Our Past, Our Future

Working together for the New Forest

New Forest Graveyard Survey

Guidance Notes

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heritage lottery fund

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Based on Historic England Publication:

Caring for Historic Graveyard and Cemetery Monuments

New Forest Historic Graveyard and Cemetery Monuments Survey

This survey work is funded and supported through the Heritage Lottery Funded Landscape Partnership Scheme; *Our Past, Our Future*

(www.newforestnpa.gov.uk/landscape-partnership)

It is adapted from Historic England guidance

Caring for Historic Graveyard and Cemetery Monuments

Guidance and best practice for the assessment, planning and implementation of conservation work to monuments as well as legal frameworks and statutory duties.

If taking part in this survey as an individual or group we would thoroughly recommend reading the full document before commencing your survey.

https://historicengland.org.uk/advice/caring-for-heritage/cemeteries-and-burial-grounds/

Summary

Monuments mark the final resting place of people, whatever their origins and status. The materials, design, craftsmanship and inscriptions of these monuments are a rich and irreplaceable repository of information that connects us with previous generations and their history. They continue to be objects of respect but unfortunately, many monuments are also neglected.

Many burial sites are still in use and provide us with landscapes of cultural, historical and natural interest. The monuments within them commemorate the deceased, but also have associated historical, communal and evidential values. The appropriate care of monuments is essential to preserve these values as well as their architectural and aesthetic character.

Definitions

Monuments: throughout this document, the word ‘monuments’ has been used to include outdoor monuments, memorials, sculptures and other symbols of commemoration.

Churchyards: burial grounds around a church or other place of worship.

Burial grounds: pre-Victorian places of burial without a place of worship.

Cemeteries: landscaped places of burial.

Survey approach

Deterioration and the effects of weathering are an inevitable part of the history of a monument. The purpose of conservation is to slow down the rate of decay, remove any causes of structural instability and provide physical security, while at the same time, preserving as much as possible of the historic significance and original material of the monument.

Any survey or intervention should never attempt to alter the intended appearance of the original or seek to achieve a pristine or highly restored condition. Restoration may only be justified in the case of inscriptions of significant historic interest, or where decay has become disfigurement, and repairs are able to overcome losses in a way that is still reversible.

Successful conservation and repair requires both careful planning and a clear understanding and knowledge of the proposed approaches, methods and materials. Practical treatment should use materials that are suitable in terms of performance (for example, durability and compatibility) and working properties (for example, methods of application and health and safety implications). Well-developed practical skills are also essential to carry out the work to the required standard.

Although the sanctity of many historic burial sites may have diminished, they remain places that reflect the history of former public attitudes to death and commemoration. Surviving monuments reflect social history, craft skills, the development of transport, and the availability of materials and changing methods of manufacture.

All materials decay, especially when exposed to the harsh effects of prolonged weathering. However, the rate of deterioration of a monument will vary according to the material, the method of construction, the degree of exposure and the prevailing environment. For any monument, assessment of these factors and identifying the mechanisms of decay are essential to its preservation.

The removal of biological growth such as lichens, using even gentle means, may be well intentioned but is often damaging and should generally be avoided. Aggressive cleaning methods should always be avoided as they can cause the etching, roughening and discolouration of stone and metal surfaces, which will in turn lead to accelerated decay.

With these points in mind we suggest the following tips to help your survey:

- please undertake the survey with respect for the monuments and the graveyard as a wider entity
- please don’t undertake any survey if the church is being used for a service or any memorial activity
- **please don’t attempt to clean or scrub any of the monuments to read inscriptions or in an attempt to tidy them up**
- where the inscription is obscured or faint, spraying the surface with water and/or examining it in raking light can sometimes help to decipher writing or other marks

- please don't undertake any vegetation clearance during your survey. If you believe it is needed please indicate on your forms

Volunteers can have a role to play beyond the initial condition survey in ongoing maintenance and conservation of monuments if it has been agreed with the relevant authorities. They can also help with research into monuments and the production and updating of the condition reports.

Volunteer Time

As part of the funding and support for the survey we need to record the volunteer time spent on undertaking the survey work. With this in mind we would encourage you all to keep a running tally of the time you spend on this project using the Volunteer Time Form that can be found in appendix 1. Please return this to archaeology@newforestnpa.gov.uk

Risk Assessment

A generic risk assessment has been created for survey and can be found in appendix 2. However you may want to take this and adapt it specifically for your graveyard.

Condition Assessment Proforma Guidance

There are two ways of completing this survey. The survey can be accessed and completed online when in the field using a tablet or similar device, or you can use paper copies on the ground and then complete the online form later.

The form can be found at: https://arcg.is/ymCaL

Location

1. **Unique ID**

This supplied unique ID denotes the church and the specific monument. You shouldn't have to create one. It will be in the format XXYY### (XX is Location, YY is church name and ### is number)

2. **Local Reference Number**

These are the numbers that have been used in previous surveys. These are important so we can link records and map changes or deterioration. They can be in any format

3. **Location**

Church location (not name), this is also denoted by unique ID, but this works as a quick quality check.

4. **Date of inspection**

Date survey undertaken on the ground; this can be different to when you are completing the online form.
Please record in *DD/MM/YYYY* format.

5. **Name of surveyor**

Name of surveyor on site may be different to who is completing the online form.

Identification

6. **Is the monument in its original position**

To release space for new burials, monuments can often be removed and either discarded or reset. The resetting can be against the church, boundary walls or even see the monuments reused as steps. Note whether you believe that this is the monument's original position.
Note: This question does not cover the condition of the monument; whether it is tilted or fallen over (*see question #20*).

