

MAPPING GOTHIC

1. INTRODUCTION

Mapping Gothic (<http://www.mappinggothic.com/>) first began in summer 2008 as Mapping Gothic France. Funded by the Andrew Mellon Foundation we conducted five expeditions to gather high-resolution images and other data from great Gothic churches, which, in our ambitious website project, were located both in space and time. As work progressed we widened our geographical scope to include England and, we hope, Spain and Germany. Work on the written content of the site is still underway.

2. PROJECT GOALS

The Mapping Gothic project has had a two-part agenda. First, we wanted to create a spatial database with thousands of high-resolution zoom- and displace-able photographs, panoramas, graphic images and laser scans of hundreds of Gothic churches throughout France and, eventually, in contiguous areas (Fig. 1). We structured the images in our database to allow users to move through the space of each building: our “slide shows” allow you to first see the church from a distance, to approach from the west, moving around the exterior from west to east, and then to enter and walk down the length of the nave, crossing and choir. We provide plans and sections as well as accurate measurements taken with a hand-held laser device. This has proved to be the most immediately valuable part of our project – we made a great effort to produce the best possible images and we receive a constant flow of requests for permission to reproduce them in scholarly publications.

In addition to mapping the space of individual buildings, our project allows you to see and comprehend the space between those buildings, locating the churches on a Google map and providing tools to facilitate comparative study. Thus, the parametric measured sections can be arranged according to construction date and dimension. By holding down the Shift key and clicking on multiple buildings you can make a collection and study the shared characteristics and differences between buildings (Fig. 2).

However, our objectives went well beyond the creation of a spatial database or digital *Statistique monumentale*: we aimed at nothing less than the documentation of the role of architecture (church building) in the process by which France became France. Our inspiration here was provided both by Henri Lefebvre’s notion of the “production” of space, but more particularly by Eugène E. Viollet-le-Duc’s transition in the 1860s from

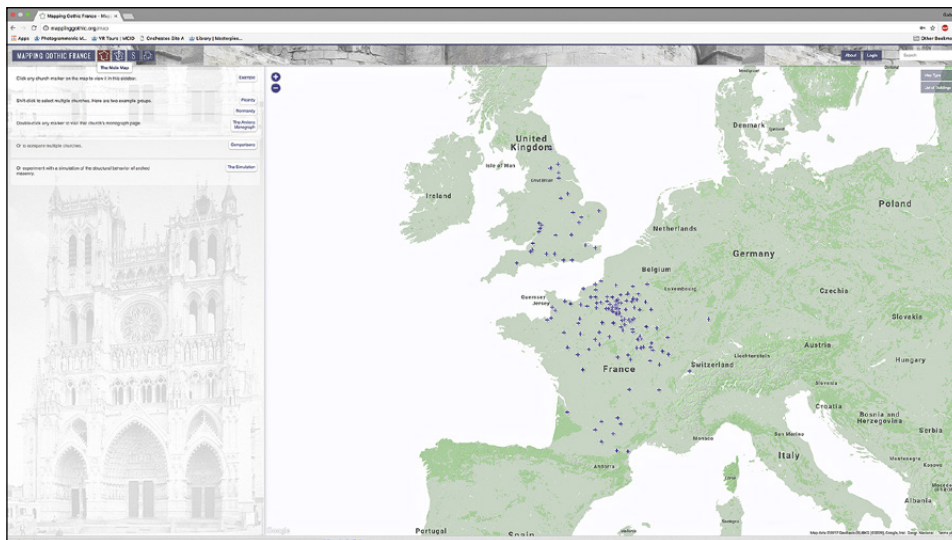


Fig. 1 – Mapping Gothic, front page.

encyclopedic cataloguing (databasing) in his *Dictionnaire raisonné* to the story-telling mode of the *Entretiens* (LEFEBVRE 1974; MIDDLETON 1976). Far from silent witnesses to the passage of time, works of architecture provide critical tools in the “production” of cultural and national identity. Whereas “Romanesque” can be understood as a kind of architectural historicism and internationalism, the roots of “Gothic” are forever associated with the area around Paris at the time when France was emerging as a national and cultural unity. Particularly exciting is the way that Notre-Dame of Paris established an early paradigm of Gothic (great height and slenderness, long-reach flying buttresses) at a time when Paris was not yet clearly the capital of France and when the outcome of the struggles between Capetians and Plantagenets and the geographical boundaries of France were far from certain (MURRAY 1998).

