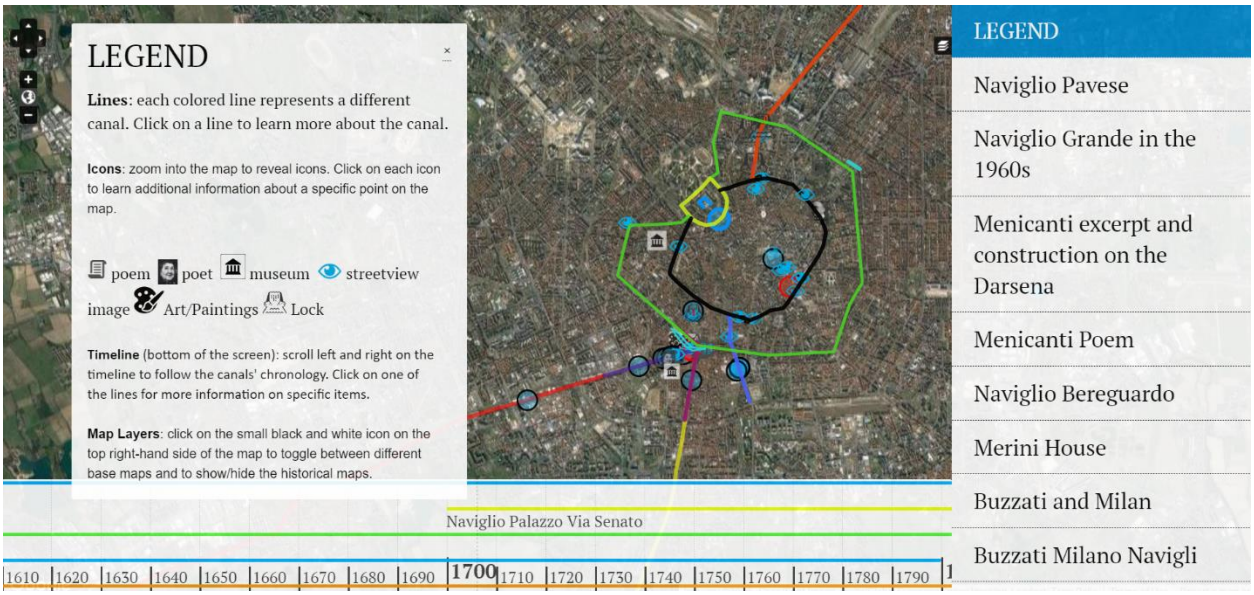
City of Water. Uncovering Milan's Aquatic Geographies. A Digital Humanities Lab.

In the fall of 2016, I led a Digital Humanities Lab where students explored the cultural history of water in Milan, Italy's self-described 'city of water.' The result of our work was an annotated, thick map of Milan that is available here.



At the time of their largest expansion, the waterways of Milan (called *navigli*) extended for approximately 96 miles. By the mid-1930s, the entire network of canals encircling the city had been filled in with the exception of one section of a *naviglio* which is still visible today. When the controversial covering of the canals took place during the 1920s and 1930s, a strong sense of nostalgia for the now-disappeared water emerged among the citizens. Milanese poets and writers but also ordinary people that work or live in the city show an emotional attachment to water and are concerned with its conservation, not for obvious reasons of survival, but for cultural reasons. In Milan, a special bond exists between water and people, and the goal of our lab was to study and create a visualization of this bond. Our work was based on the premise that literature and cultural artifacts not only reflect but also influence the way a community relates to its natural or urban environment.

