the churchyard paths are crossed by parents with children and toddlers from a convenient parking area to reach a zebra crossing to a school and playgroup. The cobbled paths in the churchyard at Tiverton St Peter are also used as a short-cut between different parts of the town (*pers.comm*. Bill Zarrett). Heavy footfall and frequent use of a church for, say, concerts after dark raises the risk of falls on church paths and churchwardens of these busy churches will inevitably be anxious about access and risks to safety. The diocese of Exeter has one of the oldest age profile of congregations of any diocese, 56% being over 65 (Truro, Lincoln and St Edmundsbury and Ipswich have 57%). [63] Age-related disabilities are more common for church congregations than visitors to, say, a stately home or historic garden.

Most cobbled church paths are located far from Devon's coastal tourist hotspots. Church crawlers visiting the county are likely to make their way to both Crediton, Holy Cross and Tiverton St Peter, two of the largest churches in the county, both with cobbled paths. Dedicated church visitors, whether from out of the county or Devonians, may eventually make their way to some of the other churches with cobbled paths but, as the gazetteers discovered and enjoyed, many of the churches with cobbled paths are considerably out of the obvious tourist way and not all have features that would make them a priority for a student of church architecture.

Devon churchyard cobbles, March 2016. Keystone.

13 - Access Perspectives

The impulse to change or remove cobbled churchyard paths is based on the access and safety problems some of the paths present and here practical compromises may be needed to balance the statutory framework for protecting heritage assets with the statutory framework for access and other relevant guidance.

This section by Jan Loveless is based on her discussions with conservation specialists, a survey of some cobbled paths in Devon churchyards and professional experience and understanding of the statutory framework relating to access and historic environments. It reviews the statutory framework, looks at cobbled church paths in this context, discusses why they can present a barrier to access for some people, whether they are disabled or not and explores and illustrates a variety of ways in which this may be addressed.

13.1 - Introduction

The church has duties as a 'service provider' under the Equality Act to ensure its services (both worship and other church activities) are accessible to disabled people. Cobbled paths which have a very uneven or steep surface can be difficult for many people, including disabled people, to walk or wheel along. In these instances they become a barrier to accessing the various services a church may provide. In this case, the church has a duty to make a 'reasonable adjustment' in order to make its service accessible. When considering what is reasonable, the church may take into account several factors including the historic significance of the path, the effectiveness of the proposed adjustment and the resources available. Whilst considering these options, churches can take some short-term simple measures which will benefit many people (including disabled people) such as providing information about the path, having a wheelchair available (where appropriate) with a trained volunteer for regular worshippers or installing a handrail beside the path.

Some paths will need to be repaired and conserved appropriately due to their poor state of repair and in exceptional circumstances some may need to be altered in the long term. Repair and alterations need to be done with sensitivity to the setting and with a clear understanding of current access guidance to ensure the paths are as accessible as possible to everyone without impairing the contribution they make to the sense of place and the special character of the churchyard landscape.

13.2 The statutory framework for Access

13.2.1 The Equality Act 2010

Introduction

The Equality Act 2010 (EA) is the key piece of legislation in the UK protecting disabled people from discrimination. It consolidates and replaces previous discrimination legislation including the Disability Discrimination Act (1995). The Act covers discrimination due to age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex and sexual orientation. These categories are now called "protected characteristics."

Definition of disability under the Equality Act 2010

In the Act, a person has a disability if:

- they have a physical or mental impairment
- the impairment has a substantial and long-term adverse effect on their ability to perform normal day-to-day activities

For the purposes of the Act, these words have the following meanings:

- 'substantial' means more than minor or trivial

Devon churchyard cobbles, March 2016. Keystone.

- ‘long-term’ means that the effect of the impairment has lasted or is likely to last for at least twelve months (there are special rules covering recurring or fluctuating conditions)
- ‘normal day-to-day activities’ include everyday things like eating, washing, walking and going shopping

There are additional provisions relating to people with progressive conditions. People with HIV, cancer or multiple sclerosis are protected by the Act from the point of diagnosis. People with some visual impairments are automatically deemed to be disabled.

Employment
Employers have duties to ensure that disabled people are not discriminated against on grounds of employment. Disabled people cannot be treated less favourably and there is a duty on employers to make reasonable adjustments. This duty is triggered by an individual disabled person rather than it being an anticipatory duty as in the following section. An individual’s needs may result in the adjustment of some of the physical features of the premises.

Services, public functions and associations
The Equality Act 2010 gives disabled people important rights of access to everyday ‘services’. Service providers have an obligation to make reasonable adjustments to premises or to the way they provide a service. Access to services is not just about physical access, it is about making services easier to use for everybody. Sometimes it takes only small adjustments to make a service accessible.

Disability Discrimination and reasonable adjustments
Service providers are required to take reasonable steps to ensure that disabled people can access their services. For a church, this could include access to the information on noticeboards, to the church magazine, to the prayer book or hearing the spoken word and participating at church services. Where a physical feature (such as an access path) puts disabled people at a substantial disadvantage (compared to non-disabled people)then the service provider (the church) has a duty to make a reasonable adjustment or find another way of providing the service. A churchyard path that is very uneven and difficult for everyone, whether they are disabled or not, to walk or wheel on will present a physical barrier to accessing the service a church is providing – whether a literal church service, another church based activity or as an interesting historic building to be visited by the public.

The law says that the physical feature must be avoided by:
- removal
- alteration or
- provision of a reasonable means of avoiding it

Where a physical feature **cannot** be avoided, then service providers need to consider whether there are reasonable of ways of providing the service in an alternative way. The key to this is that, again, it needs to be reasonable and the access provided should be as close as possible to the standard normally provided to the public at large.

What is considered a reasonable adjustment for a large organisation may be different from a reasonable adjustment for a small one. It is about what is practical in the service provider’s individual situation and what resources the organisation may have. An organisation will not be required to make adjustments that are not reasonable because they are unaffordable or impractical (for example) or that are unnecessarily damaging to the historic environment.

Buildings (including their approach) or landscapes that are significant in terms of their historic interest locally, regionally or nationally require creative solutions to any physical barriers to

access in order not to compromise their special interest. Frequency of use is also an issue when determining what is reasonable under the Equality Act. Here it is important that there are robust discussions amongst experienced professionals in both conservation and access, to ensure that both the access issues and the significance of the path are properly understood and that alternative ways of overcoming the problem without destroying or compromising the historic significance can be explored. This approach is also reinforced by the Building Regulations.

13.2.2 The Building Regulations 2010

There is a range of building regulations. They provide functional requirements for building design and construction. The regulations are very short with no detail. Technical guidance as to how they may be met is given in a series of Approved Documents but the advice is not mandatory and other ways of meeting the requirement may be equally acceptable.

The Building Regulations Part M – Access to and use of buildings other than dwellings - relates to access and facilities to create an inclusive environment. It applies to new buildings, alterations to existing buildings and certain changes of use. Part M states that "**reasonable** provision must be made for people to –

a) gain access to; and
b) use, the building and its facilities

Approved Document M (AD M) - the technical guidance for Part M – applies when a building is newly erected, or when an existing building is extended or undergoes a material change of use. It includes the approach to the entrance of a building. In the case of a new path surface to a church, planning permission is likely to be required but Building Regulations approval will not be required. However, AD M is a useful benchmark regardless of whether it needs to be applied. AD M has an important section on historic buildings which includes this paragraph:

"The need to conserve the special characteristics of historic buildings must be recognised. They are a finite resource with cultural importance. In such work, the aim should be to improve accessibility where and to the extent that it is practically possible, always provided that the work does not prejudice the character of the historic building, or increase the risk of long-term deterioration to the building fabric or fittings." AD M 0.18

Guidance on access routes

For reference, the guidance in relation to the surface of a **new** access route has very specific measurements, as follows:

> Its surface should be firm, durable and slip resistant, with undulations not exceeding 3mm under a 1m straight edge (AD M 1.13d).
>
> The difference in level at joints between paving units should be no greater than 5mm, with joints filled flush or, if recessed, no deeper than 5mm and no wider than 10mm or, if unfilled, no wider than 5mm (AD M 1.13f).

13.3 - Cobbled paths and the Equality Act

Under the Equality Act, the Church has duties as a service provider. Some disabled people may have difficulty accessing that service for various reasons. One of these may be the approach to the church, which may present a physical barrier for some disabled people. Typical examples of barriers on the approach to churches are steps, uneven path surfaces or steep slopes. Therefore some cobbled paths (particularly if they have a very uneven surface and/or are in a poor state of repair) may present a considerable barrier for disabled people to access the services a church provides for a variety of reasons.

If a path presents a physical barrier for disabled people to accessing a particular service (i.e. a church service, a playgroup or a wedding) then a **reasonable adjustment** is required. Reasonable adjustments, should, as far as possible, be made in anticipation of a disabled person accessing the services the church is providing.

A reasonable adjustment is made by:

- Removing the barrier, for instance adjusting the cobbled path or part of it with a path surface which is firm and reasonably smooth and slip-resistant
- Altering the barrier (i.e. carrying out remedial work so that the path surface is more even)
- Finding a way of avoiding the barrier (i.e. using another more accessible route into the church or providing a wheelchair with volunteer trained to push it)
- Providing the service by a reasonable alternative method (if none of the above are viable). There may be a variety of options here and they will depend on the individual circumstances. For example, if the issue is about accessing a church service that is attended by relatively few people, consideration could be given, in consultation with the churchgoers, to providing the church service elsewhere in the village. However, this is unlikely to be acceptable. If it is about a disabled parent taking their child to a playgroup, there may be opportunities to hold the playgroup in the church hall (for example).

With cobbled paths which are a barrier to access, therefore, a reasonable adjustment is required to allow disabled people to access the services a church may be providing. The provision of a reasonable adjustment may take into account financial resources, historic significance, frequency of use and practicability. Each situation needs to be evaluated in the context of the individual circumstances of the particular church and decisions made accordingly. Where a reasonable adjustment cannot be made, the church could explore alternative ways of providing the services they offer, but these may not always be acceptable.

13.4 Health and Safety

In addition to access issues, there may also be Health and Safety issues with a particular path but these would be unlikely to render it unsafe to use. The process for addressing Health and Safety issues is to carry out a risk assessment and to identify a way of managing the problem in the safest way possible. Clear signs advising of a risk allow people to make informed decisions as to whether the risk is one they are willing to take for the benefit of doing something they consider to be worthwhile.

If there are safety hazards on a path, then ways round them need to be explored. These may include repairing a small section, providing a handrail alongside, putting down sand or grit in icy weather or cutting back overhanging foliage. In terms of assessing and managing the risk, one of the most effective control measures is to have a maintenance plan.

It is worth noting that the risk of falls is often cited as a reason to replace a cobbled path. Whilst people may indeed trip or fall on a cobbled path, there may be many reasons for this which are not always related to the path surface or steep gradient. Poor lighting, adverse weather conditions, or lack of handrails beside steps or slopes may also be factors, as, in some cases, inappropriate shoes.

For reference, research shows that most people who fall outside of their home are fit men over 65, not frail or disabled people.[64] It is also reasonable to expect that where a path is known to

be uneven, people will take more care than they would on a paved modern shopping precinct where they would expect the surface to be smooth and even. Clear and sympathetically designed signs warning of an uneven path would be helpful.

13.5 Cobbled paths as barriers to access

There are essentially two ways in which cobbled paths can present a physical barrier to access.

i) The surface [Fig.146]

The extent to which the surface of cobbled paths is uneven is hugely variable depending on:

- Types of cobbles.
  Assuming good condition, cobbled surfaces using pebbles are intrinsically more uncomfortable to walk on or wheel across and potentially more hazardous than cobblestones with flat or flattish tops. The form of the pebbles means that a rounded or dome-like portion of each cobble will project above the bedding. Each cobble will be felt through a thin-soled shoe and a horizontal surface for a walking stick will not be found. On the other hand, cobblestones with flattish tops, kept in good repair are at the advantageous end of practical design: that is a wide, flat path well-contained by kerbs or masonry walls and with a natural predictable uneven-ness underfoot.

- Condition
  In poor condition, with unrepaired slumps, or 'islands' of cement repair, or spreading with loose cobbles because kerbs have failed, all types of cobbled surface can present access barriers.

- Environmental Factors
  These include good/bad drainage and availability of sunlight and air movement to keep paths dry.

