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Teacher/Student: Technology as a Basis for Centrifugal Learning that “Goes Both Ways,” Part 2

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My first encounter with ArcMap and GIS was in a field school led by Mickey Abel in summer 2013.¹ I often reflect on my favorite moment learning about the technology, when the geographers on the team orthorectified an eighteenth-century, hand-drawn map by Claude Massé over our project area in ArcMap. Our GPS points matched Massés maps to an exacting degree and we discovered that they were a viable option for re-tracing the canal paths and medieval systems of water management that Mickey was interested in for her book *(fig 1)*. I thought back on this process while I worked as a project assistant on a trip led by Anna Andzrejewski this past summer in Dickinson, North Dakota. *Figure 2* illustrates an image taken from Google Earth that shows my process in overlaying a plat map created in 1914 covering our project area to determine the historic landowners and locations of German-Russian farmsteads.

In my own studies on medieval art and architecture, I have made maps to illustrate various types of spatial relationships. The maps I created for my 2016 essay, “Reading Between the Lions,” laid out the geographical network of image relationships in the

¹ I have many people to thank with regard to my interests to GIS and medieval art history. First, thank you to Mickey Abel for taking me abroad and introducing me to the technology as a master’s student, and for asking me to contribute to *Peregrinations: Journal of Medieval Art & Architecture*. I am also grateful to my PhD advisor at UW-Madison, Thomas E. A. Dale, who supported me in taking cartography classes as part of my doctoral studies. Thank you also to Anna Andzrejewski for helping me build my skills in map making. I have also received continued guidance and support with my interests in medieval maps from Heather Wacha, Martin Foys, Dan Terkla, and Asa Mittman.
Figure 1 Claude Massé, 18th century, Loire-valley, France; The dark green line is the GPS data from our footpath along the canal. The pink Maillezais place indicator is also one of our GPS coordinates, which matches the location of the abbey. The GPS data was synched with the Massé map after the orthorectification process. Photo: Maillezais Hydraulic Field School 2013.

Figure 2 Screenshot of Google Earth view of project area around Dickinson, North Dakota, overlaid with plat maps from Geo. A. Ogle & Co., Standard Atlas of Stark County, North Dakota... (Chicago: Geo. A. Ogle & Co., 1914). Photo: LauraLee Brott.
11th- and 12th-century religious architectural sculpture of southwest France. I recently made a map (fig. 3) of Mount Athos, Greece for the exhibition, *Holy Mountain: Icons from Mount Athos and Photographs by Frank Horlbeck* at the Chazen Museum of Art, Madison, Wisconsin to make a similar argument about spatial monastic networks, and to highlight the unique topographic setting of the thirty-five-mile peninsula and its twenty monasteries.

**Figure 3** The monasteries and topography of Mount Athos, Greece. Central Map Projection: Europe Equidistant Conic, Central Meridian: 10.0, Standard Parallel: 23.0; Data Source: Friends of Mount Athos, members.aon.at/~hhausman/athos_map.htm#str05. Inset Map: Europe Equidistant Conic, Central Meridian: 10.0, Standard Parallels: 43.0 and 62.0; Data source: naturalearthdata.com. Cartographer: LauraLee Brott, December 18, 2016.

I have also created maps to represent more abstract concepts. **Figure 4** is a map that traces footpaths between the monasteries of Mount Athos. This map illustrates an argument made by Christos Kakalis that sacred space permeates throughout the peninsula, because the footpaths were ritually traversed.\(^3\)

![Figure 4: Footpaths in between the monasteries on Mount Athos, Greece. Central Map Projection: Europe Equidistant Conic, Central Meridian: 10.0, Standard Parallel: 23.0; Data Source: Friends of Mount Athos, members.aon.at/~hhausman/athos_map.htm - str05. Inset Map: Europe Equidistant Conic, Central Meridian: 10.0, Standard Parallels: 43.0 and 62.0; Data source: naturalearthdata.com. Cartographer: LauraLee Brott, December 18, 2016.](image)

Figure 5 The Psalter Map (BL Add. MS 28681, f. 9r) has 170 inscriptions. Here, 42 places are represented because the transcription is in question, or the location is unknown. Map Projection: Azimuthal Equidistant, False Easting: 7000000 Meters, False Northing: 4500000 Meters, Central Meridian: 35.227; Data sources: naturalearthdata.com; Place names transcribed and normalized by Asa Mittman and Heather Wacha (CLIR Postdoctoral Fellow in Data Curation for Medieval Studies at the University of Wisconsin-Madison); Current locations found through pleiades.stoa.org. Cartographer: LauraLee Brott, November 2017.
ArcMap has also helped me parse out to what extent current cartographical techniques can be utilized in the study of medieval cartographic practice. I created a map (fig. 5) based on the Psalter World Map (BL Add. MS 28681, f. 9r) to examine its projection scheme, which in contemporary cartographical terms, is classified as an oblique-azimuthal projection because its central point is located at Jerusalem instead of the North or South Pole. I then used Illustrator to orient the map eastward. The map depicts an idea that the medieval conception of geographic space, in terms of spatial relationships between the places of Christendom, however far from the mathematical projection schemes of Ptolemy and of today, is perhaps comparable to our own understandings and senses of geography.

Through making my own maps, I have learned that the choices of mapmaker are often more artistic than technical. Indeed, the very basis of understanding ArcMap comes with learning how to select projection schemes (or set of distortions) most appropriate for representing a particular data set. Every map is the product of a negotiation between how to present data in a way that is most legible, and most “accurate.” These parameters are not fixed, and are dependent on the maker, patron, audience, etc. As I develop my practice as a cartographer, and as a medieval art historian, I hope to help shape the ways in which a broader audience understands medieval subjects, as well as illuminate spatial phenomena that are interesting or useful for medievalists.