The premise of our DH lab was ecocritical. We observed how poetry, in the case of Alda Merini, Daria Menicanti, and Milo De Angelis as well as in the case of Futurist artists, is the vehicle for a cultural meditation on water by an entire community that is involved with its surrounding space. We looked at the city as an embedded ecosystem (much like the wilderness) and observed how the areas along the canals, where citizens come into closer contact with nature and one another, today foster a sense of community and cohabitation, which are vital elements of any self-sustaining ecosystem. We saw Merini, Menicanti, and De Angelis, as they lament the disappearance of the *navigli*, remind us of the profound topographical and social impact of the vanishing of these 'aquatic' areas. Their poetry helps inspire today's plans to resurrect the canals, thereby nurturing a so-called 'urban ecological citizenship,' or the citizens' active involvement in

local and environmentally conscious projects.[1] The poets' use of aquatic images is not only indicative of the community's relationship with the environment, but also shows an attempt to reconcile the life of the metropolis with that of nature; and our work reveals how Milan, traditionally viewed as the paradigm of the industrial city, has been engaged in a subtle dialogue with nature that has shaped its geography over the years. For example, we highlighted how Menicanti's city portraits, by evoking the underground water world of Milan, envision and encourage a type of *milanesità* (being Milanese) that is more in touch with nature and the aquatic past of the city.

The structure of the lab alternated between a traditional discussion-based analysis of primary and secondary sources and a DH laboratory setting. Every other week, students analyzed and discussed a new set of sources (available from the library, on the Lab's Google Classroom, and/or the web) and started extrapolating from them relevant information to be categorized and digitized that uncovered different layers of Milan's history of water. The following week, students produced several short narratives to accompany the layers of information that they planned to map, and which included poetry, photographs, historical maps, video clips, Google Street View, paintings, historical accounts, architectural drawings, and audio clips. They then transferred them onto a digital map of Milan via the Neatline annotation software. Adopting Franco Moretti's concept of distant reading and his notion that maps add something to our knowledge of literature, students explored this variety of literary and cultural artifacts and overlaid them onto the urban fabric of Milan in order to: a) see where in the city they belonged b) study their impact on the actual city's topography c) visualize possible connections in space between authors, concepts, and works d) draw lines of convergence between themes, ideas, concepts, and genres.[2] The central foundation of their work was that the geo-temporal map would reveal otherwise hidden connections.

The lab required a multimedia environment where students could work in teams and fluidly migrate from one team to the others based on what they uncovered or what drew their interests. To foster an atmosphere of creative collaboration and to encourage creative design, the lab therefore met in a technology-enabled active learning classroom where each team's work was projected onto a screen so that its progress would be visible to everyone else in the room. This led to fluid interactions among the teams – when an idea emerged, it was easily transmittable to the team's work to which it applied the most – and among individuals within each team.

The students' learning was participatory and immersive. As they worked in teams, they curated or organized their data (which they learned to take actively as capta rather than assume as a given, as per Johanna Drucker's suggestion) by first discussing what to include and then how to include it.[3] Following Edward Tufte's recommendations about the visual display of quantitative information, the students regarded mapping as a tool to uncover what is hidden and to reveal

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[1] On the question of "urban ecological citizenship," see Light, Andrew. "Urban Ecological Citizenship." *Journal of Social Philosophy* 34.1, Spring 2003: 44–65. Print.

[2] Moretti, Franco. *Graphs, Maps, Trees. Abstract Models for Literary History.* London, New York: Verso, 2005, p.35. Print.

[3] See Drucker, Johanna. 'Humanities Approaches to Graphic Display.' *DHQ: Digital Humanities Quarterly* 5.1, 2011. http://www.digitalhumanities.org/dhq/vol/5/1/000091/000091.html

what is subtle.[4] Their goal was to display the complexity of Milan's aquatic cultural landscape, and the visual nature of this project also compelled them to engage with the materials on a more complex level, always keeping in mind how each item fit into the larger network of the overall project. Since the students were encouraged to be skeptical of the reliability of data and to embrace the highly subjective character of those cultural artifacts, such as maps, that they at first presumed to be objective, they learned to become progressively comfortable with indeterminacy, openness, porosity, fluidity of concepts and non-absolute answers. They were able to work across different but converging theoretical frameworks (Moretti's, Monmonier's, Drucker's, Presner's, Eide's among others).[5] Ultimately, they came to see and utilize DH more to visualize capta and concepts through distant reading than to explore specific details about specific texts. The span of a mapping project of this nature is, in fact, wide and inclusive rather than particular and sectarian.