Fig.146. Variations in cobbled surfaces: this page and opposite. Above, lost and loose pebble cobbles at Poltimore. Opposite, clockwise from top right. A relatively level, even and flat path at Exbourne; a water-filled sinking at Petrockstow after rain; a well-preserved path at Hatherleigh between revetment walls. The overshadowed path at Petrockstow illustrates the impact of environmental factors. It does not allow sun to shine on the path or air movement to keep it dry. The narrowing of the width by the foliage is also a barrier to access for people with visual impairment or two people walking side by side (such as a disabled person holding on to a companion or a bride to her husband) or those carrying a coffin.

Devon churchyard cobbles, March 2016. Keystone.

Devon churchyard cobbles, March 2016. Keystone.

ii) The gradient [Fig.147]
Many rural villages in Devon are located on hilly terrain with the church at the highest point functioning as a landmark. This often means that the path leading to a church, as well as some of the paths around the village, may be very steep. Many disabled people find a steep slope difficult to walk or wheel up or down, particularly if there are no resting places or anything to hold onto. A steep camber on the path can also cause access difficulties. Steep gradients are difficult to address in churchyards as there are often conservation and financial constraints on creating a longer and less steep path. A handrail and provision of resting places can be very useful in these situations.

Fig.147. A long, fairly steep path at Hatherleigh (eft). The low flanking walls provide resting places for churchgoers. The steep uneven bedrock path at Diptford (right) has a lop-sided camber. The handrail is useful here.

Cobbled steps [Fig.148]
These present similar problems to paths in relation to their surface. Ideally steps should have continuous handrails to both sides. Where the width of the path allows, a central handrail may be useful as people with only one usable hand can make use of it both ways.

Some disabled people find steps easier to use than slopes and vice versa. Handrails to cobbled steps would assist people both with the steps and with the cobbled surface.

Devon churchyard cobbles, March 2016. Keystone.

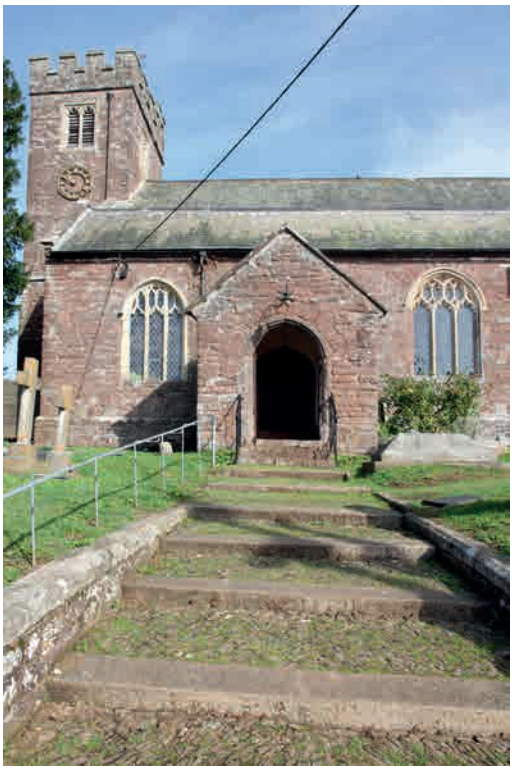


Fig.148. Examples of handrails to steps: (left) Sandford, cantilevered, on the left side, (right) Ilsington on the right (avoiding the drainage channel). Handrails on both sides of a path, if possible, are helpful to both right-handed and left-handed people, travelling up or down a flight of steps.

13.6 Establishing what reasonable adjustments can be made

The nature of the reasonable adjustments made to avoid the physical barrier presented by a church path will vary from one church to the next and needs to be thought through carefully and in the context of the significance of the path and the accessibility of the church and its surrounds.

Where possible, the issue needs to be approached in a creative way and in consultation with local disabled people and an access specialist (where available). Disabled people are consulted for their experience and local knowledge and an access specialist for their experience of similar situations and their expertise in understanding the duties of the Equality Act and ways of overcoming barriers to access in relation to historic buildings. It is recommended that the following steps be taken when planning reasonable adjustments:

- **Establishing significance**
  This is a key aspect of the assessment of any physical barrier in an historic setting and should be undertaken by conservation specialists in discussion with users and outlined in a Statement of Significance. If a path is not significant, then making alterations to it or replacing it is not an issue from an access perspective. It does however need to be designed to meet to current access standards as closely as possible whilst being sympathetic to the historic setting.

- **Access Audit**
  Good practice guidance would recommend an Access Audit to be carried out by an experienced Access Auditor. However this may not always be feasible. An Access Audit is a detailed review of an environment and of the services provided there in relation to their accessibility for disabled people in the light of the Equality Act. The Audit provides an overview of the access, identifies any barriers to access and provides prioritised and costed ways of overcoming these. Cobbled paths are likely to be only of a number of barriers to access, all of which should be considered in the round, with due weight given

to each. Recommendations which are simple and low cost can be implemented first and often benefit many disabled people – for example, the provision of large print service sheets or of an Access Statement for the church which can be put on its website or other promotional material.

Recommendations for major work which incur considerable cost – such as alteration to steps or a path – would be something which would need to be assessed in the light of the church's resources as well as the conservation assessment and is likely to be something to aim for in the long term when resources allow and implications for conservation have been weighed up. In the meantime, there may be smaller actions that the church can take which will help to mitigate the problem, such as providing clear information about a path or installing a handrail.

- **Access Statement**
  A simple first step to improving access to the services a church provides is to provide an Access Statement considering all access issues in the round. An Access Statement is a clear and accurate description of the accessibility of a venue. It is factual rather than subjective (i.e. "the path is 600mm wide with an uneven surface"– rather than "the path is not wheelchair accessible"). This allows people to make up their own minds as to whether something is accessible to them. The inclusion of photographs can be helpful.

  It is noted that whilst cathedrals often have Access Statements, there are few to be found on websites of smaller churches and yet they can be very informative for disabled people and simple and easy to produce.

  The Anglican Church website: A Church Near You http://www.achurchnearyou.com/ contains information about parish churches and the services and events that take place there and is free for visitors and parishes. However, it relies on a local person to input the information and many smaller rural parish churches have not yet done this. There is the potential to include some basic information about accessibility and the website providers are aiming to allow for more descriptive information in the future.

- **Provision of Signs**
  For first time visitors to a church with a path which is not level and even, the provision of a sympathetically designed sign at the entrance to the churchyard also provides vital information. The sign may be a directional one with an arrow and wheelchair symbol indicating the location of a more accessible entrance, or it may be a symbol to indicate the uneven surface.

- **Avoiding the path**
  This is the simplest and most cost-effective way of providing a reasonable adjustment for a path which presents a physical barrier. Some churches have a choice of approaches, some of which are more accessible, or which would be easier to make more accessible. This would be considered a reasonable adjustment where the path is significant and/or where doing expensive works to create a new level path is beyond the church's means [Figs.149, 150]

  As many rural churches are now grouped together in benefices with each church taking turns to host the Sunday service, it may be possible, where appropriate, to buy a wheelchair for use on some of the cobbled church paths and train a small group of volunteers to push people in them. The training is important in order to minimise any risk to the volunteer or the wheelchair user. Whilst the wheelchair ride might be slightly bumpy it would be for a short time and might be easier for some people than walking the length of the path. This solution might work well at several churches: e.g. Merton, Exbourne and Hatherleigh.

Devon churchyard cobbles, March 2016. Keystone.

Fig.149. Crediton, Holy Cross. A cobbled path leads to the W door and is preferred for weddings and funerals. However, the tarmac path from the S boundary of the churchyard provides a fully-accessible alternative.

Fig.150. The local women in the photograph below, one with ambulant disabilities, are avoiding a cobbled path in Crediton churchyard (regularly used by many locals as a short cut) in their own way by walking beside it. They did not want to see the path replaced, saying, "It's part of our history." However, walking along the kerbs may be hastening damage to the path.

- **Altering the path**
  Some paths can be repaired to create a more even surface. Loose cobbles can be re-laid and the gaps between the cobbles filled to create a more even surface. This is likely to be most successful with the flatter topped closely packed cobbles rather than pebbles. Re-laying a whole path is likely to be slightly more costly than replacing it with a paved path due to the amount of labour required. Prospects for using volunteer labour in a community project are outlined below in the conclusion to this report.

  Providing a handrail beside a path can be of great benefit to many disabled people and also reminds people that care may need to be taken on a surface [Fig.151]. Handrails should be designed as closely as possibly in accordance with the guidance in AD M whilst being sympathetic to the setting. They should extend the whole length of a path, where feasible, and be smooth but not cold to touch. If handrails are to be painted, then care needs to be taken with the preparation and application of the correct type of paint so that it does not peel off.

Fig.151. A welcome and serviceable handrail at Sandford on a path that avoids some, but not all, of the steps up to the church. It is need of re-decoration to make it more appealing to use, or abandoning the painted surface altogether.

- **Removing the barrier** [Fig.152]
  a) Adjusting a cobbled path, for instance with a flag-stone or brick section for easier access. This is a costly but effective option in some instances and is quite often found at large historic sites where there are many cobbled paths, heavy footfall and a path wide enough to have a paved path laid through it or space alongside it- without harming the setting of the church or, if possible, the character of the path. This solution will alleviate problems created by an uneven surface of cobbles but will still have to address any underlying issues that were causing slumping such as drainage problems, or ineffective kerbs or even in some cases use by vehicles.

Devon churchyard cobbles, March 2016. Keystone.

Fig.152. Examples of new paths through cobbles. Paved path of riven Pennant stone at Tiverton (top left). This has undulations greater than those recommended in Part M but considered to provide a more natural-looking finish. A path of paviours at Poltimore (top right). These provide a good surface for access but do not extend to the principal entrance, which is the one most-used. Concrete paviours inserted into a cobbled path at Crediton. These are visually assertive in the setting and it is disappointing that they lead to a very steep ramp into the church in the south porch.

There may be rare cases where a combination of factors and careful exploration of all the alternatives may mean that a path has to be covered over.

b) covering the cobbles with a semi-permanent accessible surface
This may be a solution in some cases. However, care has to be taken with the way in which the surface is laid. The path below is a playground surface material called 'Playtop' [Fig.153]. The surface itself is firm and even. This would be cheaper than laying a new path but not as durable. It tends to have a warranty for approximately 5 years and will eventually need replacing. This particular path has developed gaps at each end – which is something that often happens over time with these types of surfaces.

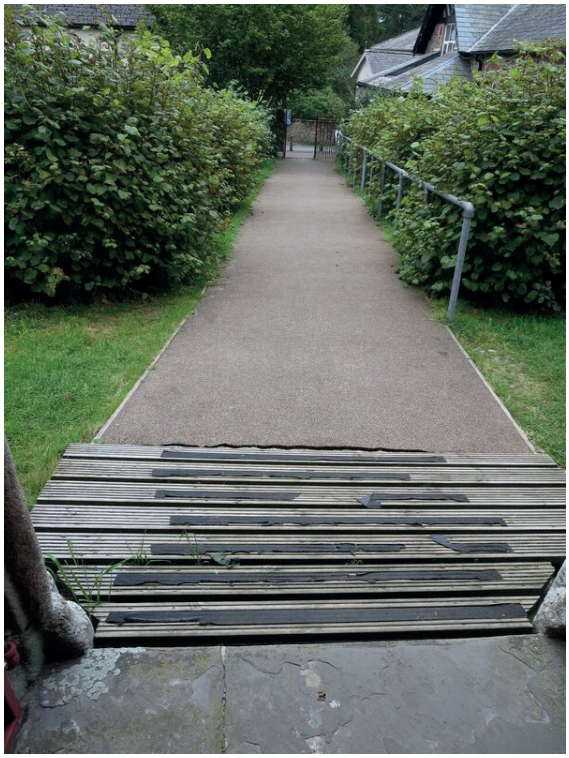


Fig.153. The playtop overlay at Black Torrington: the cobbled path survives below. The handrails are not sympathetic to the setting and do not extend alongside the full length of the path. A gap has opened up between the path surface and a former granite step. The ramp into the porch has no handrails, the slip-resistant strips are coming off – possibly creating a trip hazard – and there is an upstand to the front edge and a gap where it meets the porch.

c) Other ways of covering or altering the surface
These are varied [Figs.154].