The spatial dimensions of this intersection between cultural history and architectural production are difficult to capture in the pages of a book. Indeed, we were struck by the fact that attempts to tell the “Big Story” of Gothic had faltered in the last decades of the twentieth century. To provide an interactive means of exploring this phenomenon we set up three dimensions in our website: Space, Time and Storytelling. “Space” implies not just the space of individual buildings but also the space between buildings understood as a complex set of relationships leading to the critical choices that produce sameness and difference (TIMBERT 2007). The “Time” dimension in our website

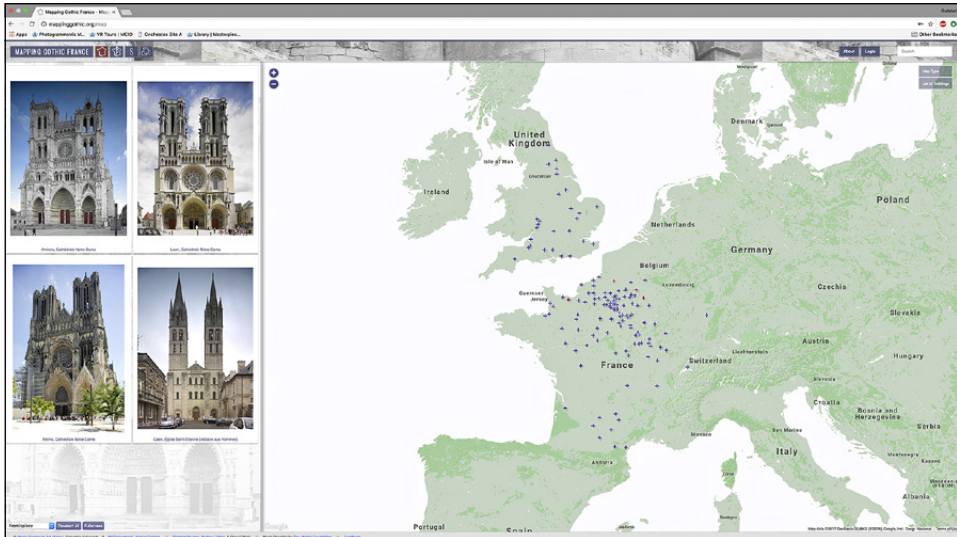


Fig. 2 – Comparing buildings.

facilitates three main operations. First, at the bottom of the screen we provide a timeline which you can activate to locate the churches on the map that belong approximately to the time period specified (the reign of King Louis VII, for example). Second, we took historical maps of twelfth- and thirteenth-century France from a number of sources (LONGNON 1885-1889; WESTERMANN 1963; SINCLAIR 1985), and superimposed them upon our Google map allowing the user to see whether a particular church was located within lands controlled directly by the Capetian kings, or whether the church fell into the domain of the Count of Champagne, the Duke of Normandy or one of the other great seigneurs. And third, inspired by the ideas of Yves Renouard on the unexpected way in which France became France as the result of a series of events in the decades around 1200, we constructed an animated map allowing the student to visualize this phenomenon (RENOUARD 1968). Given the well-founded skepticism on the part of some historians about the validity of such historical maps (medieval boundaries are often permeable; territory is not necessarily held by a single seigneur) we had expected some level of hostile response to our animation – it never came.

The third dimension of our project involved the recognition that nations become nations and Gothic becomes “Gothic” partly through storytelling or narration (BHABA 1990; FRANKL 1960). In our website, storytelling has three dimensions. We attempted to provide a short narrative for each church –, though not all the narratives are yet in place. Second, we suggested a series

of headings for the multiple and disparate ways the story of Gothic might be told. Third, our “Modern Goths” features historians of Gothic (like Henri Focillon, Paul Frankl, Jean Bony, Robert Branner, Otto von Simson and Hans Sedlmayr) with short summaries of their plots.