The students also conducted their work keeping in mind its potential impact outside the classroom. In mid-November 2016, in fact, we reached out to the City of Milan and its newly created *Assessorato alla trasformazione digitale e servizi civici* regarding a possible partnership to utilize our exhibit as a depository to encourage the cultural conservancy of water in the city and promote water education among its citizens. Students therefore were aware of the active role they could play in the existing discourse on water in Milan, and this took them on a trajectory from undergraduate students, to young scholars, to active citizens with the power to shape the city's ecological history and geography. This level of involvement would have been much more difficult to achieve in thirteen weeks without a digital project to be shared and circulated.

In terms of lab objectives, students accomplished a number of goals that would have been as easily accomplished in a traditional content course setting and with traditional tools: they studied Milan's literary history and geography and examined the response of different authors, scholars, and artists to the environmental and urban changes of their time; they acquired familiarity with different literary currents such as Futurism, Magic Realism, and Postmodernism, and their main principles and features; they read and interpreted different literary genres and formats: prose, poetry, graphic novel, comics, and manifestos as well as painting, architecture, design, sound recording, and film; they read a large number of secondary sources on literary criticism, the art of mapping, and data visualization. However, by utilizing digital technology to display literary and cultural artifacts on an interactive geo-temporal map, the DH lab setting allowed students to advance and expand their exploration into the visual realm; through experiential learning they acquired new sets of digital and thinking skills that are easily transferable to other courses, projects, disciplines, and careers; they sharpened their ability to think critically as they engaged at multiple levels with the materials and applied digital methods of analysis to them; they improved their ability to work collaboratively and assess each other's work by curating the materials; and, mostly, their mindsets were expanded and transformed as they turned from

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[4] Tufte, Edward. *The Visual Display of Quantitative Information.* Cheshire, CT: Graphics Press, 2001. Print. In the Epilogue, Tufte summarizes the ultimate goal of DH, which is 'the revelation of the complex.'

[5] Among many other secondary sources students read Øyvind Eide's 'Reading the Text, Walking the Terrain, Following the Map. Do We See the Same Landscape?' in Bode, K. and Arthur, P. eds. *Advancing Digital Humanities: Research, Theory, Methods.* Houndmills, Basingstoke, Hampshire: Palgrave Macmillan, 2014. Print, and excerpts from Mark Monmonier's *How to Lie with Maps*. Chicago: The University of Chicago Press, 1991. Print.

consumers of information into producers of cultural artifacts through the act of generating searchable, annotated maps and disseminating them outside the classroom.
Students were required to post short weekly mapping and reflection blogs on the lab's Google Classroom alongside blog entries on each of the assigned critical readings. In teams, they routinely presented their mapping rationale and progress to the class, and elicited and evaluated suggestions from their fellow students on how to improve and expand their mapping activity. Their work was as layered as the thick maps they were creating: students were encouraged to see themselves as digital *flâneurs* (as per Todd Presner's definition in *Hypercities* derived from Walter Benjamin) and add new records to the map in order to create an itinerary of their choosing (for example, a student chose to map Leonardo da Vinci's locks [fig.1], another opted for before-and-after images of canals [fig. 2], while another pursued poetry related to water [fig.3]); each student then coordinated with his/her team on how his/her chosen itinerary intersected with the team's principal mapping activity (for example, one student intersected De Angelis' vision of water with the rice paddies at the outskirts of Milan that another student was mapping); each team brainstormed and experimented with optimal fonts, symbols, and overall graphical displays to guarantee the most pleasant overall experience to the user; the teams routinely came together to discuss any exciting discoveries that could improve the overall project; and at the end of the semester, each student produced a 3-page itinerary to accompany his/her records, and the entire class collaborated on a 'Letter to the User' with which the exhibit opens and which directs the user on how to navigate and explore the digital space of the map.