Fig.154. Top left. Temporary cover over secular cobbles (photograph provided by Kim Auston). This is quite unsightly but may be appropriate in some settings, e.g. market places. The only similar example seen at a church was at Marwood, top right, used not for cobbles, but uneven flags. A path at Stockleigh Pomeroy church may be an example of grassed-over cobbles. Grassing over may work in some rural settings. A handrail would be helpful.

Devon churchyard cobbles, March 2016. Keystone.

13.7 Conclusion on Access

The church has duties under the Equality Act as a service provider to ensure that the services it provides are reasonably accessible to disabled people. A path to a church can present a physical barrier for some people, especially if elderly or disabled, if it is very steep, has a steep camber, or has a surface which is very uneven or slippery. In this instance a conservation assessment and an access audit are recommended. The church will then have a better understanding of the significance (or not) of the path and an overview of any barriers to access and ways in which they may be overcome. A reasonable adjustment will be required to resolve any barrier caused by a path – either by altering it, or avoiding it or providing the service in another way. If the path **is** significant then the church may adopt a creative approach and look at other solutions rather than replacing the path in order to maintain the historic integrity of the site. There may be a hierarchy of several options or only one. Where a church already has an alternative accessible route, this is likely to be seen as a reasonable adjustment in itself. Consultation with local disabled people is important and their views should assist in informing the access audit.

Whilst exploring the long term options for a cobbled path, however a church can start with some simple but helpful access improvements that would benefit a great number of all visitors including disabled people - such as providing information about the access to the church on its website and at the entrance to the churchyard, providing clear signs, providing more seats, pruning back trees and shrubs, or providing handrails. It may be useful to keep an assistant-propelled wheelchair at the church so that it can be used by a trained volunteer for people who might require assistance over an uneven path or up a steep slope. Diocesan Advisory Committees would benefit from the advice of an Access Consultant (where available) when making decisions about church paths of significance, particularly as there is evidence that some solutions arrived at may not be the most accessible or the most sympathetic ones or may have resulted from a mis-interpretation of the Equality Act. This may be something which can be done remotely in some instances or when a cluster of issues with paths are being discussed.

14 - Significance

The assessment of significance in this section is based on the Heritage Lottery Fund's *Conservation Plan Guidance* (October 2012) and guidance in Historic England's *Conservation Principles, Policies and Guidance* (2008). It is also influenced by James Semple Kerr's *The Conservation Plan* (1996). It covers the cobbled churchyard paths of Devon as a group. Individual paths will have variable significance.

Historic England recommends a system for assessing significance in four categories:

Evidential/material value: the potential of a place to yield evidence about past human activity.
Historical value: the ways in which past people, events and aspects of life can be connected through a place to the present – this tends to be illustrative or associative and not 'visible' on site.
Aesthetic value: the ways in which people draw sensory and intellectual stimulation from a place.
Communal value: the meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory.

Within these categories Historic England recommends ranking significance as follows:
Highly significant
Significant
Some Significance
Neutral
Detrimental to significance
If these categories and the ranking system sound ponderous, it can be very useful to distinguish between evidential/material value, which can be cared for by physical intervention and conservation techniques as well as interpretation, and historical values, which can best be communicated and enjoyed through interpretation and dissemination e.g. through displays and publication, including web-based material.

Material Significance
Cobbled church paths are all significant as the product of naturally occurring resources in Devon: both its extraordinary geology for the supply of cobblestones and, even if this is imperfectly understood, the composition and character of county's subsoils. Traditional cobbled paths are one form of 'earth' building and materially and culturally linked with the county's longstanding tradition of cob building also employing subsoil.

The church paths are significant as a survival of what was once a far more common exploitation of natural resources in some localities. Devon villages that with cobbled footways demonstrate this, notably Thorverton and Bow (where cobbled churchyard paths have been replaced) and Sandford, where cobbled churchyard paths survive.

The paths are part of highly significant material changes to churchyards in the late Georgian and Victorian periods. The sum total of these accumulative changes (which applied to different churchyards to different degrees): clearing out ancillary buildings; providing headstones; rebuilt or new boundaries; planting schemes, taken together, created a setting for churches which placed them in a distinctive 'set apart' landscape. The natural stone surface of paths provides a material link between the church building and its setting.

The extent to which an individual churchyard continues to express the material character of a churchyard in the c.1790-1920 period is very variable. It depends on the overall accumulative changes in the period, but also on what has happened to its boundaries, monuments, planting and the church building and the wider setting after 1920. In assessing the significance of

individual paths the question of whether they are elements in a surviving overall design or only the last surviving remnant of a church landscape of the period, needs to be asked. The thoroughly Victorian character of Great Torrington's urban churchyard, for example, is pretty much complete in 2015, apart from the loss of one cobbled path to tarmac. South Molton churchyard, by contrast, retains a thoroughly Victorian layout of paths and tree-planting, but most of its headstones have been cleared to the boundaries. Although it retains a large cobbled area south of the church several of its cobbled paths (some encircling the churchyard boundary) have been amended with diamond pattern blue pavers and flags. In other churchyards a key feature may be the presence of groups of engraved slate headstones, adding element of local distinctiveness.

Detrimental to material significance
The nature of traditionally-laid cobblestones, even those of the flattish-topped variety kept in good repair and clear of slippery growth will always present a safety for people in high-heeled shoes with slender heels which may penetrate the bedding.

Cobbles are more bumpy for a wheelchair, baby buggy or wheeled coffin trolley than a smooth surface, although uneven-ness varies enormously from path to path and the character of the tyres used will play a part.

Without regular maintenance and small scale repair cobbled paths will deteriorate and become more uneven.

If repairs involve some re-laying, this is slow and expensive work.

Historic Significance
With a handful of exceptions (bedrock and a few flagged paths) Devon's cobbled principal churchyard paths are the only paths with 'historic' natural stone surfaces left in Devon's churchyards. Set against the visible cobbled remains in churchyards other than principal paths: sub-paths, a small 'mat' of cobbles preserved in front of the south porch, or cobbled open drainage channels that now work with tarmac or cement paths, they were once far more common in the areas where suitable stone was locally available. This makes all the paths significant for rarity.

As analysed in this report, the paths are significant as one element in the incremental and overall historically important changes to the character of churchyards and the setting of historic churches in the period c.1790-1910. The speed and extent of these changes vary from church to church but they established the distinctive atmosphere of most churchyards as we have them in the 21st century: solemn places set apart for the dead and the reflections of the living, with clear physical boundaries and a clear sense of improper activities excluded and proper activities invited.

Aesthetic Significance
Cobbled churchyard paths footways are significant aesthetically. Like thatch, cobbles are self evidently versatile and, like thatch they have the appeal of 'hand-made' construction in natural materials. Cobbles provide texture and character to a churchyard landscape, the natural stone extending the aesthetic quality of a church building through the churchyard. The principal paths they provide a sense of an entrance, sometimes reinforced by ornamental 'doormat' provided in front of the porch.

The colour of cobbles is usually harmoniously within or close to the tonal range of the colour of exposed masonry of the church building. The fall of light on the multiple surfaces

of cobblestones is very pleasing. There are churchyards where the colour, local geological distinctiveness and 'hand-made' qualities of cobbled paths relate directly to the products of the local slate headstone industry.

Cobbles satisfied a sequence of evolving aesthetic preferences. Like thatch, they satisfied shifting aesthetic preferences from Picturesque through the Gothic Revival and the Arts and Crafts movement. Some of the visual appeal of cobbles in the 20th and 21st century has been magnified by the low aesthetic quality and dreary utilitarian look of tarmac and concrete, which are the standard existing alternatives.

In conjunction with cobbled footways in a town or village, church paths contribute to a Conservation Area's special sense of place and special character. This can be profound in a village, such as Sandford .

Detrimental to community significance
The aesthetic qualities of cobbles can be lost if they are unsympathetically relaid.

Community Significance
There is no consensus on community significance. Sharply-divided judgements on the value of paths have been expressed since the 1920s. Some individuals, including path users, consider them treacherous. Others, considering the same path at the same time, place a high value of their appearance and historic interest and would consider that the obstacles they may present to access can be managed and the risks they present can usually be overcome.

Devon churchyard cobbles, March 2016. Keystone.

15 - Statutory Protection

A handful of cobbled surfaces were listed in the 1970s. The road surface at Merton Street, Oxford (the flagged pavements are not included) was listed grade 2 in 1972. In Devon the surface of Stepcote Hill, Exeter was listed Grade 2 in 1974, as was the cobbled road surface of Cathedral Close. Listing can only be applied to buildings or structures. In the 1980s, during the extensive resurvey of rural listed buildings, the protection of path and street surfaces was restricted by what were then concerns over the legal definition of a 'structure' and the resurvey fieldworkers were advised that, unless a footway was distinctly and visibly raised, it would not qualify as a 'structure'. The outcome of this was that a small number of cobbled pavements in the county were listed in the 1980s, but only where they were raised high above a roadway. Pavements with conventional kerbs of a height of about 8-10cms. above the roadway were not recommended for listing. The limited definition of a 'structure' in the 1980s has left an inconsistent legacy of protected cobbled surfaces. The Devon villages, Bow and Sandford, for example, have some listed cobbled pavements because they happen to be raised high above the roadway, whereas others that are only the height of a modern kerb above the roadway are not. None of the cobbled streets of Thorverton, which are quite as distinctive and as important to the character of the place as Bow and Sandford, is listed, neither are any of the remarkable and distinctive footways and roadways of Clovelly. If these disappeared Clovelly's economy as a tourist attraction would be severely compromised. The distinction between what was and what was not a structure was not rigorously defined in the 1980s. It has been clarified since in the Historic England publication *Designating Heritage Assets: Street Furniture*, 2011. This sets out the criteria for listing road, street and path surfaces:

> It is only in exceptional cases, where they can be proved to be early and relatively undisturbed, where they can be regarded as structures, or where they lie in the curtilage of a listed building (such as a college quadrangle), that street surfaces will be eligible for listing. Listing can only be applied to buildings, or structures, so it is important to demonstrate that a road is indeed a structure, of deliberately built-up layers and topped with carefully placed uppermost surfaces. Fairly standard survivals of nineteenth-century paving are unlikely to be of sufficient special interest, atmospheric as they undoubtedly are, nor are coal hole covers designated, enjoyable as their cast iron forms can be. Nonetheless, examples of rare materials will warrant serious consideration, such as the Victorian patterned bricks that form the listed paving to West Street, Henley-on-Thames, Oxfordshire (listed Grade 2). Other mechanisms may exist for their protection, notably their recognition via conservation area appraisals, and their retention during improvements and works.

Had this explanation of a road as structure been available in the 1980s, no doubt many cobbled footways, market squares, farmyards and church paths in Devon would have been listed as protected items in their own right, rather than having the more obscure (to owners and managers) protection of existing in the curtilage of a listed building.

Recently listed traditional road /path surfaces are a reflection of a growing interest in their contribution to historic places. Granite setts in Greenwich were listed in 2010 (Ballast Quay; Lassell Street and Pelton Road) and in Islington (Charterhouse Square and Rutland Place) and in 2015 pebble pavements in Lytham St Annes were listed (Bath Street and Queen Street) after a campaign by Lytham St Anne's Civic Society.

All the places of worship with cobbled paths in Devon noted in the gazetteer are listed buildings, apart from the Chapel of St Peter in Clovelly, which is accessed, not through a churchyard, but off one of Clovelly's cobbled side streets, that itself can only be accessed via Clovelly's steep

cobbled main street. None of the cobbled paths is listed separately from the church. Only one is actually mentioned in a church list description: the path that includes an 1813 date and initials at the church of St Michael and All Angels, Great Torrington. This does not mean that churchyard cobbles are unprotected: they are protected as structures in the curtilage of a listed building. However, unmentioned in the list descriptions of the churches and with no analysis of why they are significant, their actual protection in law brings nothing with it to explain to churchwardens and other path-users why they are considered valuable and are protected. Most of the extensively cobbled villages in Devon are Conservation Areas but none yet has a Conservation Area Appraisal.

With a few exceptions the cobbles investigated for the gazetteer are in the churchyards of Anglican churches in use and therefore come under the Ecclesiastical Exemption. This means they are exempt from listed building consent and conservation area consent. Instead they are subject to a system of faculty jurisdiction. All works, alterations and additions to parish churches, their churchyards and contents require petitioning for approval from the Chancellor of the Diocese or, in defined and limited areas, an Archdeacon, in the form of a faculty. An exception is a *de minimis* list (this may be different from diocese to diocese) of small-scale and/or routine works for which faculties are not required. A new recommended *de minimus* list is expected in January 2016.

