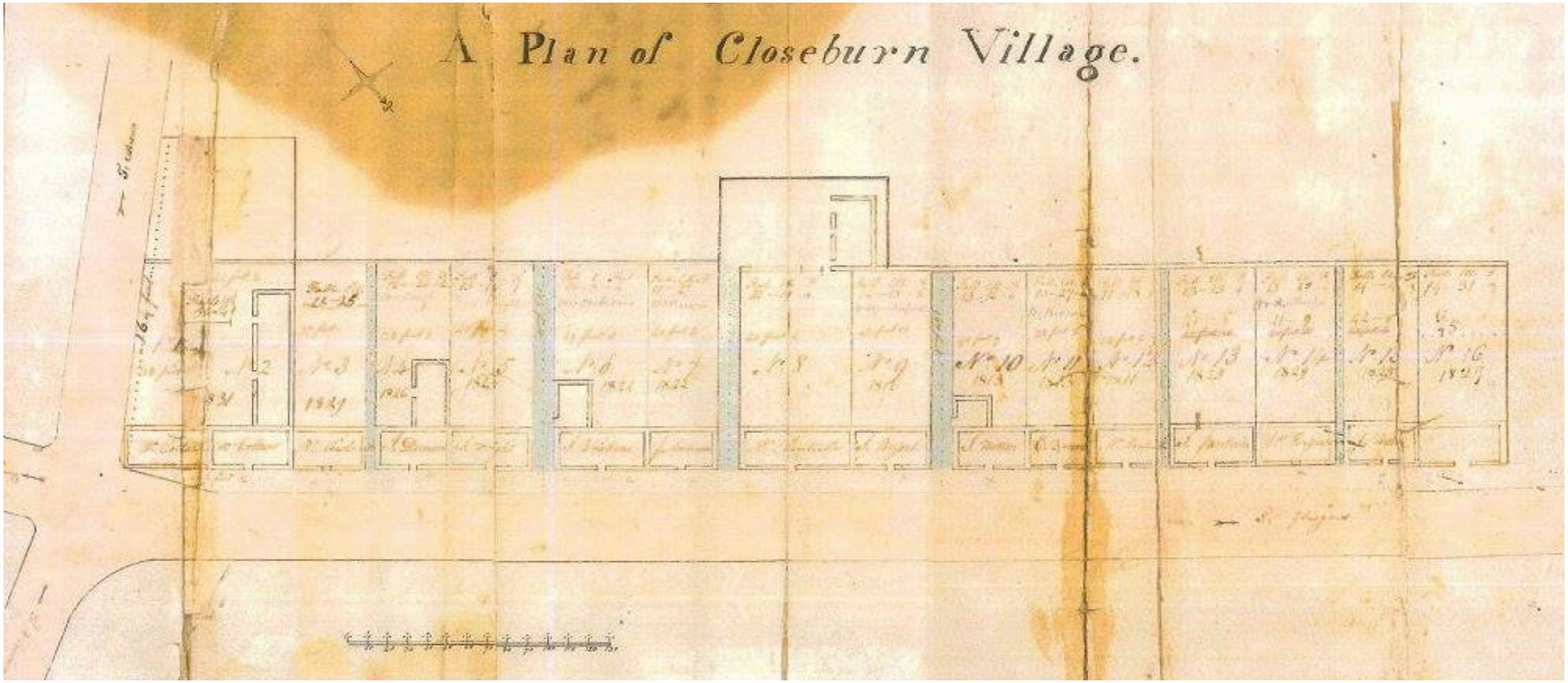
ISSN 2753-9083

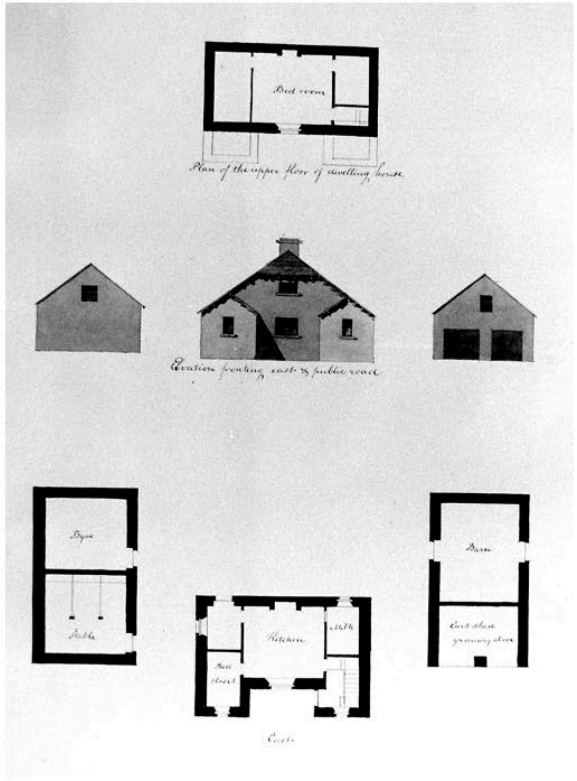
COTAC Insight 2l:
The Need to be Aware of the Built Heritage

Exploring ICOMOS Education and Training Guideline (l): Document work executed and make same accessible

