

HERITAGE POLICY
..Safeguarding the Built Heritage



The Conservation of Architectural Ancient Monuments in Scotland

Guidance on Principles

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CONTENTS

Foreword	<i>page 1</i>
Acknowledgements	<i>page 2</i>
1. Introduction	<i>page 3</i>
2. General principles of conservation	<i>page 7</i>
3. Treatment of masonry walls	<i>page 10</i>
4. Treatment of carved and moulded stonework	<i>page 20</i>
5. Treatment of mortar	<i>page 25</i>
6. Treatment of harling and wall renders	<i>page 27</i>
7. Treatment of plasterwork	<i>page 29</i>
8. Treatment of timberwork	<i>page 31</i>
9. Treatment of floors and paving	<i>page 35</i>
10. Treatment of concrete	<i>page 37</i>
11. Treatment of historic painted decoration	<i>page 38</i>
12. Treatment of earthworks associated with architectural monuments	<i>page 41</i>
13. Treatment of vegetation at monuments	<i>page 44</i>
14. Below-ground archaeology	<i>page 49</i>
15. New buildings and developments at or near monuments	<i>page 50</i>
16. Restoration of monuments for re-use	<i>page 51</i>
17. Recording works at monuments	<i>page 57</i>
Bibliography	<i>page 58</i>
List of useful addresses	<i>page 61</i>

FOREWORD

Scotland is an old country, and is fortunate in having the remains of large numbers of buildings that, considered together, provide us with the most tangible and illuminating insights into our past. Happily, many of these buildings are structurally complete and remain in use, even if they have had to be periodically modified to meet changed requirements.

But many others are now in varying states of abandonment, surviving as anything from a magnificently sited ruin in the landscape or an 'ivy-mantled tower' that may have provided inspiration for generations of artists and poets, to little more than a few courses of stone and some enigmatic associated earthworks. Whatever their scale, Scotland's ruined buildings have become an important part of our national ethos, as anyone who has ever sent a postcard or bought a presentation tin of shortbread must be acutely aware!

What is not so readily appreciated, however, is that ruins have to be periodically maintained if they are not to collapse progressively and disappear from sight. Most buildings were intended to have roofs of some kind, and a high proportion had windows and doors in the openings through the walls. These were designed not just for the comfort of their occupants, but also to keep the onslaught of the elements at bay; once they are gone, even the most sturdily built structure starts to undergo an inexorable process of collapse if nothing is done to avert this.

Dealing with ruined ancient structures calls for a somewhat different approach from that required by buildings that have remained in use and have retained their first lines of defence against Scotland's rain, snow and wind. It should also be remembered that, since these structures provide us with one of the most accessible routes into the past, they are as much historical documents as are written charters, paintings or artefacts. In the same way as with written documents, their conservation calls for the greatest care in ensuring that nothing is done that might detract from their value as primary evidence for the past.

Taking all of this into account, this booklet offers advice on the principles by which works on ruined structures should be approached, based on the accumulated knowledge and experience of several generations of ancient monuments inspectors and architects. It is particularly aimed at the needs of owners of buildings that are scheduled as monuments of national importance under the terms of the Ancient Monuments and Archaeological Areas Act of 1979, though it is hoped that it will also be of use for owners of non-scheduled monuments. Due to the accidents of survival, these monuments date mainly from the last millennium, but they embrace an extraordinarily wide range of types, from early defences and ritual complexes, through medieval churches and castles, to relatively modern industrial complexes.

What they all have in common is that they have structural remains that stand at least partly above ground level. What many also have in common is that they have reached a stage in their life when some level of active conservation is needed to ensure that we are able to pass them on to future generations.

David J. Breeze

Chief Inspector of Ancient Monuments

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1. INTRODUCTION

1.1. This booklet offers concise guidance for owners of architectural monuments, and those working for them, on the principles by which works should be planned and carried out. It is aimed at the particular needs of monuments that are scheduled as being of national importance under the terms of the Ancient Monuments and Archaeological Areas Act of 1979, most of which are now structurally incomplete, and it is in the sense of this act that the term 'monument' is used (see sections 1.9 to 1.12 below). But it is hoped that the advice offered will be regarded as equally applicable to other monuments with structural remains.

1.2. It must be stressed that the booklet does not offer technical advice. Detailed guidance on many aspects of work on monuments can be found in the series of Technical Advice Notes published by Historic Scotland's Technical Conservation, Research and Education Division, some of which will be referred to at appropriate points below, and are listed in the bibliography. Owners of monuments will also find it helpful to read Historic Scotland's *Stirling Charter: Conserving Scotland's Built Heritage*, which defines the principles which ought to underlie the conservation of the material remains of the past.

1.3. A booklet of this kind cannot cover all aspects of work on monuments. Those dealing with buildings that are more structurally complete will find it helpful to read Historic Scotland's *The Repair of Historic Buildings in Scotland, Advice on Principles and Methods* and the *Memorandum of Guidance on Listed Buildings and Conservation Areas 1998*. These can be obtained from Historic Scotland and through libraries.

1.4. It will also be found of value to consult some of the important international charters on the principles of conservation that have been published. Amongst the most valuable of these are two published by the International Council on Monuments and Sites (ICOMOS): the Venice Charter of 1964 and the Burra Charter of 1979. These are more concerned with the conservation of historic structures in continued use or of places of cultural significance than of ruined monuments, though the basic approaches to conservation enunciated in them are of the highest importance. An analysis of all the charters that have so far been published can be found in Historic Scotland's *Guide to International Conservation Charters*.

1.5. The great majority of architectural scheduled monuments are no longer in any use related to that for which they were first built, and most are in a state of ruination. To understand why it is thought they should be worth preserving in the state they have come down to us, it should be remembered that, almost as long as people have been conscious of their past, there has been a wish to retain the more important physical remains of that past for what they can tell us about the history they represent, as objects of beauty in their own right, and for the sense of continuing purpose they represent.

1.6. Many of our own responses to the past have their origins in the period of the Renaissance, when Rome was seen as the cradle of civilisation, and efforts began to be made to preserve what had survived of its ancient remains. More recently, Scotland began to play an active role in the formulation of the principles by which ruined buildings should be conserved from the years around 1827, when a separate Scottish Office of Works was established, the lineal ancestor of Historic Scotland.

1.7. A new strand of concern for the physical remains of the past emerged in the central decades of the nineteenth century, as it came to be realised by John Ruskin and William Morris amongst others that well-intentioned but highly invasive restorations of the most important medieval buildings were resulting in major losses, as architects pursued their view of beauty of appearance at the expense of historic authenticity. In the face of these losses, it came to be realised that it was not just the appearance of buildings that was important.

1.8. The first legislation aimed at preserving monuments in Britain was the Ancient Monuments Protection Act of 1882, which provided for the protection of a group of representative monuments included in a schedule to the Act, and allowed them to be taken into state care. This first Act was concerned mainly with prehistoric or field monuments, but a second piece of legislation, the Ancient Monuments Preservation Act of 1900, extended the possibility of state care to a much wider range of monuments.

1.9. Protection was first effectively extended to ancient monuments that were not seen as candidates for state ownership or guardianship, but that were considered to be of national importance, with the Ancient Monuments Consolidation and Amendment Act of 1913. Through this Act the concept of 'Scheduling' was extended to a much wider range of monuments than in the 1882 Act, and they have since been known as 'Scheduled Ancient Monuments'. The current legislation governing works to such monuments is the Ancient Monuments and Archaeological Areas Act of 1979, the procedures under which have been slightly modified since the establishment of the Scottish Parliament in 1999.

1.10. Under the terms of subsection (2) of section 2 of the Act, the following range of activities should not be carried out without prior consent:

- (a) any works resulting in the demolition or destruction of or any damage to a scheduled monument;
- (b) any works for the purpose of removing or repairing a scheduled monument or any part of it or of making any alterations or additions thereto; and
- (c) any flooding or tipping operations on land in, on or under which there is a scheduled monument.

1.11. Under the terms of subsection (3) of section 2 of the Act such works can be carried out only if the Scottish Executive, through Historic Scotland:

- (a) ..has granted written consent (referred to ..as 'scheduled monument consent') for the execution of the works; and
- (b) the works are executed in accordance with the terms of the consent and of any conditions attached to the consent.

This means that most works within a scheduled monument require written consent before the work can be carried out, unless the works are exempted under the terms of the Ancient Monuments (Class Consents) (Scotland) Order 1996.

1.12. Under the terms of subsection (4) of section 2 of the Act:

Scheduled monument consent may be granted either unconditionally or subject to conditions (whether subject to the manner in which or the persons by whom the works or any of the works are to be executed or otherwise).

113. The approach to the conservation of monuments that is generally applied in Britain was summed up as early as 1912 by Earl Beauchamp in his introduction to the *Inspector's Report* for that year, which stated that the aim of those working on monuments should be:

‘... to avoid, as far as possible, anything which can be considered in the nature of restoration, to do nothing which could impair the archaeological interest of the Monuments and to confine themselves rigorously to such works as may be necessary to ensure their stability, to accentuate their interest and to perpetuate their existence in the form in which they have come down to us.’

114. Since the legislation affecting ancient monuments takes precedence over legislation affecting listed buildings in most respects, if a building is both scheduled and listed it is scheduled monument consent rather than listed building consent that is required for works on them. In many cases, however, planning permission will also be required, and in such cases the local authority should be consulted.

115. Before applying for scheduled monument consent, applicants may wish to discuss their proposals with Historic Scotland's Inspector of Ancient Monuments for the area to determine what is likely to be acceptable. The Inspector may in turn seek the advice of one of Historic Scotland's Architects or Conservators. There is currently no charge for this advice, though the applicants will have to arrange for works for which scheduled monument consent is granted to be carried out under an appropriate level of professional and technical supervision, the costs of which must be met by the applicants.

116. When the monument lies within an area that has been designated for its natural heritage interest, it is also advisable to discuss any proposals with Scottish Natural Heritage.



1. Architectural monuments may present a range of conservation needs, many resulting from loss of roofs, windows and floors, and from long exposure to the elements. Since passing out of active use, they may have come to be regarded as little more than a source of second-hand building materials over a long period of time.

2. GENERAL PRINCIPLES OF CONSERVATION

2.1. One of the chief aims of the ancient monuments legislation is to ensure that the most important surviving evidence for our built heritage is preserved as far as possible in the state in which it has come down to us, and is passed on to future generations without further change or loss of evidence.

2.2. Since the built heritage is one of the main channels through which we can understand the lives, aspirations and achievements of our ancestors, it is essential that as wide a range of types and ages of monuments as possible is preserved. So far as architectural monuments are concerned, it is true that higher status monuments were usually more permanently constructed and are therefore now generally better preserved than their more humble counterparts. Because of this, the picture they present of the past is an inevitably distorted one in some respects. Nevertheless, as methods of understanding evidence are increasingly refined, it is likely that we shall be able to make fuller sense of the more ephemeral types. This makes it particularly important that works of conservation involve minimal disturbance to both the monuments themselves and to their wider contexts.

2.3. Monuments are more than just the sum of their constituent parts. Many have important historical, cultural or emotional associations that give them a particular significance in the life of the nation, or of the local community within which they are set. Many also have outstanding landscape or picturesque values. In conserving them it is therefore essential that nothing is done that might impair these qualities.

2.4. All monuments differ from each other and require individual conservation solutions to ensure their stability and preservation (fig 1). The principles offered here are intended to do no more than provide guidance on the approach to works that is likely to be looked for in any application for scheduled monument consent. Solutions which might be effective in certain situations at one monument might be ineffective in similar situations but at a different monument. Solutions must always be tailored to the particular circumstances of each monument.

2.5. Since all monuments are unique they are all irreplaceable. However, it must also be accepted that, because they are generally open to the impact of the elements, and are subject to the natural processes of decay of their materials, without continuing interventions they would have a finite life. Works of conservation aim to prolong that life, but there is a balance to be struck between achieving the continued life of a monument and of carrying out works that are so invasive that they modify the monument's character and detract from its value as evidence for the age that produced it. Conservation should always be aimed at the lowest level of intervention that is consistent with achieving a monument's stability. Attempting to anticipate and forestall future structural problems can rarely be justified.

2.6. All works of conservation should aim to have an impact on the monument, that is as completely reversible as is consistent with ensuring the monument's continued stability.

2.7. For conservation of a monument to be as effective and as appropriate as possible it is essential that, before work starts, an assessment is made of its historical and cultural significance and of its structural

composition. This is likely to involve analysis of the fabric itself, research into any documentation associated with its construction and history, and consideration of any topographical, cartographic and pictorial evidence for it. Work should then be planned so that full account is taken of these factors.

2.8. Most monuments are the result of more than one phase of construction. Unless there are very strong reasons for doing otherwise, it should be assumed that all phases of a monument's structural history deserve respect and conservation.

2.9. Where works of more than minimal nature are contemplated, consideration should be given to preparing a Conservation Plan. This will provide a framework for considering the particular significance of the monuments, its range of needs, the means by which these needs are to be met, and the ways in which the monument will be subsequently managed. Historic Scotland's booklet on *Conservation Plans* provides advice on this.

2.10. Conserving architectural monuments calls for highly specialised skills. It is therefore essential that work on them is supervised by professionals with experience in dealing with the range of problems likely to be encountered at structures of the particular age and character concerned. Since historic materials may behave differently from some of their modern counterparts, it is also important that the work should be carried out by craftspeople who are familiar with the qualities of those materials.

2.11. Works of conservation cannot be once-for-all operations, although carefully considered campaigns can usually secure the future of a monument for a number of decades. In general, it is both less damaging and less expensive to carry out regular works of small-scale maintenance than to postpone conservation until a major intervention is the only way of securing a monument's continued preservation.