Each diocese has an advisory committee of secular specialists, representatives from conservation bodies and ordained ministers to advise churchwardens and incumbents who want to make changes and who can indicate their view of a faculty (guidance only) to the Chancellor . There is a procedure for objectors to be heard. The advice from the DAC and the decisions of the Chancellor take into consideration the same issues of special historic and architectural interest that a Conservation Officer and Planning Committee should do for any request to change a listed building. However they are expected to give due consideration to the special purpose of a church for worship and mission and balance that purpose with care and conservation.

The existing published advice from the Exeter DAC on churchyards includes a general section on paths under ‘Safety and Security’:

> Footpaths : Regular maintenance is required to ensure these remain free from obstruction, not slippery and reasonably level. Ramps and steps need particular attention with handrails and/or lighting provided if hazardous. Bear in mind the difficulty the frail, elderly, disabled, those with push chairs or on crutches may have in negotiating access to and from the church. However, many paved surfaces are of historic importance. When this is the case a balance between conservation and safety will need to be achieved – possibly through the provision of a new path in addition to that existing, repairing the historic path, or providing an appropriate handrail.

and, under advice on ‘Churchyards’, the section on paths makes specific reference to cobbles:

> Paths should normally be repaired on a like-for-like basis unless there is good reason for changing the material(s) or design. Any alterations to the design or material, or addition of new paths will require a faculty and possibly also planning permission. Early consultation with the DAC, the Local Planning Authority and any relevant amenity societies (when regarding historic paths) on any proposed alterations is advised, as paths can be an important part of the setting of the church and changing them can have a dramatic impact on this external appearance. The condition of churchyard paths should be described in the Quinquennial Inspection for the church, but should also be monitored by regular inspections by the PCC. If paths have deteriorated, this not only affects the visual appearance of the churchyard, but has implications for Health and Safety (see above)

> and disabled acces. Many churches in the Diocese have historic cobbled paths in their churchyards, some very fine with letters and numbers written in cobbles, geometric designs incorporated into the cobbling, and patterning such as herringbone pitching. Such paths add to the historic character and setting of the church, and it should always be the priority to retain and repair them where possible. Such surfaces are not always compatible with achieving disabled access however, and an alternative route for a new path may need to be found within the churchyard to achieve this. If this option is not possible, then alterations to the paths may be allowed in some circumstances, but each application is judged on its own merits, and what may be appropriate for one church may not be for another.'

The authors of this report consider that little would be achieved by listing cobbled church paths as separate items, given the familiarity of the DAC with this feature of churchyards (cobbled paths outside churchyards are a different matter). However, the absence of any reference to the paths or justification for their protection in the list descriptions of churches is unhelpful. There is no support from the list descriptions for the statement of significance that, with a statement of needs, must now accompany a request for a faculty to make changes to a path. It is not only churchwardens who find this difficult to tackle but the DAC, providing advice, and Chancellor of the Diocese, who is the decision-maker on faculties, can be presented with a one-sided argument or completely opposed views about the importance of a cobbled path: the PCC perhaps claiming it is of no importance and objectors to change claiming it is, without any clear supporting evidence either way. It would be useful if list descriptions of those churches with principal cobbled paths or important survival of other cobbles could be amended with a general paragraph on the importance of this type of surfacing and, in some cases, a description of the individual case.

As indicated in the DAC advice above, the question of whether or not changes to cobbled paths require planning permission needs to be determined by the Local Planning Authority. Ecclesiastical exemption does not exempt places of worship in use from planning permission. If the LPA considers that the work corresponds to the definition of development in Section 55 of the Town and Country Planning Act 1995, or represents engineering (groundworks) Planning Permission (and payment of a fee) will be required. In practice LPAs in Devon are inconsistent in their interpretation of whether planning permission is required, or not, for altering a church path.

16 - Funding

Most of Devon's parish churches are desperately short of funds. Professional advice, including the cost of a quinquennial architect can seem a burden or a luxury. Rural churches, in particular, may have very small congregations, perhaps fewer than a dozen church-goers, responsible for large and expensive-to-maintain buildings. Gazetteerers in the field noticed that basic maintenance was neglected in some rural churches in small parishes. This is a much larger problem than can be covered in this document apart from noting that work to a principal church path is likely to be low on a scale of priorities for a church that may need to raise tens of thousands of pounds for a major roof repair, or may be confronting major changes of use, such as services held only at Christmas and on Remembrance Day. Re-laying cobbles using an experienced mason, even just small patches, is expensive because it is slow work. Replacing or partially replacing cobbles with quality materials is expensive. There are churches where churchyard maintenance - grass-cutting, tree-pruning, weeding - used to be undertaken on a voluntary basis by parishioners, but where shortage of people able and willing to do this means that maintenance now has to be purchased. This means that basic weed-clearance from a path may be neglected.

17 - Summary Assessment of Interventions based on Case Studies

Maintenance
Defined as 'routine work necessary to keep the fabric of a place in good order', existing maintenance of cobbled paths is very variable: some are neglected, including many little-used sub-paths. The lack of advice and a general shortage of funds contribute to neglect. Nevertheless most churches do their best to maintain paths.

The most obvious maintenance activity is dealing with weed growth [Fig.155]. As noted above, short-rooted weeds and moss are unlikely to damage cobbles but may be slippery in wet weather, and can make a path and church look neglected. Grass growing in jointing will eventually take over a neglected path. A surprising number of paths are still weeded by hand (e.g. Meeth). Chemical treatment (used at Exbourne) is less laborious but can present a risk to adjacent plant life and may be unacceptable on environmental grounds. The authors of this report are not aware of any comparisons of the relative effectiveness of hand-weeding over chemical weedkillers, or any examples of weeds burnt off paths. In a secular context burning off weeds with a garden weed burner was used twice a year by a previous owner on a cobbled footway outside the stable block at Godolphin, Breage. This was considered not only to kill weeds but destroy weed seeds and thus limit new growth, which was valued for consisting of small ferns and other attractive plants. After acquisition by the National Trust the use of a naked flame close to a building was brought to a halt. It is not known whether burning off weeds might damage cobblestones.

*Fig.155. Weed/grass growth. Top, Sandford St Swithun. Below, Exbourne, one of the best-maintained paths seen. Weeds here are killed with a chemical weedkiller whenever they are noticed by a parishioner who regularly walks through the churchyard (*pers.comm.*) Revetment walls to the path keep it isolated from the churchyard turf: this avoids weedkiller spread.*

Avenues of trees overshadowing a path can be an immensely attractive and distinctive Romantic element of a churchyard landscape and key contributors to the setting of a church building [Fig.156]. Trees reduce sunlight and ventilation and encouraging moss growth and weeds which can be slippery. Weeds and grass will gradually convert subsoil jointing material into humus and encourage more weeds. Leaf drop from deciduous trees, if not cleared away, will have the same effect. Tree spread, over time, can narrow a path rendering it un-negotiable for processional occasions and difficult for people with disabilities. In one case, Meeth, tree root damage was noted, disrupting kerbs.

Gazetteerers were not asked to look at the management of trees flanking paths or consider whether they might be contemporary with the cobbled surfaces. Examples of coppicing and pollarding were seen. It seems likely to the authors of this report that some avenues, particularly those of fastigiate yews, are either contemporary with the surviving cobbled paths, or were planted in the same spirit of landscaping the churchyard and reinforcing vistas. Petrockstow is a prime example of fastigiate yews flanking a path that have spread across it. This has contributed to the darkness that is a problem for path users. Secondary interplanting of yews with a gift to the church of box, with an even wider spread, has exacerbated the problem. Similar interplanting with box at Merton has been removed. Advice on the management of yews (e.g. via Caring for Gods Acre), which are poisonous, tends to be focussed on ancient examples of spreading veteran yews which are described as best left alone. The Royal Horticultural Society states that spread of fastigiate yews can be controlled to some extent by tightening the tree with a tie. The ties are soon disguised by new growth.

Fig.156. At Buckland Brewer a path is overshadowed by coppiced trees that meet over it (above and next page, top). This has encouraged a thick carpet of moss and a dark tunnel that makes a memorable contribution to the entrance to the church from the lychgate. However, many locals avoid the path, considering it hazardous. At Huish, facing page, right, specimen trees (part of an important landscaping scheme associated with the church) overhang a sub-path to the old rectory and encourage a cover of fleshy weeds. These examples represent real conflicts of interest between different sorts of churchyard heritage, natural and architectural.

Devon churchyard cobbles, March 2016. Keystone.

Repairs

Small-scale and some larger areas of repair were noted, as well as one large cobbled area that had been completely relaid [Fig.157]. Some repairs, including reversing cement-work, are so successful that they were only recognised by chance by talking to local people (e.g. at Meeth). Many paths have examples of small repairs in cement, presumably prompted by loose cobbles. Cement repairs to jointing are ineffective and speed up deterioration, as analysed above in Section 7. A complete relaying of a sub-path at Tiverton St Peter (on the route of an earlier path, on map evidence) in cement using pebbles laid horizontally and cast concrete kerbs has comprehensively failed. The work was probably done in the 1960s [Fig.158]. However a small section of re-laying in a weak cement mix was pointed out to Jo Cox and Ray Harrison at Upton Pyne and seems to have been effective. The 'Causeway' at Upton Pyne, a large cobbled court immediately outside the lychgate was relaid (exact date not established, probably 1980s) by Devon Direct Services using probationers. This is an area which is used for parking. Rather surprisingly, use for vehicles (the same is true of the courtyard at Huish, St James) seems not to have damaged the surface of the cobbles [Fig.159]. The cobbles have remained very even, but are reckoned slippery and hazardous in wet weather and the relationship of the level of the relaid surface to adjacent buildings was misjudged, causing drainage problems to the buildings (*pers.comm*. Paul Bowd).

Fig.157. Top. Small repairs to the Exbourne cobbles are visible adjacent to a drain along the front of the porch. Below. A large section of repair to the path at Buckland Brewer. Repairs to this path include replacing tarmac with cobbles. The church has the advantage of a skilled cobblestone-layer living just outside the lychgate who has also repaired a long cobbled footway in the village.

Fig.158. Top, a tiny patch in cement to a patterned section of a path at Alphington is typical of well-meaning work but eventually ineffective work to reinstate dislodged cobbles and keep a path even. Middle, a much larger cement patch to a sub-path at Tiverton St Peter is causing damage to the adjacent earth-jointed cobbles. Bottom, a sub-path at Tiverton, relaid in the 20th century using pebbles laid horizontally, bedded in cement with concrete kerbs has failed. In the opinion of the authors of this report this little-used and, in terms of construction, untraditional path is a lost cause and would be better removed than retained.

Devon churchyard cobbles, March 2016. Keystone.

Fig.159. A large area of cobbles just outside the lychgate of Upton Pyne church has been completely relaid (probably in the 1980s). This is used for vehicles, which do not seem to have damaged the surface. The court at Huish is also used for parking. The cobbled surface appears to be in very good condition, although the paths inside the churchyard boundary are not.

Efforts to even out the surface off a path by using a plate-compactor was suggested to Ray Harrison and Jo Cox by two practitioners. It has been tried out at Upton Pyne. The plate-compactor bounced off the cobbled surface and was ineffective, but it was considered that using it over a rubber mat might work (*pers. comm*. Paul Bowd). Given that well-laid cobblestones are locked together to some degree by touching one another below the surface of a path, it seems unlikely to the authors of this report that mechanical ramming on an existing path would be effective. The historic tool, the 'rammer' said to weigh 40lbs in a late 19th century text book, is no longer used by modern practitioners laying cobbles, as far as we are aware and we do not know whether it was used for repairs. We have found one documentary reference indicating that rammers were being made as late as 1945.[65] Perhaps laying and repairs might benefit from a reintroduction.

The repair trials at Merton, which included two different ways of re-laying kerbs - one using haunching - as well as relaying localised sinkings - have not been in place long enough for their success to be monitored, but localised relaying has evened out the slumps [Fig.160].