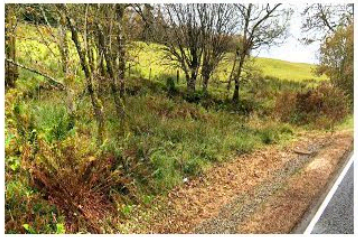
COTAC

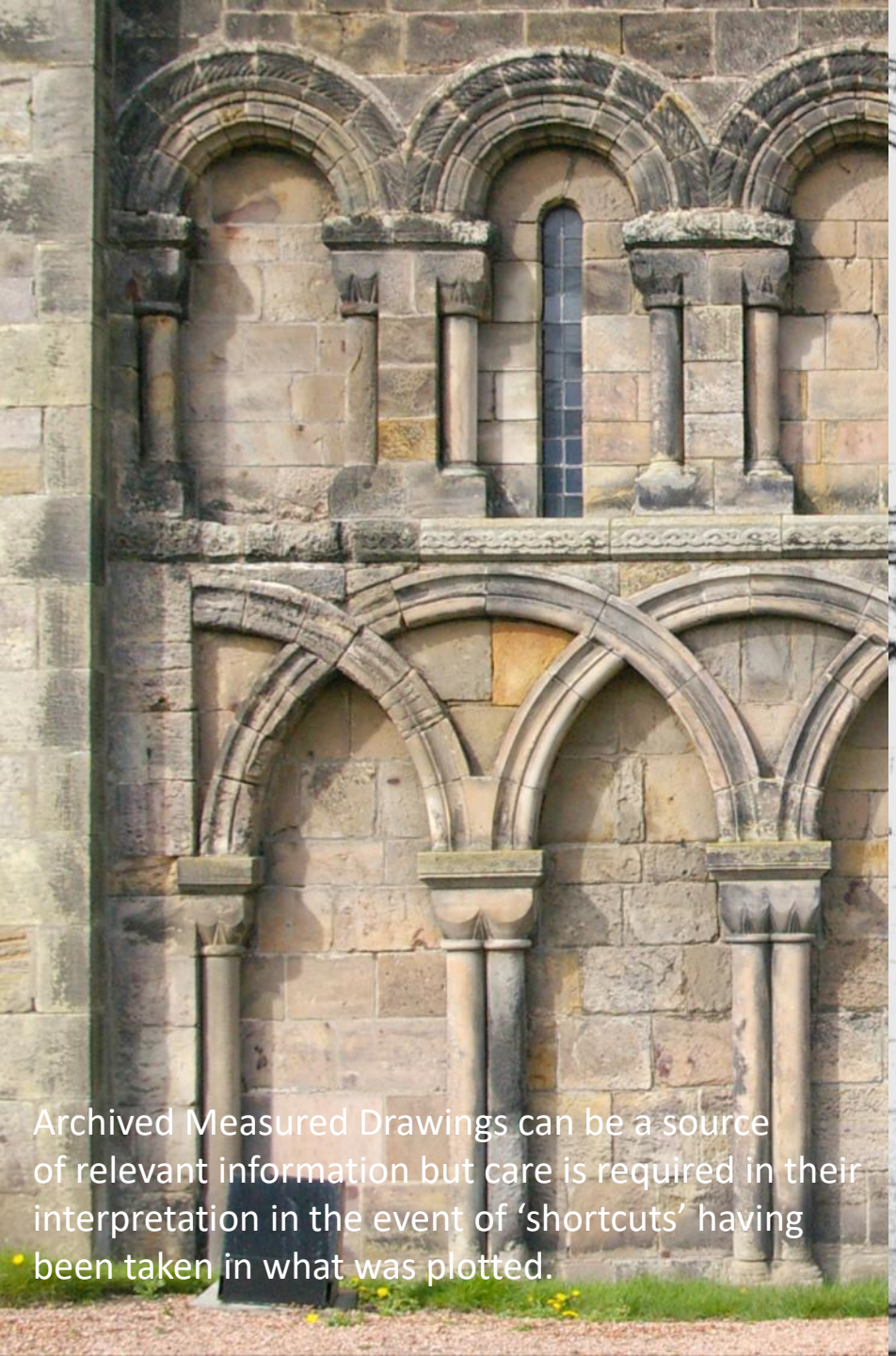


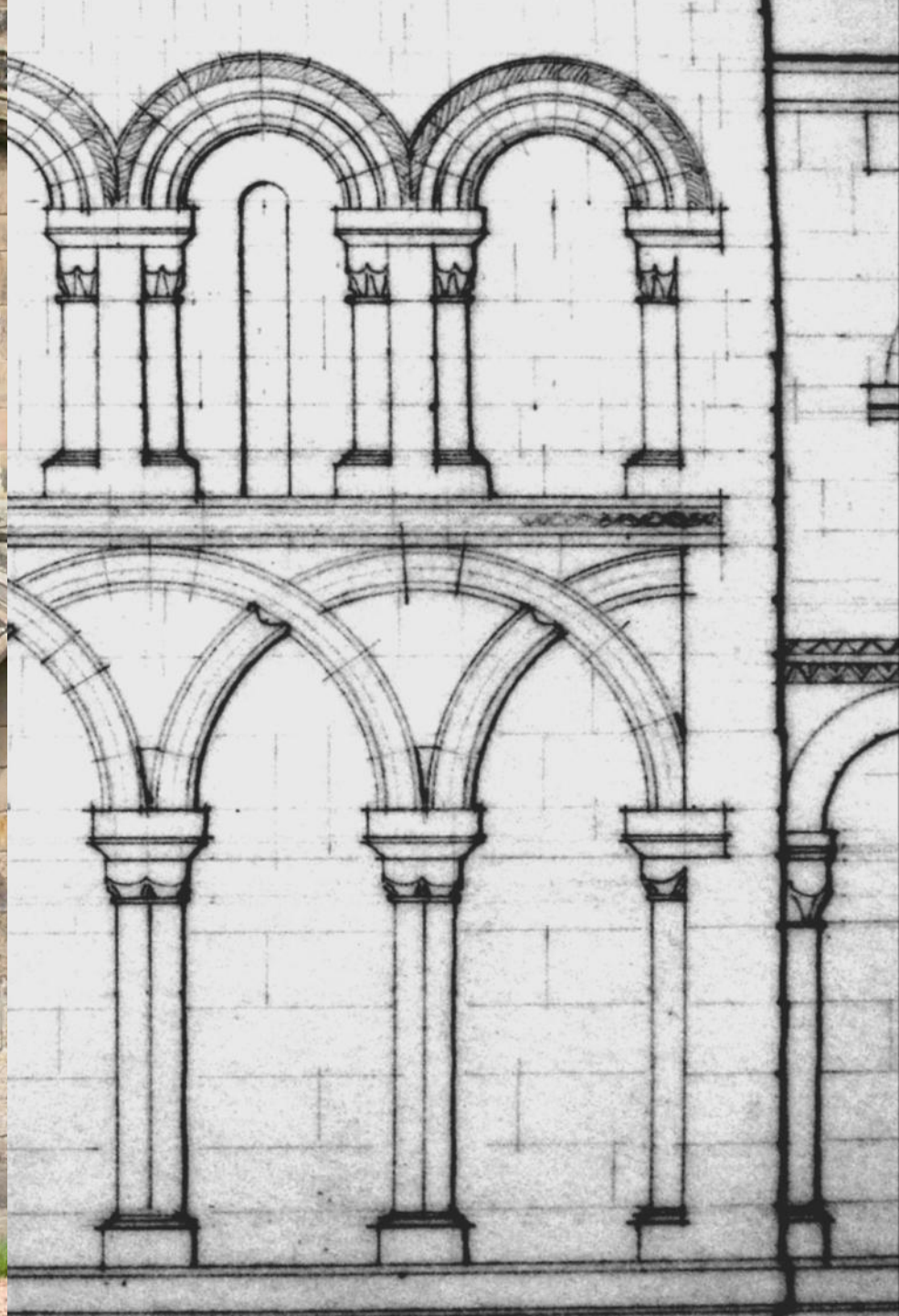
An archived village Feuing Plan covering the period 1813-29 offers precise details of ownership, garden plots and building dimensions, initiating a defined period of construction. Related early photography can indicate the form and style of building and, with interpretation, the type of building materials that were used, in addition to the introduction of services.



