

HAVE OPEN IN BROWSER: (1) NORMANSICILY.ORG AND (2) MEDIA.NORMANSICILY.ORG

The Norman Sicily Project: A Completed Prototype and Next Steps

Dawn Marie Hayes and Joseph Hayes

A Virtual Presentation at the International Medieval Congress, University of Leeds

July 5, 2021

[HAVE OUR FACES SHOWING. THEN SHARE SCREEN - THE SITE OPEN TO ITS HOME PAGE. JOE WORKS SCREEN WHILE DAWN READS]

Introduction

At first begun as a simple project to make available to the public images we had taken of hidden-away sites that had been constructed in Norman Sicily, *The Norman Sicily Project* (which you can find at normansicily.org) has evolved. Now better described as an interactive website that collects, presents and interprets information about the people and places of late eleventh- and twelfth-century Sicily, the project attempts to mitigate some of the challenges that confront the island's cultural heritage by offering students and specialists an opportunity to engage it. It is an extraordinary patrimony, one that the United Nations Educational, Scientific and Cultural Organization formally recognized in July 2015 for its blending of Byzantine, Islamic and western European elements by inscribing nine sites – collectively identified as Arab-Norman Palermo and the Cathedral Churches of Cefalù and Monreale – in its World Heritage List. Yet, at the same time, so much Sicily's extraordinary heritage is elusive and fragile. Besides the well-known lack of funding that is needed to care for the surviving structures, challenges range from location in difficult-to-reach areas, poor signage, lack of regular visiting hours, seismic and volcanic activity, changes to the urban landscape and the repurposing of spaces. The monuments inscribed in the Arab-Norman itinerary are now identified as cultural treasures, guided by a management plan. Unfortunately, however, the vast majority of structures born of this cultural tradition lack the exposure and protection provided by UNESCO recognition, a situation that is complicated by

regional poverty, mismanagement of external funding and the presence of organized crime. One of the missions of the NSP, therefore, is to call attention to them.

Thanks to the support of a \$50,000 grant we received in 2019 from the Division of Preservation and Access of the US government's National Endowment for the Humanities, the NSP is now in full prototype form and making its data available for download. **[JOE, PLEASE POINT OUT THE TABS AND ICONS TO WHICH I'M ABOUT TO REFER]** The site's navigation offers visitors links to tabs labelled "People," "Places," "Blog," "Resources," and "Contact Us" while also providing icons leading to the project's Twitter, Instagram, Facebook and GitHub accounts.

[PLEASE CLICK ON THE "PEOPLE" TAB] The first tab, "People," directs visitors to an extended family tree we have developed for the ruling family. The directed force graph is meant to help people understand the Norman rulers' immediate connections as well as to visualize their broader kinship network. As of today, the database includes 1,358 records, which have been compiled by consulting a variety of published scholarly sources. Users can inspect the genealogy visually or, alternatively, they can perform an autocomplete assisted search of names (including any listed alternates) in a textbox. Some records also contain dates, titles and images. It should be noted that this dataset is suggestive and not comprehensive and we expect to do more work on the graph in the future. It is available for download on the NSP's "Resources" page in a variety of formats under an Attribution-ShareAlike 4.0 International license that permits sharing and reuse.

[PLEASE CLICK ON THE "PLACES" TAB] The second tab, "Places," leads to an interactive map that offers visitors the ability to explore the Normans' built environment while also determining what may have survived. Currently, it contains just monasteries but we hope that

soon two other major classifications of buildings – fortifications and churches – will join them, each gathered in a dedicated overlay on which tool tips will appear when hovering over a name. Ultimately, it will be possible to superimpose multiple layers on the map at the same time.