3. HISTORY OF THE PROJECT

The desire to collect and classify is as old as humanity – think of Noah’s assembly of the beasts of the earth... The compulsion to classify reached a crescendo in the nineteenth century and the way “Gothic” was defined in relation to its component elements owes much to parallel studies in the natural sciences (BERGDOLL 1990). But buildings present special problems: they are rooted in the ground and each brings a peculiar set of circumstances and objectives that is difficult to grasp under the simple word “context”. We have already alluded to older attempts to collect and organize buildings in the context of a book: one thinks of the *Statistique monumentale*, the *Victoria County History* or Nikolaus Pevsner’s *Buildings of England*. The immediate background for Mapping Gothic came with a series of six summer field schools on Medieval Architecture based in the Château de Bostz in Besson, France (thanks to our gracious host, Prince Charles-Henri de Lobkowitz). With a team of around a dozen students we began to move through the Bourbonnais landscape collecting churches. Andrew Tallon, Rory O’Neill and Stefaan van Liefferinge, then graduate students in the Columbia PhD program, began to apply digital means in order to allow our buildings to appear on a map where they could be viewed and analyzed in various ways. Joining our enterprise came Peter Allen of the Columbia School of Engineering who had pioneered the use of laser scanning to capture the spatial forms of buildings. Together we had completed in 2001-2002 the first complete scan of a Gothic monument – what better building than Beauvais Cathedral? In 2003-2006 we deployed the laser scanner in a number of our churches and incorporated the resultant three-dimensional models in the website. The Andrew Mellon Foundation took an interest in our Bourbon project and funded the production of an interactive database/website.

In the Bourbonnais we were interested in much more than a spatial database: our intention was to map the way that church construction expressed and projected social and spatial agendas (ROSENWEIN 1982). The *sires de Bourbon* were vassals of William, Duke of Aquitaine, and emulated him in their patronage of the Cluniac monastery of Souvigny. This church, originally with a great open wooden-roofed nave, was remodeled in emulation of the third abbey church at Cluny. We then tracked the campaigns in which lesser seigneurs of the region also set out to remodel local churches in the same way, introducing in the late eleventh and twelfth centuries arcades and

masonry vaults into nave spaces that had originally been entirely open and wooden roofed. This was the second great wave of church building in the region, belonging to the late eleventh and twelfth centuries: the first wave of wooden-roofed churches (the often-cited “white mantle” to which the Benedictine monk and chronicler Raoul Glaber referred) may have begun already in the tenth century. Churches, like castles, were facts on the ground in the attempt of the sires de Bourbon to progressively expand their control, moving from a base close to the river Allier westward toward the river Cher. It was in the context of this work that Murray became preoccupied with the notion of “plotting” (MURRAY 2014). The simple box-like structures embodied in the naves of the early Bourbon church were plotted on the ground using stretched ropes: we were able to discern some repeated shapes including triple squares and golden sections. However, the plot was also a social phenomenon (as in the 1605 Gunpowder Plot) involving architectural means of reifying social linkages through facts on the ground. And, of course, our attempt to retell the “Big Story” of Romanesque Architecture in the Bourbonnais involves the third kind of plot – a storyline or dramatic narrative (BROOKS 1984).

These were the issues and experiments that lay behind the Mapping Gothic Enterprise in which we set out to address buildings of much greater scale and significance than the relatively tiny Bourbonnais churches.

4. TECHNOLOGIES AND SOFTWARE USED

One of the most important objectives of the project was to establish the highest possible standard of digital photography. After much research we selected a medium format digital camera (Cambo/Phase One) for the general views (operated by Andrew Tallon) and a Nikon D3 with a perspective correction lens (operated by Stephen Murray). Dimensional data collected in the field was used to generate parametric sections and interactive structural simulation within Unity 3D (Rory O’Neill).

Our content management application was custom-built using a LAMP platform. In the MySQL database, we created records for buildings, people, historical events, bibliographic records, panoramic nodes and images. Each record allowed for metadata to facilitate the needs of mapping in both time and space. Although an interactive Flash client was developed during the Bourbonnais phase of the project we eventually settled on a custom-built MTML/5jQuery client to meet the needs of the project using web standards.