Archived Estate plans might offer the only record of what was once built. Record photography and map evidence can confirm previous existence even if the location has been demolished and cleared.







Archived Measured Drawings can be a source of relevant information but care is required in their interpretation in the event of ‘shortcuts’ having been taken in what was plotted.

Property in Care (PIC) ID: PIC237
Designations: Scheduled Monument (SM90219)
Taken into State care: 1934 (Guardianship)
Last reviewed: 2004

HISTORIC ENVIRONMENT SCOTLAND
STATEMENT OF SIGNIFICANCE

MID HOWE CHAMBERED CAIRN

We continually revise our Statements of Significance, so they may vary in length, format and level of detail. While every effort is made to keep them up to date, they should not be considered a definitive or final assessment of our properties.

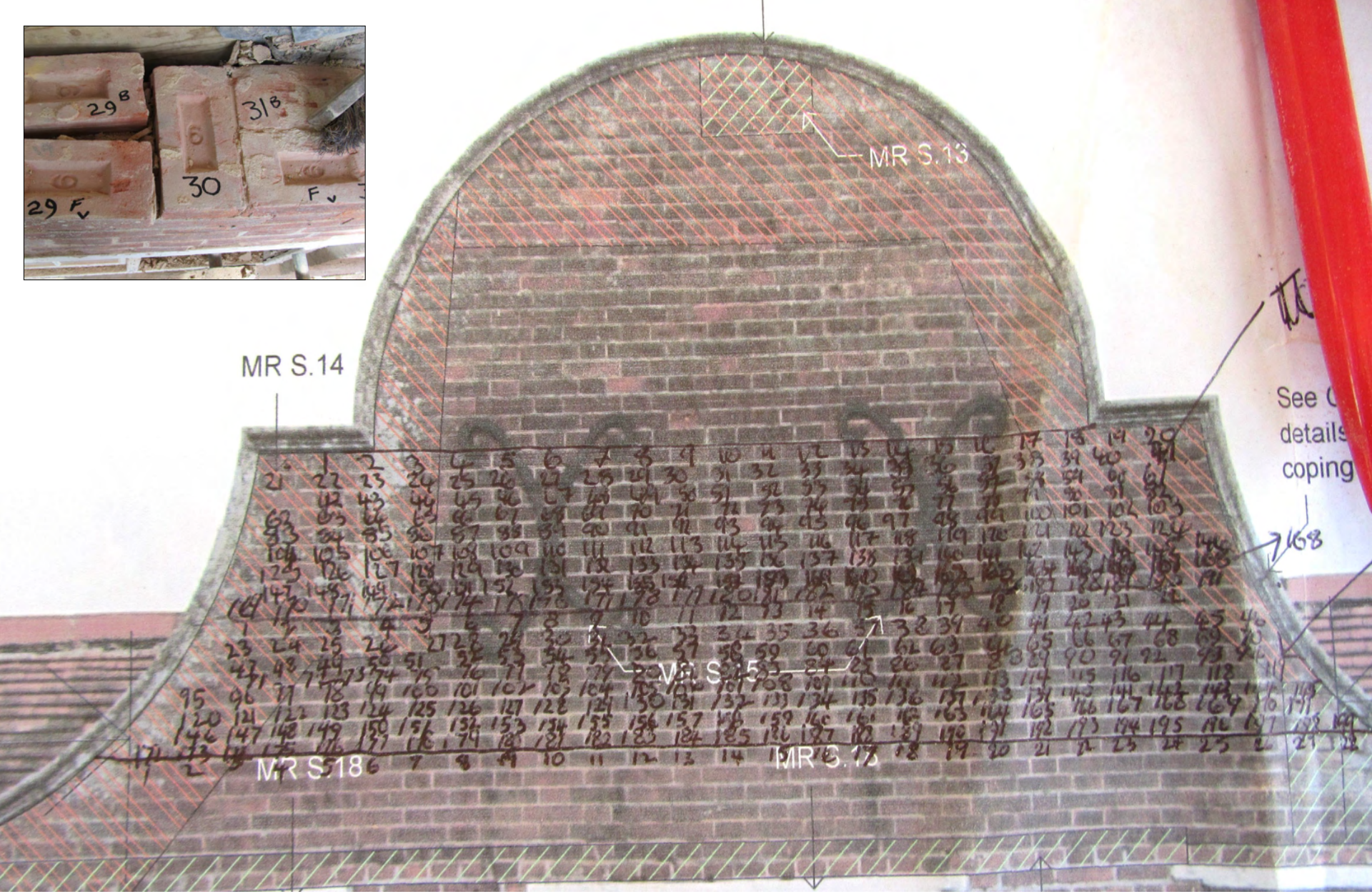
Historic Environment Scotland – Scottish Charity No. SC045925
Principal Office: Longmore House, Salisbury Place, Edinburgh EH9 1SH

https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationid=cc9da3e2-3f63-4d4c-ba2f-a8b800d8603f

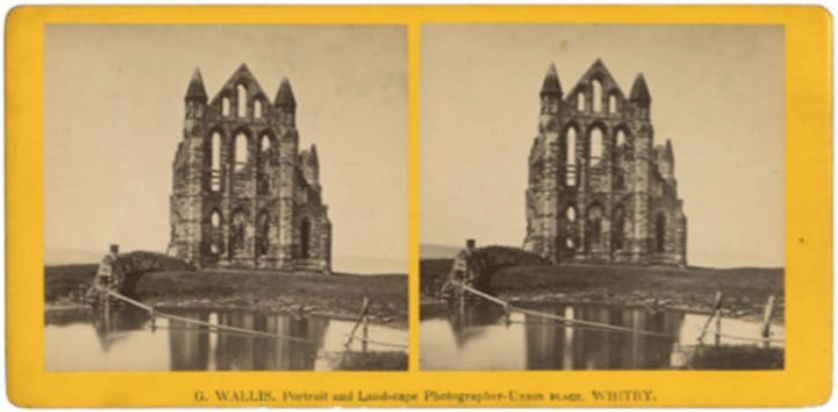
Remaining building materials can act as documents in their own right. Here, evidence of manual work in 'trimming' the vertical edge of this 5,000 year old tomb stall slab suggests a knowledge of how the stone would react to successive weighty (followed by more refined) 'hammer' blows to achieve the desired result.