7. **Primary Burial**

Full name.

8. **Date of death**

Any details recorded on monument such as day, month and year.

9. **Date of birth**

If recorded on monument.

10. **Age at death**

Only note if recorded on monument. Don’t spend time working it out.

11. **Others commemorated and dates**

If recorded note full names and then date of birth/death. Full details are captured at the end of this form.

<u>Example</u>

Joe X Bloggs – March 1900

Jane Y Bloggs – April 1888 - April 1945

12. **Type of monument**

Marker stones may be evident at both the ‘head’ of the grave and the ‘foot’; they are rarely decorated and may contain only the name and dates of the deceased.


Headstones contain an incised inscription and often a decorative, low-relief motif such as a cross. Varying in size and thickness, they are sometimes accompanied by kerbstones (delineating the boundary of the grave), but these have often been lost or removed during clearance schemes. Traditionally headstones are simply set into the ground, but from the 19th century onwards were often inserted into concrete foundations.

Footstones are small stones found at end of grave in line with headstone. Usually contain inscribed initials and a death date


Ledger slabs are inscribed stone slabs, with the deceased interred below. They are used as floor markers within the church and in a graveyard they are set level or just above the ground. A variation is the coped stone or bodystone, whose curved form, sometimes raised on to a low base with chamfered sides, is an imitation of a grave mound.

Tomb chests are four-sided monuments, usually rectangular in plan, with a top slab. Although internal examples often support an effigy, this is rare outside a building. Tomb chests are usually hollow, with the panels (often decorative and incised) fixed at the corners with metal (usually iron) cramps. However, there are also examples where the panels are fixed to brick core walls.

Pedestal tombs are of similar construction but square or round in plan. Table chests (or table tombs) are similar to tomb chests, with the main horizontal slab supported by legs or columns.

Allegorical sculptures include symbolic representations such as crosses, obelisks and broken columns. Figurative angels and mourners are other examples often found in Victorian cemeteries. When choosing this monument please try to add extra details on the type of cross, obelisk or figure. Help on these can be found in Appendix 1.




Graveboards are wooden panels bearing the inscription and are erected along the length of the grave in areas where stone was not readily available. They were supported at either end by upright posts. Very few of these survive.

13. Dimensions

Dimensions should be of the main monument not including demarcated areas.

14. Principal materials

Traditionally, gravestones and monuments within historic churchyards and graveyards used local building materials, especially stone. However, the development of cemeteries was reflected in a change to a more diverse range of materials and more flamboyant artistic expression.

Although stone is the predominant material used for monuments, brick, terracotta, artificial stone, cast iron, bronze, lead and wood have also been used, either separately or in various combinations. Consequently, when planning any conservation work to monuments, it is essential that the materials are correctly identified and their condition accurately assessed. Expertise is required to understand the distinct physical and chemical properties of each material, their reaction to agents of decay and the effect of any remedial treatment on them.

Stone

England has an abundant and varied legacy of stone. Indigenous limestones, sandstones, slates and granites, as well as imported marbles, are all frequently found in burial sites.

Limestone: a sedimentary rock, largely comprising calcareous (calcium carbonate) shells that have been laid down and compressed over millions of years. Found predominantly in the midlands and south of England, the colour and texture of limestone varies considerably from the even, fine texture of pale grey Portland, through to the rich, warm yellow open texture of Ham Hill.

Sandstone: a sedimentary rock, found predominantly in the north and west of England but used for monuments in all areas of the country. Mineral constituents differ though it normally has significant silica content. Sandstone varies considerably in texture, durability and colour – from deep red, to pale cream, through to blue/grey.

Marble: a metamorphic rock, which has a close-formed matrix comprised predominantly of calcium carbonate, with mineral inclusions imparting colour. It was only the wealthy who could afford imported marble for the production of grand internal monuments, but it became more widely available as the industry expanded. In particular, Italian white Carrara marble, with its purity of colour and fine-grained texture, was ideally suited for detailed carving. There are no true marbles from England, only limestones, such as that from Purbeck that can be polished.

Slate: a metamorphic rock, which is naturally found in several regions within England. At one time the midlands contained many slate quarries – these are now redundant, but sources in Cumbria and Cornwall are still active. It is extremely durable and fine in texture, which makes it particularly suitable for incised lettering and detailed carving.

Granite: a coarse-grained igneous rock mainly formed of quartz, feldspar and mica crystals, which provide the attractive flecked colour combinations, varying from pink to grey. It is naturally found mainly in Devon, Cornwall and Scotland. Granite is extremely dense and hard; making it laborious to cut using hand tools, but it is durable and can take a fine polish. Granite monuments tend to be monolithic and are rarely finely carved.

Metal

Iron: a durable, adaptable and relatively economic material making it a popular material for the decoration and construction of monuments. From the 18th century onwards, public concern about the theft of corpses from fresh graves (for the purpose of anatomical investigation) led to the erection of protective enclosures comprising of railings or posts and chains. The development of industrial production processes in the 19th century made iron more widely available and enabled designs to become more refined. Many of the railings were removed and recycled during the Second World War.