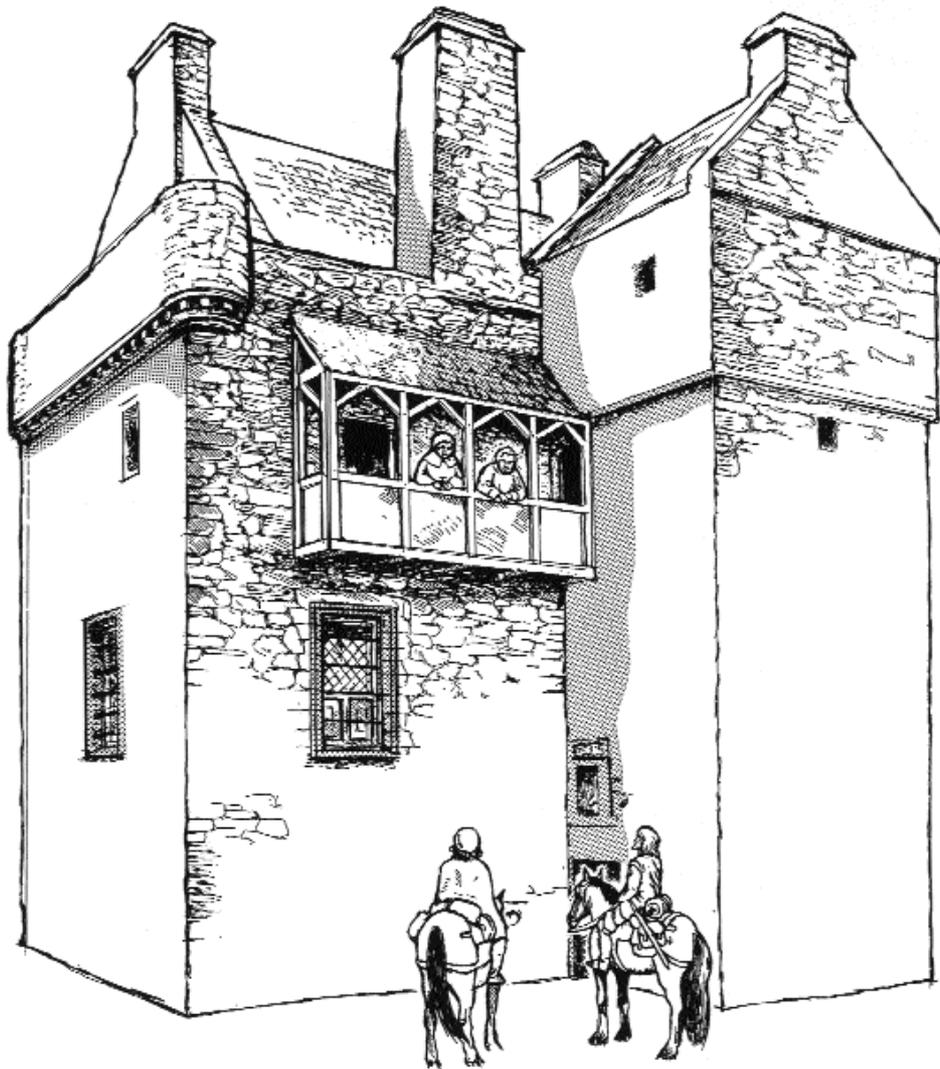
2.12. Conservation works themselves become an integral part of a monument's history. While they should always be carried out in a self-effacing and sympathetic manner, any physical impact they have on the monument should nevertheless be identifiable on close inspection by those who are trying to understand the monument. Works of conservation should also be properly recorded, and in operations of more than minimal significance, copies of that record should be deposited in appropriate national and local archives. (See section 17 below.)

2.13. Although at the great majority of scheduled monuments all forms of restoration as opposed to conservation should be avoided, part of the process of achieving an understanding of a monument may involve a mental process of reconstructing the parts that have been lost. It can be valuable for others with an interest in monuments if this process is given permanent form as drawings or models (fig. 2). But it must be accepted that such reconstruction usually represents no more than a balance of possibilities based on our current state of understanding, and in most cases there can be no justification for imposing these ideas on the monuments themselves.

2.14. While the aim for most scheduled monuments is to preserve them in the state in which they have come down to us, it is accepted that for certain monuments restoration for active use may be the most viable way of ensuring their continued existence. These might include some tower houses that are sufficiently complete to be considered as candidates for renewed occupation, or churches that might be brought back into use for worship, for example. In those cases it is essential that the surviving historic fabric and the existing inter-relationships between all of the constituent parts are preserved with as little change as possible. It is also important that any additions that have to be made are firmly based on the structural and archaeological evidence, and that those additions are designed to be technically and

aesthetically compatible with the historic fabric. All of this can be achieved only if the full cultural significance of the monument has first been properly assessed.

2.15. Monuments do not exist in isolation, and consideration must be given to the impact that any works might have on the wider archaeological, landscape and ecological context. In this respect, it is usually advisable to seek advice from Scottish Natural Heritage on any natural heritage significance that may be attached to the site.



2. Understanding the evidence embodied within the surviving fabric of a monument may be assisted by undertaking studies of how it would have looked when complete, though such studies can seldom be more than speculative.

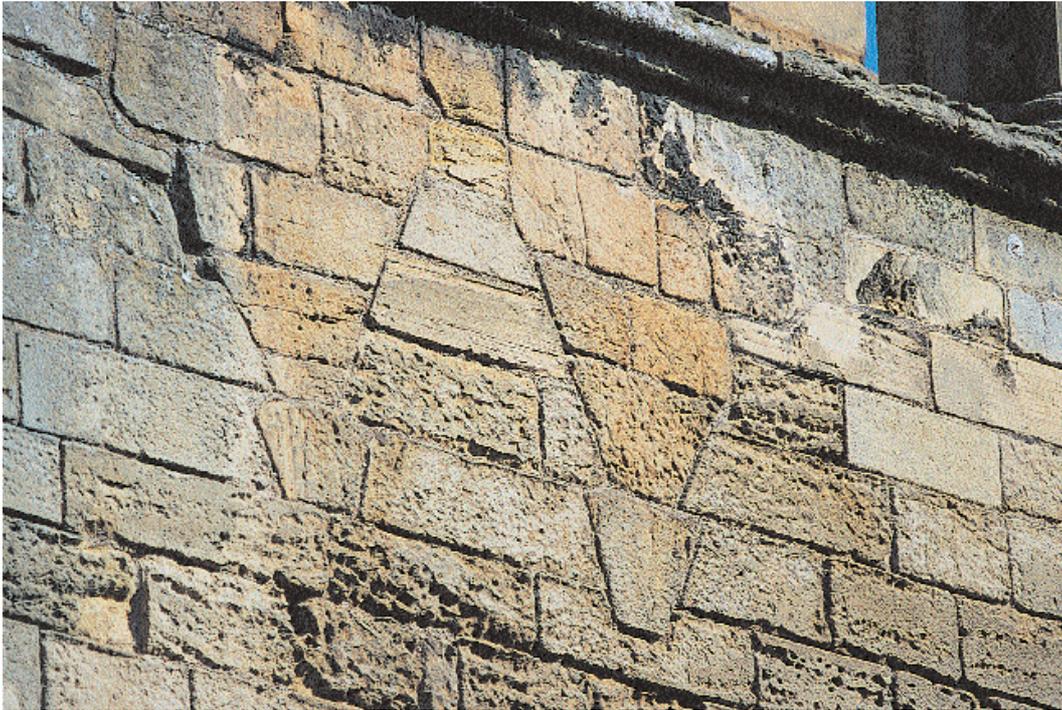
3. TREATMENT OF MASONRY WALLS

3.1. Masonry is the main surviving structural element of most architectural monuments, and the aim must be to preserve all that has survived. Replacement of stone should be considered only where it has been firmly established that the stability of the structure is otherwise at significant risk. It should be remembered that built masonry is often more inherently stable than might appear on first sight (fig. 3). The extent of any replacement should be as minimal as is consistent with the immediately foreseeable structural needs of the monument, and the implications of any replacement on both the documentary value and the aesthetic qualities of the monument should be carefully assessed in advance.

3.2. Where there is no alternative to the replacement of stonework, the new stone should match the stone to be replaced as far as possible in its geological origins, its texture, its colour, its weathering characteristics and its porosity. To achieve this it may be necessary to seek expert geological advice. It should be remembered that, at monuments dating from before the nineteenth century, it is likely that the stone used at the monument was of local origin. However, since stone quarrying declined substantially in the early twentieth century, even if the original source of the stone can be identified, it may be no longer obtainable and alternative supplies of appropriate stone may have to be identified.



3. Historic masonry may be less precarious than appears on first sight. This apparently gravity-defying section of vault springing shows no signs of further movement.



4. Close inspection of masonry may lead to identification of features that were suppressed at later stages of the monument's history. In this case there appear to have been windows alternating with decorative blind arches.

3.3. Second-hand stone from demolished buildings in the vicinity may be one source of geologically suitable materials for some monuments. However, the greatest care must be exercised to ensure that structures of significance in their own right are not demolished to provide materials for other buildings.

3.4. It is most unlikely that it will ever be considered acceptable to replace stone with artificial materials such as 'reconstituted' or 'plastic' stone, since their long-term weathering qualities are so different from those of stone.

3.5. New stones should be cut and finished in a similar way to the stones to be replaced, if that is known. Failing that, it may be appropriate to finish them in the same way as adjacent stones playing a related structural role and dating from the same building campaign. Nevertheless, the new stonework should be distinguishable on close scrutiny.

3.6. Any replacement of stones should be preceded by a detailed survey and photographic record of the area of the monument of which they form a part, so that the precise dimensions of the stones to be replaced and their relationship with the surrounding stones can be fully established and recorded. It should be remembered that there may be evidence for earlier states of the building embodied within the stonework, and that this evidence can easily be lost in the course of replacement if not recognised and respected (fig. 4).

3.7. Unless there are strong reasons for doing otherwise, any new stones should be of the precise surface dimensions of those they are replacing. It is particularly important that one new stone should not extend over an area originally occupied by more than one stone. It is also generally preferable that a new stone should not replace only a part of a stone, unless the stone to be replaced is particularly significant for the evidence that part of it still embodies.

3.8. It should be remembered that, as a result of weathering and previous re-pointing, the width of the joints between the stones as now seen may not perpetuate the original dimensions. With ashlar masonry in high status monuments, in particular, detailed examination will often reveal that the joints were originally much narrower than is now the case, being perhaps as little as three millimetres wide rather than the ten millimetres or so that might be expected with rubble. Stone replaced within such contexts should always aim to respect the intentions of the original masons if these can be established.

3.9. Dismantling of adjacent areas of masonry to permit the insertion of replacement stones should be avoided. If this is inescapable, the area to be dismantled should be marked with a grid, with the individual stones being numbered, before being photographed, so that accurate re-assembly can be achieved and a permanent record obtained (fig. 10). Care should be taken not to give the reconstructed wall a more 'finished' appearance than it had at the start of the operation.

3.10. Stone surfaces can often be badly decayed or friable through long periods of exposure to weathering. However, as the part of the stone which received the closest attention of the mason who cut it, the surface often retains much valuable information. This evidence might include the marks left by tools, which can indicate the processes by which it was created, and which, by comparison between the constituent parts of the building, can also be useful in identifying relative chronology. Masons' marks are also sometimes preserved on the faces. Stone surfaces should therefore never be re-dressed since this might obliterate important evidence (fig. 5).



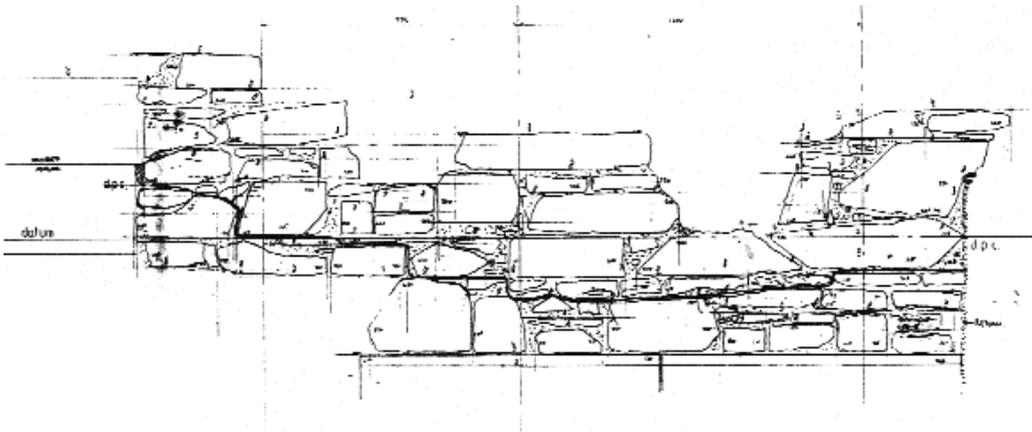
5. Where dressed stone surfaces are not excessively eroded, they may be highly informative. Here the original mason's short diagonal chisel marks are still clearly visible, as is the mark by which the mason identified the stone as his own work. A study of the location of masons' marks within a building can be of help in determining the phases by which it was built, and they may be of use in identifying the movements of masons between building projects.

3.11. It may be appropriate to clean loose surfaces gently with a bristle (but not a wire) brush. In some instances it may be possible to fill cracks or laminations in stones with lime mortar, which can be coloured to match by the addition of crushed stone. Stone conservators have access to specialist reversible or sacrificial adhesives which may be appropriate for preventing the loss of flaking stone in certain circumstances. But commercially available adhesives should not be used since, if the loose surface eventually falls away, unsightly and potentially damaging patches of glue may be left on the newly exposed surface.

3.12. Consolidating rubble masonry presents a different range of problems from treating ashlar. When the rubble consists of a combination of larger stones with small and shallowly-set stones known as pinnings between them, for example (fig. 6), removal of decayed mortar can often dislodge some of those pinnings. In such cases, if the character and pattern of the masonry is not to be irreversibly modified, it is essential that the wall is treated as a series of small areas, and that detailed record photographs are taken of each area before the work starts so that any dislodged stones or pinnings can be reinstated in their precise original position. It may be helpful to apply a grid in water-soluble paint across the area to be treated to assist in the reinstatement, and in particularly difficult or sensitive cases it is often advisable to carry out a detailed survey of the masonry before work begins (fig. 7). In many cases, loose pinnings can be held in place while



6. The character of rubble masonry varies greatly, according to local traditions, relative date, and the quality of stone available. Where large irregularly-shaped blocks were the main element, the spaces between might be filled with small pinnings, and great care is required to preserve the precise balance between these elements during consolidation.



EXTERNAL ELEVATION

7 A measured survey of a complex area of masonry can be of great help in ensuring that the character of the masonry is not changed in the course of consolidation. In this case a grid has been established which allows the drawing to be precisely related to the wall itself.