Dated archival drawings, supported by photographs and specifications indicating where and when remedial work was carried out, can add greatly to a fuller understanding in any future operational activity involving similar work. However, the issue remains as to where such records might be lodged and secured for future long-term reference.

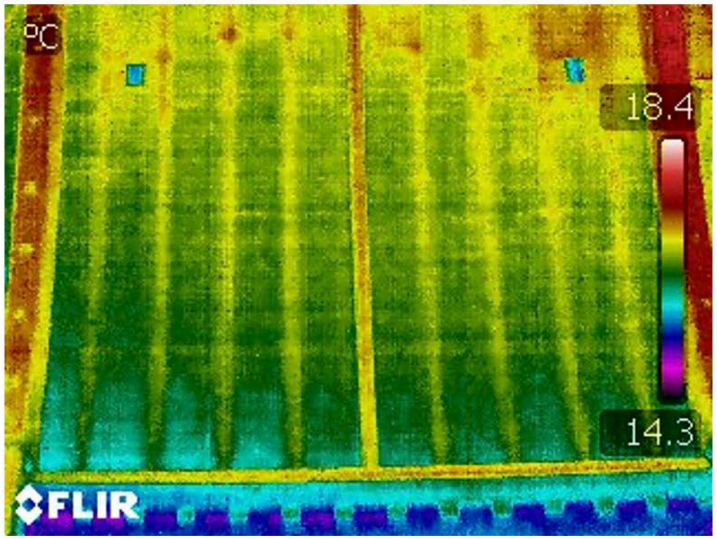
In recent times, large scale restoration projects have created varying points of view. Rightly or wrongly, part of their legacy is whether or not sufficient archival material has been lodged which clearly outlines the decision processes involved and whether the extent of documentary evidence allows adequate scrutiny of what was carried out.

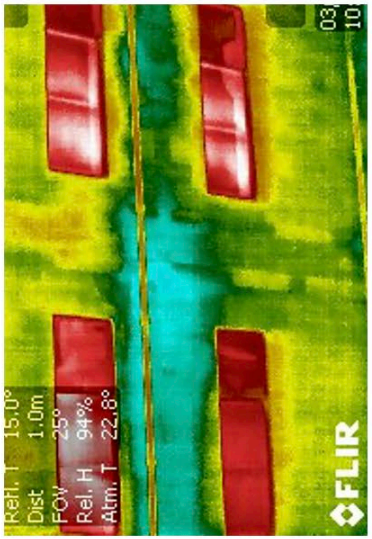


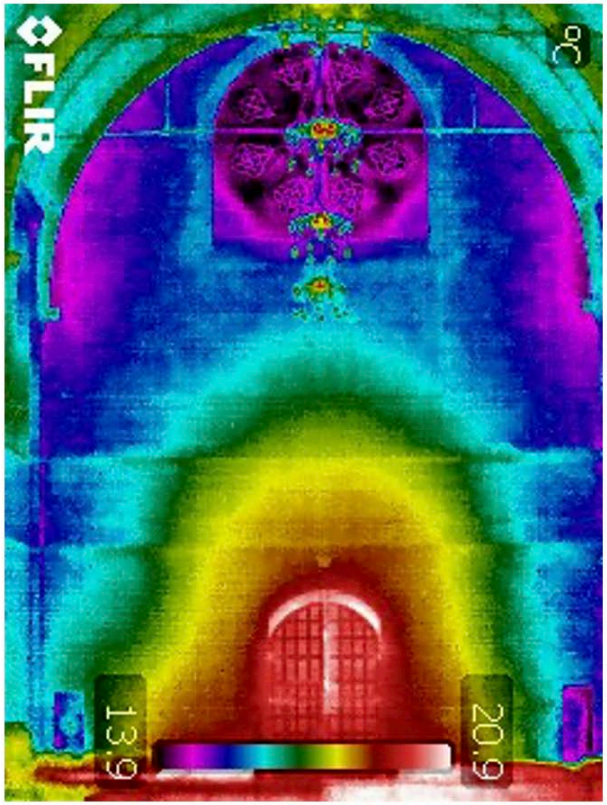
Structurally seriously unsafe elements of a building may have to be dismantled and rebuild more securely. In a process demanding precise care and justification: each brick (through, front and back) has been numbered and archive records maintained of the detailed process that was adopted.

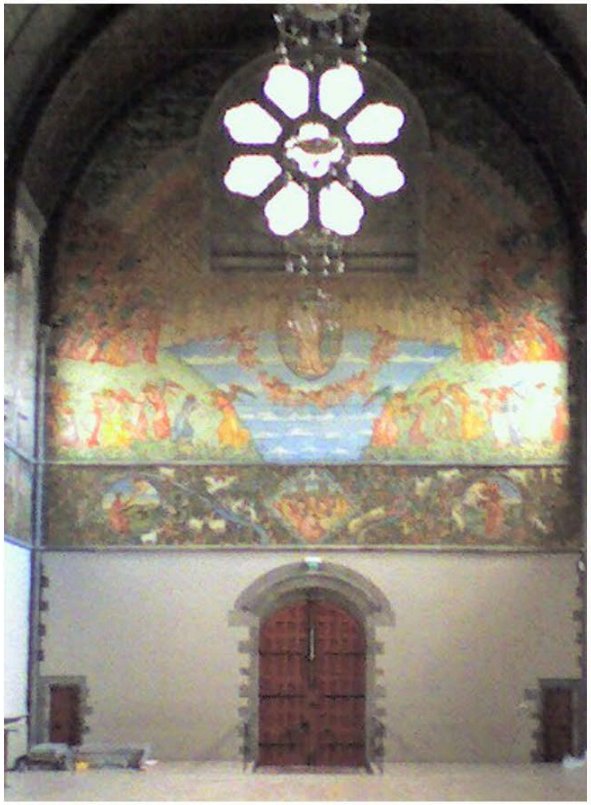


Since the invention of photography ways have been developed to create virtual 3D imagery so that a fuller appreciation of the built heritage (and numerous other subjects!!) might be offered and recorded for access by a wider audience.



