

Institution: University of Warwick		
Unit of Assessment: D32 - Art and Design: History, Practice and Theory		
Title of case study: Interpreting Stone Masonry: Revealing the Past to Inform the Future		
Period when the underpinning research was undertaken: 2007-2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Dr Jennifer Alexander	Teaching Staff	October 2007- November 2012
	Senior Teaching Fellow	2012-2014
	Principal Teaching Fellow	2014-2020
	Reader	July 2020 - Present
Period when the claimed impact occurred: 2014 – 2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact (indicative maximum 100 words) <p>Alexander is a leading authority on medieval and early-modern buildings in the UK and Europe, whose expertise is called on by those responsible for heritage buildings for conservation purposes and to inform the visitor experience on site, and by the media. She has worked with architects at Crowland Abbey on the conservation of the medieval sculpture, which enhanced visitors' understanding. Her research has led to a virtual reconstruction initiative at Lincoln Cathedral, 'Lincoln Cathedral Connected', a multidisciplinary transformational project for visitors funded by the Lottery Heritage Fund. Internationally, her research on the UNESCO world heritage site, Santiago de Compostela Cathedral, Spain, has enhanced visitors' interaction with the building; and media interviews after the Notre-Dame fire in Paris led to increased global public engagement with the challenging issues facing conservation.</p>		
2. Underpinning research (indicative maximum 500 words) <p>Alexander's research is based on detailed archaeological analysis of standing buildings to understand their development over several centuries (listed against specific sites below: 1-5), to provide evidence for the phases of their construction (1-5), and to enable reconstruction of lost elements (1,2,5). The research incorporates a deep understanding of construction (1,3,4,5), stonemasonry (1-5) architectural and sculptural history (1-5), and the historical working methods of building designers and constructors (3-5).</p> <p>From detailed study of individual buildings, Alexander has demonstrated expertise in analysing architectural elements and interpreting evidence, especially where their survival has been partial.</p> <p>Alexander has developed new methodologies for the study of historic stone buildings which enable hitherto intractable questions about their construction to be addressed and answered effectively. Through purpose-built computer analysis, designed by Alexander herself, she is able to examine distribution patterns of the construction marks left on the buildings by stonemasons, enabling her to provide expert answers to questions about levels of specialisation amongst medieval carvers or stone-cutters, the speed of construction and consistency of building activity, the planning and supply of materials, and the significance of stylistic changes to structure. Since 2007 at the University of Warwick, Alexander has studied and published on a wide range of</p>		

medieval church buildings, and more recently, has successfully applied the same techniques to early-modern country houses.

Following long-term engagement with historic architecture she is able to make assessments about the significance of collections of worked stone, and has been commissioned to compile reports to heritage bodies, such as Historic England, on buildings and collections of worked stone in their care.

Alexander has been expert advisor on projects including:

1. Crowland (also historically known as Croyland) Abbey (3.1) and 2. Crowland West Front Sculpture (3.2)

In 2014, Alexander undertook a systematic analysis of the medieval church at Crowland Abbey in Lincolnshire and its sculpture, provided the context of its late-medieval church design and demonstrated its relationship to the veneration of the saint whose cult centred on the abbey. Alexander's research showed how the medieval masons approached the structural problems of building on a waterlogged site, and she has created the definitive photographic record of the most complete assembly of sculptural figures to survive in situ from the late medieval period in the UK (3.1; 3.2).

3. Santiago de Compostela (2014, 3.3) and 4. Hexham Abbey (2013, 3.4)

Alexander's detailed study of these buildings has addressed the question, 'how did they build the cathedrals?'. Her work involved forensic examination of the evidence within the buildings themselves in tandem with the documentary evidence, making a substantial contribution to the understanding of the history of the buildings and informing their care and preservation. The same approach has made it possible to reveal the design and engineering skills of medieval stone-masons, and to make this accessible to visitors of the buildings they constructed, and has thus enhanced users' understanding and appreciation of them.

5. Kirby Hall (3.5)

Following previously commissioned research between 2005 and 2006 on Apethorpe Hall for English Heritage (now Historic England), Alexander was invited to undertake research on a second great house in Northants, Kirby Hall in 2012. Employing specialist methodologies developed for medieval buildings, Alexander guided the forensic analysis of the Jacobethan great house and provided scientific evidence to support an historical reconstruction of the building. Her research demonstrated that the State Apartments were built very soon after the house was completed, which was previously unknown, and explained how the Elizabethan owner had thus changed its purpose in order to attract visits from the royal entourage. Alexander proved that Kirby Hall was shown to have been built by masons working on other major houses in the region and its architectural context is now firmly established. Alexander's research has led to greater understanding of its construction which underpins future conservation plans and presentation of the site to the public.