8. Dry-stone construction is common, particularly in ‘vernacular’ buildings, or in some of the ancillary structures associated with larger monuments. Like rubble masonry in general, it varies according to location, period and availability of materials. Stabilising walls of this kind calls for specialised skills.

work is in progress with a dab of lime. If new pinnings have to be provided, it is essential that they are of the same form and geological origin as the original ones, and that they are set in the same way as those in the adjacent areas of wall.

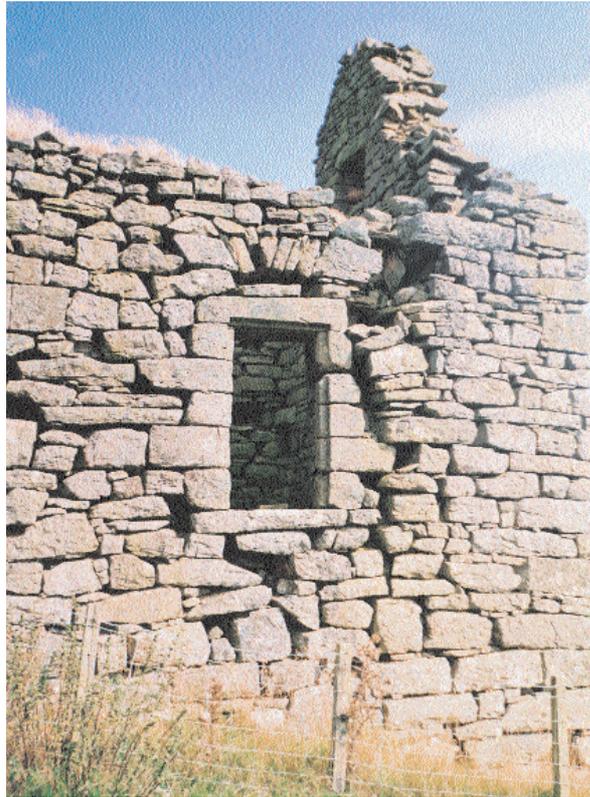
3.13. The stabilisation of dry-stone masonry can be problematic (fig. 8). The tendency of such masonry to slump and threaten collapse when not properly maintained means that dismantling and reconstruction of some areas may be unavoidable. When this is the case, the greatest care is needed to ensure that the rebuilt form reflects the original. As with mortared masonry, where the original relationship between the stones can still be determined, it may be best to have the masonry gridded, numbered and photographed before any dismantling so that it can be accurately re-assembled and a permanent paper record made.

3.14. Where dry-stone masonry has fallen it is generally best to leave it in its collapsed state. Where there is a clear case for reconstructing it, if for example the collapse is threatening to extend, care must be taken to match the style of construction of the rebuilt sections with those immediately adjacent areas that belong to the same original building campaign. Consideration should be given to identifying the rebuilt areas in some way. One way of doing this may be to hold the re-set stones in place with small pads of lime mortar, kept well back from the wall face so that they do not impinge on the appearance of the masonry, but are still visible on close scrutiny by those who need to understand the building.

3.15. Where walls are found to have been bonded with clay rather than lime mortar, every effort should be made to stabilise the wall with clay of a similar character to that originally employed (fig. 9). With clay-bonded walls it is particularly important to ensure that the wall head is properly protected to prevent the continued intake of water. Only in the most exceptional circumstances should thought be given to replacing the clay in any part of the body of the wall with mortar, and careful records should be made if this is done.

3.16. It is generally inadvisable to use stone preservatives except under certain very specific circumstances, and then only on the advice of and under the supervision of conservators. Most preservatives, while being ineffective, may introduce harmful chemicals into the stone, and may alter the colour or surface appearance. With some substances, such as silanes, there is insufficient knowledge of their long-term effects to be able to use them with confidence, particularly since most treatments of this kind are irreversible.

3.17. Although detailed written, drawn and photographic records must be maintained of any stone replacement, the risk of losing that record, and the possibility that those wishing to have a full understanding of a monument may not have access to the record, means that works on monuments should be self-documenting as far as possible. For this reason it is advisable to incise the date of replacement on each new area of stone, although this should be done discreetly and without disfiguring the monument as a whole.



9. Clay was more often used as a bonding material for masonry walls than is generally recognised, even in relatively high-status buildings. Unfortunately, once the wall-head protection is gone, clay is even more easily washed out of the wall core than lime mortar.

3.18. Since the processes of weathering will mean that new areas of stone may in time become less clearly identifiable, there may also be a case for marking them by some other method. Ways of doing this include introducing slight changes in the colour of the mortar or inserting tile or slate slips in the mortar around the perimeter of areas of new stone.

3.19. In replacing masonry it is generally advisable that new stones should be set to the line of the original wall face where this can be determined, and this is particularly important where the stones are moulded or worked in some other way. But where there are indications that the wall face has been cut back as part of an earlier restoration process, or where the general wall face is extensively weathered, it may be necessary to set the new stones further back. This is especially the case where the new stones would otherwise project excessively, or where stones set proud of the surrounding face might exacerbate the decay of adjacent stones.

3.20. Where facing masonry has been robbed or lost, and only a rubble core remains, every effort should be made to preserve this core in its existing state. Where it has to be augmented in order to achieve stability, this is usually done by the process known as rough racking, using rubble of appropriate dimensions and character in combination with larger quantities of lime mortar than would be normal in a finished wall face.

3.21. With rough racking it is important to ensure that water cannot collect and pond and that overhanging



10. Here an ashlar wall-head parapet, which had to be partly dismantled and rebuilt, has had a grid painted across the stones to allow precise re-assembly. Each of the individual stones was also numbered according to its place in the course of which it formed a part. The water-based paint was washed off on completion of the work.

masonry is properly supported. But, in achieving this, every effort should be made to avoid changes which might be misleading, such as bringing the wall core too far towards the original wall face, or giving the core an excessively regular or domed profile to assist the rapid shedding of water.

3.22. In certain extreme cases it may be essential to dismantle and reconstruct areas of upstanding walling, particularly at wall-heads that have been open to the intake of water over long periods. Where this is unavoidable, rebuilt sections should replicate the appearance of the original as far as possible, and the same approach to recording the masonry before dismantling should be adopted as at 3.9. above (fig. 10).

3.23. Most architectural monuments are now roofless, with the result that wall heads are exposed to the elements in a way that their builders never intended, and they are having to meet an onslaught of the elements for which they were not designed. In many cases rough racking is likely to be the simplest treatment of the exposed wall head, with care being taken to prevent the ponding of water. This approach also has the advantage of being largely reversible.

3.24. Where rough racking is not an appropriate treatment for a wall head, an alternative may be turf strips, applied in a way that reflects the natural growth that usually develops on wall heads (fig.11; see also fig. 44).



11. In this view the wall-heads of a nineteenth-century mill building have been experimentally protected with turf strips, although this is a technique that is probably more generally appropriate for less complete structures.

Where this is done, it is important to ensure that the wall head has been fully consolidated, and it may be necessary to provide additional water-proofing by placing clay under the turf. The turf to be used on the wall heads should not be cut from within the archaeologically or historically sensitive area around the monument, and certainly not from within the scheduled area. At the same time, care should be taken not to damage any natural heritage interest at the site by introducing inappropriate species, especially if it has been formally designated as a site of ecological significance. Turf from mature pastures is generally denser, with better-established roots, than commercially-grown garden turf.

3.25. Another possible treatment for wall heads that are more smoothly finished is an asphalt strip, though great care must be exercised to avoid fouling the wall faces in applying it. In general such finishes should probably not be used where the wall head is readily visible.

3.26. The inherent stability of many monuments appears to be threatened by broken or missing masonry. In fact the corbelling effect of masonry may mean in some cases that the instability is more apparent than real (fig. 12), but where there is an identifiable risk of collapse it may be appropriate to provide discreet support without imitating the historic masonry and thus confusing the evidence. In some cases it may be

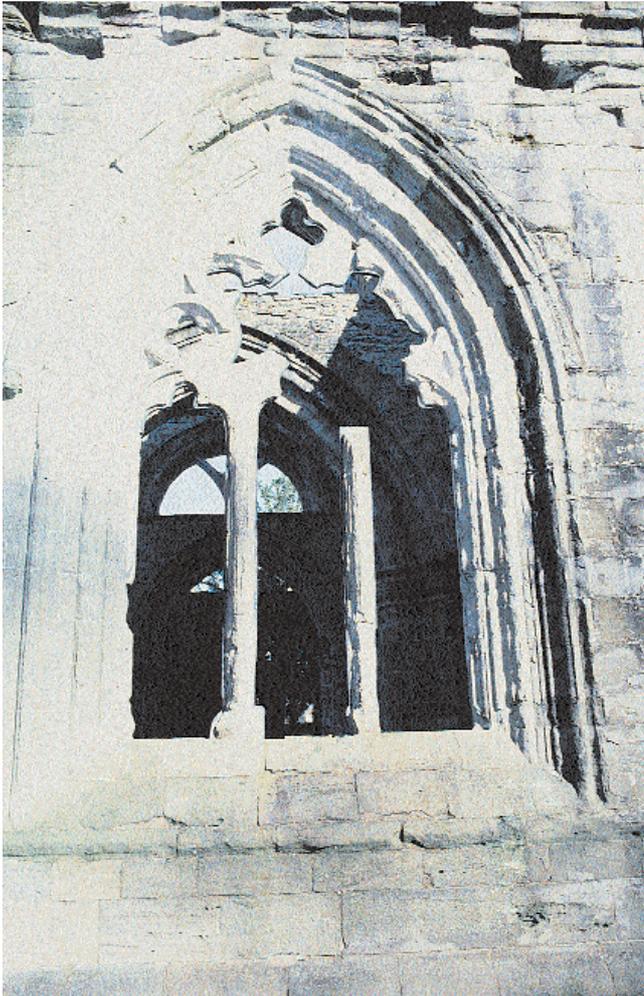


12. The loss of lintels over wall openings can leave the masonry above in an apparently precarious state. However, where the individual stones are of relatively large size, and are deeply bedded in the wall core, the masonry may be less unstable than first seems. Each case has to be individually assessed, but the aim should be to do as little as is consistent with achieving stability.

acceptable to achieve this through the insertion of modern piers or buttresses of masonry on as small a scale as is consistent with providing support. Such piers should have the date of their construction incised at some point and should be differentiated from the surrounding masonry; in the case of small piers there may be a case for rendering them over with the same lime mixture as that used for bonding the masonry to make clear that they are not part of the historic structure. Since piers or buttresses of this type are always likely to be visually intrusive, however, they are probably appropriate in only a small number of cases.

3.27. In some cases, masonry walling left at risk by broken or missing masonry may be supported by strategically placed non-ferrous or stainless steel metal bars. This can be particularly effective in the case of broken lintels or missing mullions and form pieces in window tracery (fig. 13); it can also be a useful way of taking the weight of masonry that has been left unsupported by the loss of lower facing stones. Where this approach is adopted, the bars must be set into joints rather than into stones, and every effort must be made to insert the bars without having to widen the joints, which may mean giving the ends of the bars a flattened fish-tail form.

3.28. When the inherent instability of a monument leaves no alternative to rebuilding areas of masonry in order to support what survives, it should be ensured that the new masonry sits sympathetically with what is there, while still making it distinguishable on close scrutiny. Amongst techniques that have been found effective are the setting back of the new masonry face by a few centimetres, and defining the limits of the new masonry by inserting bands of tile, slate or other suitable materials in to the mortar joints around the new masonry (see also 3.18).



13. The loss of some of the form pieces of this window tracery, and the friable condition of the stone itself, left parts of the window in an unsafe condition. Non-ferrous metal strips, discreetly set into the glazing chases have provided firm support.

3.29. Where masonry has to be replaced there should be no attempt to introduce features for which there is no evidence, or to replicate features for which the evidence is inadequate.

3.30. Since historic masonry may embody much evidence for damaged or missing features, even though that evidence may be only partly understandable with currently available techniques, it is essential that no potentially confusing elements are introduced by making modern fixings into the historic masonry. New fixings should be avoided as far as possible but, where they are inescapable, they should always be made into the mortar joints.

3.31. Where walls or other features survive only as foundations or as fragmentary lower courses, it is sometimes less damaging to preserve them by covering them with earth rather than by leaving them exposed and consolidating them. Where this has been done, and where the feature is important for the understanding of the monument, it may be helpful to indicate the line of the covered walls either by bands of mounded earth or by lines of stone kerbs. In the former case, the earth to be used for the mounding should not be taken from archaeologically sensitive areas, and if it is to be brought in from elsewhere care should be taken to avoid introducing ecologically inappropriate material. In the latter case, archaeological supervision will be required when cutting into ground surfaces. Where any features are to be obscured in this way it is essential that they are fully recorded before doing so.

3.32. Stone cleaning at monuments should never be carried out unless there are sound conservation reasons for doing so, since most techniques currently available carry some risk for the stone, and particularly for sandstones and granites. It should also be borne in mind that cleaning will expose any aesthetic inconsistencies of earlier repairs.

3.33. Where small-scale localised cleaning is desirable, however, as for example when there is a need to remove disfiguring modern graffiti, professional advice from an appropriately qualified conservator should always be sought. For a discussion of the currently available techniques see Historic Scotland's Technical Advice Note on *The Treatment of Graffiti on Historic Surfaces*

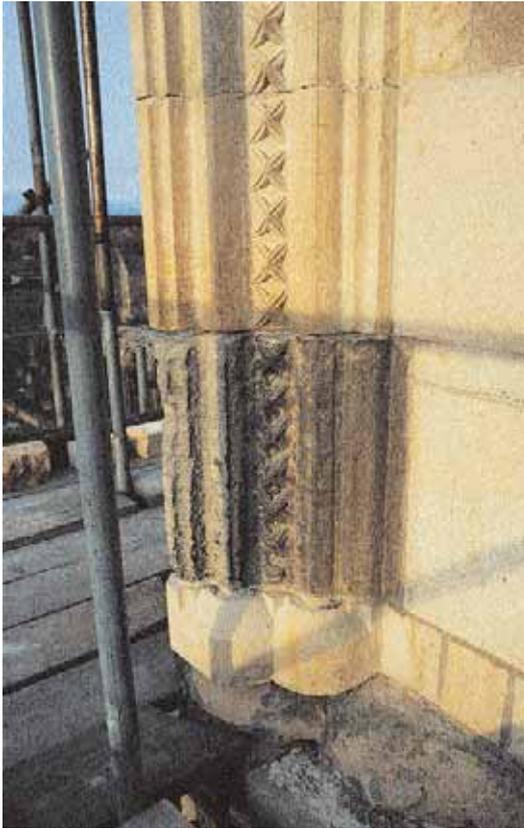
4. TREATMENT OF CARVED AND MOULDED STONEMWORK

4.1. If a moulded or carved stone has to be replaced for inescapable structural reasons, as far as possible its profile and detailing should be carefully established from the stone that is itself to be replaced (fig. 14). Where this is not possible, in certain cases it may be appropriate to obtain a fuller understanding of missing or damaged details by reference to better preserved stones serving the same function and forming part of the same feature. Only in the most exceptional circumstances can it be justifiable to base the details on stones in other parts of the monument or on ex-situ stones preserved at the monument, since it cannot be certain either that those stones were of the same design as the fragment requiring replacement, or were part of the same phase of building as the stone to be replaced.