Fig.160, Slumps repaired by relaying (including relaying lost and overturned kerbs) during the trial at Merton, work by Williams and Burrows, supervised John Alexander, funded by the SPAB, associated with discussions with Francis Kelly of Historic England, Simon Cartlidge of the DAC, Jo Cox and John Thorp of Keystone and Ray Harrison.

Devon churchyard cobbles, March 2016. Keystone.

Gravel Scatter

Many paths have received a gravel scatter: this is the most common 'amendment' to paths seen during the project [Fig.161]. In most cases the objective is to counteract slipperiness. The gravel used ranged in size from fine crushed stone, through pea gravel to roadstone. Depending on depth, gravel scatters obscure the cobbled surface, though patches of cobbles are usually visible. There may be a reluctance to take gravel right up to a porch in case footfall brings it into the church and scratches encaustic tiles. At Bondleigh a substantial scatter of roadstone on a steep path, introduced following a fall by a parishioner, also disguised slumps in the path but the roadstone would make the path very difficult to negotiate for a wheelchair.

Fig.161. Examples of gravel scatters, using different gauges and depths of gravel. Top, Inwardleigh, on a patterned path and steps; (below) a fairly deep layer of pea gravel at Uplyme; next page, Marwood (top) and roadstone at Bondleigh (below).

Devon churchyard cobbles, March 2016. Keystone.

Devon churchyard cobbles, March 2016. Keystone.

Providing a smooth path through cobbles

Historic England's published advice on access: *Easy Access to Historic Landscapes* (2013) and *Easy Access to Historic Buildings* (2015) both recommend, explicitly or implicitly, the benefits of smooth paths driven through cobbles. As Section 13 of this report outlines, interpreting the Equality Act specifically in the context of church paths, their significance and the costs of this kind of amendment, opens up a variety of other ways in which the access issue might be tackled more economically.

Easy Access to Historic Landscapes has the following:

> Common problems with stone paving are the heaving or subsidence of individual slabs, the loss of pointing and the buildup of algal growth. Regular maintenance, such as the use of silver sand to reduce algal growth, is essential. Cobbles present particular problems, but it is often possible to provide a smooth stone path through, or around, the edge of a cobbled space. Well-laid setts should not prove an access barrier. Cobbles and setts can also be used as textured alerts for hazards ahead.

Easy Access to Historic Buildings, which includes a very helpful account of the Equality Act, illustrates a smooth path through cobbles at Brougham Castle, Cumbria, captioned 'Cobbles and setts can be difficult for ambulant disabled people to walk on, especially if they are rough, uneven or open-jointed. At Brougham Castle, Cumbria, a smooth path is laid across an uneven surface to create a more accessible route'. Driving smooth paths through cobbles can be regarded as a default solution to access problems without first considering cheaper options.

Smooth paths through cobbles at Tiverton St Peter (Faculty of 2012) and Crediton, Holy Cross (Faculty of 2009), two of Devon's 'Big Three' parish churches, have created much interest. Both projects were completed only after years of discussion and were expensive, Tiverton costing over £16,000. The cost of the Crediton work is difficult to assess as the work was dogged by many problems including re-doing the work. There are, however, many earlier examples of this type of amendment. Provided the path is wide enough, this leaves borders of cobbles on either side. Most of the smooth paths are concrete slabs [Fig.162], although some are slate, which can be very slippery and some of the paths at South Molton have been amended with diamond pattern blue paviours of the type sometimes found in stable flooring and High Bickington uses tarmac [Fig.163].

Fig.162. Concrete slabs driven through cobbled paths at Ilsington (c.1970s); Salcombe Regis, driven through a pebble path and Alphington, the slabs discontinuous, presumably to retain a patterned area in the cobbles.

Devon churchyard cobbles, March 2016. Keystone.

Fig.163. Slate flags at Highweek; blue paviours at South Molton (these may both be early 20th century amendments). Tarmac at High Bickington, rather surprisingly laid retaining a central strip of cobbles and leaving narrow tarmac walkways on either side.

Tiverton, St Peter is a very busy town church with many evening events. A flagged stone path was built by Williams and Burrows through the wide cobbled path (one of several in the churchyard) from the south boundary to the south porch. This is generally agreed to have eased access and to fit well aesthetically with the church and churchyard [Fig.164]. Selecting natural stone or artificial flags of the right colour for the church and churchyard and for a high quality finish proved difficult. It was understood that the riven finish of the Pennant stone chosen would be likely to produce puddles (as it does), bringing a risk of ice in frosty weather after rain [Fig.165], but this was a compromise felt to be more in keeping with the character of the church than a smooth finish Pennant. The path amendment at Tiverton, which unlike the amendment at Crediton, is visually unassertive and is mistaken by many for an original path design, has been very influential. However, Tiverton had several natural advantages for a path amendment that can be forgotten by other churches wishing to follow suit. The original cobbled path in question was wide enough to leave good width borders of cobbles (incorporating initials in white quartzite) on either side resulting in visually satisfying proportions relative to the smooth path. There was (rare) a level surface straight into the 16th century porch (unlike Crediton with several steps down, or Sandford, with steps up), simplifying the access issue. The colour palette of the church building made it possible (after much investigation) to find natural stone in a colour and tone that suits both the existing cobbles and the church. Devon's extraordinary geology has given the county's church buildings a startling range of colour, including the light purple of volcanic stone or the near scarlet-colour of Crediton (intensified by coloured cement repairs to the church masonry). Finding a suitably-coloured natural stone (likely to conclude in introducing a non-local stone) or artificial slab for a smooth path is a tough call. It can also be forgotten that cobbles retained on either side of a smooth path amendment will continue to require maintenance (weeding) and repair (e.g. overturned kerbs).

Fig.164. A path of riven Pennant stone driven through cobbles at Tiverton St Peter. It was possible to preserve white quartzite initials in one of the cobbled borders. Level access from the footway outside the church and into the S porch made this a less complicated amendment for improved access than might be the case on another site.

Devon churchyard cobbles, March 2016. Keystone.

Fig.165. The riven surface of the new path at Tiverton St Peter collects water in wet weather, which is not ideal for access if it freezes, but was chosen as a better fit with context than Pennant with a smooth finish.

Devon churchyard cobbles, March 2016. Keystone.

Covering Over

Examples of tarmac covering cobbles were usually identified only because thin or worn tarmac had exposed something of the cobbled path surface [Fig.166]. Covering over with tarmac (or concrete) would now be unlikely to receive a faculty (*pers.comm.* DAC staff) reflecting changed perceptions about the importance of retaining high visual quality in a churchyard.

Fig.166. Cobbles visible through tarmac at Kennerleigh church.

The most recent example of covering over cobbles at Black Torrington, on a steep path, followed temporary use of coir 'cricket matting' over the cobbles [Fig.167]. This was used for several years and proved serviceable but froze after wet weather in winter and the PCC considered that it was inhibiting access to a busy church that provides many facilities for young and old in the small town and has a heavy footfall. In 2010 a faculty was granted for the use of a product 'playtop', an impact-absorbing playground surface laid over a membrane over the cobbles, which survive below. This was a controversial proposal with 20 objections. Only one objection was from a worshipper, but the numbers of objections within the faculty system, which is not understood as well as the secular system for objecting, revealed a widespread concern in the drawbacks of losing sight of the cobbles. This pinpoints a very difficult issue for churchwardens which is eliciting and valuing the opinions of those who are not regular church worshippers, but who have a sense of ownership of the church building and churchyard. Some urban churchyards, in particular, are used as local shortcuts and paths may be used daily by residents who rarely, or never, enter a church. Discussions preceding the faculty for the work at Black Torrington included assertions that the path was not really 'cobbled' at all. Perhaps because it was built of flat-topped rather than pebble-shaped cobbles. It is hoped that the definitions provided in this report will clarify future debates. Replacing the tubular handrails that had accompanied the coir matting with handrails of a better design at Black Torrington was a condition of the faculty. According to technical literature, Playtop should be lifted and inspected every five years. The churchwardens are pleased with the results which, in the opinion of the authors of this report, have had a considerable impact on the aesthetics of the entrance to the church, which now has a bland and somewhat industrial appearance [Fig.168].

Devon churchyard cobbles, March 2016. Keystone.

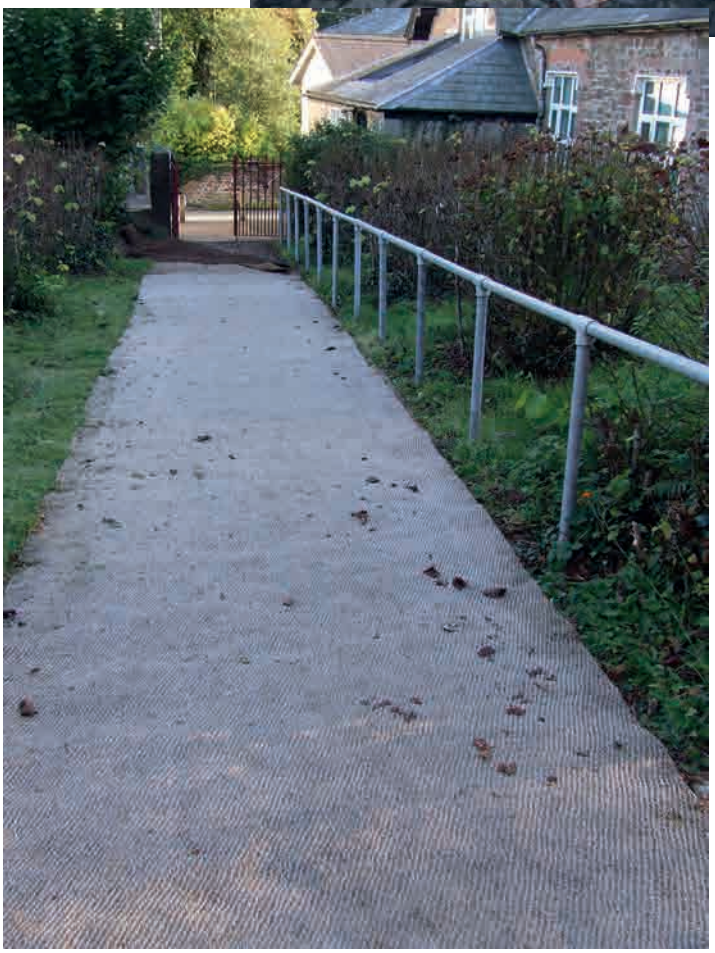


Fig.167. Coir matting (since replaced) used to cover cobbles on a steep path to a busy church at Black Torrington. Photographs supplied by the DAC.

Devon churchyard cobbles, March 2016. Keystone.

Fig.168. 'Playtop' laid over the Black Torrington cobbles, which are protected by a membrane. The detailing is utilitarian.

Temporary covering over of cobbles was not seen over cobbled paths [Fig.169]. The suggestion that churches might make use of a mat that could be rolled out for, say, weddings and funerals, for which there may be a tradition of using a west entrance, has been discussed during the stage of informal advice from the DAC (e.g. at Crediton, Holy Cross). This could be rolled up and stored when the W entrance is not in use. This has not been tried out. For long paths, e.g. at Petrockstow, it would be burdensome to put down and require considerable storage space and it would be difficult to manage on curved paths. Keystone investigated what might have been a more permanent (and no doubt expensive) covering option, an 'eye-mat'. This is a type of matting is printed with a series of 1-1 photograph of the flooring below. Eye-mats are currently used in a number of heritage contexts, e.g. covering over brasses and medieval tiling in church buildings to spare them from footfall damage. Presumably potential ventilation problems have been solved, given that they have been used in National Trust houses, as well as cathedrals. To date the company producing these mats does not produce a product suitable for exterior use.

Fig.169. Temporary rubber matting over uneven slabs at Marwood.

Bye-Paths

New paths that bypass the cobbled path were suggested at the stage of informal advice from the DAC at Tiverton St Peter, Black Torrington and Poltimore St Mary. Politmore St Mary is the only church which chose this solution. Bye-paths offer a fresh start with a new path that can be constructed at a good width and with a smooth surface. In practice there can be a reluctance to abandon what is often the most efficient, as well as the traditional, route to the main architectural entrance to the church. Bye-paths can be difficult to route without disturbing burials. Existing cobbles at the main entrance to the church (if this continues in use) may have to be lifted. If a bye-path results in a cobbled path being abandoned, it leaves no motive for keeping the cobbles maintained and repaired.