The two main types of iron encountered in monuments are 'wrought' and 'cast'. Wrought iron is forged by heating it and then pounding it into shape on an anvil. It is malleable and can be distinguished from cast iron by techniques of its manufacture – the ends are often tapered and individual units are fused together or secured to each other by a metal collar or riveting.
From the 18th century cast iron became more popular because of the ease and economy of mass production. It is made by heating the ore until molten, pouring it into a mould and then removing the cast once it has cooled. Cast iron is more brittle than wrought and individual units can only be joined through soldering or brazing.

Bronze: a composite material formed from copper and tin that is used primarily as applied ornament to monuments. Colour will vary due to applied patination and/or weathering; corrosion products such as copper sulphate (verdigris) are common.

Lead: an extremely soft, flexible metal, which is both its appeal and its weakness. From the 18th century lead statuary, reinforced with iron armatures, became popular but it is most commonly found as applied lettering to monuments. The lead is either tamped into incised letters and then cut flush with the surface or pre-cast. In both cases, the lead is held in place by being tapped into holes pre-drilled into the stone.

Other materials

Terracotta: a clay-based material, which can be cast and modelled into detailed forms. High-temperature firing produces a relatively impervious 'fireskin', which makes this material resistant to weathering. The most notable example is Coade stone, fired clay similar to terracotta, which first became available in 1769. However, due to high cost, mass production of memorial pieces never became established and so the material was not widely used.

Artificial stones: examples of these materials are occasionally found in burial sites. There was great interest and advancement in the manufacture of imitation stone composite mixes during the 18th and 19th centuries and this resulted in a number of patents.

Wood: generally used in areas where stone was not easily available. Oak was the most frequently used due to its availability and durability. Even so, there are few historic examples left.

15. Designer/Sculptor/Mason

The name of the designer, sculptor or mason is often written discreetly on the side of a monument at low level.

16. Designation

Designation should indicate the grade of any listing if known.

17. Orientation of monument and inscribed faces

Which compass direction is the inscription or decoration on the headstone or tomb facing?

Description

18. Technique of inscription

The technique of inscription can include one or more means such as incised, painted, filled, surface mounted letters, or lead lettering. Sometimes inscriptions can also be in relief where the rest of the headstone has been carved away to leave the letters proud of the surface. Inscriptions not only commemorate the deceased, but are also often a source of social commentary and artistic merit in their own right.

Images left to right: Incised lettering, highlighted letters using paint or pitch and lead lettering beaten into incisions.

19. Condition of inscription

Note the condition of the inscription (for example crisp, clear but weathered, partly legible, illegible) and what might the cause be (for example organic growth, lead lettering removed).

Lead lettering is usually secured using small holes drilled into the stone as a key; when the letters are removed/stolen evidence for their original presence normally remains.

Structural Condition

20. Overall structural condition

Note the position of the monument (for example sound, tilted, falling apart, fallen, collapsed).

21. Ground condition

Note any visible subsidence, and if possible make a note of ground type and any soft or disturbed soil that may be the result of animal burrowing.

22. Condition of foundation if visible

Traditionally headstones are simply set into the ground, but from the 19th century onwards were often inserted into concrete foundations.

23. Previous interventions

Previous interventions, which may be apparent from an examination of the monument, include descriptions such as cleaned, partially cleaned, repointed, new stone indents, rebuilt, surface repairs and surface coatings. Further information may be available from an archive, architects' records or local knowledge.

24. Type and effect of plant growth

Add any additional information about types of plant growth here and its effect; this will be used to consider the potential for some maintenance of site vegetation.

Material Condition

25. Types of deterioration

Type of deterioration is partially dictated by material and is most commonly associated with water.

See Appendix 2 for more detail on the following.

Mark if any are present/occurring and then the extent of this deterioration.

Types of deterioration process include Chemical (CD) (*Soluble salts and Pollution*), Physical (PD) (*Degeneration and Freeze/Thaw*), Biological (BD) and Corrosion (CD) (*in metal*).

The extent of deterioration is normally exacerbated by the presence of loose or missing elements, open joints, delamination, damage from cramps and cracks.

Stone and brick are generally relatively soft and porous materials. If they are repaired or their joints pointed with hard, impervious mortars (such as those based on a cement binder), then moisture is unable to evaporate and this will lead to decay of the stone or brick. Similarly, the application of impervious protective coatings (such as 'sealers') can, after exposure to weathering, cause flaking of the surface.

Images left to right: loss of detail and powdering caused by salt crystallisation (CD). Marble in particular is affected by pollution attack mixed with wetting & drying which leads to sugaring of the surface (CD). Lamination is commonly observed in sandstone, when the natural bed runs vertically (PD). Monuments are host to a vast variety of lichens, mosses and algae (BD). Ivy established on monument following poor maintenance (BD). Iron cramps corrode and can expand by as much as to 7 times their original volume causing disruption or breaking of stone elements (CD).

26. Surface condition

Indicate if soiling (surface dirt), accretions/deposits from chemical weathering, graffiti, or organic growth present and then the extent of deterioration.

Summary

27. Photographed

Monuments should be photographed to show all elevations. For all monuments, this will require a minimum of two photographs (for example front and back for headstones). Specific problems should be photographed separately so that a visual record is available for monitoring that particular condition.

Please tick the box on the form to confirm you have taken photos and uploaded them to the following folder. This will be cleared out and photos archived regularly:

https://www.dropbox.com/sh/rqoxewsa0yv5r99/AAAs7Sxbnd0XGT-BAY6UjhWXa?dl=0

28. Photograph ID range

Rename your photos with the unique monument ID and then number them from one upwards before depositing them in the Dropbox folder linked above.