4.2. Where it is not possible to establish the original profile and detailing of a moulded or carved stone that has to be replaced, under no circumstances should detailing be provided that simply approximates to the



14. In this case, although the engaged angle shafts were so decayed that they were no longer fulfilling their structural role, it was possible to establish the original details from the surviving evidence. Having been carved on the bench, the replacement shafts and caps have been inserted in place and are awaiting final adjustment.



15. Bases tend to take much of the brunt of weathering and are particularly prone to frost damage. In exposed conditions it is therefore sometimes impossible to be entirely certain of their intended profile. In this case, when bases that had failed structurally had to be replaced, their profile was simply blocked out.



16. This fine Romanesque doorway had been largely hidden behind an early nineteenth-century forestair that was built in front of it. The problems of damage caused by water running down the stair against the masonry of the doorway led to a decision to re-expose the doorway so that its conservation needs could be assessed.

original. Conjectural reconstruction should never be considered since this would confuse the authenticity and documentary value of the monument. In such cases it is probably best simply to block out either the whole of the replacement, or the unknown part (fig. 15). This should be done so that, if at some future stage it proved possible to establish the profile and detail of the replaced stone, it could be re-cut in-situ. The blocking out should be handled in a way that will not create an excessively jarring element in the total appearance of the building, and it should follow the tangential outline of the original as closely as can be established. Care should be taken to ensure that a replacement stone does not provide a ledge on which rainwater can lie.

4.3. Original carved and moulded stones should never be re-worked, since this would entail loss of authenticity.

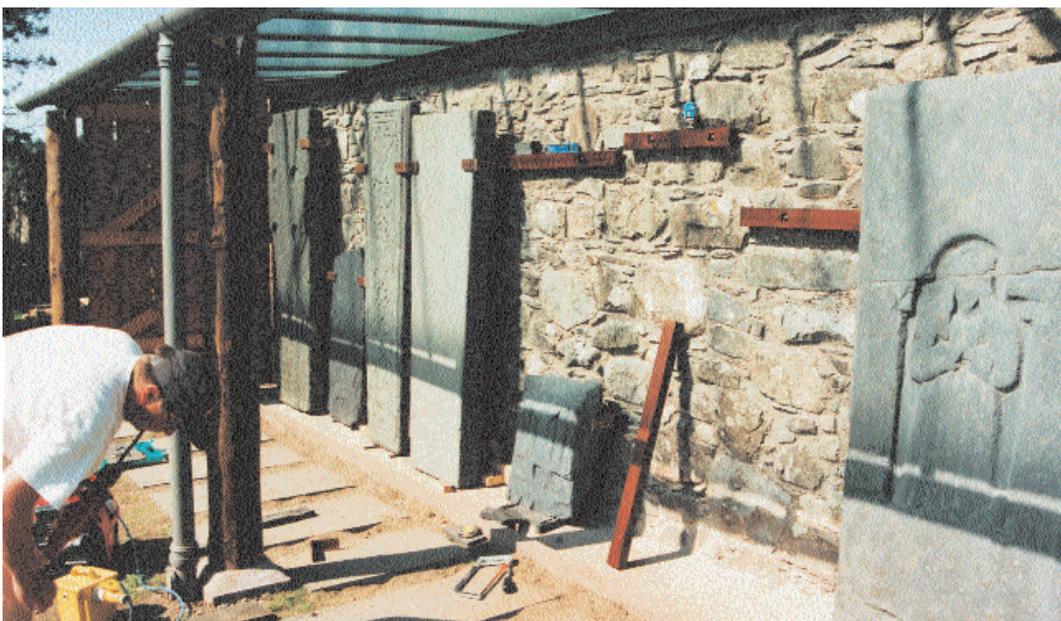
4.4. There are cases in which an important feature from one phase of a building's history has been obscured as a result of changes made at later phases. In general this should be accepted as a natural consequence of the building's stages of development. However, in some of those cases, and especially when the earlier feature is of such high significance for our understanding of the monument and damage is being caused by the juxtaposition of the later feature, there may be an argument for partial removal of the latter to allow examination and conservation of the former (fig. 16). However, this is not something to be done without the fullest consideration of all factors.



17. Carved panels are particularly prone to decay because the stones from which they are cut are usually set against their natural geological bedding, and long-term erosion takes place along the bedding planes. The process of decay may be accelerated when the protective framing mouldings have themselves failed.

4.5. Where important sculpture is at risk of decay due to its exposed situation, consideration may be given to providing *in-situ* protection, by the least intrusive means that can be adopted. Where the sculpture is set vertically in a wall face, there is often a hood-moulding or string course above it which was intended to reduce the impact of downward-running water (fig. 17). When this moulding is damaged, rather than replace the defective part it may be preferable to insert a lead strip into the joint above it so as to bridge the damaged area. In other cases it may be possible to construct a narrow protective projection, possibly of timber or lead, to reduce the impact of water running down the wall face.

4.6. If more complete protection is required for architectural sculpture, there may be a case for constructing a shelter for it. However, shelters can create inappropriate micro-climates, and should therefore only be contemplated after taking the advice of conservators. They can also introduce an alien visual intrusion within the monument, though experience suggests that, if such shelters are to be built, they are generally least unsympathetic if built of local natural materials (fig. 18). There will be a need for archaeological supervision if foundations are required.



18. A simple lean-to shelter with a glazed roof carried on rough timber posts, and built against an existing wall, houses a group of West Highland gravestones.



19. Where highly important architectural sculpture that is in an exposed situation is clearly suffering through the action of the elements, and particularly when the stone is inherently friable, consideration may have to be given to re-locating the sculpture to a sheltered environment elsewhere on the site. This should only be considered when there is no risk to the stone in removing it.

4.7. Although it is generally neither justifiable nor feasible to remove *in-situ* architectural sculpture to a more sheltered location, there are cases where the sculpture is both of such importance and at such a high level of risk that removal is in its best interests (figs 19 and 20). But this should only be done when permanent shelter within a stable environment can be provided within the immediate vicinity of the monument.

4.8. Where carved and moulded stones have been removed from the monument, there may be cases in which there is an argument for substituting a replica for the original within the monument. Bearing in mind the loss of authenticity that this



20. Large blocks of stone were a valued building material, and were frequently re-used once they had lost their original function. Here part of an early cross slab has been adapted as a lintel in a thirteenth-century stair well. It is important to look out for such stones, though they should only be removed if there are good conservation reasons for doing so.

entails, however, it is not a course that is likely to be widely applicable. A more acceptable alternative may be to have an accurate replica made as a record of the stone, and to display that replica while leaving the original in place.

4.9. Where worked stones have had to be replaced for structural reasons, especially in the case of those that are carved or moulded, it is essential that the original stones are preserved at the monument, with a record of their original location. This is particularly important when the replacement could only be blocked out and the chief remaining evidence for the original detailing is therefore the removed stone itself.

4.10. At some monuments there are groups of displaced carved or moulded stones which have either fallen from the walls or have been found through excavation. Since the original location of these stones can be seldom known with sufficient certainty, it would be almost invariably misleading to try to replace them within their presumed original location, even where that might seem obvious. Consideration could be given to providing a display of all displaced and removed carved and moulded stones within a protected environment at the monument. Where a stone display is not practicable, displaced stones should nevertheless be carefully preserved at the monument, with a record of the location at which they were found.

4.11. Inscriptions on stones should never be re-cut. If an inscription is decaying it should be carefully recorded and consideration given to providing *in-situ* protection of some form. In cases where the inscription is particularly valuable and there is no way of affording it adequate protection if it remains in place, there may be a case for carefully removing it to a sheltered environment and replacing it by a replica (fig. 21). However, the risk of damage to the stone, together with the resultant loss of authenticity of the monument as a whole, means that this should only be considered as a last resort, and, as discussed at 4.7, a more acceptable alternative may be to have a replica made as a record but to leave the original in place.



21. In this view there are two highly important inscriptions: one on a framed tablet set into the wall, and the other simply cut into the coursed masonry around a doorway lintel. Both had decayed badly, and it was decided to move the inscribed tablet to a protected location elsewhere on site, replacing it with a replica. However, that approach was not possible for the other inscription, which was an integral part of the structure.

5. TREATMENT OF MORTAR

5.1. Lime mortar was the most commonly used bonding agent of architectural monuments, and it is as much a part of the historic fabric as the stone which usually forms its main material. In some cases the mortar may in fact be ultimately more informative on the date of the monument than the stone, and perhaps also on the techniques employed in its construction. It is therefore important to preserve in place as much as possible of the mortar used in the successive phases of a monument's history. As with stone, mortar should only be replaced where this is strictly essential. However, as a more perishable material, it is almost inevitable that the structural stability of a monument will call for the renewal of some areas of mortar, particularly in areas close to exposed wall heads.

5.2. From the mid-nineteenth century until relatively recently, it was usual to mix Portland cement in replacement mortars. On conservation grounds this is historically inappropriate, except for parts of monuments constructed in the recent past in which cement was used from the start, since cement is potentially more damaging to the masonry than lime mortar. By its nature, cement is less permeable than most building stones, and in the longer term it is the stone rather than the mortar that decays as a result of moisture absorption and evaporation, and through the production of soluble salts during the setting of the mortar. Generally speaking, when cement mortar is used the stone erodes more quickly than the mortar, whereas when lime mortar is used it is the mortar that erodes more quickly.

5.3. Where Portland cement has been used in the earlier re-pointing of a monument, it is possible that it is now causing damage to the masonry (fig. 22), and consideration should be given to removing it and re-pointing with lime mortar. However, in some cases the difficulties of removing such hard mortar may



22. Hard cement pointing can exacerbate masonry decay. Here some of the relatively modern cement pointing has been left proud of the adjacent stones as they have eroded. In other areas it can be seen that the original lime mortar survives within the narrow underlying joints where the cement has fallen away.

result in greater damage to the adjacent stones than leaving the mortar in place, and any decision will require an evaluation of the particular circumstances.

5.4. Because of the risk of damage to the adjacent stones in removing mortar, power tools should be used only if this has been recommended by properly qualified professionals, and then only under skilled supervision. If hard mortar cannot be removed by careful use of hand tools it should generally be left in place; it is particularly inadvisable to use power tools when the masonry is narrowly-jointed ashlar.

5.5. Where either decayed original mortar or modern cement mortar have to be replaced, every effort should be made to ensure that the new mix is compatible with the original mortar of that part of the monument in its composition, texture and appearance, whilst accepting that the new work should nevertheless be distinguishable to expert scrutiny. To achieve this it will usually be necessary for the original mortar to be analysed, and for suitable lime and aggregate to be identified. It will probably also be advisable to have sample panels of re-pointing prepared in order to find the best visual and textural match.

5.6. Since it is likely at complex monuments that the mortars were of differing composition in the successive building campaigns, care should be taken to reflect these changes in the replacement mortar.

5.7. A particular difficulty with the replacement of mortar is that it may be necessary to reinstate it differently from the way in which the original mortar was applied. A high proportion of Scottish architectural monuments was originally rendered, and in rubble-built structures the mortar was often spread across parts of the surface of the stones in order to bridge irregularities in the masonry and to give a relatively flat surface for rendering. Little evidence of this now tends to survive, because both the render and the bonding mortar has usually weathered off the stone surfaces. Since the aim in dealing with monuments is usually to preserve them as they have come down to us, however, they are rarely re-rendered, and there is therefore little reason to spread the mortar across masonry irregularities in replacing the mortar. Indeed, to do so would create a different appearance from those areas where the existing weathered-back mortar is to be retained. It is therefore probably usually best to accept the compromise of keeping the new mortar back to between the joints.

5.8. In cases where re-pointing narrowly jointed ashlar is necessary, every effort should be made not to widen the joints in raking out the old mortar. It may be necessary to mask each side of the joint with tape when inserting the mortar to avoid fouling the ashlar. It is essential that appropriately experienced craftspeople with skills in this type of work are employed.

5.9. Where joints that were originally narrow have been widened through weathering and earlier re-pointing, it is generally preferable to keep the new mortar back within the joint in order to avoid giving the impression that the jointing was initially wider.

5.10. In re-pointing certain types of rubble masonry, a particular problem may be the loss of shallow-bedded pinnings, and there is a high risk of the further loss of pinnings in the course of raking out defective mortar. Where it is obvious that such pinnings have been lost, it may be possible to reinstate small stones of the original form and dimensions, although this demands the highest level of masonry skills, requiring the ability closely to match adjacent areas of masonry and patterns of pinnings (see 3.12 above).

6. TREATMENT OF HARLING AND WALL RENDERS

6.1. At most Scottish medieval and early modern buildings the masonry was originally covered over with a protective lime coating. This coating is generally referred to as harling. In the case of rubble-built structures this may have been a relatively thick coating aimed at both regularising the surface and protecting the stone, and was intended to improve the finished appearance of a roughly-built wall. In ashlar-built structures, however, the coating may have been little more than a series of lime washes. Either or both techniques were often used in the same building when rubble walls had ashlar dressing to the openings and angles, extending across both rubble and ashlar (fig. 23). Harling and lime washes might often mask differences in colour of the masonry itself (fig. 24). At the majority of monuments the harling has fallen away, leaving little more than residual fragments in the more protected areas, while further fragments may be found when walls are re-exposed through excavation or as a result of the loss of adjacent structures.