At the small church of Poltimore St Mary a bye-path was created by lifting some cobbles in a path notable both for having the earliest date in a churchyard path, 1743, and for being constructed of very small pebbles, probably brought from some distance. The pebbles are inherently problematical, their small size making them very easy to dislodge. A path of concrete flags, a good surface for many disabilities, was created from the lychgate, past the cobbles leading to the south porch and, then in tarmac, round to a level entrance in through the west door in the tower [Fig.170]. In practice (*pers.comm*. the church key-keeper) only the flagged section of the path bye-path is actually used, church-goers preferring then to cross over the small pebbles to enter, as they always have done, via the south porch.

Fig.170. The bye-path at Poltimore. The cobbles in front of the S porch continue to be used out of preference for the traditional S porch rather than the W entrance.

Devon churchyard cobbles, March 2016. Keystone.

Handrail provision

The provision of handrails is a common amendment to ease access, although one curate was mistakenly certain that permission would not be granted for handrails via the faculty system. Some handrails are more elegant and less assertive than others: the tubular 'scaffolding' type is unattractive and can include joints uncomfortable to the hand. Not all handrails satisfy a range of disabilities: access to the burial ground may leave gaps in the rail, awkward for people with poor or little sight. The Coldridge handrails, installed in 2011, are accompanied by a sensible notice recommending that they are used [Fig.171]. The guidebook to this historically very interesting church has found room for a brief account of the cobbles, noting that they may not be ideal for 'Sunday best' shoes but are a source of pride for the church. Handrails can be planted alongside a path. Cantilevered handrails at a convenient height, as Jan Loveless notes above in section 13, can be provided when the path is deeply-sunk, but these can also prevent churchgoers from stopping and resting on the walls. Handrails are not appropriate if the path is steeply-cambered as they encourage people to walk along sloping edges.

Fig.171. Handrails installed at Coldridge following a 2011 faculty. These are accompanied by a sensible notice on the churchyard entrance. The uprights of the Cadeleigh handrails are fixed into the cobbles. There may have been reasons why a cantilevered arrangement off the churchyard turf was not possible.

Signage and other means of alerting visitors to cobbled paths

Some churchyards have warning signs about cobbled paths. These are usually handmade and attached to churchyard entrances [Fig.172]. Keystone has not undertaken a trawl through church websites, but our impression is that this opportunity to alert visitors to cobbled paths is not exploited. Research by Jan Loveless established that the national online directory of Anglican churches, *www.**achurchnearyou**.com* that lists over 16,000 churches and provides service times might, in the course of time, be able to include information on access that should include an indication of the existence of cobbles paths.

Fig.172. Signage: Cheviethorn and Hatherleigh. Handwritten signs are common.

Lighting

Most churchyard paths are unlit for use after dark, whether they are cobbled or not. For busy churches with many evening events, this is a general access problem.

18 - Conclusion

Judging from the fully-booked conference held in Exeter in November 2015 there is a growing interest in cobbled surfaces. Conference feedback forms show that there is a real appetite for a technical guidance note on the maintenance and repair of cobbled paths. It would be helpful if the SPAB and Historic England would reflect on how this might best be done. The diverse character of paths and different methods of construction (e.g. the provision or not of a sub-base) and the variations in the composition of the earthen matrix makes it unlikely that any 'one-size-fits-all' specification for repairs or relaying will suit every path. The very valuable publications on cob building, where variations in the material and aggregate used have similarities, produced by the Devon Earth Building Association would be good models.

An important and positive point is that cobblestone-laying and repair skills are alive and well in Devon, one practitioner commenting that requests for cobblestone-laying are increasing (*pers. comm.* Steve Leigh-Browne). Those who take an interest in the very successful revival of cob repair and cob building in the county will know that this began at a time when the traditional skills base had reduced to a tiny number of individuals, with one man, Alfie Howard, central to the revival. It is a huge advantage that there is not only an existing skills base for cobblestone-laying, but also an existing system for teaching. The Devon Rural Skills Trust continues to run occasional one-day learning courses. These are usually at a 'real' but carefully-selected site, where the owner pays a modest sum and students a small fee to undertake cobblestone-laying tutored by an experienced practitioner.

At the cobbled church paths conference, John Alexander, who supervised the SPAB-funded repair trials at Merton as the church quinquennial architect, posed a series of useful questions.

1. At what point is maintenance required?
2. At what point is repair necessary?
3. Can cobbled paths be repaired by a non-skilled enthusiast?
4. What should be specified for cobbled paths?
5. Extent of investigations before work is carried out?

This project has not provided answers to all these questions. However, some general principles for maintenance have emerged.

- The intrinsic non-slip qualities of Culm Measures sandstone cobbles indicates that 'slipperiness' comes not from the cobblestones but from algal growth (as well as moss and weeds). The use of silver sand, recommended in Historic England's *Easy Access to Historic Landscapes* has not, as far as we are aware, been trialled on any of the church paths to control algal growth. This will not harm a cobbled path.
- Paths in use should be kept clear of organic matter to help control humus-development and further weed-growth in the jointing, e.g. removing leaves/needles.
- Moss and grass are probably not seriously harmful to cobbles but can be removed from well-used paths if they are considered to be hazardous (this can be by hand-weeding or chemical weed-killer, depending on context and preferences. Chemical weedkiller should be used according to instructions). Deep-rooted weeds are not commonly seen but should definitely be removed.
- Lost jointing material (whether from scour out, or as a result of weeding) between the cobblestones can be replenished. This should avoid destabilisation of the cobblestones and contribute to keeping them as even as possible. A safe option would be to brush in dry subsoil (not topsoil). This may be sieved and mixed with gritty sand, although the

desirable proportions of sand to subsoil are unclear. The brushing in should be done so as to keep the cobblestones clean (so best to undertake in dry weather). The path should be watered afterwards (from a watering can with a rose, or wait for rain) and watering may need to be done twice.

- Where possible trees lining a path should be managed so as to provide as much light and ventilation to the path as possible. Trees and shrubs should not be planted adjacent to paths or in between existing trees.
- If the path has dished drains, whether cobbled, stone or ceramic, they should be be kept clear of organic matter/obstacles.
- Bearing in mind the importance of edge restraint and the need for kerbs to be buttressed, any churchyard /path maintenance that removes material from the outer edges of kerbs should be avoided. e.g. do not remove earth or cut away turf adjacent to kerbs. Revetment walls should be kept in good order.

Extent of investigations beforehand

This will always depend on the nature and extent of the visible problems. All that can be said at present is that following should be carefully considered when inspecting any path.

- A sketch of the path and a rapid photographic record of failures and their location is useful.
- What is the condition of the edge restraint? If there are overturned or lost kerbs, these should be repaired speedily as, on current understanding, this can lead to the spreading of the path which is expensive to put right.
- How is the path drained and is anything interfering with drainage?
- Is shade and poor ventilation contributing to problems and can this be put right?
- Are there earlier repairs in cement?
- The location of repairs should be noted on a sketch drawing so that they can be monitored.

  As section 7 of this report indicates, an understanding of the composition of the earthen matrix of the jointing and the composition of the sub-base would be valuable, but how this analysis should best be done and the results disseminated, needs further investigation.

Repairs

Can cobbled paths be repaired by a non-specialist enthusiast?

In principle, the answer to this is 'yes', provided there is an understanding of the principles of cobblestone-laying and the construction of paths, both outlined in summary form and as far as understood to date for this project - in this document and a willing individual or group of reasonably fit individuals with good knee joints. Paying for a day working on the actual path to be repaired with a skilled and experienced professional would be a highly-desirable precursor to DIY work. This means finding a traditional cobblestone layer (the DAC has a developing list of these) who would be willing to give tuition.

What should be specified?

As indicated above, more investigation of paths and failures is needed before this can be answered.

- Cement repairs to jointing or bedding should be avoided in principle and inherited examples reversed where possible.

Approaches to the requirements of the Equality Act

The following bullet points were provided by Jan Loveless as a summary duing her lecture at the churchyard cobbles conference.

- Provide clear information (website, leaflets, sign at entrance to path, Access Statement describing the access to and at the church)
- Take a creative approach, involve an access advisor, conservation specialist & local disabled people where available
- Establish significance
- Carry out an Access Audit (this should not start and stop with the cobbled path) & act on recommendations
- Agree best way forward with path

Examples of ways of making a 'reasonable' adjustment

- Avoid the path
  E.g. alternative approach
  Wheelchair and trained volunteers can help in some instances
- Alter the path's accessibility
  Provide handrails
  Repair the surface so that it is more even
- Remove the barrier
  by covering or providing a level path through which allows cobbles to be seen on either side
  by covering over the path (such as with playground covering – this is good surface but not that sustainable and can come away at the edges creating gaps.

General Principles

- Examine each case individually & in its particular context (the context is really important – the access of the church has to be looked at as a whole)
- Provide clear information
- Keep the path well maintained
- Involve local disabled people and access advisor
- Start by making simple access improvements that benefit everyone
- Test out ideas - what works and what doesn't
- Make an action plan for improving access & include a maintenance plan

Prospects for funding work on cobbled paths

A preliminary informal approach to Simon Timms of the Heritage Lottery Fund indicates that there are prospects for HLF funding for projects on cobbled paths. There are two options for funding. A one-off application could be made from an individual church (or village) under the Big Lottery Awards for All scheme. This would need to be a project that was not simply about funding repair, but involved volunteers, skills training and some research. A cobbles project would be attractive to the HLF for the opportunity to include a better understanding of the natural environment (geology, sources of material, tree management etc). Another option would be a larger application with an umbrella organisation applying for funding and individual churches (plus perhaps others with a responsibility for cobbled paths) applying for funds to the umbrella organisation. An application of this kind would need the same breadth as Awards for All.

The advantage of a larger project would be the opportunity to share skills and experience between sites and, depending on how the project was set up, to answer some of the outstanding questions about construction and performance and disseminate this both between sites but also on the web. The involvement of the Devon Rural Skills Trust, the County Council Highways Authority (responsible for many cobbled village footways) and the DAC could be explored.

There may be other opportunities for local funding. Any application would have to be founded on the willingness of local groups, including volunteers, to find the time and energy to be involved in the design and execution of a project. It is acknowledged that this may be difficult for churches.

Making good use of the web

This project has been accompanied by a Devon Buildings Group Facebook page on Devon cobbles. Some of the posts have been seen by considerably more than twice the number of the group's entire membership. It is hoped that the video made of the Merton trials will appear on youtube in due course. Thanks to Lucy Jacob of the SPAB the key points made by speakers at the Devon churchyard cobbles conference were instantly in the twittersphere. Maintaining a web presence for cobbles and their repair with opportunities for individuals to contribute thoughts and experience could do much to improve the perceptions of this undervalued form of surfacing.

Devon churchyard cobbles, March 2016. Keystone.