29. Priority for repair

The priority of repair and time for re-inspection should be identified using this table

Table 1: Priority of repair and time for re-inspection matrix (Historic England, 2011)

Category	Condition & risk status	Action required	Re-inspection required in
1 (very bad)	Hazardous/unstable	Intervention as soon as possible	Once repaired, after 5 years
2 (poor)	On-going deterioration	Intervention within 2–5 years	Prior to intervention and then after 5 years
3 (fair)	Some decay but generally stable	Intervention may be required in 5 years	After 5 years
4 (good)	Stable	No intervention required	After 5 years

30. Maintenance issues

Any maintenance that will prevent possible future deterioration of the monument should be identified – for example, removal of adjacent vegetation, drainage, nearby subsidence.

31. Re-inspection required

Indicate whether this is needed in line with the guidance table above or if you would like a specialist to check a certain monument.

32. Inscription text

Where the inscription is obscured or faint, spraying the surface with water and/or examining it in raking light can sometimes help to ascertain its nature and condition.

Note a detailed record of what you can read of the inscription.
Please try and accurately record line breaks, capitalisations, symbols and spaces.
If you can't interpret a word please record it as (unknown)
If you can't replicate any symbols or images on a key board please make sure a photograph is taken and linked to the record.

Example
IN
MEMORY
OF
MARIA
WIFE OF CHARLES BROWN
DIED AUG 15TH 1914
AGED 57
ALSO
RICHARD (*unknown*) WALTER
THEIR SON
DIED DEC 28TH 1885
GOD IS LOVE

33. Monument embellishments

Use this space on the form to record any embellishments to the primary monument such as railings, additional statues, figurines or features.

34. Any other notes

Use this space on the form to record any other details or notes you think will be of interest or value to ongoing research

Appendix 1: Volunteer Time Sheet

Our Past, Our Future
Landscape Partnership Scheme
Time Recording Form

For use by Volunteers and Landowners providing their time

Title of Project		**Reporting Period**	
Project Lead	James Brown	**Completed by**	