Digitizing texts only available in Italian involved a double 'translation.' On one side the students had to translate the texts into English, which required paying great attention to the details of the original language, including sonorities, nuances, metaphorical meanings, and rhetorical figures. It was therefore an exercise in paying close attention to the unique semantic and linguistic fabric of the texts and their concrete sonorities. On the other side, the students needed to translate the texts according to geo-temporal categories so that they could be placed on the map. This involved reading the texts in the context of Milan's geography and viceversa, or reading Milan's geography in the context of the texts. By doing so, the students had to delve very deeply into the authors' psychogeographies and imaginary landscapes and make educated guesses as to the exact locations of the places that the authors evoked or referenced in their texts so that they could situate them on the map of Milan. The students therefore took on the role of interpreters for the texts and realized that they played an active role in the process of meaning making of the texts they read.

I want to conclude this brief essay with a few short excerpts from the students' blog entries, which show the type of critical thinking in which they engaged and which informed their mapping work, and the questions that they raised for themselves as their theoretical and practical knowledge of the field increased. These entries reveal the students' impressive level of commitment, which I believe was due in part to their awareness of their roles as creators and co-creators of a cultural product meant for public fruition and that could have a real impact on the culture of Milan, and possibly the city's geography. I believe their words are the best testimony to the value of a DH education.

"I found very interesting the idea of using the text as a basis from which one can create a new object, a map for example. On the one hand, the map has to be closely related to the text, because

the text is the primary source and ‘you cannot map what is not there.’ On the other hand, and this is the most fascinating feature of this approach, the map ‘will possess emerging qualities, which were not visible at the lower level.’” (M. C.)

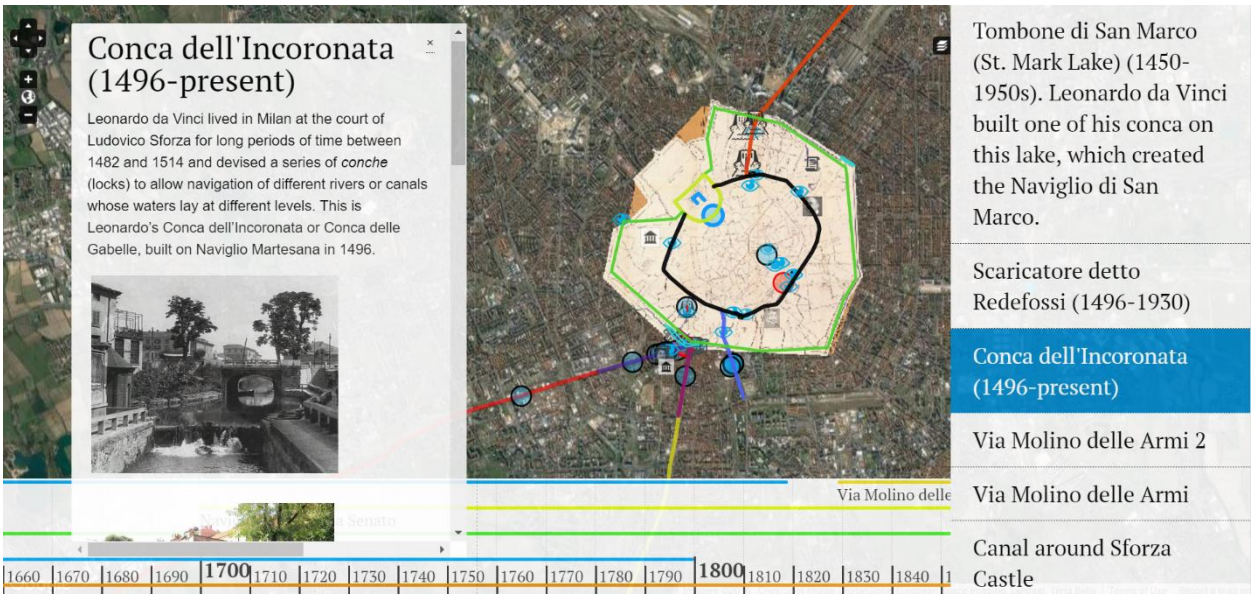
“Although close reading can definitely convey harder to recognize meanings behind a character's motives, understanding the environment around a subject can better identify relationships that may get lost from reading line to line.” (R. C.)