5. NUMBER AND ACADEMIC STATUS OF COLLABORATORS

There were three principals behind the Mapping Gothic project: Stephen Murray, Andrew Tallon and Rory O’Neill. In 1993 Stephen Murray,

Professor of Art History and Archaeology at Columbia University since 1986, had founded the Media Center for Art History with the support of NEH (National Endowment for the Humanities), Mellon and other foundations. Murray directed the Media Center between 1993 and 2003, establishing the practice of developing pedagogical/research projects using digital technology applied during field schools or expeditions. His publications have reflected his interests in the spatial intersection of cultural and architectural history, see *Notre-Dame of Paris and the Anticipation of Gothic* and *Plotting Gothic*. Andrew Tallon completed his BA at Princeton and an MA at the Sorbonne, joining the Columbia PhD program in 2000 and graduating with a PhD in 2007, when he joined the faculty at Vassar College. His principal publications include (with Dany Sandron) *Notre-Dame de Paris and An Architecture of Perfection* (SANDRON, TALLON 2013; TALLON 2013). Rory O'Neill completed his BS in Engineering at North Carolina State University and in March at Columbia and in the 1990s became a leading figure in the new world of three-dimensional digital imaging, multimedia applications and online communities. He co-authored *Guide to Creating 3D Worlds* (O'NEILL, MUIR 1998), and as adjunct Professor at Columbia University he was co-founder of the Digital Design Lab in the Columbia School of Architecture and of CyberSites, a company that developed educational games set in archaeological reconstructions of ancient sites. He joined the PhD program in Art History and Archaeology in 2006 and graduated in 2015; since then he has held a post-doctoral fellowship at the University of Pennsylvania and has taught at U-Penn and in the Columbia School of Architecture.

The other key members of the Mapping Gothic team over four summer programs in France, and continuing work in the Columbia University Media Center for Art History, were staff members of the Media Center: directors James Conlon and Caleb Smith; image processors Pilar Albuin Peters, Cassie Juhl and Gabriel Rodriguez; undergraduate students from Vassar College, Lindsay Cook, Sofia Gans, Ani Kodzhabasheva, Jessica Lentner, Katherine Minty and Alexandra Thom and graduate students in the Columbia Art History PhD program including Jordan Love, Zachary Stewart and Nicole Griggs. We should mention an extraordinary undergraduate Columbia student, Robert Stenson, now a principal of Goodhertz, who wrote the underlying code that makes the magic of mappinggothic.org happen. Most recently Stefaan van Liefferinge, appointed Director of the Media Center in 2014, has worked to migrate images and content to a more secure database, coordinating the project with other mapping operations. Dr. van Liefferinge has his BA from the Université Libre de Bruxelles and PhD (2006) from Columbia University and has taught at the University of Georgia in Athens (VAN LIEFFERINGE 2010 and forthcoming).

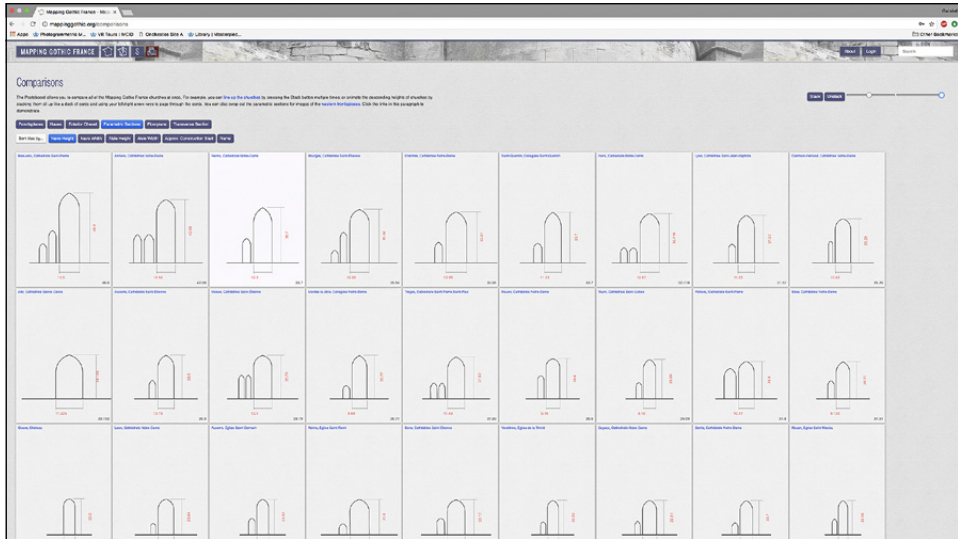


Fig. 3 – Parametric sections.