3. References to the research (indicative maximum of six references)

1. **Alexander, Jennifer** (2020) *Crowland Abbey Church and St Guthlac*. In: Thacker, Alan and Roberts, Jane, (eds.) *Guthlac: Crowland's Saint*. Donington: Shaun Tyas, pp. 298-315. ISBN 978 1 907730 81 8

2. **Alexander, Jennifer** (2014) *Croyland Abbey West Front Sculpture*. Report for Anderson & Glenn Architects. <http://wrap.warwick.ac.uk/144395/>

3. **Alexander, Jennifer** and Martin, Therese (2014) *Sistemas Constructivas en las Fases Iniciales de la Catedral de Santiago: Una Nueva Mirada al Edificio Románico a Través de la Lupa de las Marcas de Cantería*. In: Senra, J. L., (ed.) *En el principio: la Génesis de la Catedral Románica de Santiago de Compostela*. Contexto, construcción y programa iconográfico. Santiago de Compostela: Teófilo, pp. 143-163. ISBN 9788494208683

4. **Alexander, Jennifer** (2013) *The Construction of the Gothic Priory Church of Hexham*. In: Ashbee, Jeremy and Luxford, Julian M., (eds.) Newcastle and Northumberland: Roman and Medieval Architecture and Art. British Archaeological Association (BAA) Conference Transaction Series, Volume 36. Maney Publishing, pp. 115-140. ISBN: 9781907975929

5. **Alexander, Jennifer** (2012) *Kirby Hall, Northants, the Evidence of the Masons' Marks*. Report for English Heritage. <http://wrap.warwick.ac.uk/133790/>

Reviews of outputs from an authoritative source have been provided given the diverse range of outputs referenced. As such, this body of work has been externally peer reviewed by a Fellow of the British Academy Art Historian. The outcome of this peer-review process was that all of the outputs listed were of 2* quality or higher.

4. Details of the impact (indicative maximum 750 words)

Alexander's research has provided expertise to heritage bodies in the UK and Europe which they have used in the conservation of, and for supporting public engagement with, built cultural heritage.

Informing the Conservation of English Medieval Buildings

Most recently, Alexander's research and expertise on Crowland Abbey (3.1) led architects Anderson and Glenn to commission a specialist report from her (3.2) on the West front sculpture of the Abbey's facade, which provided the basis for a successful bid to the Lottery Heritage Fund for conservation of the façade, carried out between 2014 and 2015. By expertly establishing the dates, contexts and purpose of the sculpture in the medieval period, and by demonstrating the architectural development of the settings for the figures and their significance as works of art, Alexander's research, and accompanying photographic record, underpinned the conservation decisions about the whole facade. Her report also guided and supported the architects' decision-making about the form of the conservation work. As a result of Alexander's research demonstrating their importance as the most significant set of late-medieval figure sculptures still in their original setting in England, the sculptures have been cleaned of layers of pollution, protected, and rescued from obscurity. Now, the experiences of visitors and parishioners is enhanced by an informed appreciation of the beauty of the sculptures, and of the skill of their creators. The architects for the project stated that 'the report that you provided regarding the sculptures on the west front of the ruined nave of Crowland Abbey was invaluable. Not only did it help us in carrying out the repairs to the west front, but the PCC [Parochial Church Council] have been able to utilise the information in improving their displays for visitors' (Anderson and Glenn, architects, 2019, 5.1).

Alexander's research into Lincoln Cathedral has informed an ambitious collaborative project, funded by the Lottery Heritage Fund, 'Lincoln Connected'. Lincoln Cathedral is 'a place of unrivalled architecture' and known as 'one of the finest surviving medieval cathedrals in Europe' (5.2). Alexander's work on the cathedral has focused on the role of St Hugh in the architectural development of the site, and has demonstrated conclusively where the medieval shrines were located in the cathedral and what form they took. The Cathedral is using her findings to create a new resource for visitors in the form of a virtual reconstruction of the shrines' original appearance, which will be made available through iPads used by Cathedral guides as part of the Lincoln Connected project.

Pilgrimage to Lincoln's shrines to St Hugh played a vital part in our predecessors' experience as the main reason medieval visitors came to the Cathedral, but is almost impossible to grasp now because little remains to be explored in the building. To be launched in 2021 (subject to change dependent on the effects of COVID-19), the virtual reconstruction will enable visitors to experience a much more detailed and vivid sense of how the building impacted on the lives of ordinary people from the middle ages onwards. The Education Office at Lincoln Cathedral, stated that 'Dr Alexander's involvement with the project is important because Lincoln Cathedral is deeply embedded in the hearts and minds of people from around the world as a holy place of worship' (5.2). She further states that the new resource 'will be a transformational and enriching experience which will deepen public understanding of their ancestors' engagement with the

building, and with the power and influence of saints'. Alexander's research 'provides historical accuracy and credibility to the project, which in turn, will help the Cathedral meet its conservation and tourism objective' and 'will enhance the education and interpretation programme' (5.2). It will have a major impact on raising the cathedral's profile, and Lincoln Cathedral anticipate it attracting an extra 125,000 visitors annually (5.2).