6.2. The reinstatement of lime wall finishes is generally not considered appropriate at scheduled monuments for a number of reasons. To do so would be essentially a process of restoration, which would also entail obscuring the invaluable evidence for the history and development of the building that is embodied within the masonry. Reinstatement of harling also almost certainly leads to the loss of the evidence for any original finishes that may have survived. Beyond all of those considerations, however, is



23. Harling tends to survive only in a very fragmentary condition. It is found more often still attached to the rough surfaces of rubble than to smoothly finished ashlar, though in this view it clearly extended across both rubble and ashlar. The coating was sometimes thinner on smoothly dressed stone.



24. Several different colours of stone may sometimes be found on the same building, though it is likely that in many cases these differences would have been masked by the harling.

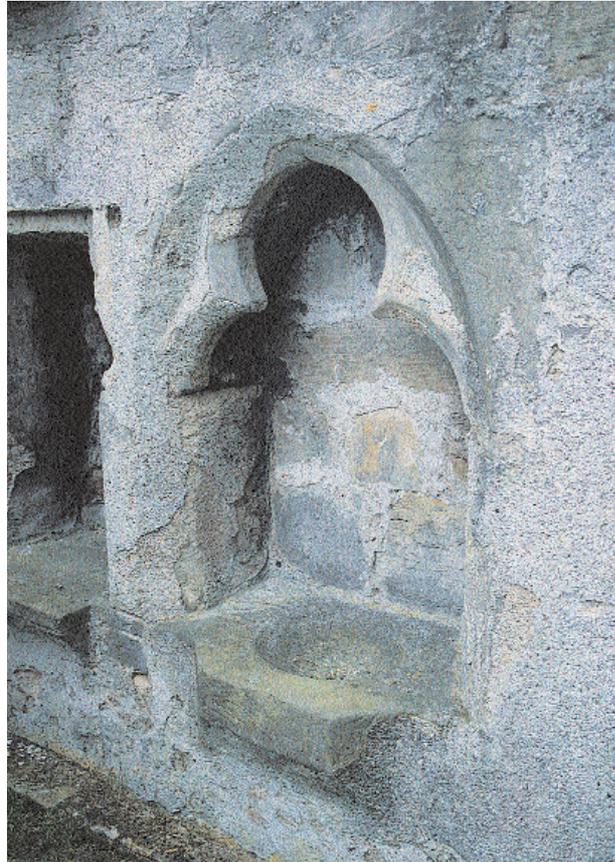
the fact that we simply do not fully understand the various ways in which harling and lime wash might have been applied and finished at the full range of building types, or over the long period of time during which they were so widely employed.

6.3. In those relatively few cases where a monument is already harled and the harling requires repair, it is essential to draw as much information as possible from the process. Only defective areas should be removed and, where this is done, records should be made of the evidence for the build up and composition of the layers, and of any evidence for their chronology. Since it is likely that masonry exposed in the course of the work will be only briefly accessible, detailed drawn and photographic records should be made of it, and efforts made to understand what is exposed before it is re-covered.

6.4. Where any harling is to be replaced, the composition of the cumulative layers of the original mixtures should be carefully analysed and then reproduced with compatible materials. Means should be found of differentiating the new replacement from the old material on close scrutiny, and if possible the date of the operation should be discreetly inscribed on the new finish.

7. TREATMENT OF PLASTERWORK

7.1. Internal plasterwork is related to external lime finishes in both composition and function, though internal plaster tended to be more highly finished. This finish usually results from the application of at least two layers: a rougher first coat applied directly to the masonry wall and a finer finishing coat. The plaster was usually applied across both the general wall face and any dressed details, though it was probably usually applied more thinly across the latter (fig. 25). In later plasterwork animal hair was often added as a binding medium, and this can be a useful indicator of the relative date of plaster.



7.2. From the seventeenth century onwards, plaster was often applied to timber laths set proud of the wall surface. This reduced the risk of damage from dampness, made a flat finish easier to obtain, and allowed deeper modelling of elements such as cornices. However, lath and plaster finishes have only rarely survived at monuments, though traces of the timber dooks to which the supporting framing was attached are often in evidence (see 8.14. below).

25. Wall plaster does not survive well once a monument has lost its roofs. Where it does remain in more sheltered corners, however, it is clear that it might extend not just across the flat walls but also across the moulded details of any features that were set within the walls.

7.3. In considering what is the best way to deal with surviving plaster, there is the complication that the majority of scheduled monuments are now roofless, and a finish that was designed for maintenance within protected environments is now more often exposed to the elements. In most cases, however, the same considerations should be applied to the treatment of plaster as for external renders: where it survives every effort should be made to retain it, but where it has been lost it is preferable not to replace it. For advice on the most appropriate methods of dealing with plaster, see Historic Scotland's Technical Advice Note *Conservation of Plasterwork*.

7.4. Where there are broken edges of plaster there is an increased risk of water penetration and of continued erosion where the plaster's adhesion to the wall is less secure. In such cases consideration should be given to closing off the edges of the plaster with a chamfered fillet of plaster of a similar composition and colour.

75. Even where the plaster is unbroken there may be areas where it is no longer securely attached to the wall face, and it may be necessary to find ways of re-securing it. In some cases this may be achieved by gently injecting lime behind the wall face, though this should only be attempted by those who have been trained in this technique.

76. Techniques of lime impregnation may, under certain circumstances, help to reduce the friability of plasterwork, although these may lead to some change of colour, and could result in chemical changes which might compromise the evidential value of the plaster.

77. If, for good conservation reasons, any areas of plaster have to be replaced, every effort should be made to match the composition of the original, while finding ways of differentiating the new from the old on close scrutiny.

78. Plaster was a medium which lent itself readily to relief decoration, with the decoration being either modelled *in situ* or pre-cast and subsequently applied to a base coat. Such decoration is particularly vulnerable when exposed through the loss of protective roofs and floors, and little survives at roofless monuments (fig. 26). But where it does survive, it is essential that it should be protected, and also that detailed records should be made of it in case any of it is lost.



26. Decorative plasterwork was largely confined to high status monuments, and rarely survives when no longer protected from the elements. Where it does still remain in place, it is a valuable reminder that interiors which now look as if they were always rather bare were once more opulently finished.

8. TREATMENT OF TIMBERWORK

8.1. Timber was used more widely in medieval and early modern buildings than is often appreciated. In addition to its generally understood role as the main material for roof framing, floor construction, doors and windows, it was used widely as a roof covering, as a wall finish, as a support for plaster finishes, as the framing and cladding for enclosed galleries that were constructed around and between the masonry cores of some buildings, and for fixed furnishings within buildings. But it is also the case that, at even buildings of the highest status, it could be a principal structural material until at least the later Middle Ages, and this continued to be the case for lower status buildings for an even longer period.

8.2. By its nature, however, timber is a more perishable material than masonry, and at roofless monuments it has usually survived *in situ* to a very limited extent. Nevertheless, under appropriate conditions, it may have survived more completely below the raised ground levels that have built-up around collapsing monuments, and much evidence may survive within the archaeological strata associated with a monument.

8.3. Timber has the particular value that the growing sophistication of techniques of dendrochronological (tree ring) analysis means that it is the one major building material that can often be dated with a high degree of precision. It might be added that our developing understanding of the techniques by which timbers were jointed to ensure firm construction is another route by which we are beginning to be able to understand the relative chronology of buildings.

8.4. Where timber does survive it is important to ensure that, as far as possible, it is preserved in place and with as little modification as possible. Any operations involving work on timber should be preceded by the preparation of detailed drawn and photographic records, and careful thought should be given to which techniques of analysis might be most appropriate for achieving the fullest understanding of the timberwork and its structural context. In particular, consideration should be given to having dendrochronological analysis carried out whenever it seems likely that the building will be more fully comprehensible through clarification of its chronology.

8.5. Timber roofs are very rare at scheduled monuments, and the complex techniques of framing and jointing used in their construction place them amongst the most sophisticated of timber works. Unfortunately, their position at the first line of defence against the elements means that they are particularly prone to decay. Nevertheless, where they survive, roof timbers should only be replaced if absolutely unavoidable, and repairs should be carried out as far as possible *in situ*, with minimal dismantling (fig. 27).

8.6. Where surviving roof timbers are now of inadequate strength for their function, it is preferable to provide secondary support by discreetly introducing modern timbers, metalwork or other modern high-strength materials alongside the original timbers. Every effort should be made to avoid cutting new joints into existing timbers in doing so.

8.7. Wherever modern timbers have to be introduced, so far as possible these should be obtained from renewable resources.



27. Relatively few monuments have retained their roofs and, where they do survive, every effort should be made to conserve them with a minimum of irreversible interventions.



28. A combination of the surviving floor joists and the sockets for the missing joists shows that the upper floor in this interior was at two different levels, suggesting also that there must have been subdivisions – presumably of timber-framed construction - where the levels changed. At the far end of the view, a vertical chase in the plaster indicates that there was a draught screen around the doorway in the corner. On this evidence it is clear that timber was a more important material in this interior than might have been first thought.

8.8. Floor beams are of great historic interest for what they can tell us of methods of floor construction. In many cases joists were set directly in to the walls (fig. 28), while in other cases they were carried on corbels or on timber wall plates. The joists themselves might be set closely parallel to each other, or there might be a pattern of relatively widely spaced principal joists with secondary joists running at right angles to them (see fig. 36). Great care should be taken to record and understand all of the evidence for floor construction before any decision is taken on methods of conserving any surviving portions.

8.9. Where a beam is unable to bear the weights expected of it, as may be the case when masonry-bound joist ends have decayed, it is preferable to support the beam ends by timber or metal shoes than to replace the timber. Where a timber is so decayed that it threatens to fall out of place, consideration should be given to providing discreet modern supplementary support to enable it to be retained in place.

8.10. Techniques are available for synthetically consolidating decayed timbers, though it is likely that these will permanently modify the character of the timber. Consideration therefore must be given to the individual circumstances to determine whether the application of such techniques would carry an unacceptable risk of loss of authenticity.



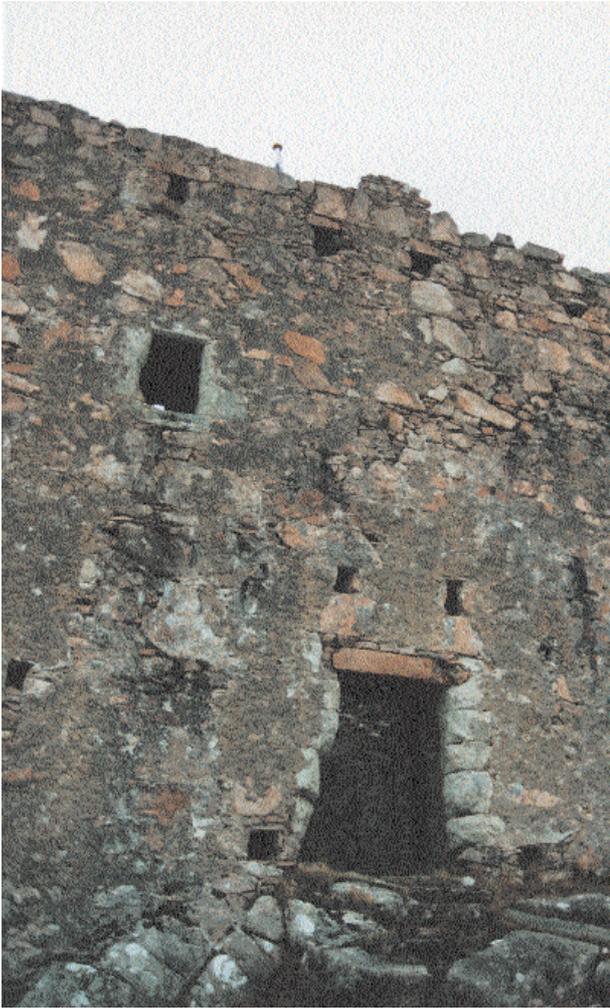
29. The area shown here was the chantry chapel of one of the founders of this church, and it must have been richly furnished. The horizontal chases and dook holes in the end wall were probably provided as the supports for a decorated altarpiece rising the full height of the upper part of the wall. The deep slot in the arch to the left is likely to have been the seating of a beam for the rood loft above the screen that separated chancel from nave. We are again reminded that timber was a more widely used material than might first appear, and it is important that the evidence for it should not be lost.

8.11. Timbers should only be removed from their designed location if there is no alternative, as for example if the threat of spreading decay is placing at risk other timbers in the immediate vicinity. In such cases detailed records should be made of them before they are removed, and every effort made to retain as much of the original timber as possible within a sheltered environment at the monument.

8.12. As with stonework, it is generally unacceptable to reinstate missing timberwork except where there are sound structural or conservation reasons for doing so, and where supplementary means of support are inapplicable. Any new timbers should be identified by being discreetly marked with the date of their insertion.

8.13. Internal partitions within buildings were often of timber, particularly at the upper levels where room sizes might be smaller and where structural weight was a significant consideration. In most cases the chief evidence for such partitions having existed will be the arrangement of doorways, the provision of metal fixing plates within masonry joints, or the survival of marks in surviving plasterwork (see fig. 28). Where fragments of partitions remain in place, however, all efforts should be made to retain them.

8.14. Although timber fixtures and furnishings have seldom survived in place, the evidence for their location may remain in the form of seatings for beams and sockets or chases for fixings. In many medieval churches



30. Several types of significant apertures are evident in the walls of this monument. Only the four square holes around the doorway are likely to have been associated with timbers, perhaps for the framing of a fore-structure of some kind. The row of voids along the wall head were to drain the walk-way behind the parapet, while the single hole to the left of the view is at the head of an otherwise blocked slit window. But all of these are important for our understanding of the monument, and all have to be recognised before works can be started.

such evidence now provides the chief pointers to the location and form of the principal liturgical furnishings (fig. 29)

8.15. As an alternative to, or in addition to, plaster finishes, walls in higher status buildings might be lined with wainscot, either in the form of boarding or framed panelling. This seldom survives in ruined buildings, and where it does it must be preserved. More likely to survive as evidence for these finishes are horizontal straps or wooden plugs or dooks set into the masonry, to which the wainscot could be attached; it is important that this evidence should be preserved. In the case of dooks, however, it appears to be more often the case that they were provided for later lath and plaster finishes rather than for wainscot (see 7.2 above).

8.16. In consolidating masonry that has been associated with timber, it is essential that care is taken to ensure that no evidence for the location of timbers should be lost or modified. Such evidence might include the pockets for joists, beams, scaffolding poles (putlog holes), and dooks, or the chases for straps (fig. 30).