6. CASE STUDIES TO TEST UNDERLYING ASSUMPTIONS ABOUT GOTHIC ARCHITECTURE

Mapping Gothic provides a heuristic playground allowing students to test their assumptions and expand their ideas about Gothic architecture. Traditionally, Gothic architecture may be presented as a linear development with edifices that get progressively taller through mastery over the structural components (pointed arches, rib vaults and flying buttresses). The student may turn to our analysis of dimensions and cross section, arranging the buildings in chronological order and discover that the mega-cathedrals (Notre-Dame of Paris, Chartres, Reims, Amiens and Beauvais) that conform to this expectation are the exceptions: set them aside, modest-sized churches continued to be built (Fig. 3).

Art historians (particularly Jean Bony) have struggled to find systems to classify buildings by plan type or the number of stories in the elevation (BONY 1984). Mapping Gothic allows you to identify churches constructed in a given time period, select them (shift/click on the map) and to explore how churches with a similar plan type may have completely different elevations. It is a useful tool for the student who wishes to pursue the challenge to the notion of stylistic “development”. In 1983 Dieter Kimpel and Robert Suckale countered the notion of *Stihlentwicklung*, emphasizing instead the political significance of the presence of hundreds of look-alike buildings on the ground

7. FUTURE DEVELOPMENT

After five years of intense and rapid progress (2008-2012) under the tenure of a grant from the Andrew Mellon Foundation, Mapping Gothic has been obliged to pause. There are a number of reasons for this. Our summer expeditions were expensive: the team of eight or ten people had to be housed and fed and transportation included not only transatlantic flights but also the lease of two vehicles for a period of three weeks to a month. And then on return we had to find hourly salaries for image processing. In addition to lack of funds we have also struggled with the problem of retaining members of the team: our programmer, for example, was so good that upon graduating he was immediately hired by Twitter and left us.

Paradoxically, the project also suffered from its own success. In 2008 Mapping Gothic was the only project hosted by the Media Center for Art History at Columbia University: upon seeing our product other faculty members wanted something similar and now multiple projects compete for limited resources: the Istanbul Documentation Project, Mapping Mesopotamian Monuments, Mapping India Temples and more. In this broader sense, the Mapping Enterprise continues full speed.

Beyond the period of the Mellon grant one more summer's work was completed by a team of one person: in 2012 Murray added some of the great Gothic churches of England to the project and plans are now being developed for a summer on German Gothic.

We are currently assessing the advisability of adding more material to a site where the underlying code may not be sustainable over the long term. A simpler, more robust code was developed first by Rory O'Neill (ArchMap) and then by Tim Trombley in the Media Center (Art Atlas) and images and content are being migrated to this new platform where Mapping Gothic finds its role within a global map. Some features and tools specific to Mapping Gothic will only be available on the original site but Art Atlas will host that project's large database of zoomable high resolution images and 360 degree panoramic views. The new platform ensures access to the visual materials of Mapping Gothic for the coming years since Art Atlas is developed with Drupal, which provides a more durable and manageable technology than the older site. The Art Atlas version of Mapping Gothic will offer registered users the possibility to create portfolios of monuments and to create maps that highlight certain selected sites facilitating presentations that show a map of the sites, or slideshows of visual materials. Because all Mapping Gothic materials will be fully integrated into the Art Atlas platform it will be possible to compare them with visuals from any of the different Media Center collections, such as architecture in Rome or Istanbul. Finally, Art Atlas facilitates a virtual reality experience – using smartphones with cardboard VR viewers, users will be

able to tour a large number of Mapping Gothic's landmark monuments. We anticipate that in coming years Mapping Gothic will continue to benefit from such new technologies in our flexible and expandable Art Atlas site.

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ABSTRACT

Mapping Gothic (<http://www.mappinggothic.com/>) first began in summer 2008 as Mapping Gothic France. Funded by the Andrew Mellon Foundation, the project was initiated at the Columbia University, Department of Art History and Archaeology. The team conducted five expeditions to gather high-resolution images and other data from great Gothic churches, which in this ambitious website project were located both in space and time. As work progressed the geographical scope was widened to include England and hopefully also Spain and Germany. Whereas pictures can be satisfactorily represented in two dimensions in a book or on a computer screen, space – especially Gothic space – demands a different approach, one which embraces not only the architectonic volume but also time and narrative. The intention has been not just to develop a more appropriate way of representing the spaciousness of individual monuments, but also to provide the user of the site with new ways to understand the relationship of hundreds of buildings conventionally described as “Gothic”.