Name of person recording hours	
Location	

Date	Activity	Time spent on project (hrs)	Project
	Total Hours	0	

Signature ______________________________

Authorisation signature ______________________________

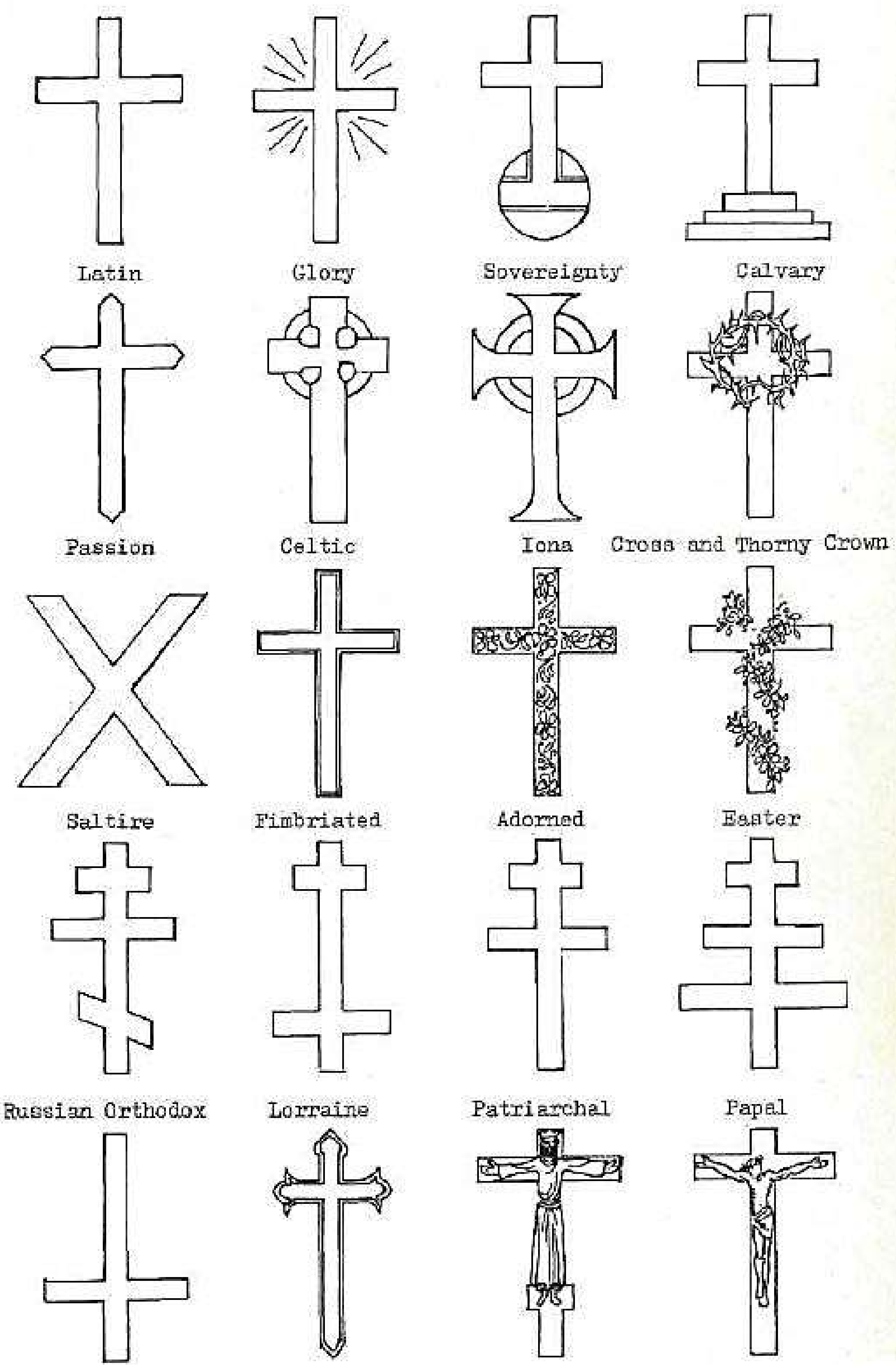
Date ______________________________

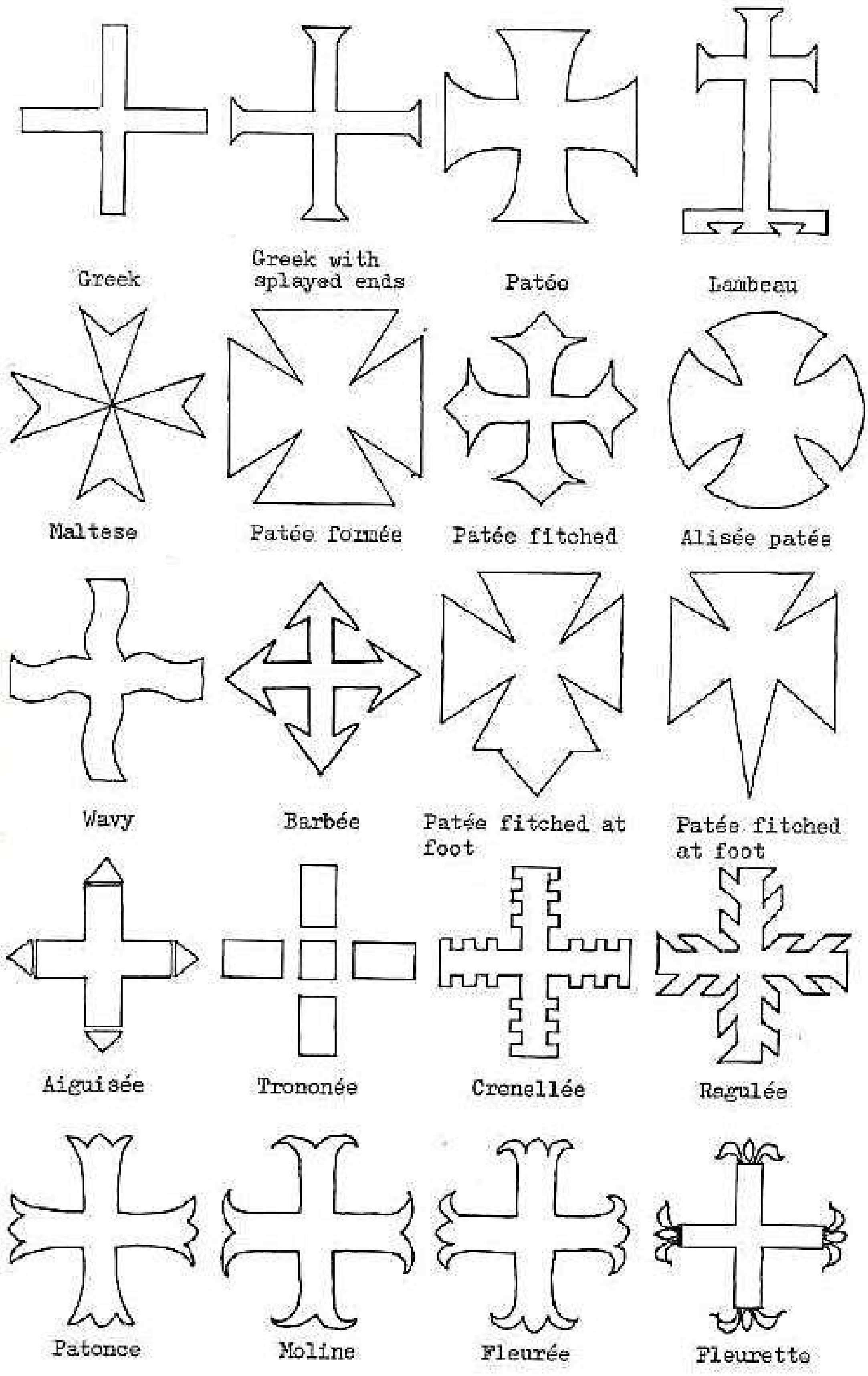
Appendix 2: Generic Risk Assessment

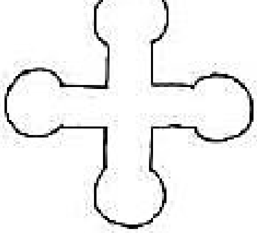
TO DO

Appendix 3: Types of Allegorical Sculpture

Crosses




Greek
Greek with splayed ends
Patée
Lambeau
Maltese
Patée formée
Patée fitched
Alisée patée
Wavy
Barbée
Patée fitched at foot
Patée fitched at foot
Aiguisée
Trononée
Crenellée
Ragulée
Patonce
Moline
Fleurée
Fleurette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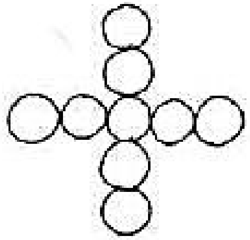
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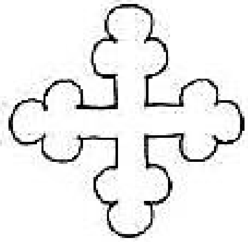
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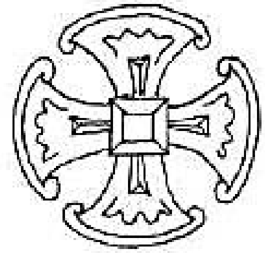
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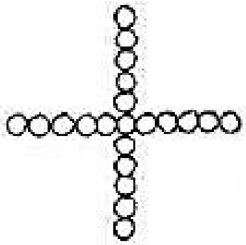
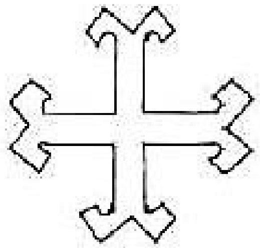

Paternoster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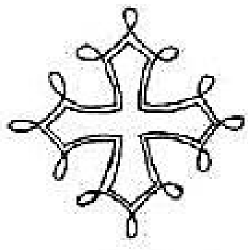
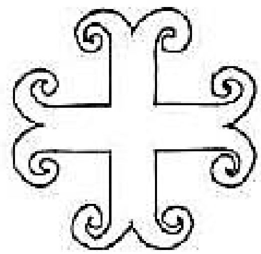