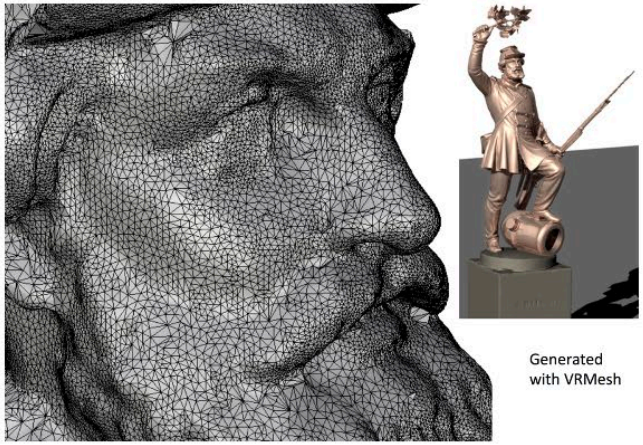






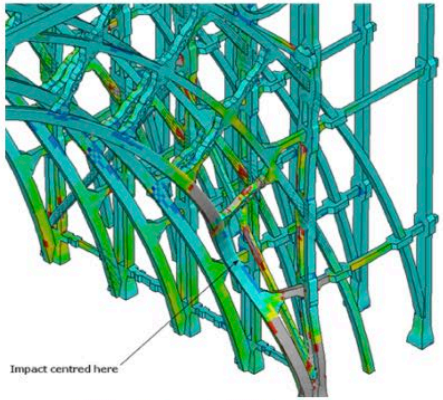
Without the need for intrusive investigation, the emergence of infrared thermography is proving to be a useful non-destructive diagnostic technique, especially when carried out in unison with other forms of survey and investigation. The technique works on the heat energy emitted from the surface of materials. The intensity of the radiation is converted to black and white or coloured variations as indicators of temperature. It can provide invaluable information on historic buildings helping to enhance an understanding of problems, performance characteristics, and assessing structural and environmental integrity.

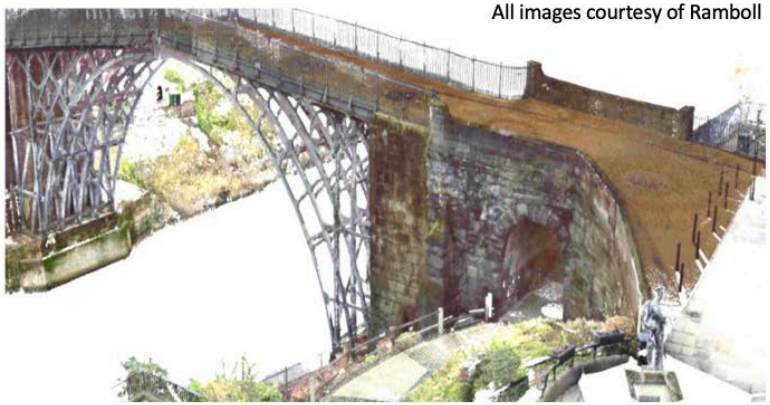
The NHBC Thermal Imaging Report Guide (NF86) provides examples of typical thermal imagery and identifies common issues that can affect the accuracy of a thermal imaging report if the survey information is interpreted incorrectly.
See:
https://www.nhbcfoundation.org/publication/thermal-imaging-report-guide/