8.17. In the case of larger pockets, where there is a risk of damage being caused through plant growth or birds nesting, there may be a case for inserting a sloping slate in the floor of the pocket, held lightly in place with lime mortar, though this should be set so that it is not jarringly visible. An alternative approach might be to place a net over the void to prevent birds gaining access, though it is seldom possible to do this without introducing an alien visual intrusion, and it should probably only be considered as a short-term measure.

9. TREATMENT OF FLOORS AND PAVING

9.1. The finishes of ground and floor levels that were provided at the time of a monument's use and occupation are an important integral part of the historic fabric. They were, however, particularly susceptible to wear, and are likely to have been replaced at intervals in monuments that had a long active life; where they do survive, they may be in a very fragile state.

9.2. In some cases it may be best to protect historic ground surfaces from further damage by covering them over, though if they are to be obscured they must be properly recorded before this is done. Floor surfaces revealed through excavation tend to be particularly vulnerable (fig. 31). It is important that the location of covered-over surfaces should be known in order to reduce any risk of inadvertent damage. For fragile external paved, setted or honoured surfaces, it may be most appropriate to cover them with turf over a porous geotextile membrane.

9.3. Where sensitive internal floor finishes within a protected environment are subject to foot traffic and therefore require protection, it may be advisable to place a false floor or walkway over them, though this has to be done in ways which place no pressure on the historic surfaces themselves.

9.4. As with the preservation of historic walling, it is generally unacceptable to replace missing parts of paving or floor finishes with modern replicas of what has been lost. The effects of continuing wear and weathering will eventually make it difficult to distinguish between what is historic and what is modern, with consequent compromise of the evidential value of the original.



31. Excavations may reveal evidence for a sequence of historic floor surfaces, both internal and external, and in varying states of preservation according to their use. The areas within fireplaces have usually been particularly badly damaged by the intense heat of the fires, as can be seen in the right of this view. It can be very difficult to preserve historic floor finishes in exposed situations without greatly modifying their character, and it may be best to cover them over for their own protection.

9.5. Where it is necessary that voids in historic paved finishes have to be infilled in order to consolidate surrounding surfaces, this is usually best achieved by the use of different but sympathetic modern materials such as quarry dust or fine gravel. Where such materials are to be used, it may be necessary to contain them with shallow timber kerbs to ensure that stray materials cannot result in abrasive damage of the adjacent historic surfaces.

9.6. A more stable and long-term alternative to dust or gravel for the filling of voids is a weak lime-concrete mixture. Where this is to be used it is essential that a separating membrane should first be laid so that there is no contamination of the historic fabric. Under certain circumstances, especially where water penetration is a problem and where the visual appearance is less sensitive, asphalt may be acceptable.

9.7. Earthenware tiles, whether originally glazed or unglazed, decorated or undecorated, pose a particular problem where they are now in exposed situations and showing signs of decay (fig. 32). Consideration may have to be given to providing *in-situ* protection to small areas, possibly in the form of boxes with lifting lids, if this can be done without creating too much of an alien intrusion. Protection of this kind shelters the tiles from the impact of wind and falling rain, though it should be borne in mind that this does not isolate them from ground moisture, and it may create unsuitable micro-climates.

9.8. If the tiles are of particular importance, and their preservation can be secured by no other means, there may be cases when it is necessary to consider removing them to a protected environment if this can be done without either unacceptable risk to the tiles themselves or major loss to the integrity of the monument as a whole. This should only be considered, however, when all other forms of protection have been assessed as unacceptable or ineffective.

9.9. If sub-surface drains are essential, they should not be run through those areas where there are historic floor finishes. If, however, it is entirely inescapable for conservation reasons that drains have to be run below such finishes, the areas to be disturbed should be kept to a minimum, and the finishes should be carefully recorded before lifting so that they can be reinstated as before. Such work should only be carried out under archaeological supervision.



32. In this view a complex pattern of decorated tiles has clearly suffered through long exposure to the elements. In such a case there is probably little that can be done other than to ensure that the tiles are protected from foot traffic.

10. TREATMENT OF CONCRETE

10.1. Some more recent monuments, and perhaps most notably many of the fortifications dating from the time of the two World Wars, are constructed of concrete (fig. 33). Concrete can be used in a variety of ways in these structures: for example as an element in framed prefabricated buildings, as pre-cast blocks, and as a poured and shuttered material either with or without metal reinforcement. The conservation of concrete is generally likely to call for specialist advice.



33. Some of the concrete military structures erected during the two World Wars are enormously impressive examples of early modern architecture. Although many survive remarkably well, others are now requiring urgent remedial action.

11. TREATMENT OF HISTORIC PAINTED DECORATION

11.1. Painted decoration was very common in medieval and early modern buildings, on walls (both internally and externally), on vaults and ceilings (fig. 34), on partitions, and on internal fixtures and furnishings. At its simplest it might be no more than a series of lines in imitation of masonry jointing, or a linear accentuation of architectural features, while at the other extreme it could involve images and scenes of great iconographic complexity.



34. Most medieval interiors were painted to a greater or lesser extent, and in particularly important parts, such as the area occupied by an altar in a major church, the walls and ceilings or vaults might have elaborate depictions of biblical figures or scenes from the lives of the saints that were commemorated at the adjacent altar. At the Reformation the paintings were usually covered over or destroyed, though some have since been rediscovered.

11.2. Most schemes of painted decoration likely to be encountered at monuments used a range of earth-based and organic pigments mixed with water. When the painting was on plaster it was more frequently on dry rather than wet plaster. Painting of this kind is particularly susceptible to the natural processes of decay, and the best evidence for the strength of the original colouring is often on fragments found through excavation (fig. 35). Where any *in-situ* evidence for painting survives, whether on plaster, timber, masonry or any other material, every effort should be made to preserve it as it has come down to us. However, this will almost certainly require highly qualified technical intervention, and should not be attempted by non-specialists.

11.3. Since decorative painting as an internal finish was usually expected to have only a finite life, and because fashions of decoration were subject to constant change, wall and ceiling paintings were originally regarded as more expendable than would now be the case. It is therefore possible that there are earlier layers of painting below any that are now

visible. It is also possible that earlier layers of decorative painting may be preserved below later wall or ceiling finishes where, for example a wall has been covered by lath and plaster, or where a plaster ceiling has been added beneath a ceiling in which the timbers were originally exposed (fig. 36).

11.4. In general there should be no attempt to remove later layers of decoration in order to expose underlying earlier layers. It may be possible to find out more about the earlier layers through endoscopic or photographic techniques, though this will certainly require the involvement of expert conservators.

11.5. In the majority of cases any work on painted decoration should be aimed at conserving what is there, with no attempt to restore what has been lost. If it is felt justifiable to provide a fuller picture of what can be determined about the original designs, this should be done by secondary means, such as reconstruction sketches.



35. The faded tints of surviving wall paintings can give a false impression of the original vibrancy of colour. It is often only when fragments are found in excavations that we can fully appreciate the rich contribution such paintings would have made to medieval interiors.

11.6. The temptation to re-paint carved or moulded work, such as vaulting bosses or heraldic achievements should be resisted. Even where the original colours can be determined on the surviving evidence, or where there is a historical likelihood that particular colours were used, to re-paint such details gives a distorted impression of the original appearance of the monument as a whole, in which those details



36. Some paintings survived because the fashion for leaving floor joists exposed to the room below was superseded by a taste for flat lath and plaster ceilings. In this case the collapse and removal of a seventeenth-century plaster ceiling exposed one of the earliest sets of painted joists known of in Scotland.

would once have been only a part of a larger scheme of painted decoration. In addition, re-painting can irreversibly obscure evidence which may have survived for the original paint layers and colouring.

11.7. Where early decoration has survived, or even the faintest traces of it (fig. 37), the greatest care should be taken to record all of the available physical and documentary evidence, with detailed photographs of all finishes being retained and properly catalogued.



37. Some painted decoration has left only the faintest evidence. In this case we know from written records that there was an early seventeenth-century scheme of decoration to both the exterior and the interior of the building, though it is now only under very strong lighting that the external decoration is readily visible, in the traces of painted cartouches between the window heads.

12. TREATMENT OF EARTHWORKS ASSOCIATED WITH ARCHITECTURAL MONUMENTS



38. It is important to recognise the earthworks associated with a monument if inadvertent damage is not to be caused to them. At this castle, although they are now greatly eroded, the earthworks were a major element in the defences.

12.1. Many architectural monuments have associated earthworks (fig. 38). Some of these may survive from the earlier occupation of the site, while others may provide evidence for the history and use of the site after the architectural element of the monument itself had passed out of use. At their most minimal, earthworks may simply be the result of the ground disturbances inevitably associated with the initial construction and subsequent remodelling of the monument itself, while others may be the result of a long and complex sequence of interventions aimed at adapting the surrounding landscape to the needs of those for whom the monument had been built. But it is likely that extended occupation of any site will have had significant implications for the surrounding ground surfaces on the monument, and many earthworks will contain fragile archaeological evidence for structures of a variety of materials that were once associated with the monument.

12.2. Indeed, there is such a wide range of types of earthwork that may survive in association with a monument that it is not possible to itemise them all here, but it is important that anyone contemplating works that might have an impact on the wider setting of an architectural monument should be aware of at least some of the possibilities. Amongst those that may be mentioned are: defensive ramparts; mounds left by collapsed structures; vestiges of pools and waterworks; terraces, beds and enclosures associated with agricultural and horticultural activities; and waste heaps resulting from domestic activities or industrial workings.

12.3. With earthworks the prime aim must be to preserve the existing ground profiles under vegetation which is not damaging subsurface archaeological evidence. Any excavation into those profiles, where this is deemed to be unavoidable, must be carried out under archaeologically controlled conditions. There should be no changes to those profiles, either positive or negative, that is not based on sound evidence and justified by the conservation needs of the monument.

12.4. Grass growth may be beneficial as a way of inhibiting erosion of ground surfaces. If areas have to be re-seeded, however, this should be done without breaking into ground surfaces, other than by light scarification. It is important that advice should be taken on the species of grass to be planted, in order to avoid damaging any natural heritage interest of the site.

12.5. At certain types of monument continued heather growth may also be acceptable if it is already a feature of the site, though it must be properly managed and controlled if it is not to obscure important features and provide a cover for animal damage (fig. 39). It must be borne in mind that at many monuments it would be unacceptable to control the heather through burning, because of the risk of damage to ground surfaces and earthwork profiles. Where burning does not represent a threat to archaeological remains it is important to follow the Scottish Natural Heritage Code of Practice on muirburn, for which a booklet is available.

12.6. On some sites a balance may have to be struck between encouraging the growth of grass as a surface-binding medium and preventing that grass from becoming so rampant that archaeological features are lost to sight. However, excessive cutting is rarely to be encouraged because of the risk of damaging ground surfaces, because of the aesthetic implications of creating an over-manicured appearance, and because of the risk of damage to the natural heritage interest of the site. The use of fertilisers is generally also to be avoided for the long-term risks they pose to both the monument and the natural heritage interest.

12.7. At monuments where the earthworks are not highly delicate, and there is no major risk to upstanding or underlying structural remains, grazing by sheep may be an effective way of managing plant growth. But if this form of management is adopted it should be monitored to ensure that tracks are not being created and that there is no other form of erosion. Grazing by cattle or horses is generally too damaging to ground surfaces, earthwork profiles and underlying archaeology to be advisable in the vicinity of architectural monuments.



39. Heather can be an attractive form of ground finish around a monument. However, if it is obscuring important evidence for our understanding of the site, or if there is a risk that damage is being caused by burrowing animals under the protection it provides, consideration may have to be given to controlling or reducing the growth.

12.8 Where grazing is proving a threat to the earthwork elements of a monument, stock-proof fences may have to be provided around their perimeter. This should only be done, however, where a regime for effective ground maintenance within the fenced area can be sustained through cutting or light grazing. The maintenance should also involve exclusion of rabbits and other burrowing creatures (see section 12.12 below).

12.9. New fences should always be erected well away from the monument and its identifiable context, both to reduce the risk to the underlying archaeology and to avoid alien visual intrusions in the monument's setting. It is usually preferable for the fencing posts to be driven cleanly into the ground rather than set in excavated holes. If post holes do have to be excavated within scheduled or archaeologically sensitive areas, the holes should be dug under archaeological supervision.

12.10. Where accelerating erosion or other forms of damage are a significant threat, the causes of that erosion or damage should be investigated and appropriate measures taken to arrest them.

12.11. In cases where tree growth is creating an identifiable threat to earthworks, either through root penetration or the risk of wind-throw, there may be no alternative to removing the tree (adopting the same procedures as itemised at 13.2., 13.7. and 13.10. below). If the monument lies in a conservation area, however, consent from the local planning authority will be required, and a check should also be made that the trees are not protected by a preservation order.

12.12. Rabbits and other burrowing creatures can pose a major threat to earthwork monuments both for the damage they cause to underlying archaeology and for the erosion of ground surfaces. Where this is a problem it may be necessary to have them eliminated by means which involve no disturbance of ground levels, unless the species involved has legal protection, as is the case with badgers. Where colonies of animals are to be removed it is essential both to get rid of the resident population, and to introduce an active management regime which prevents re-infestation by either the removed species or by other species. There may also be a need to install rabbit-proof fencing. For further information Historic Scotland's Technical Advice Note on *Burrowing Animals and Archaeology* should be consulted.

12.13. There may be cases where the re-establishment of eroded ground profiles has to be considered. Since this is by its nature essentially a form of restoration, it should probably not be considered where the gains would be purely aesthetic or cosmetic. The main arguments in favour of the re-establishment of profiles are usually the prevention of further erosion and the destruction of habitats for species that have caused damage to the site.

12.14. Where profiles are to be restored, the newly recreated profiles should be differentiated from the existing surfaces. One way of achieving this is to place a geotextile mat or a net over the eroded area, held down by imported stones, above which can be placed imported earth that is modelled to the required profile. It may then be necessary to sow appropriate grass seed (as discussed at 12.4. above).

12.15. Where fresh earth is imported to a site or new seed is sown, it is important that these activities should pose no threat to the established ecology of the site. It must be recognised that many monuments lie within areas designated or managed for their natural heritage interest, and in all cases due account must be taken of the nature conservation interests of the site.