Clercée or Entrailed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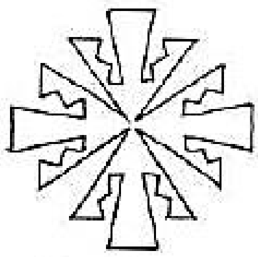
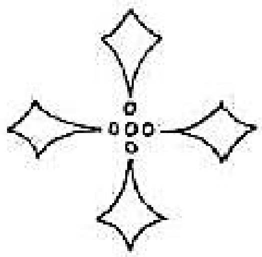

Four Pheons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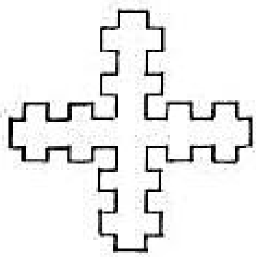
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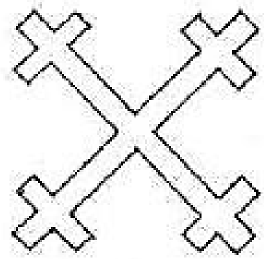
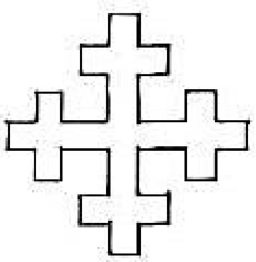

St Julian's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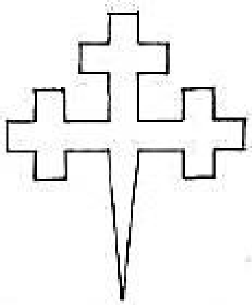
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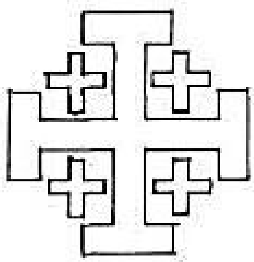
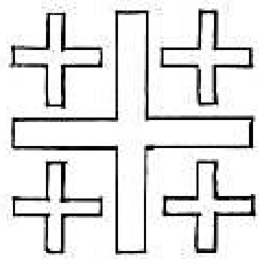

Crusader's or Jerusalem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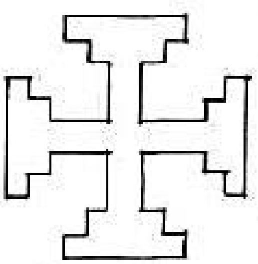
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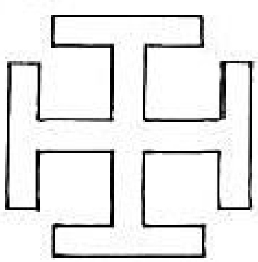
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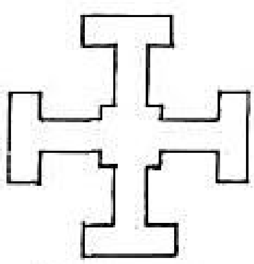
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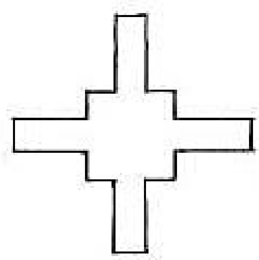
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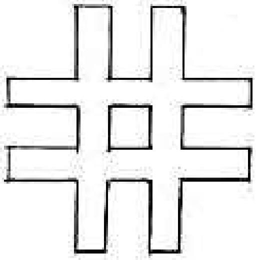

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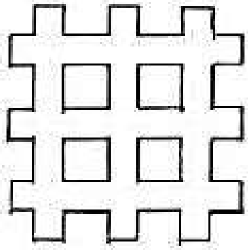
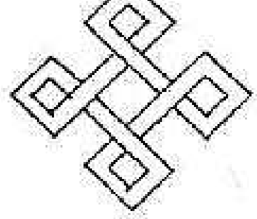
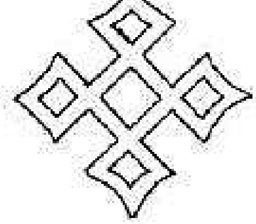