Furthermore, Alexander produced a commissioned report for English Heritage (3.5) in 2012 that informed and enhanced understanding of the construction of Kirby Hall and its relationship to the architecture in the region. Recent decisions about the conservation and presentation of the site have now been directly based on Alexander's insights, providing an understanding of the historic development of the site, and of the people who constructed it, either as owners or as workers. For Kirby Hall, Alexander's report 'helped to refine the phasing of the site...it advanced the methodology used to analyse masons' marks in the Early Modern period, a field which is still in its infancy...the report does inform the presentation of the site to the visiting public. It has long-term value and will be taken into account in future restoration or conservation initiatives' (Head of Historic Places Investigation (North and East), Historic England (previously English Heritage), 5.3).

Informing an International Public about Medieval Architecture

As a result of her internationally recognised work on medieval and early modern masonry, between 2011 and 2013 Alexander was commissioned to study the early phases of Santiago de Compostela Cathedral in Spain (3.3), within the UNESCO world-heritage site to provide new information about the methods of construction of the cathedral. For the first time the enigmatic masons' marks on the building have been used in a scientific study to show how the building was raised from the quarry. This report has been published in a non-specialised monograph on the building in Spanish, which was sold at EUR20.80 (12-2014), the price subsidised by the regional government in order to reach a wide audience. The book was popular with visitors, selling 750 copies, and gave new insights into the building for its visitors (5.4). Alexander's chapter on the masons' marks has reached a wider audience through articles in the regional press, provided new information to the stone industry through its trade press, and the book is now on a reading list for walkers taking the Pilgrimage to Compostela (5.5). The study of the Cathedral is a continuing project, with further research on the building planned once it is safe to do so.

Alexander's research and its influence on sites of historical importance continues to reach broad audiences so much so, her work was featured in The Observer (print readership: 550,000, circulation: 144,034) in November 2020 demonstrating Alexander's standing as a leader in this area. The article, about Alexander's discovery of a 'self-portrait' of a stonemason at Santiago de Compostela Cathedral, was the most read in The Observer's online 'In Culture' section, and was shared 782 times in the first day after publication (5.6). The story was referenced 18 more times in the media across 14 countries, including in the Daily Express (UK, print readership: 495,000, circulation: 255,621); The Smithsonian Magazine (USA, print readership: 6,158,000); Olhar Digital (Brazil); La Nacion (Argentina, print readership: 465,000) and Diário de Notícias (Portugal, print readership: 253,510). The story was also included in an episode of 'Have I Got News for You' broadcast on BBC One, viewed by 4,540,000 people, and this segment was repeated in the show's end of year review episode (5.6). Subsequently, Alexander was interviewed for a video for Follow the Camino, a travel company specialising in tours for people walking the Camino de Santiago routes (5.6). Comments on the article on social media demonstrated how the discovery made readers consider the roles of stonemasons: 'Love this! Let's hear it for all the unsung heroes and heroines of history'; 'somethings just never change. It turns out that we humans aren't that different from our ancestors after all!'; 'the skills of stone masons astound when one looks at these buildings' (5.6).

TV, radio and press interviews by Alexander during and after the Notre-Dame fire in April 2019 reached a global audience and provided expert commentary on the effects of the fire and about the conservation needed. Her article, 'Notre Dame: a history of medieval cathedrals and fire', in *The Conversation*, 18th April 2019, has been read over 4,286 times, demonstrating enhanced public awareness and engagement with the cathedral's conservation issues. Alexander's commentary on the fire, which was included in an Associated Press article, was referenced 246

times in articles across 11 counties, in publications including The Guardian (print readership: 573,000, circulation: 134,570), Daily Mail (print readership: 2,440,000, circulation: 1,199,760) The Hindu (readership 6,226,000, circulation: 1,289,743), The Hindustan Times (readership: 18,422,000, circulation: 1,917,876) and The New York Post (circulation: 191,495) (5.7).

Following this, in recognition of Alexander's expertise within the field, the research team at Cergy-Paris University have approached Alexander to collaborate on a research project that will directly inform the reconstruction and restoration of Notre Dame, with specific onus on visitor engagement when reopened. The project, which focuses on the visitor experience at Notre-Dame, will inform and guide the presentation of the building to the public after it re-opens once conservation work is completed. Alexander's expertise continues to inform preservation work to ensure that future generations can enjoy our medieval built heritage in the UK and beyond.

5. Sources to corroborate the impact (indicative maximum of 10 references)

1. Statement from Anderson and Glenn
2. Statement from Lincoln Cathedral
3. Statement from Historic England
4. Sales numbers for book (in Spanish)
5. Press coverage for: *En el principio: la Génesis de la Catedral Románica de Santiago de Compostela. Contexto, construcción y programa iconográfico* (includes some articles in Spanish)
6. Press Coverage: A selfie set in stone: hidden portrait by cheeky mason found in Spain 900 years on (includes articles in various languages)
7. Notre Dame Fire – Press Coverage quoting Alexander