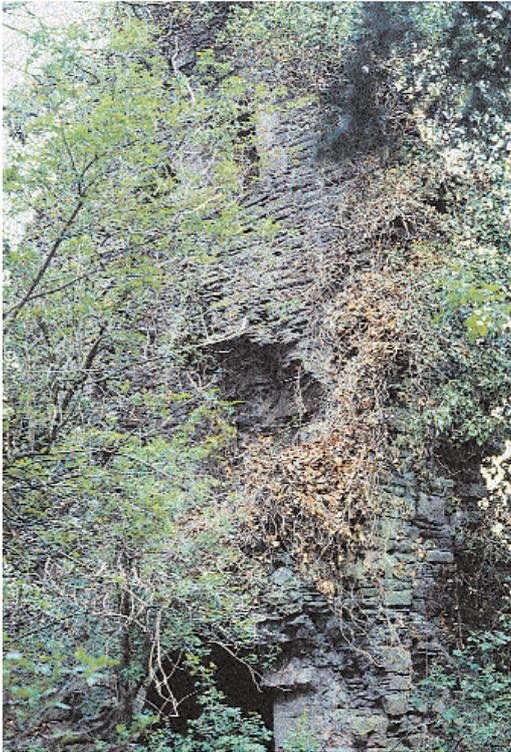
12.16. Every effort should be made to avoid cutting service trenches across areas of archaeological sensitivity. Where this is absolutely unavoidable it must be done only under archaeological supervision.

13. TREATMENT OF VEGETATION AT MONUMENTS

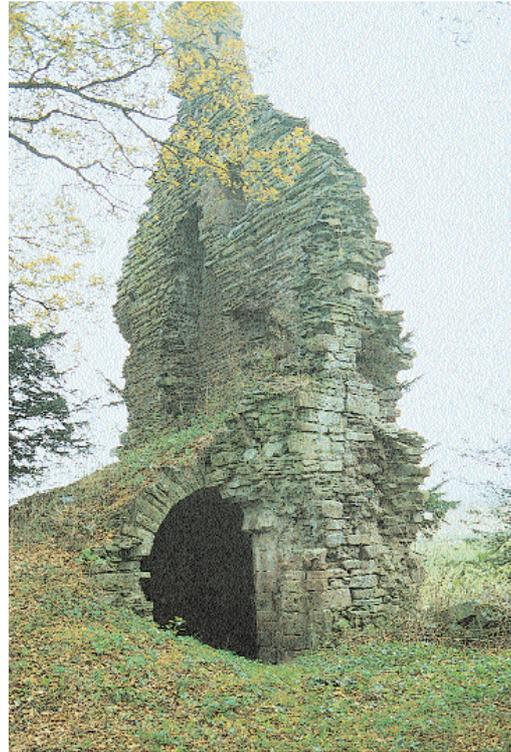
13.1. There are many aspects to vegetation at architectural monuments, with both positive and negative implications. Trees and plants around a monument can be an aesthetic enhancement of its setting, and few people would wish to see them removed without good reason (fig. 40). They can also provide a valuable habitat for wildlife. Nevertheless, in some cases their roots may be causing archaeological and structural damage, while their branches may be scraping walls. As in so many other areas, a balance has to be struck between the conservation needs of the monument on the one hand, and its aesthetic qualities and ecological value on the other. Similarly, plants growing on or around a monument can add to its picturesque appeal, and the well-established literary image of the 'ivy-mantled tow'r' is both well embedded in our Romantic consciousness and is enjoying a revival of popularity in reaction to the perceived 'sanitisation' of monuments in the recent past. Nevertheless, it is possible that the roots of such plants are causing damage to the masonry, while the weight of the plants themselves may be dislodging loosened masonry.



40. Trees can provide a delightful foil to the masonry of an architectural monument. However, a balance has to be struck between the beauty of the monument's setting and the risk of both structural and archaeological damage that might be caused by trees that are growing too close to it.



41. There is no doubt that some monuments are placed at considerable risk by the concentrations of woody growth that grow both within and around their walls. Apart from the threat of structural and archaeological damage, it can be very difficult to see and assess the monument's conservation needs when the cover is so dense.



42. This is the same monument as in fig. 41 following the removal of most of the trees and woody growth. Much remains to be done to ensure the long-term stability of the monument, but its needs can at least be more easily assessed.

13.2. Trees and saplings growing out of and immediately adjacent to the masonry of monuments are often harmful (figs 41 and 42), particularly when they are likely to grow to a great size, and they will usually have to be carefully removed. The least damaging way of doing this is usually to cut them back above the base; if they are of substantial size they should be cut down in sections that can be manually handled. Further growth should be prevented by the most appropriate means; it may be acceptable to poison the root system through the truncated base with one of the ecologically acceptable herbicides, but advice should always be sought on this. As an alternative to the use of poison, closely set copper nails hammered into the truncated base is thought to be an effective way of preventing further growth. Work on trees is generally best carried out between November and March, when there is minimal foliage.

13.3. Although some types of ivy are believed to be less damaging than others, it is likely that most established ivy will eventually cause damage to fragile masonry (fig. 43; see also fig. 39). It should therefore generally be cut back at all growth points and steps taken to prevent further growth of the remaining root systems. The ivy should not be pulled away from the walls while still green, but should be allowed to die back before being removed or allowed to fall away.

13.4. No attempt should be made to remove woody root systems from within the masonry of the monument until the plants have died and a decision can be taken on the best way of dealing with them. In some cases it may be less damaging to leave the dead root systems within the walls than to dig them out.



43. In many cases, ivy has taken such a complete hold of a monument that the masonry is almost completely lost to sight. More importantly, however, the ivy will be certainly forcing its way into the joints and core of the stonework, while the constantly increasing weight of the growth may be a major threat to stability.

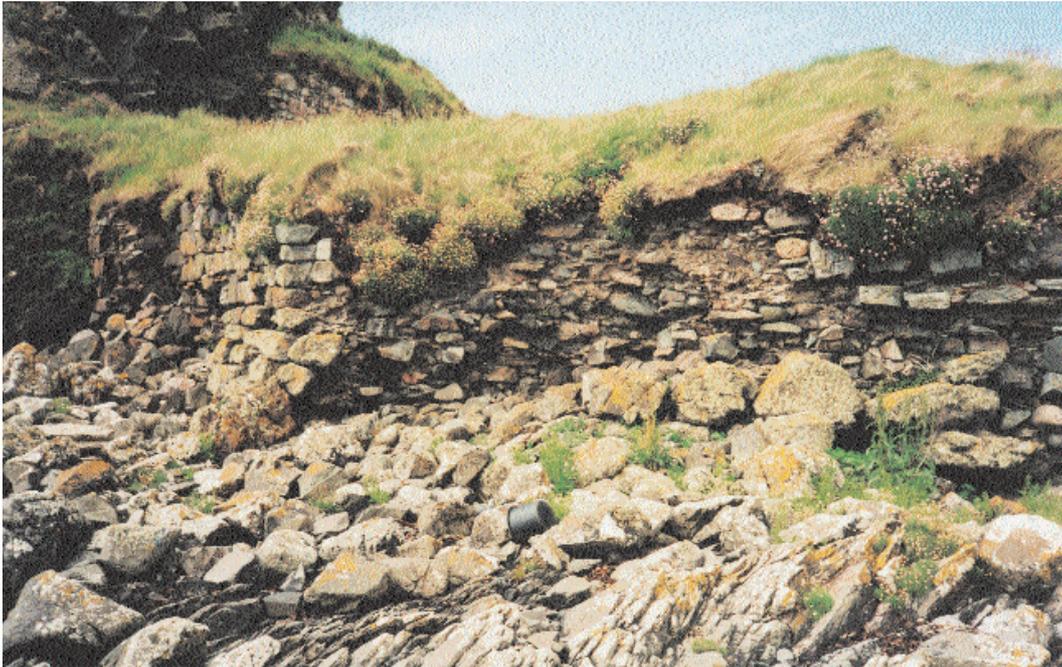
13.5. Smaller and non-woody plants growing on walls are usually causing less damage than saplings or ivy, and can be a very attractive feature (fig. 44), though it is possible that the pockets of earth they require for their growth will be helping to conduct water into the body of the masonry. Advice should be sought on whether the particular species represent such a long-term problem for the monument that they should be removed, or whether the risk is so slight that they can be allowed to remain under observation.

13.6. While trees and woody plants growing around a monument may enhance its setting, if branches are growing so close to masonry that they are causing it damage, it is necessary to have those limbs carefully removed. Work of this kind on deciduous trees is easiest to carry out between November and March when the leaves have fallen.

13.7. Where trees are growing within an archaeologically sensitive area and there is a risk that their roots are causing damage to that archaeology, it should be determined if significant further damage will be caused by allowing the tree to continue to grow. If the tree is well established, it is possible that as much damage as is going to be caused has already taken place, and there is probably a reduced need to take further action. If the tree is young and is likely to put out a more extensive root system, it may be advisable to have it removed. Where a tree is to be removed or lopped, a check should be made with the local authority to ensure that it is not protected by a Tree Preservation Order. If the monument is within a conservation area it will be necessary to obtain consent for the removal of any tree.

13.8. Older trees within scheduled areas should be regularly monitored and, if necessary, lopped or removed before damage is caused by wind-throw (but with the checks referred to at 13.7 above).

13.9. Where trees, substantial parts of trees, or saplings are to be cut down, it is important that this is done in a way which will not cause damage to ground surfaces and the underlying archaeology when they are brought down, or that will require heavy machinery to be brought onto the site to move the felled timber.



44. The loss of facing stones and decay of wall core mean that this monument requires active conservation. Nevertheless, the natural growths of turf to the wall-head and clumps of sea pink flowers are probably not in themselves a significant cause of damage, and are undoubtedly highly attractive. In some cases it may be possible to reinstate the growth after conservation has been completed.

As a general rule, the trees or sapling should be cut down in sections that can be manually carried off the site. If any of the scrub has to be dumped or burnt this should be done away from the scheduled or archaeologically sensitive areas. It is usually less damaging to ground surfaces to remove cut-down trees and scrub at times when there is a hard frost.

13.10. Further growth from the stumps of cut-down trees should be prevented by an approved method, but in most cases there should be no attempt to grub up the stump or root system. Where the root system has to be removed, this must be done under archaeological supervision.

13.11. Bracken may be a problem at some monuments, particularly where there are associated earthworks or the masonry does not rise to any great height. Removal of bracken by cutting, crushing or pulling the growing fronds twice a year is one method of dealing with the problem. There are also effective herbicide treatments. Further advice will be found in Historic Scotland's Technical Advice Note on *Bracken and Archaeology*.

13.12. Although the planting of new trees within the vicinity of a scheduled monument is generally discouraged, where it has been agreed that they may be planted, they should be located at least 20 metres away from both the upstanding parts of the monument and the archaeologically sensitive areas around it. It should be remembered that the archaeological potential of a site is not always evident on the surface, and advice should be sought on this. Digging of the holes into which the trees are to be planted should be carried out under archaeological supervision.

13.13. Some monuments are located within sites designated for their natural heritage interest. In all cases it is important to ensure that ecological damage is avoided in conserving or managing the monument.



45. The picturesque qualities of some monuments, together with their close physical relationship to a great house, meant that they might be exploited as eye-catchers within the designed setting of the house, and now have an added dimension of interest.

13.14. Some monuments may be points of interest within a designed landscape, and consideration of the effect upon the landscape of any planting should influence decisions on the most appropriate management regime to adopt (fig. 45). Planting or felling trees in a designed landscape that is included in the *Inventory of Gardens and Designed Landscapes in Scotland*, published by Historic Scotland and Scottish Natural Heritage will require consent.

13.15. Because of the risks to masonry, underlying archaeological and environmental deposits, full account must always be given to the implications of the use of any chemicals as part of the process of dealing with vegetation. If there is any possibility of damage being caused by chemicals, they should not be used, and legal restrictions on the use of such chemicals must always be observed.

13.16. In certain cases, improvements to the drainage of waterlogged sites may be beneficial to their conservation, though expert advice should always be sought on this. It should be remembered, however, that drainage may have an impact on any water-logged archaeological deposits, and also on the flora and fauna of the site.

14. BELOW-GROUND ARCHAEOLOGY

14.1. At the majority of monuments there will be archaeological features of considerable complexity surviving at various depths below ground level (see fig. 31), and these will usually survive if left undisturbed. It must always be borne in mind, however, that, because of the nature of the evidence, the full archaeological potential of a site is unlikely to be immediately apparent even to a trained archaeologist.

14.2. Archaeological investigation is an inherently destructive and irreversible process, and where there is no threat to the survival of archaeological deposits, the decision to excavate should not be taken lightly. In general, excavation will only be granted consent on scheduled sites if it is an essential part of an agreed programme of works.

14.3. In view of the above, archaeological excavation should only be undertaken after a full research programme has been prepared. A proper level of funding should be in place, adequate to meet the anticipated costs of the investigations themselves, and the writing up and publication of the investigations, together with any conservation of the site and finds that may be required. Provision must be made at a level that is in accordance with established principles, as indicated in Historic Scotland's Archaeological Procedure Paper on *Archaeological Project Design, Implementation and Archiving*

14.4. It may be necessary to carry out non-destructive site assessment, including geophysical survey, before determining the best course of action.

14.5. Once archaeological investigations have been agreed as part of a programme of works aimed at the conservation of the monument, it is essential that they are conducted under properly qualified archaeological supervision. Since excavations that are excessively limited in scope can make it impossible to obtain an adequate understanding of the evidence that is revealed, while at the same time being archaeologically destructive, it is essential that the research programme for the excavations gives full consideration to the ways in which an adequate level of information can be achieved.

14.6. Where excavation is to be undertaken, the work must be carried out to the highest standards, with adequate time and resources devoted to the operation, and under the supervision of an archaeologist with a specialist interest in the periods of evidence likely to be encountered. The chosen archaeologist should also have a proven record of publication of projects. Provision should be made for employing all appropriate techniques for the type of work under consideration, including soil sampling and environmental analysis.

14.7. If human remains are located in the course of archaeological investigations it is important that the proper procedures are followed and that the remains are treated with due respect. Historic Scotland's Operational Policy Paper on *The Treatment of Human Remains in Archaeology* should be consulted.

14.8. The use of metal detectors to assist in the location of buried objects is very damaging to archaeological deposits and is illegal within scheduled monuments unless, in exceptional circumstances, consent under Section 42 of the Ancient Monuments and Archaeological Areas Act of 1979 has been granted for it. Owners should not allow such activity within scheduled monuments on their property, and ought not to permit it in any areas that might have archaeological potential.