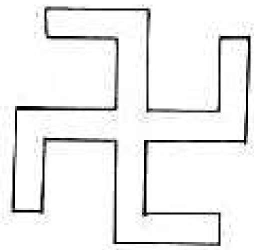
Triparted



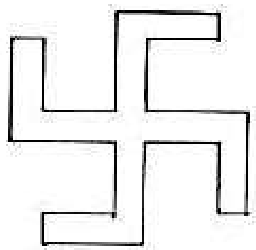
Frettée



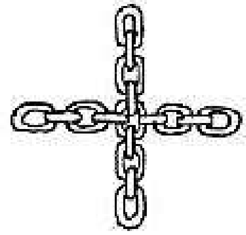
Masclée



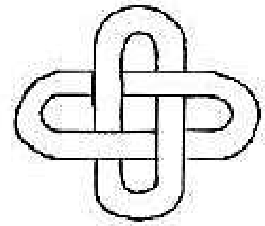
Fylfot or
Swastika



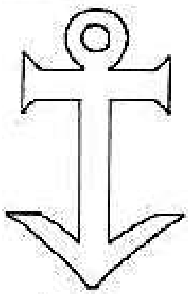
Potent Rebated



Chain



Looped



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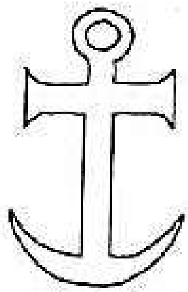

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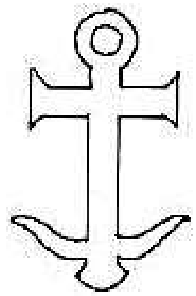

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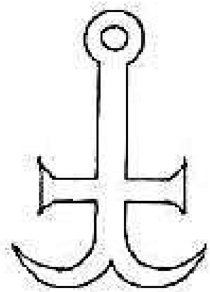

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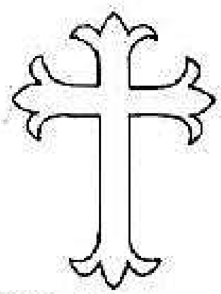
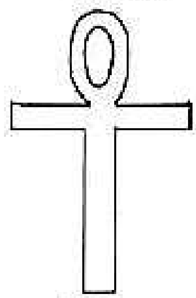
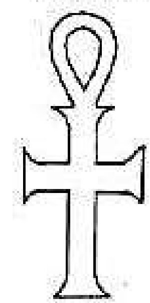


Latin cross
fleurée

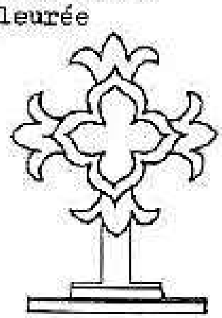
Tau



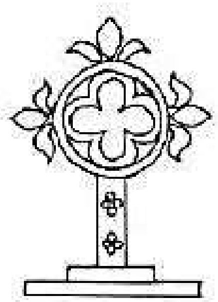
Ankh



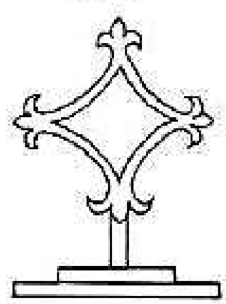
Crux Ansata



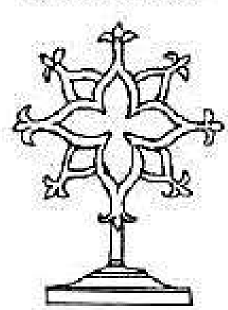
Floriated
Quatrefoil



Circle and
Quatrefoil



Greek cross
Fleurée



Floriated
Octafoil

Appendix 4: Deterioration Information

Material properties and decay characteristics

Stone

Stone monuments are subject to a variety of decay mechanisms, which can be categorised as chemical, physical and biological. As they are exposed and susceptible to ground conditions, moisture plays a significant part in any deterioration.

Chemical

Disruption through soluble salts: ground water in burial-site soils is rich in dissolved salts derived from the natural degradation of plant materials and the decomposition of human remains. Since many stones are buried in the ground, they act as wicks for the ground water; as this evaporates salts will appear as crystals, often white in colour – this is generally referred to as efflorescence. When salts crystallise beneath the surface within the pore structure of the stone, internal stresses are created, leading to the weakening and loss of stone. Repeated wetting and drying exacerbate this process by causing salts to go in and out of solution.

Attack from pollution: some atmospheric gases, such as sulphur dioxide, nitrogen oxides and ozone, can cause decay of stone surfaces. The effects are associated with the formation of gypsum (calcium sulphate), a mineral that is more water-soluble than the carbonate minerals from which it is formed.
Marbles and limestones are particularly sensitive to chemical attack from acids formed by the combination of pollutant gases and water. This is most evident in the way that the marble surface loses its polish. On older marble and limestone monuments, this leads to erosion of details, the loosening of grains ('sugaring'), and the formation of black weathering crusts. For sandstones, a brittle and less-permeable surface crust is formed – this eventually exfoliates and is often referred to as 'contour scaling'.