Endnotes

[1] http://www.london.anglican.org/kb/provision-for-people-with-disabilities.
[2] Jane Root, 'Paving the Way', *BCB Special Report, Historic Gardens*, 2002, 28-30, 29.
[3] DALSS, 269A/PW8.
[4] Yeo, 1987, 1.
[5] Based on Extracts from Brady's *The Nature and Properties of Soils, 1974*
[6] This draws on Pannell, 1977, 26-35
[7] Beazley, 1962, 26.
[8] DALSS, 5333M/E1.
[9] Jackman, W T, *The Development of Transportation in Modern England*, 1962 has extensive references to primary sources, most of them revealing the irritating ambiguities of terminology noted in this report, making it difficult to tease cobbles out from other types of hard surface.
[10] e.g. in *The Barnstaple Records* ed. Chanter and Wainwright, cited by Jackman, 38.
[11] DALSS, Chudleigh, PW1 churchwardens account book 1561-1677.
[12] Primary source material relating to the Bideford Bridge Trust in the DALSS.
[13] White's introduction to Ogilby's *Highway Atlas*, p.111.
[14] *The Journeys of Celia Fiennes*, 1947 edn., 245.
[15] *The Journeys of Celia Fiennes*, 1947 edn., 251.
[16] Marshall, 1796, Vol.1, 31.
[17] Marshall, 1796, Vol.1, 287
[18] 'The Battle of the Blocks: The Paving Question' *Blackwood's Magazine*, Vol.53, May 1843, 616,
[19] Lomax, Edward & Gunyon, Thomas (eds), *Nicholson's Dictionary of the Science and Practice of Architecture, Building, Carpentry*, Vol.I (1857-62), 266.
[20] Boulnois, 1895, 34-35 and 41-47.
[21] *Western Times*, 19.05.1893.
[22] *North Devon Journal*, 21.11.1895.
[23] *Devon and Exeter Gazette*, 05.05.1904.
[24] *Devon and Exeter Gazette* 3.03.1906.
[25] *The Western Times*, 8.10.1907.
[26] *Devon and Exeter Gazette*, 13.11.1908.
[27] *Western Morning News and Mercury*, 14.11.1929.
[28] *The Citizen* 11.02.1933.
[29] Maguire, R., *Architectural Review*, Feb. & April 1957.
[30] Eydmann, S and Halstvedt, H 'Current issues in the revival of traditional stone paving' *Context*, 56, December 1977, 36.
[31] e.g. 'Protecting the Street Scene' by Nigel Green; 'A Paving Strategy' by Philip Grover and Roy Lewis; 'Paving: becalmed in Barton Upon Humber' by Rob Lawson and 'Surface Enhancement in Village Conservation Areas' by Richard Ward, all in *Context*, 41, March 1994, 7-18
[32] Eydmann, S and Halstvedt, H 'Current issues in the revival of traditional stone paving' *Context*, 56, December 1977, 36. *Ibid.*
[33] 'Protecting the Street Scene' by Nigel Green, *Context*, 41, March 1994,8.
[34] This reference from the website of the East Devon Pebblebeds Projects cites this information in a 1991 publication by a local historian, Ursula Brighouse. We were unable to find the publication.
[35] *The Devon and Exeter Daily Gazette*, 28.06.1895.
[36] Henderson and Weddell 1994, 132-4.
[37] Henderson and Weddell 1994, 132-4.
[38] Weddell, P. 1985, 84.
[39] Blaylock 2004, 121 & 132.
[40] DALSS, 5333M/E1.
[41] *The Western Times*, 8.05.1908.
[42] e.g. as illustrated in Jekyll and Weaver, *Gardens for Small Country Houses*, f.p.1911, 1983 edn.
[43] Chalk, 1905, 135.
[44] *North Devon Journal*, 20.04.1876.
[45] The OS map shows that one path in place on the N side of the churchyard in 1887 has been lost and another added since. The addition makes use of river channel cobbles but laid between concrete kerbs.
[46] Daniell, 1997, 110.

Devon churchyard cobbles, March 2016. Keystone.

[47] BRO, P/St J J/F/28/15.
[48] Orme, 2009, 23.
[49] Illustrated on p.149 of Mark Girouard's *The English Town*, 1995.
[50] Brooks, 1989, 4-5.
[51] Houlebrooke, 1999, 197.
[52] Loudon, 1843, 80.
[53] There are three stiles in the boundary wall of St Nectan's church, Hartland and two at Buckfastleigh. Gazetteerers noted, in passing, stiles at Ipplepen; Ashprington; South Tawton; Monkleigh, Welcombe and West Worlington - this last is a timber structure and perhaps not in its original position. No doubt there are others.
[54] Loudon, 1843, 74.
[55] *Western Times*, 18.06.1851.
[56] *Western Times*, 18.06.1851.
[57] The arrangement to separate non-conformist from Anglican burials in the Tiverton cemetery generated a heated row with Bishop Phillpotts, who refused to consecrate it on the grounds that the wall between the two sections of the ground was inadequate in height.
[58] This and the photograph of 1890 mentioned below are part of the Francis Frith collection.
[59] *Pers.comm.* Paul Bowd and Dr Stuart Blaylock.
[60] Loudon, 1843, 94.
[61] *Exeter and Plymouth Gazette*, 13.10.1865.
[62] *Exeter and Plymouth Gazette*, 24.07.1891.
[63] Research and Statistics Department, the Archbishop's Council *Celebrating Diversity in the Church of England National Parish Diversity Monitoring*, 2007.
[64] http://www.salford.ac.uk/built-environment/research/research-centres/surface/research/going-outdoors-falls,-ageing-and-resilience-go-far.
[65] The accounts of Finch Foundry, Sticklepath, which combined a forge and sawmills at that date, refer to the sale of a 'rammer' in 1945.

Devon churchyard cobbles, March 2016. Keystone.

Appendix One

Principal cobbled paths

LPA	Church	Rural/ Urban	Footfall	Type of path
DNPA	**Dunsford**, St Mary	Rural	Medium	Principal
DNPA	**South Tawton**, St Andrew	Rural	Medium	Principal, Sub-path
ED	**East Budleigh**, Salem Chapel	Urban	Medium	Principal, 2 sub-paths
ED	**Sowton**, St Michael & All Angels	Rural	Low	Principal
ED	**Upton Pyne**, Church of our Lady	Rural	Medium	Principal, Lychgate, Other
Mid	**Cadeleigh**, St Bartholomew	Rural	Low	Principal
Mid	**Cheriton Bishop**, St Mary	Rural	Medium	Principal, Sub-path
Mid	**Coldridge**, St Matthew	Rural	Low	Principal
Mid	**Colebrooke**, St Andrew	Rural	Low	Principal, Sub-path, Other
Mid	**Crediton,** Holy Cross	Urban	High	Principal, 7 Sub-paths, Other
Mid	**Crediton**, St Lawrence Chapel	Urban	Low	Principal, Sub-path
Mid	**Kennerleigh**, St John the Baptist	Rural	Medium	Principal, Sub-path
Mid	**Sandford**, St Swithun	Rural	Medium	Principal, 6 Sub-paths
Mid	**Silverton**, St Mary the Virgin	Rural	Medium	Principal, Sub-path
Mid	**Tiverton**, St George	Urban	High	Principal, 2 sub-paths
Mid	**Tiverton**, St Peter	Urban	High	Principal, 7 Sub-paths Other
Mid	**Upton Hellions**, St Mary	Rural	Low	Principal
ND	**Berrynarbor**, St Peter	Urban	Medium	Principal, Lychgate, Other
ND	**Pilton (Barnstaple)**, St Mary	Urban	Medium	Principal, Sub-path, Other
ND	**Satterleigh**, St Peter	Rural	Low	Principal, Porch
SH	**Stoke Gabriel**, St Gabriel & St Mary	Urban	High	Principal, Lychgate, Other
Tge	**Buckland Brewer**, St Mary & St Benedict	Urban	Medium	Principal, Sub-path, Lychgate, Other
Tge	**Great Torrington**, St Michael & All Angels	Urban	High	Principal, Sub-path, Other
Tge	**Huish**, St James the Less	Rural	Low	Principal, Sub-path, Other
Tge	**Merton**, All Saints	Rural	Low	Principal
Tge	**Petersmarland**, St Peter	Rural	High	Principal, Lychgate
Tge	**Petrockstow**, St Petrock	Rural	Low	Principal, Sub-path
Tge	**Woolfardisworthy**, All Hallows	Rural	Low	Principal, Lychgate
TN	**Bovey Tracey**, Ss Peter, Paul & Thomas	Urban	High	Principal
TN	**Dunchideock**, St Michael & All Angels	Rural	Medium	Principal, Sub-path
TN	**Kenton**, All Saints	Rural	Medium	Principal

Devon churchyard cobbles, March 2016. Keystone.

TN	**Teigngrace**, St Peter & St Paul	Rural	Low	Principal
WD	**Bondleigh**, St James the Apostle	Rural	Low	Principal, Sub-path, Lychgate, Other
WD	**Exbourne**, St Mary	Rural	Low	Principal
WD	**Hatherleigh**, St John the Baptist	Urban	High	Principal, Sub-path, Other
WD	**Inwardleigh**, St Petrock	Rural	Low	Principal
WD	**Meeth**, St Michael	Rural	Low	Principal, Porch
WD	**North Tawton**, St Peter	Rural	Medium	Principal, 2 Sub-paths, Lychgate, Other
WD	**Okehampton**, All Saints	Urban	Low	Principal, Sub-path, Other
WD	**Spreyton**, St Michael	Rural	Low	Principal, Sub-path, Lychgate, Porch

Cobbled paths designed or amended with flags or paviours

DNPA **Ilsington**, St Michael

ED **Combpyne**, St Mary the Virgin

ED **Poltimore**, St Mary the Virgin

ED **Salcombe Regis**, St Mary & St Peter

EX **Exeter, Alphington**, St Michael

MD **Tiverton,** St Peter

ND **South Molton**, St Mary Magdalene

Tge **St Giles in the Wood**, St Giles

Covered cobbled path (covering reversible)

Tge **Black Torrington**, St Mary

Appendix Two

Extract from Beazley, *Design and Detail of the Space Between Buildings* (1962) 25-27.

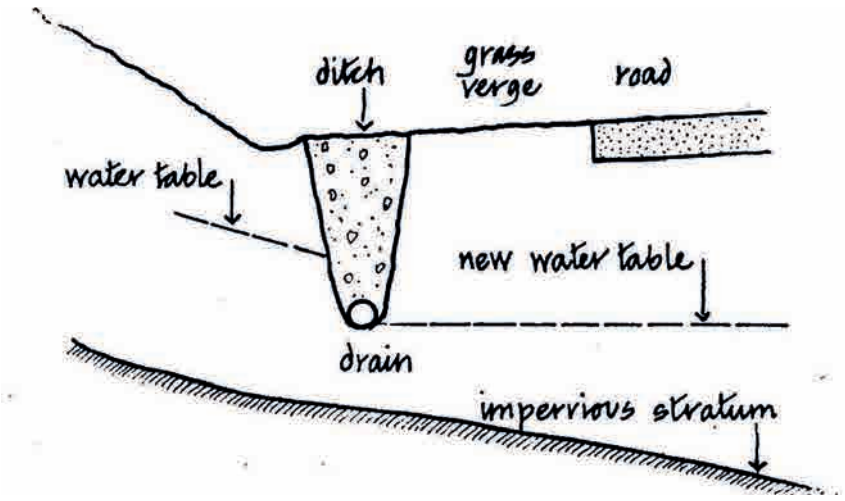
(ii) Soil types. If the soil types vary much, let common sense prevail; it may be more economical to be slightly extravagant with the foundation of a road in limited areas, than to be constantly changing the design ideally to suit each condition.

It is difficult, without some experience, to know what soils the experts consider to be 'normal' or 'very stable' or, more important 'very susceptible to non-uniform movement'; all these expressions crop up in technical literature. The following list is given in order of strength; always assuming that compaction and water content are at their optimum for the material concerned.

Very Susceptible	Galt clay
To non-uniform movement:	Heavy clay (main clay deposits of the south)
	Sub-grades with pockets of peat within 15' 0" of surface
Normal:	Lighter clays, lias clays
	Alluvial deposits, silty clays
	Sandy clays
	Fine sands
	Sandy gravel
	Gravel
Very Stable:	Solid rock
	Well-graded compacted gravel with a CBR of at least 100%

(iii) Water in sub-grade. Excess water in the sub-grade reduces its bearing capacity, and may cause frost heave in really cold weather, particularly in chalk soils. Frost may also disintegrate the road itself, if water gets in. Therefore one must beware of:

1. Rain getting in from the top (protected by surfacing).
2. Water seeping in from the sides (protected by land drainage, ditching etc.).



Sub-Grade Drainage
Where it is necessary to lower the water table, or to intercept water from higher ground, ditches are dug on either or both sides of the road. A 4" drainpipe of permeable clay or concrete, with butt or shallow spigot and socket joints, is laid in the bottom. The ditch can be filled with clinker, gravel, or rubble, graded from 3" to ¾". For lightly trafficked roads the water table should be lowered to 3' 0" below formation level. A country road is usually drained by open ditches with cross channels cut through the verge to carry the water from the road surface to the ditch. The cross channels are best filled with rubble; or they become hidden by grass and form a trap for motorists who pull on to the verge, or for horses.

It is usual to prevent rain percolating through a pavement by having an impermeable surface, and by getting the water off it quickly by a camber or straight cross-falls.

(iv) Drainage of sub-soil. The object of drainage of the soil under the road is to keep the moisture content reasonably constant.

A water table which rises, in winter, to within 3' 0" of the formation level, should be lowered in country areas. This can be done by open side ditches or French drains. Herringbone drains under the road are not recommended. In towns, the problem is a matter for discussion with the local authority. It is modern practice to have a separate system for surface water drains and sewage.

(v) Preparation of the formation. The formation is the name for the soil on which the road or pavement is constructed.