“Not everything we do in the digital humanities provides clean answers, but it is important to continue to dig in the pursuit of understanding as well as we can.” (T. R.)

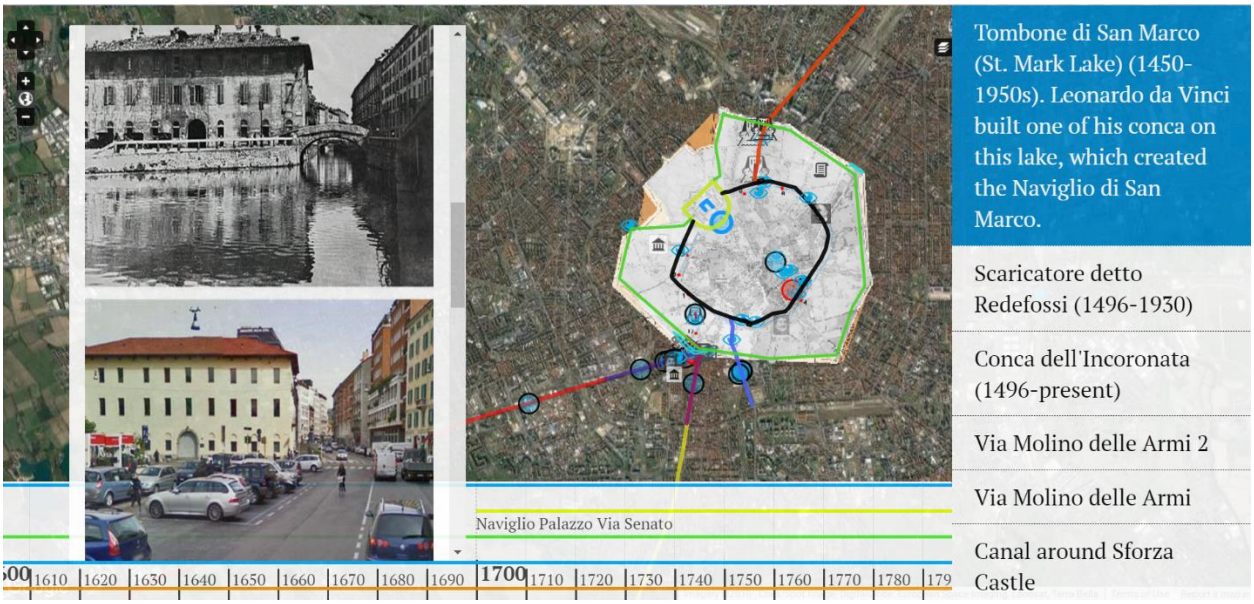
“GIS [Geographical Information System] teaches problem solving abilities that you aren’t always able to learn through a science course or literature course. I have found myself becoming more comfortable with dealing with the unknown and taking alternative routes to solving a problem … GIS dissolves language barriers and facilitates dialogue. I feel that I have gained a lot of information from the discussions that have arisen from trying to read a map and understand what the map’s function is … Maps are much more powerful than I anticipated.” (O. S.)

“The tangibility of visual representation often is the only method of disseminating complex, abstract ideas.” (H. S.)

[fig.1]



[fig.2]



[fig.3]

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