Physical

Degeneration of natural rock formation: sedimentary rocks, such as limestone and sandstone, are formed by the deposition of particles, which build up in layers termed 'beds'. For any construction, the direction of these masonry beds is extremely important since weathering takes advantage of the natural weaknesses between them and can lead to delamination of the stone. In most cases, stone should be placed so that its natural bedding plane is perpendicular to applied forces or weathering. Headstones, however, because of the height required, are normally edge-bedded with their bedding planes parallel with the face. This makes them susceptible to lamination, which in turn leads to loss of inscriptions and surface details. Slate is extremely durable and may remain sound even in the most inhospitable situations, but as a material, it is still susceptible to lamination. Granites, too, are very resilient and polished surfaces have been observed to last more than a century. Even so, these can deteriorate through the breakdown of their silicate minerals.

***Freeze/thaw activity**:* most processes of stone deterioration are associated in some way with the transport and action of water. Monuments in burial sites are constantly exposed to moisture through capillary suction from damp soil ('rising damp') and through precipitation. Thus, it is possible for the stone to be saturated and when this water freezes, it can create a bursting pressure within the pores. This freeze/thaw cycle can be repeated many times each winter, leading to crumbling of the surface and the gradual disappearance of details such as inscriptions. Changing climatic conditions may mean that freeze/thaw will tend to occur less regularly.

Biological

Trees and shrubs: these are a very common cause of decay and damage to monuments. On a large scale, plants and climbers can engulf a monument, prevent the evaporation of moisture and attach themselves to vulnerable surfaces. Woody species, such as *Buddleia*, cause physical damage by establishing root systems within joints and then pushing elements of monuments apart. Creeping plants, such as Ivy or Virginia creeper, are tenacious and can both cause physical damage as well as trap moisture and cause staining on the surfaces. However, many non-woody herbaceous plants cause no problems and indeed often add to the character of the burial ground.

Lower plants: the discolouration and patina caused by the presence of microbiological growth such as bacteria, moulds, algae and lichens often add to the mellow and aged appearance of burial sites. Excessive colonisation can obscure inscriptions and some growths secrete acidic deposits, which, in the long term, may lead to slight deterioration of the stone surface. Some individual species are protected by law and many burial grounds are also valued wildlife habitats and may be designated.

Metal

Iron: if regularly maintained, iron is extremely robust. However, lack of routine painting (with suitable paints such as those based on micaceous iron oxide) will expose the metal to moisture, which causes corrosion, in the form of rust. This is observed initially on the surface of the metal, but after prolonged exposure it can lead to disintegration. Corrosion of wrought-iron cramps causes exfoliation and expansion of the forged strata of the metal and this can lead to fracturing and disruption of the adjacent stone (or other brittle elements).

Bronze: is extremely resilient and corrosion is usually superficial and caused by chemical reactions between the constituent metals, moisture and pollution. The run-off from bronze causes deep-seated staining to porous stone surfaces beneath. Structurally, disruption of bronze elements is usually caused by corrosion of internal iron fixings.

Lead: statuary is prone to splitting as a result of the corrosion of iron armatures. Lead is also susceptible to deformation, or 'creep', whereby it slumps under its own weight. Lead lettering can become detached and it has also been known to be attractive to some birds; removal and pecking marks are not uncommon.

Other materials

Ceramics: fired materials such as brick and terracotta have a 'fireskin' that affords virtually impervious resistance to weathering. However, if this barrier is breached, moisture will penetrate easily and can cause decay.

Wood: exposed to rainfall and ground moisture, wooden monuments constantly contain some level of moisture, but if this is above 20 per cent then there is enough free water for micro-organisms, in particular fungi, to grow and cause decay. The most common of these are dry rot (*Serpula Lacrymans*) and wet rot (*Coniophora puteana*), which break down the lignin and cellulose fibres of wood, resulting in the formation of various sugars. These provide food for the larvae of different insects. The structure of wood can also be destroyed by infestation by wood-boring insects such as the deathwatch beetle (*Xestobium rufovillosum*) and woodworm or furniture beetle (*Anobium punctatum*).

Structure

Inappropriate design or detailing of monuments can mean that water does not run off and can be responsible for structural problems as well as staining and erosion of the surface. As water is the main cause of the corrosion of iron fixings, ingress into the monument can lead to displacement, cracking and even loss of stone panels.
Ground subsidence can cause a monument to lean, subside or collapse. The movement may be due to insubstantial foundations or no foundations at all, disturbance from tree roots, excavation by burrowing animals or collapse of coffins and vaults. Depending on the construction of the monument, deformation of the structure can lead to point loading and cause spalling and fracturing of the stone. Another side effect is the opening of joints, which will allow plants and vegetation to take root. Impact damage, vandalism or theft of part of the monument can also cause structural problems.

Inappropriate treatments

Stone and brick are generally relatively soft and porous materials. If they are repaired or their joints pointed with hard, impervious mortars (such as those based on a cement binder), then moisture is unable to evaporate and this will lead to decay of the stone or brick. Similarly, the application of impervious protective coatings (such as 'sealers') can, after exposure to weathering, cause flaking of the surface.

Removal of biological growth such as lichens, using even gentle means, may be well intentioned but is often damaging and should generally be avoided.
Aggressive cleaning methods should always be avoided as they can cause the etching, roughening and discolouration of stone and metal surfaces, which will in turn lead to accelerated decay.

Churches
Beaulieu Abbey Church
Boldre_St John the Baptist
Brockenhurst_St Nicholas
Burley_St Johns
Colbury_Christ Church
Copythorne_St Marys
Dibden_All Saints
East Boldre_St Pauls
Emery Down_All Saints
Exbury_St Katherines
Lyndhurst_St Michael All Angels
Minstead_All Saints Church
Netley Marsh_St Michaels
Thorney Hill_All Saints Church