[JOE, PLEASE CLICK ON THE HOTSPOT FOR SAN BARTOLOMEO DI LIPARI AND LET THE RECORD LOAD.] The inventory of 206 monastic houses was compiled primarily, though not exclusively, from Lynn White’s *Latin Monasticism in Norman Sicily* and Mario Scaduto’s *Il monachesimo basiliano nella Sicilia medievale*. The extent of the information each of the records contains can vary widely depending on a number of factors, including on the survival of associated documentation. For those sites that have survived in some form for which we have been able to do a field visit, we have also included relatively recent digital videos (MP4 format) and images (in JPEG format), maintained in Amazon Simple Storage Service (also known as Amazon S3), so that the public can have a better sense of what remains of Sicily’s Norman past and, potentially, which of the site locations they might want to visit. Joe will now walk us through one of the monastic records so that you can have a sense of the information they contain. **[JOE, PLEASE WALK THROUGH EACH TAB OF THE RECORD]**

CSSI = CULTURAL STONE STABILITY INDEX

- DEVELOPED BY - AMONG OTHERS - GEOLOGISTS CASEY ALLEN AND KAELIN GROOM
- IS AN ADAPTIVE INDEX FOR BUILT HERITAGE THAT IS BASED ON THE ROCK ART STABILITY INDEX
- USED TO ASSESS STONE STRUCTURES BY PROVIDING A METHOD TO SCORE DEFINED SECTIONS

- THE RESULTING SCORES PROVIDE AN INDICATION OF THE OBJECT'S GEOLOGIC STABILITY

[DAWN PICKS UP] The images are offered in a resolution appropriate for web viewing and are made available via the same Creative Commons license as the databases (I should also mention that the project has a dedicated media page where all images can be viewed at once - media.normansicily.org). **[JOE, OPEN OTHER TAB AND QUICKLY SHOW MEDIA.NORMANSICILY.ORG]** We should note that although the vast majority of sites included in this section of the project have connections to published sources, there are a handful that have been identified through field visits and conversations with locals. We indicate this by adding caveats in the records. This approach permits knowledgeable locals to contribute to the project while record notes suggest caution when the information is uncorroborated by a scholarly source.

All of the datasets are Linked Open Data three star compliant as per Tim Berners-Lee's 5-star Open Data plan. It should be noted here that a particularly intriguing aspect of the project is forthcoming: the ability for researchers, should they be interested, to experiment with machine learning, reasoning and inference. The proprietary Stardog RDF server in which the data are stored includes a state-of-the-art reasoning engine that can be used to discover connections between Norman Sicily's people and places by drawing inferences from the existing data as well as by applying predictive analytics techniques. This is the same technology used by major companies and governmental agencies - such as eBay, Dow Jones, NASA, the National Cancer Institute and the U.S Department of Defence - to create predictive models for drug discovery, engineering modelling and semantic searches.

The research of many scholars lies at the foundation of the NSP, but the project has also benefited from the hard work of a number of gifted students. **[PLEASE CLICK ON THE “BLOG” TAB]** The “Blog” section of the site has provided an opportunity for some of them to share their thoughts about Sicily’s history as well as about the project itself. **[PLEASE CLICK ON THE “CONTACT US” TAB]** “Contact Us” is a way that visitors can submit comments and corrections, but we hope that it will also be a mechanism through which others, particularly Sicilians, will share information that they would like to have included. This is an important element as a significant amount of Sicily’s heritage-related knowledge is stored locally. To address this while maintaining the integrity of the data, the contact form asks for the submission of documentation from a published source, if available. Otherwise, the submitted information will be included but its record will contain the caveat we noted earlier.

[PLEASE CLICK ON THE “RESOURCES” TAB] The remaining tab, “Resources,” includes downloadable datasets in multiple machine-readable formats so that users can conduct their own analyses; it also includes the vocabularies of metadata, a list of how people and places in the project are described. Also housed here is information about the project itself, including details about articles published on the project, videos that help explain the project’s data, the NEH White Paper for the Level I grant, and the project’s bibliography. As of April of this year, it also includes preliminary interpretations of the monastic data, which we will discuss shortly. Before we do that, though, Joe would like to say a few words about the project’s technology.