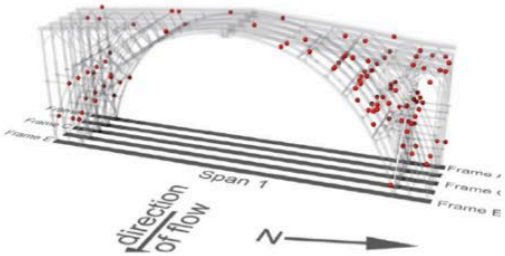


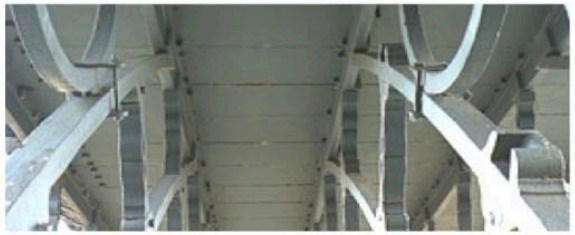
Generated with VRMesh

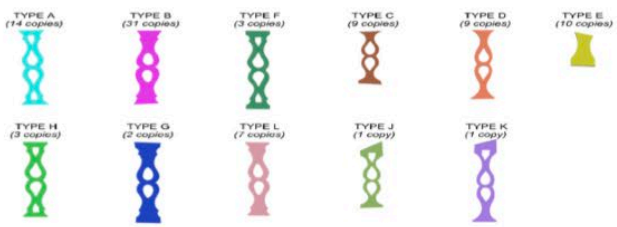
All images courtesy of Ramboll





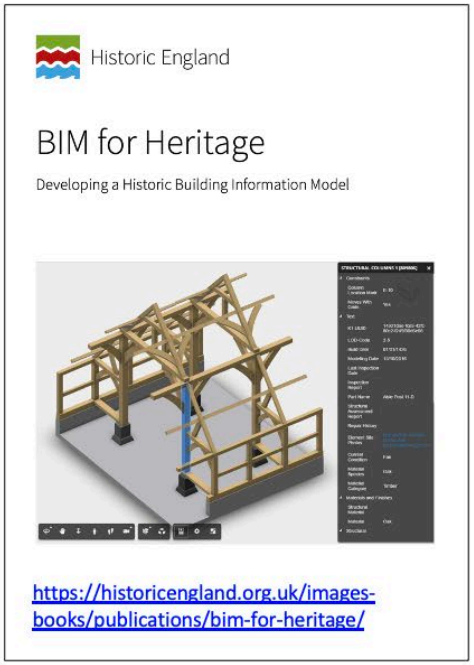




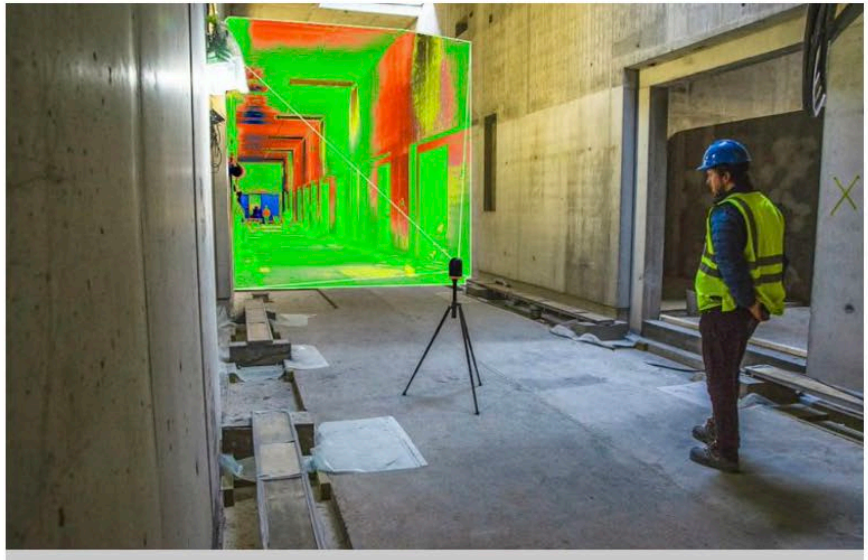


Laser scanning might be considered a modern day innovation that allows unprecedented access to an understanding of the built heritage in addition to a host of other applications. The technique uses lasers to capture 3D spatial data in the form of a point cloud at different point densities depending upon requirements. The collected data can be used to develop 3D models of what has been scanned in a way that satisfies a variety of post-scan application needs. From a heritage perspective having accurate records of buildings and structures is an essential pre-requite in developing BIM applications.

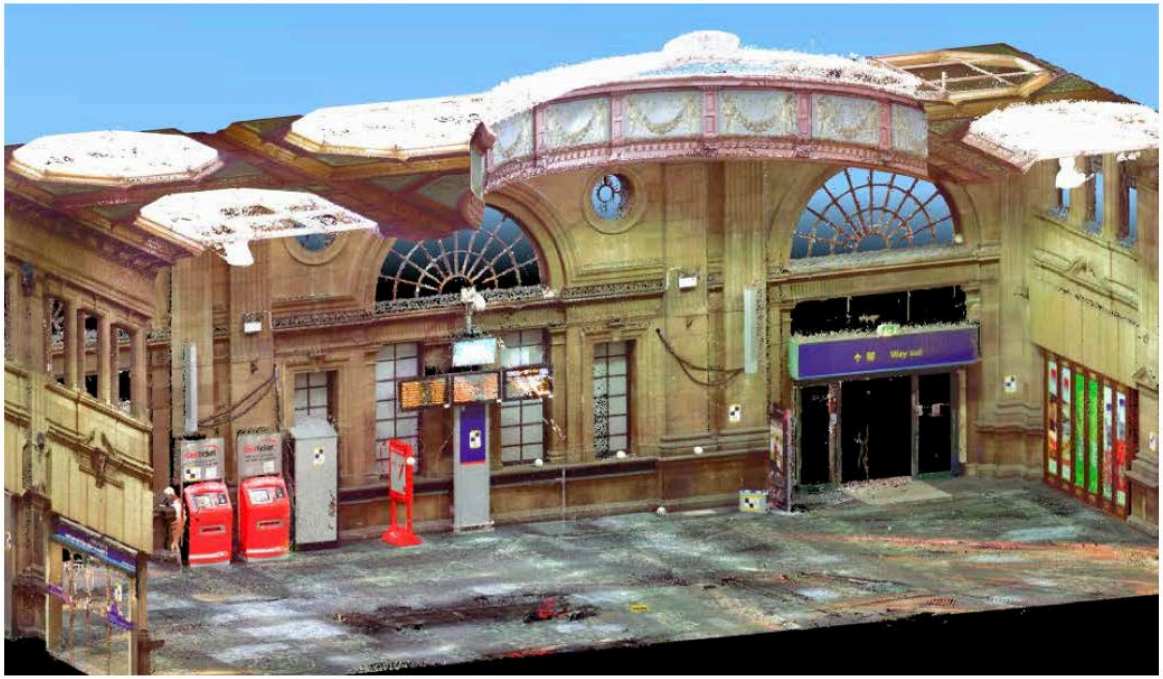
Building Information Modelling (BIM) is a relatively new process that is developing across the Architecture, Engineering and Construction fields. It allows the creation of virtual building models, which can be linked to numerical data, texts, images, and other types of information. It is destined to create a major impact on the application of Guideline l).



https://historicengland.org.uk/images-books/publications/bim-for-heritage/

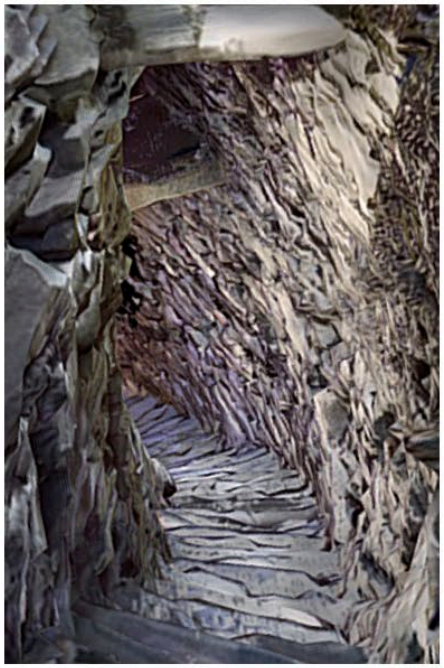


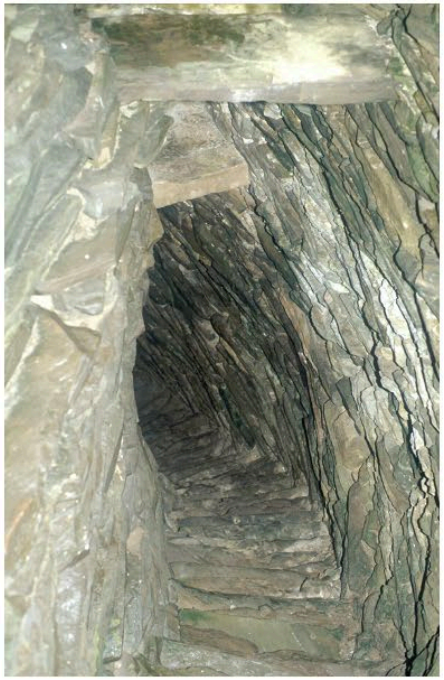
Imerso has also established a partnership with the 3D scanner manufacturer Leica Geosystems to integrate the system with the latest and fastest scanning equipment available