All organic top-soil must be removed and tree roots grubbed up. The depth of the soil that needs to be removed will vary from site to site, but a change in colour (top-soil is generally darker) will indicate its depth.

Further excavation may be necessary to reach the required formation level. Conversely, the sub-soil may have to be made good in certain parts because of pitting, or ponding where materials have been dumped and caused saturation of the sub-soil. Trenches for service pipes (often under pavements) are liable to become water traps and cause the ground to be soggy.

Saturated areas should be excavated to a good hard sub-soil and the levels made up with soil or any suitable base material, well consolidated. Loose materials should be consolidated in depths not exceeding 9" (loose); six passes with a heavy (8-12 ton) roller should do the job. With a light (10-15cwt.) roller, the layers should not exceed 6" loose. A light roller only may be available on small jobs, and on large ones may be preferred if the soil is wet.

The formation should be well rolled, if possible when the soil is comparatively dry, and consolidated to the camber (if any: cross-falls are generally preferred as they entail drainage on one side only) and falls required of the eventual profile. Rolling will not reduce the moisture content of a soil but if it has been compacted to a high density when relatively dry it will take up less moisture subsequently. To achieve a high bearing capacity in a soil both a low moisture content and a high density are necessary. Heavy clays should not be rolled; they cannot be compacted beyond their normal state, and rolling tends to remould and weaken them.

Appendix Three

List of Case Studies. Church paths at the following churches were considered in more depth. They were selected for representing a range of problems or as examples of churchyards with interventions to cobbled church paths.

Black Torrington, St Mary (covered over with 'Playtop')
Bondleigh, St James the Apostle (scatter of roadstone and small-scale repairs)
Buckland Brewer, St Mary and St Benedict (traditional repairs including replacing tarmac patch, moss growth on path flanked by trees)
Crediton, Holy Cross (smooth path taken through one of several cobbled paths)
Exbourne, St Mary (flat, wide, straight path kept weed-free with small-scale repair noted)
Great Torrington, St Michael and All Angels (multiple paths in and around churchyard, one replaced)
Huish, St James the Less (multiple paths in churchyard suffering from weed growth under trees and 'floating apart', compares with cobbled courtyard outside church boundary in good condition, used for car parking)
Meeth, St Michael (patterned path disturbed by deciduous tree roots, maintained by hand-weeding, some reversal of cement repairs)
Merton, All Saints (patterned path with SPAB funded trial repairs of overturned kerbs and slumps)
Petrockstow, St Petrock (long steep path severely-narrowed by flanking trees and suffering from ponding)
Poltimore, St Mary the Virgin (path of very small pebbles in poor condition, smooth path plus bye path created)
Tiverton, St Peter (smooth path driven through wide cobbled path, one of a network of churchyard paths, some of which have been repalced with late 20th century pebbles, some cement repair of traditional paths)
Upton Pyne, Our Lady (several paths in churchyard, including dated path, grassed over. Experimental flattenig of slumps trialled with a plate-compactor (unsuccessful) attempted. Some small-scale repair using weak cement mixture. The 'Causeway' immediately outside the churchyard boundary wholly re-laid in the c. 1980s in good condition but poor drainage design).

Sources Consulted

Published

Anon., 'The Battle of the Blocks: The Paving Question' *Blackwood's Magazine*, Vol.53, May 1843, 616,

Access – Improving the accessibility of historic buildings and places. NDA 2011

Approved Document M of the Building Regulations 2010. TSO, 2004 (incorporating 2010 and 2013 amendments)

Beazley, Elizabeth, *Design and Detail of the Space between Buildings* (1962)

Blaylock, Stuart R., (2004) Bowhill: *The archaeological study of a building under repair in Exeter, Devon, 1977-95* (2004)

Boulnois, H Percy *The Construction of Carriageways and Footways* (1895).

Brady, *The Nature and Properties of Soils* (1974)

Brighouse, Ursula W, *Woodbury: A View from the Beacon* (1998)

Brooks C, *Mortal Remains* (1989).

Brown, S., and Laithwaite, M., 'Northwood Farm, Christow: ' An Abandoned Farmstead on the Eastern Fringe of Dartmoor', *Proceedings of the Devon Archaeological Society*, No.50 (1993)

BS8300:2009+A1 2010 Design of buildings and their approaches to meet the needs of disabled people – Code of Practice. BSI (2010).

Centre for Accessible Environments, *Designing for Accessibility* (2012).

Chalk, Edwin S. *A history of the church of S. Peter Tiverton in the diocese of Exeter, 1905*

Chanter, J R & Wainwright, T, (eds) *Reprint of the Barnstaple Records*, Vol.1 (1900).

Cherry, Bridget & Pevsner, Nikolaus, *The Buildings of England: Devon* (1989).

Churchcare, *Statements of Significance and Statements of Needs* (2014).

Churchcare,*Accessibility and Disabled People* (2013).

Daniell, Christopher, *Death and Burial in Medieval England 1066-1550* (1999).

Historic England, *Strategic Stone Study: A Building Stone Atlas of Devon* (September 2012).

Historic England, *Streets for All – South-West, Historic England* (n.d. about 2006).

Historic England*, Easy Access to Historic Buildings* (2015).

Historic England*, Easy Access to Historic Landscapes* (2013).

Equality Act (2010).

Erskine, Audrey M (ed.), *The Accounts of the Fabric of Exeter Cathedral , Part I: 1279-1326*. Devon & Cornwall Record Society, Vol.24 (1981)

Erskine, Audrey M (ed.), *The Accounts of the Fabric of Exeter Cathedral, Part 2: 1328-1353*. Devon & Cornwall Record Society, Vol.26 (1983).

Eydmann, S & Halstvedt, H, 'Current issues in the revival of traditional stone paving', *Context,* 56, December 1977.

Farquharson, Barbara & Dymond, Sue, *Cliff and Beach at Branscombe* (2014).

Fawcett, Trevor, *Paving, Lighting, Cleansing: Street Improvement and Maintenance in Eighteenth-Century Bath* (repr. May 2000).

Goubitz, Olaf, *Stepping through Time: Archaeological Footwear from Prehistoric Times until 1800* (2007).

Girouard, Mark, *The English Town* (1995).

Goubitz, Olaf, Archaeological footwear from Prehistoric Times until 1800 (2007)

Green, Nigel, 'Protecting the Street Scene', *Context*, 41, March 1994.

Grover, Philip & Lewis, Roy, 'A Paving Strategy', *Context*, 41, March 1994.

C. G Henderson and P.J. Weddell , 'Medieval Settlements on Dartmoor and in west Devon: The evidence from excavations' *Proceedings of the Devon Archaeological Society*, No 52, (1994), 119-140.

Historic England, *Streets for All: South West*(2006)

Historic England, *Easy Access to Historic Buildings* (2015)

Historic England, *Easy Access to Historic Landscapes* (2013)

Jackman, W T, *The Development of Transportation in Modern England* (1962).

Jekyll, Gertrude and Weaver, Lawrence, Gardens for Small Country Houses, f.p.1911, 1981 edn.

Jupp, Peter & Gittings, Clare (eds), *Death in England: An Illustrated History* (1999).

Lawson, Rob, 'Paving: becalmed in Barton Upon Humber', *Context*, 41, March 1994.

Lepine, David & Orme, Nicholas (eds), *Death and Memory in Medieval Exeter.* Devon and Cornwall Record Society, Vol.47 (Exeter 2003)

Litten, Julian, *The English Way of Death: The Common Funeral Since 1450* (1992).

Lomax, Edward & Gunyon, Thomas (eds), *Nicholson's Dictionary of the Science and Practice of Architecture, Building, Carpentry*, Vol.I (1857-62), 266.

Loudon, John Claudius, *On the Laying Out, Planting, and Managing of Cemeteries and On the Improvement of Churchyards* (1843).

Marshall, William, *Marshall's Rural Economy of the West of England (1796)* Vol.1 (1970).

Maguire, R, *Architectural Review*, Feb. & April 1957.

Morris, Christopher (ed.) *The Journeys of Celia Fiennes* (1947).

Panell, J.P.M. *Man the Builder (*1977).

Penton, John, *Widening the eye of the needle*: Access to church buildings for people with disabilities (2008).

Research and Statistics Department, the Archbishop's Council *Celebrating Diversity in the Church of England National Parish Diversity Monitoring,* 2007.

Root, Jane, 'Paving the Way', *BCB Special Report, Historic Gardens* (2002), 28-30, 29.

Statutory Codes of Practice, Disability Rights Commission/EHRC, Various dates

Weddell, P 'The Excavation of Medieval and Later Houses at Wolborough Street, Newton Abbott' *Proceedings of the Devon Archaeological Society* (1985), No.43, 77-109.

Ward, Richard, 'Surface Enhancement in Village Conservation Areas', *Context*, 41, March 1994.

Watkin, Hugh R, *Dartmouth: Vol.1 – Pre-reformation*. The Devonshire Association. Parochial Histories of Devonshire, No. 5 (1935)

White, Paul, *The South-West Highway Atlas for 1675* (2005).

Yeo, Geoffrey, *The Monks of Cowick* (1987).

Newspapers

Devon and Exeter Gazette, 05.05.1904.
Devon and Exeter Gazette, 13.11.1908.
Exeter and Plymouth Gazette, 13.10.1865.
Exeter and Plymouth Gazette, 24.07.1891.
North Devon Journal, 20.04.1876.
North Devon Journal, 21.11.1895.
The Citizen 11.02.1933.
Western Morning News and Mercury, 14.11.1929.
Western Times, 18.06.1851.
Western Times, 19.05.1893.
Western Times, 8.10.1907.

Devon churchyard cobbles, March 2016. Keystone.

Unpublished
Inspection of Churches Measure 1955 (as amended) Notes for Church Inspectors

Bristol Record Office
BRO, P/St J J/F/28/15.

Devon Archives and Local Studies Service
DALSS, Chudleigh, PW1 churchwardens account book 1561-1677.
DALSS, 269A/PW8.

DALSS, 5333M/E1.
DALSS, 1238A PS 4, 6.

Francis Frith collection

Websites
www.london.anglican.org/kb/provision-for-people-with-disabilities.
www.legislation.gov.uk/ukpga/Will4/5-6/50/contents – Highway Act 1835
www.pebblebedsproject.org.uk
www.devonbuildingsgroup.org.uk

Acknowledgements
ACE Archaeology Club; John Allan; John Alexander; Kim Auston; Louise Bartlett; Dr Stuart Blaylock; Sally Boardman; Oliver Bosence; Sarah Bosence; Paul Bowd; Roger Bowdler; Stewart Brown; Tim Bucknall; Alison Bunning; Richard Bunning; Richard Burrows; Simon Cartlidge; Peter Child; Rebecca Child; John Clarke; Philip Collins; Tim Cromack; David Gander; Peter Dare; Maggie Goodall; Jennie Goodwin; Ray Harrison; Barry Honeysett; Dawn Honeysett; Bill Horner; Bruce Induni; Lizzie Induni; Lucy Jacob; Ellie Jones; Francis Kelly; Steve Leigh Browne; Jan Loveless; Fiona Marlow; Peter Marlow; Meriel O'Dowd; Richard Parker; Jonathan Rhind; Jeremy Sharpe; Dr Richard Scrivener; Matthew Slocombe; Eve van der Steen; Professor Chris Tilley; John Torrance; Dr Anita Travers; Stuart Tyler; Martin Watts; Andy Williams; Bill Zarrett.

Staff at the University of Exeter Library
Staff at the Devon Archives and Local Studies Service
Staff at the Exeter Cathedral archives
Staff at the Devon County Council Historic Envrionment Record
Staff at Historic England, Swindon
Staff at the British Geological Society
The Moretonhampstead History Society
The Tate Gallery

Special thanks to Devon Buildings Group volunteers and Sandi Ellison.

Keystone Historic Buildings Consultants
Report K/863
March 2016

Keystone Historic Buildings Consultants
3, Colleton Crescent
Exeter
EX2 4DG
01392 435728
keystonehb@aol.com

Devon churchyard cobbles, March 2016. Keystone.

Conditions and Limitations

This report has been prepared for use by Historic England and not to give assurance to any third party.

The purpose of this report is to give an opinion on the specific matter which was the subject of the request.

Acceptance of the report will be deemed to be acceptance of the terms of engagement and limitations.