Technology

[CLICK ON “RESOURCES” TAB AND THEN “DOWNLOADS”] One of the project’s main technological priorities is interoperability – the ability to work with other resources on the

web – as it provides opportunity for the NSP’s data to be easily ingested by other projects and to establish links between them. This approach also enables visitors to conduct their own analyses of the society and its monuments. For these reasons, the datasets are offered in JSON-LD, N3, N-Quads, RDF/XML, TRiG and TTL formats. Images and videos are made available both externally and within the system using the International Image Interoperability Framework (commonly referred to as “IIIF”) APIs. The datasets themselves are stored as Google spreadsheets which are then ingested into the Stardog database server. We decided to construct a vocabulary that reuses elements from other public vocabularies, including Basic Geo (WGS84) vocabulary as well as the FOAF, GeoSPARQL and Simple Knowledge Organization System (SKOS) ontologies. The datasets’ geospatial metadata complies when possible to the federal standards outlined by the United States’ Federal Geographic Data Committee.

For the images and videos, we have designated the storage area and its layout and have converted the files to the formats as per the Digital Library Foundation’s standards. As for software, we have developed the following: an interactive map, a set of scripts for managing images and videos to process them and sync them between Google Drive and Amazon S3, a server application that the interactive map communicates with to interact with the Stardog database server, a kinship graph example that we have already modified, as well as code for the website itself.

[JOE WORKS SCREEN WHILE DAWN READS]

Interpretations

[CLICK ON “RESOURCES” TAB AND THEN “ENGAGE INTERPRETATIONS OF THE DATA”] Beyond laying the technological foundations and creating the databases, we have done some preliminary interpretations of the data, attempting to derive meaning from the information we have collected. I want to emphasize that these are very basic analyses and we plan to bring on board, hopefully in the near future, a mathematician who will perform more

sophisticated cluster analysis of the data. With this caveat in mind, some of the takeaways have been shared as academic blog posts in the “Resources” section of the site. [\[CLICK ON “WHO, WHAT, AND WHERE: MONASTIC PATRONS IN NORMAN SICILY”\]](#) So, for example, we have asked questions about monastic patronage in Norman Sicily based on the reliable information that we have. [\[SCROLL DOWN AND PAUSE AT FIRST TABLE, RECORDED “ROYAL” AND “NON-ROYAL” FOUNDATIONS BY ORDER\]](#) Our analysis bears out some of the impressions shared by Lynn White’s research – that the ruling class (here defined as Robert Guiscard, Roger I and the kings from Roger II on) invested heavily in Basilian, Benedictine and Augustinian houses (in that order) with other patrons (outside of the ruling class) favoring Basilians and Benedictines, too, with an interest in Cistercian communities as well. [\[SCROLL DOWN TO SECOND TABLE, “RECORDED ‘ROYAL’ FOUNDATIONS BY ORDER”\]](#) Roger I was the most active ruler by far, followed by his wife, Adelasia (who was at time joint founder with her husband) and their son, Roger II. After Roger II, successive Norman rulers appear to have made just 3 additional foundations. In short, two-thirds of the monastic communities known to have been established by the Normans in Sicily were founded by 1101 (the year of Roger I’s death) - very early in the society’s history. And just over 90% of the known “royal” monastic foundations were established by the end of Roger II’s reign in 1154.

We can also determine for these two distinct groups of people where they were establishing their foundations. [\[SCROLL DOWN TO THIRD TABLE, “RECORDED ‘ROYAL’ AND NON-ROYAL FOUNDATIONS BY GEOGRAPHY \(MODERN PROVINCE\)”\]](#) Following is a table that shows the locations of the communities established by the Hautevilles and their subjects. The territory that comprises the modern provinces of Messina, Palermo and Catania - in that order

- were the locations of the vast majority of the monasteries for both groups, suggesting a general northern bias that skewed toward the northern and eastern coasts. The center of the island, what today would be the province of Enna, had few foundations in general and only two for which we have the names of founders. Trapani also contained relatively few houses, with just two non-royal founders for whom we have names. Note the relative solitude of Ragusa for not only those for which we have founders' names. Even if we include monasteries whose founders are unknown, this town was, monastically speaking, a relatively lonely place. **[SCROLL DOWN TO FOURTH TABLE, "RECORDED 'ROYAL' FOUNDATIONS BY GEOGRAPHY (MODERN PROVINCE)"]** The Norman rulers preferred Messina, Palermo and Catania with a focus on Palermo from Roger II's reign onward.