It can be contended that heritage projects are not substantially different from any new build BIM project: both require models, forward planning and data: the difference being the required additional layers of historic data. Potentially and economically overcoming this need, technological developments can now offer LiDAR scanning via smart phones and real-time scanning of work-in-progress can be integrated as a work management tool offering immediate information to all who need it. Such developments will continue at an ever increasing pace.

Images: web sourced



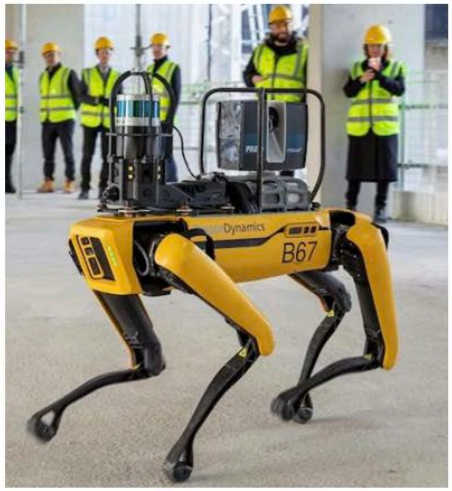


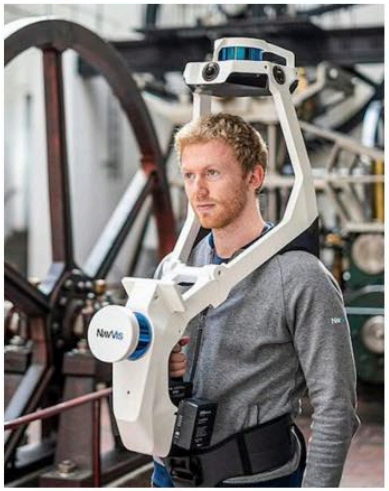
A number of website now freely (or for a fee) offer downloadable 3D models of a variety of heritage sites. Where views can be matched with 2D record photographs the quality of detail is surpassed given an additional ability to effect ‘ fly-through’ viewing and interpretation from any angle.

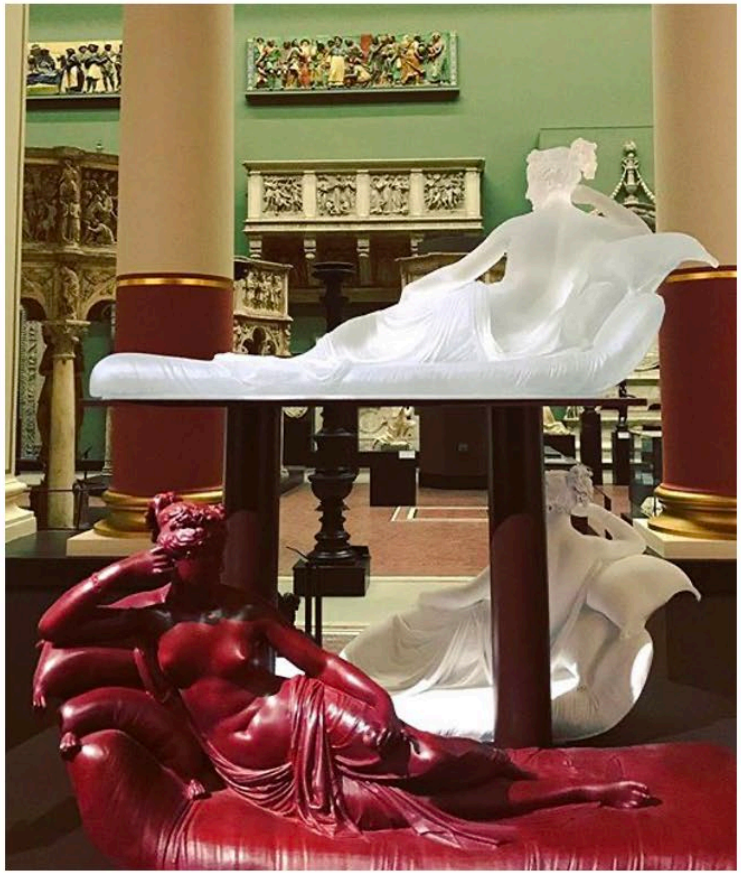
https://sketchfab.com/3d-models/mousa-broch-shetland-88a87c90cde8477a87523caa511c1796

As a readily accessible archival tool the added realism of 3D scanned imagery can aid detailed analysis of places and encourage research. Developed real-time visualisation and immersive virtual reality experiences can help plan for necessary conservation works and allow for greater remote and rewarding public access.

https://sketchfab.com/3d-models/caerlaverock-castle-4a21aeea4daf4317aeb13a2fff7dad7f