14.9. The ownership and allocation of newly discovered finds at monuments to a museum will be dependent on the recommendations of the Finds Disposal Panel. Such finds may be subject to the legislation on Treasure Trove and should be reported to the police or local museum. The National Museums of Scotland have prepared a leaflet on this subject.

15. NEW BUILDINGS AND DEVELOPMENTS AT OR NEAR MONUMENTS

15.1. The area that is scheduled around a monument is usually limited to the monument itself and to the adjacent parts that are of identifiable archaeological significance. Any new building or ground disturbance within the scheduled area of a monument is therefore likely to carry considerable archaeological implications, and will require the most careful consideration.

15.2. Outside the scheduled area associated with a monument, developments that might have implications for either the archaeology or setting of a monument are covered by the General Permitted Development Order of 1992 and its No 2 amendment of 1994. Under this provision the Scottish Executive, through Historic Scotland, is able to offer its advice to planning authorities on the impact that new developments might have on the archaeology and setting of scheduled monuments.

15.3. It should be assumed that there will be a presumption against any new building or ground disturbance at or near a monument that might have an impact on its structure, its archaeology or its setting, unless there are sound conservation reasons for works of this kind. If the owner of a monument or his agent is considering such works, it would be advisable to contact the Inspector of Ancient Monuments for the area in which the monument is located to discuss if they are likely to be acceptable, and to consider alternatives if appropriate. If the monument is also listed, listed building consent may be required for works outside the scheduled area.

16. RESTORATION OF MONUMENTS FOR RE-USE

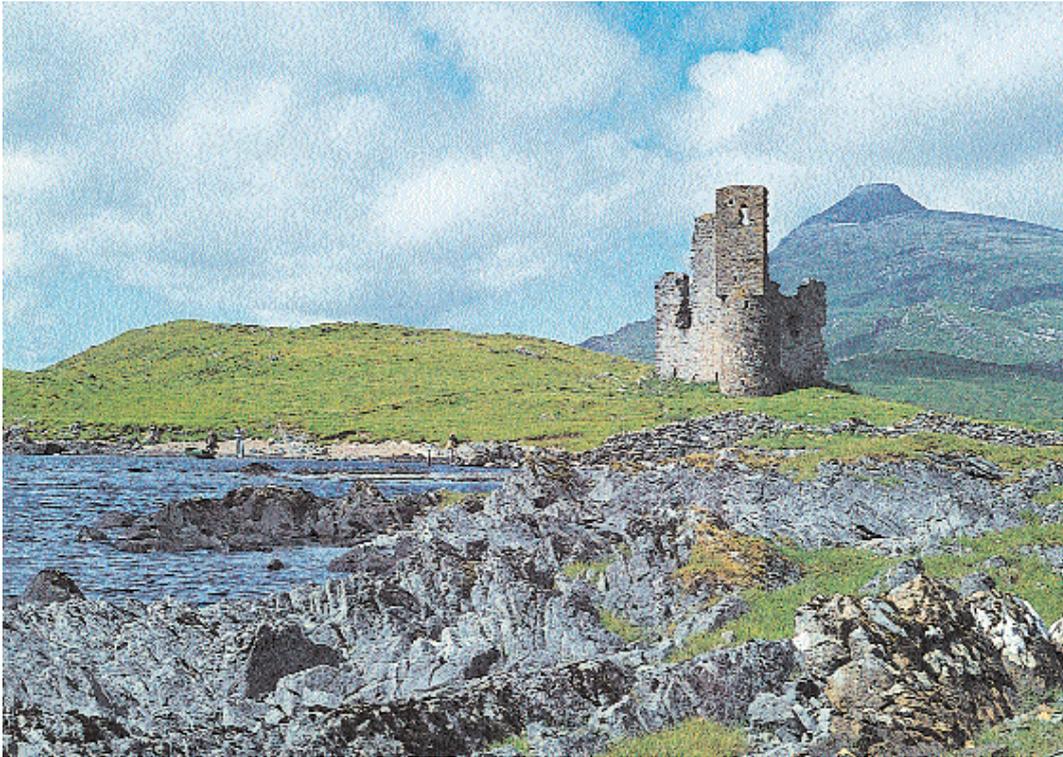
16.1. Although it is usually expected that monuments will be conserved in the state in which they have come down to us, there are some cases where the best way of preserving a monument may be its restoration for re-use.

16.2. In general, restoration rather than conservation would not be considered as acceptable for scheduled monuments that are regarded as the most outstanding examples of their kind or as being particularly representative of their type. There are many monuments that are so outstandingly important for the evidence they embody that nothing should be done which might compromise the integrity of that evidence (fig. 46). However carefully it is planned and carried out, restoration inevitably blurs the distinction between what is authentic and of primary documentary value, and what is modern replication. Beyond this, the provision of modern services to restored monuments generally involves significant irreversible archaeological and structural disturbance.

16.3. Restoration is also likely to be regarded as unacceptable at those monuments that are of outstanding importance for their scenic value in their existing state, that is, as 'ruins in the landscape' (fig. 47). This is especially the case if they have been a significant source of artistic or literary inspiration, or if they have particular resonances at a national or local level in their ruined state.



46. Many monuments are of such high significance for what they can tell us about the culture and way of life of the periods that produced them that nothing should be done which might in any way detract from the value of the evidence they embody. For such monuments restoration for renewed use is most unlikely to be seen as a viable option.



47. Since at least the late seventeenth century, large numbers of monuments have taken on an added significance for their beauty in their ruined state, especially when they are within natural landscapes that are themselves of great beauty. Monuments of this kind have frequently provided sources of inspiration for poets and painters, as well as giving delight to countless numbers of visitors. However, those qualities would almost certainly be lost through restoration.

16.4. Before any decision is taken on whether a monument should or should not be restored, it is therefore essential that a careful assessment of its cultural significance is carried out by a professional competent to make such an assessment.

16.5. When restoration is being considered as an option, it is likely to be more acceptable when the intended new use is similar, or closely related to the monument's original use, so that the design and layout are suited to the new use. It is particularly important that the character of a monument should not be modified by attempting to adapt plan forms to inappropriate functions, or by trying to fit too many functions into a space that is inadequate for them.

16.6. In most cases, proposals for restoration will only be viewed favourably when the monument can be restored authentically on the basis of the surviving architectural evidence alone, or on the basis of a combination of the surviving architectural evidence and authoritative pictorial evidence (fig. 48). In such cases, unless there are strong reasons to the contrary, it will usually be expected that restoration will take the monument back to its last known state before it fell out of use. Conjectural restoration should always be avoided in such cases.

16.7. In certain very exceptional circumstances, where restoration can be shown to be the most viable way of ensuring the long-term retention of a monument, but where there is insufficient evidence for this to be authentically-based, consideration may be given to proposals that take the historic fabric as a starting



48. A small number of particularly significant buildings are so central to a country's image of itself that they have taken on the status of national icons. Where they have undergone changes in the past that have greatly modified their character, the consensus that restoration to their primary state should be undertaken may outweigh the arguments for respecting the other phases of its history.

point for a more architecturally creative approach to restoration. It must be stressed, however, that this is only likely to be seen as an acceptable way forward for a tiny minority of monuments, and in such cases it would remain an essential starting point for the work that the historic fabric is itself retained without change.

16.8. Restoration of monuments calls for highly specialised skills, and it is essential that the work is supervised by an architect who is experienced in such work, and that it is carried out by craftspeople who are used to working with historic materials and familiar with traditional construction methods.

16.9. The starting point for preparing proposals for restoration of a monument should be a detailed survey of the building, to include plans at all levels, elevations of all faces, and cross-sections through all parts of the building. Where possible the masonry should be indicated in full detail on the drawings, and certainly all stones of any potential significance must be marked. It may be appropriate for some of these drawings to be produced by photogrammetric means. It is unlikely that all parts of the building will be fully accessible at the start of investigations, however, and provision should be made for updating the drawings as the proposals are developed and as work progresses. A Technical Advice Note on the recording of monuments is currently in preparation.

16.10. A complex building cannot be fully understood on the basis of the architectural evidence alone. It is important to have a full understanding of all records relating to the building, and of the historical and



49. Restoration is generally most successful when the surviving fabric is sufficiently complete to allow its state when last occupied to be accurately re-created without resort to pastiche, or without the introduction of elements for which there is no firm basis. It is also important that the intended new use for the restored building should be essentially similar to that for which it was designed.

cultural climate within which it was created. It is therefore essential that, before final proposals for restoration are drawn up, a programme of research is initiated into the documentation associated with the building, both published and unpublished, and also into the pictorial evidence. It may be necessary to appoint an experienced researcher to carry out this work.

16.11. When a monument is to be restored, the presumption is that all surviving historic fabric will be retained unchanged within the restored building. In this connection it should be borne in mind that many buildings have been restored in the past, only to fall into ruin again at a later stage. Restoration is therefore not necessarily in itself a permanent solution for monuments, and it is important that the work should be carried out in a way that will allow the historic fabric to survive such future changes of fortune in an identifiable state.

16.12. All designs for new details at an architectural monument that is to be restored must be based on the evidence embodied within the fabric itself, on the evidence of displaced details from known contexts, or on the evidence of details located in the course of excavation, while making due allowance for the context of the finds (figs 49 and 50). The evidence of early views of the monument made at a time when it was more complete may be referred to as support for, and in addition to, the evidence to be found in the architectural fabric, but it must be remembered that artistic license may make these a less reliable source of information than is often assumed. Restored details which would appear to be historical in character, but which are not based on firm evidence are to be avoided.



50. This view shows the building under restoration in fig. 49 in its completed state.

16.13. The design of replacements for missing elements, such as floors, doors and windows should be closely based on the surviving evidence for the last known state of those features within the part of the building in which they are to be located. Where no such evidence exists, and where this would not be aesthetically jarring, a new element of tactful modern design may be preferable to conjectural restoration.

16.14. All new work should be discreetly distinguished from the original work, with new areas of stonework being incised with the date of their construction.

16.15. The provision of modern services within a historic structure can be particularly problematic. Where possible these should be run through the modern fabric that forms part of the restoration. Where this is not possible, every effort should be made to use existing openings, such as chimney flues or latrine chutes. Only where no other options are available should openings be cut through historic masonry, and in such cases it is probably less damaging to have cleanly drilled holes than to dismantle masonry. Where services have to be associated with historic fabric, chases or tracks should not be cut into that fabric to accommodate them; the services should instead be surface mounted.

16.16. All new fixings should be into joints rather than into the masonry itself, with no damage being caused to the stones on each side of the joints.

16.17. All disturbance of ground surfaces and removal of overburdens required as part of the restoration process must be carried out under proper archaeological supervision (as outlined in section 14 above). Since small-scale cuttings, such as those required for the installation of services, can be too restricted to be adequately informative, it is essential that any excavation should be carried out over a wide enough area for an adequate understanding of the archaeological evidence to be achieved.

16.18. New buildings within the setting of monuments that have been or are to be restored should be avoided as far as possible (see section 15 above), and, if they are unavoidable, great sensitivity is required in determining their design and location. In general, new buildings should be kept away from all areas of high archaeological sensitivity, unless a carefully considered attempt is being made to re-create the inter-relationships and relative massing of a complex of structures that is known to have been associated with the monument. This is likely to be acceptable, however, only when there is full archaeological and architectural evidence for the complex as a whole, and the greatest delicacy of handling in recreating an appropriate sense of scale and quality of finish is called for.

16.19. If extensive new buildings were likely to be required in the vicinity of a restored monument, especially where such new building might be regarded as an inappropriate intrusion within the setting of the monument, it is unlikely that the restoration of the monument would be encouraged. In such cases the applicant should consider if the monument under consideration is appropriate for his or her needs.

16.20. In the case of works that are as inevitably far-reaching and invasive as restoration, it is particularly essential that full records are made of the monument both before and after the work has been carried out, and that those records are lodged in appropriate archives (see section 17 below).

17. RECORDING WORKS AT MONUMENTS

171. Works of conservation form a part of the history of a monument and, although the aim must always be that those works have as little irreversible impact as possible on the fabric, it is important for the future understanding of the monument that they should be recorded and that those records are made accessible. A Technical Advice Note on the recording of monuments is currently in preparation.

172. The records of the work should include the specification, drawings and programme that were put together as the basis for the work, together with any conservation plan and the details of any conditions that were imposed as part of the scheduled monument consent. In the course of the work, all stages should be recorded in the form of drawings, photographs and a written account, at a level of detail that is commensurate with the scale of the undertaking. The record should also include reports on any archaeological investigations, and on findings made in the course of research into the documentation and pictorial evidence for the monument.

173. In cases where restoration for renewed use rather than conservation as a ruin is the aim of the project, it is important that the record of the work carried out should be sufficiently complete to allow future researchers to understand fully what was on the site before work began, what evidence was found in the course of the work, and what was added to the monument.

174. Copies of records of work on monuments should be offered to the National Monuments Record of Scotland (which forms part of the Royal Commission on the Ancient and Historical Monuments in Scotland, at John Sinclair House, 16 Bernard Terrace, Edinburgh, EH8 9NX), and the Sites and Monuments Record for the Council area in which the monument is located. The records should follow the National Monuments Record's guidelines on archiving. Where the works have been far-reaching and the findings of some significance, consideration should be given to having an account of the work prepared for publication.

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Longmore House, Salisbury Place, Edinburgh, EH9 1SH (0131 668 8777)

<http://www.historic-scotland.gov.uk/>

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John Sinclair House, 16 Bernard Terrace, Edinburgh, EH1 1JF (0131 662 1456)

<http://www.rcahms.gov.uk/>

THE NATIONAL MUSEUMS OF SCOTLAND

Royal Museum of Scotland, Chambers Street, Edinburgh, EH1 1JF (0131 225 7534)

<http://www.nms.ac.uk/>

THE COUNCIL FOR SCOTTISH ARCHAEOLOGY

c/o The National Museums of Scotland, Chambers Street, Edinburgh, EH1 1JF (0131 225 7534)

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INSTITUTE OF HISTORIC BUILDING CONSERVATION (SCOTLAND)

The Glasite Meeting House, 33 Barony Street, Edinburgh, EH3 6NX.

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INTERNATIONAL COUNCIL ON MONUMENTS AND SITES UK

10 Barley Mow Passage, Chiswick, London, W4 4PH (081 994 6477)

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