The data also provide insight into the spiritual patrons they honored (mainly saints but also Christ, the Holy Spirit and the Holy Trinity). **[SCROLL DOWN TO FIFTH TABLE, "RECORDED 'ROYAL' AND 'NON-ROYAL' FOUNDATIONS BY DEDICATION"]** The final two tables in this blog post break down "Royal" and "Non-Royal" foundations by dedication and royal dedications by the individual founder. **[SCROLL DOWN TO SIXTH TABLE, "RECORDED 'ROYAL' FOUNDATIONS BY DEDICATION"]** Given the level of devotion to her throughout Europe at this time, we should not be surprised that the Virgin Mary was, by far, the most popular spiritual patron, both among the rulers as well as among those they ruled. St. Michael was also relatively popular, as was St. Nicholas.

[CLICK "BACK" BUTTON, THEN CLICK SECOND BLOG POST "GEOGRAPHICAL DISTRIBUTION OF NORMAN SICILY'S MONASTERIES"] The question of geographical distribution is another one we applied to the data. The Val Demone

region toward the north and east was monastically dense, containing almost 2/3's of the monasteries. Conversely, the Val di Noto toward the southeast was monastically sparse (just about 10% of the 188 monasteries that can be located in a historical region). **[SCROLL DOWN TO SECOND TABLE, "NORMAN SICILY'S MONASTIC HOUSES BY ORDER AND MODERN PROVINCE"]** We can drill down a bit more by looking at these numbers using the smaller unit of modern province (a geographical unit that was, of course, meaningless in the Middle Ages but provides a convenient way to take a more focused approach to the data). Messina contained almost half of all the locatable monasteries. Palermo had just over 1/5. Catania came in a distant third with just 15%. Syracuse, Enna, Agrigento, Trapani and Caltanissetta each contained 4% or less. Ragusa had the fewest - just 1%.

[CLICK "BACK" BUTTON, THEN CLICK THIRD BLOG POST "WAS THE DISTANCE TRADITIONALLY PRACTICED BY VARIOUS ORDERS OBSERVED IN NORMAN SICILY?"] We have also tried to test against the limited evidence we have whether the geographical distances said to have been practiced by various medieval monastic orders were observed in Norman Sicily. We took as our guide the anonymous *The Little Book Concerning the Various Orders and Professions in the Church*, which was likely written in the diocese of Liège, Belgium, in the mid-twelfth century. We won't go into too much detail here - if anyone is interested, they can read the blog post in its entirety - but we have done some measuring of nearest fortification and/or nearest monastery for the known Cluniac, Premonstratensian and Cistercian houses and it does seem that, although there were exceptions, the geographical distances said to have been observed in northern and western Europe may also have been observed

in Norman Sicily, with the Cluniacs living close to their wider community and the Premonstratensians and Cistercians preferring to live remotely.

[CLICK “BACK” BUTTON, THEN CLICK FOURTH BLOG POST “THE HARD VS. SOFT POWER OF MEDIEVAL MONASTICISM”] Quantifying the evidence and harnessing the power in technology to render it visually also opens up new ways of understanding Sicily’s landscape. Take, for example, this stacked bar graph that represents the breakdown of Norman Sicily’s monastic houses by gender and order. With occasional exceptions, we have a good sense of the religious houses’ identities. Female communities on the island were divided evenly between Basilian and Benedictine foundations with six houses each. The one known exception was the Cistercian house at Prizzi, at first a male foundation but later converted to a community of nuns. Male communities were more diverse. In addition to Basilian foundations, which comprised about 41% (64 of 158) of the male houses we have identified, there were also houses of Benedictines (56), Augustinian Canons (22), Cistercians (7), Cluniacs (3), Knights of the Hospital of St. John of Jerusalem (2), Knights of the Hospital of St. Lazarus of Jerusalem (1), Premonstratensian Canons (1) and Knights Templar (1).