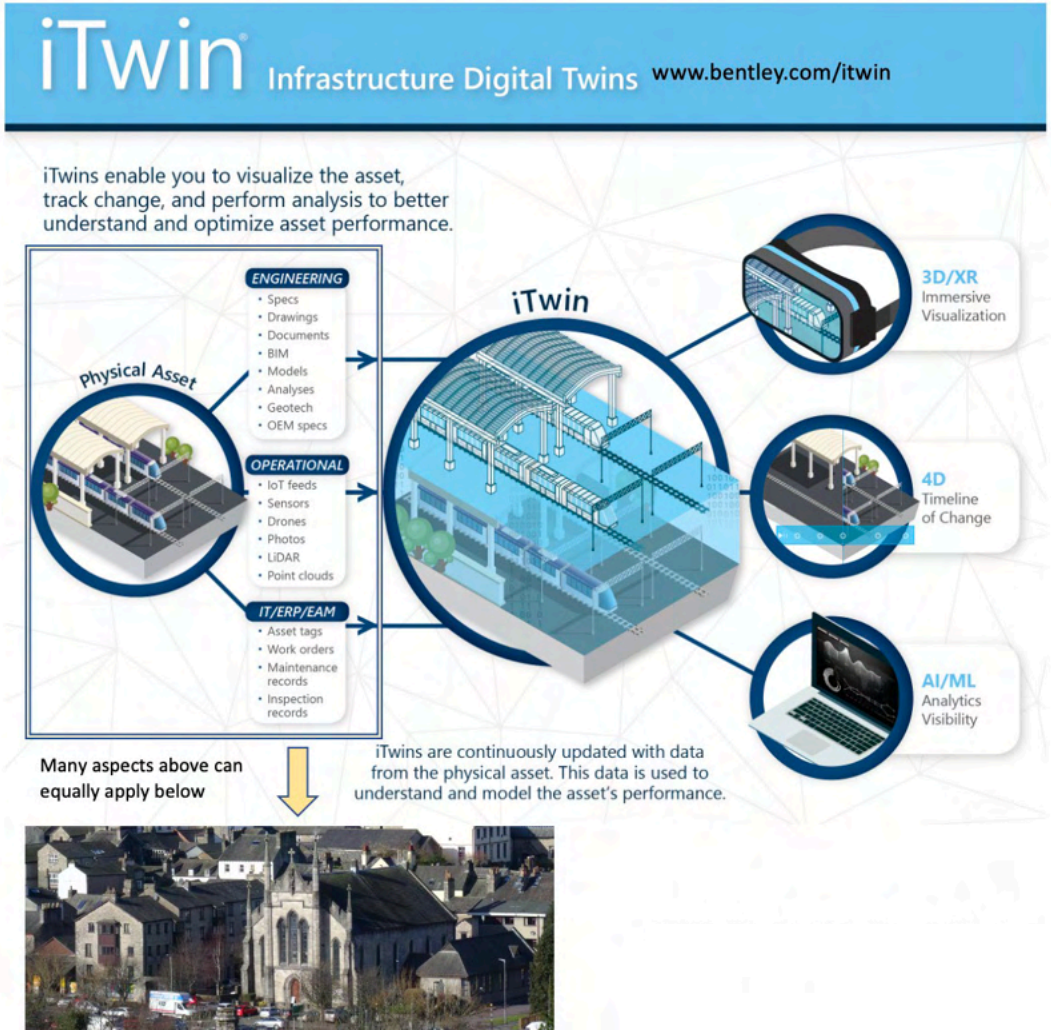


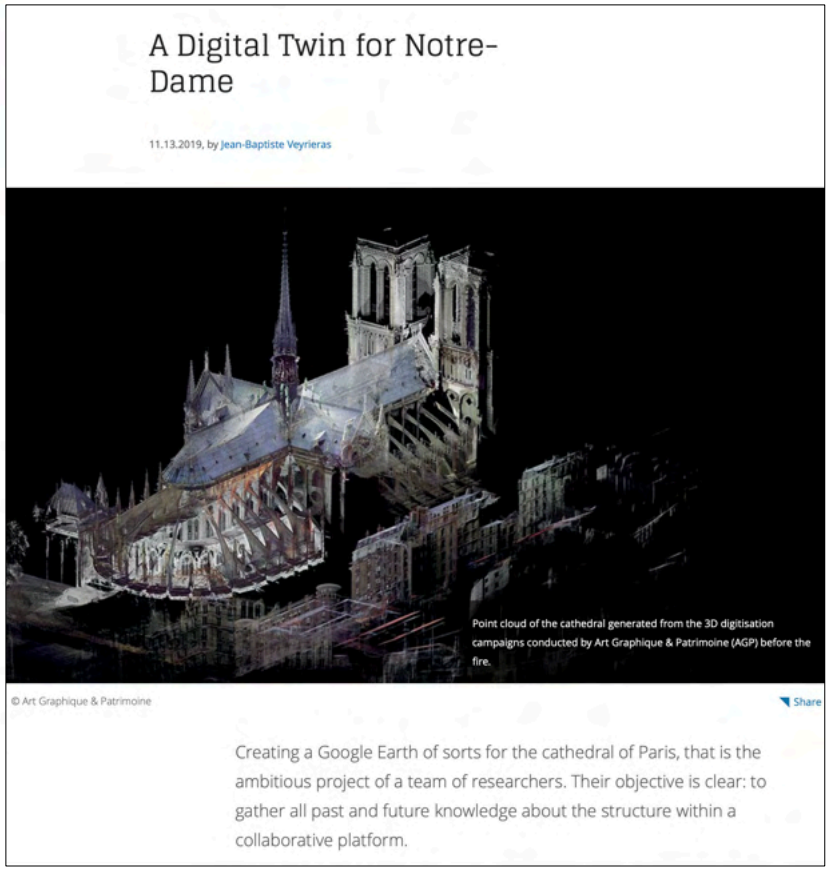




Technological developments in the availability of handheld, wearable and remote 3D scanning devices offer the opportunity to record heritage in a manner that was impossible to contemplate a few years ago. These developments, whilst making results more accessible and, when combined with 3D printing, appear to be challenging accepted and recognised conservation philosophies and charters.

Images: web-sourced





https://news.cnrs.fr/articles/a-digital-twin-for-notre-dame

As the new-build construction industry moves towards 'paperless' projects the concept of a Digital Twin has emerged that will have an ability to 'think, sense and act' independently. Achieved through analysing data, obtaining information through AI and machine learning techniques, data can be collected in real-time through sensors and 'big-data' technologies. The aim is to solve incidents, predict operations, suggest optimisations and interact via voice recognition. Whilst many of the required iTwin physical asset parameters could equally apply to heritage locations, what is less clear is how the data-demand technological needs might be retrofitted in heritage assets without challenging the assets' significance and value and, perhaps more importantly, who will pay the upfront costs involved.

In pursuing the need to appreciate *'Guideline(l): Document work executed and make same accessible'*, amongst other sources, accessing Historic England publications to reflect upon what might be considered and taken into account. See: https://historicengland.org.uk/images-books/publications/understanding-historic-buildings/heag099-understanding-historic-buildings/

In addition a number of Guideline-specific URL links are offered on the COTAC Global website under the Menu tab *'Digital Bibliography'* at *'l. Document and record'*. See: http://www.cotac.global/digital_bib/