[SCROLL DOWN TO SECOND CHART, “SPIRITUAL PATRONS OF MALE, NON-CISTERCIAN MONASTERIES IN ENGLAND AND SICILY BY FREQUENCY, ca. 1086-1216”] At the same time, the quantification of data also facilitates comparison with data from other communities. Thanks to the work done on English houses by Allison Binns, for example, we can get a sense of the diffuse nature of spiritual patronage in Sicily as compared to England, which likely has a great deal to do with a disinterest the Norman rulers had in cultivating a coherent religious narrative in a society that was so diverse. The observation is spelled out in the blog post

and I'll just note that the findings dovetail nicely with other scholars' research – most notably Paul Oldfield's – on Norman Sicily's religious landscape.

[CLICK “BACK” BUTTON, THEN CLICK DISPLAY TITLES OF FIFTH AND SIXTH BLOG POSTS. CLICK ON THE FIFTH.]

Two additional interpretive posts are currently available. In the fifth, we suggest an explanation for the existence of outlier St. George of Gratteri, Norman Sicily's only Premonstratensian foundation. If we turn our attention to another section of the *NSP*, the developing Hauteville kinship network, and look up the entry for Duke Roger, Roger II's son, who built the monastery, the context for this foundation becomes much richer. We note that by 1143, the presumed heir to the Kingdom of Sicily had married Elizabeth of Blois-Champagne. The bride was a daughter of Theobald II, Count of Champagne/IV, Count of Blois. According to the twelfth-century *Lives* of St. Norbert of Xanten, the order's founder, Theobald had himself wanted to join the Premonstratensians. Norbert, however, told the count that he should marry and continue his line. Theobald was obedient. And as a reward for his compliance, Norbert established the Premonstratensian Third Order and received Theobald as its first member. This family connection provides important clues to the foundation of a seemingly random monastic house in Norman Sicily by placing front and center the question of whether this priory of celibate men was an attempt to woo a bride and her very powerful father.

[CLICK “BACK” BUTTON, THEN CLICK SIXTH BLOG POST “THERE WEREN'T MANY NUNS IN NORMAN SICILY”]

The sixth and final observation currently posted concerns the dearth of nunneries in Norman Sicily and posits that nuns appear to have been established either in or around

population centers or in smaller locations that were well-defended. This suggestive geographic arrangement dovetails with the concern expressed in the *Assizes* of King Roger II, where the concern for nuns' safety is made explicit and serious penalties, including capital punishment, are prescribed for their rape.

Future Directions

So this is what we have so far. As for future directions, we are currently seeking funding to enhance the usability of the site (addressing user experience issues and enhancing its ability to engage the public – the two major suggestions made by our distinguished Advisory Board). We're also looking for support to develop the datasets for other structures. We hope to photograph many of those that survive, producing orthographic images that will enable the team to assess the integrity of the buildings' mortar and their stone blocks. These field visits will also enable us to further involve locals in the reconstruction of their past. We also intend to share with the island's *soprintendenze* any cultural stone data we produce.

Beyond this, as I noted above, we plan to add to our team a mathematician who will apply to the project's data graph analytics to determine if communities of people or clusterings of people and places can be detected using mathematical strategies such as degree centrality and betweenness nodes (we plan on doing this with both past data - monastic and kinship network - as well as future data – from the additional classes of monuments). We also hope to experiment with machine learning – most notably entity extraction and predictive analytics. And the Italian version of the site will continue to be developed as well. **[SHOW ITALIAN VERSION]** We are increasingly seeing the project as an opportunity to demonstrate how a marriage between the humanities and STEM can be incorporated into a web-based model that other scholars can employ to help preserve, explicate and promote the past of other societies,

particularly ones in areas that are economically disadvantaged. As such, the *Norman Sicily Project* speaks to concerns expressed by many medievalists today – developing an increasingly prominent role in public education and supporting more robustly cultural heritage management efforts.

Joe and I thank you for your time.

[STOP SHARING SCREEN]