Chapter 4

TEACHING CONSTANTINOPLE AS A (PIXELATED) PALIMPSEST

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THE STUDY OF the Middle Ages remains unapologetically materialist. It certainly seems that medievalists, more than any other historical field, will profess that the unique tactility of mesmerizing objects and the impossible dynamics of indescribable spaces drew them to their period of study. In typological fulfillment of Thomas' doubt, we fully believe our texts must be touched to be truly perceived. And yet among humanists it is also medievalists who have been the "early adopters of the digital, and continue to play an important role in the development of a broader field, which came to be called digital humanities."[1] We embrace our manuscripts via codices *and* in pixelated UHD.

This curious but productive tension is, surprisingly, often least manifest where it might seem most relevant: the university classroom. For many medievalists standard teaching practices are still very literally *by the book* as most classrooms are no more digital-born than crisp lecture handouts, authentic audio recordings, and uncluttered PowerPoint presentations (Zoomification notwithstanding). Our historical, field-wide adoption of new research *technai* has pedagogical progeny as yet unborn.

But why? Medievalists' long familiarity with computer-based practices means that the field is self-aware of how habits of study determine habits of thought. Conditioned perhaps by Roberto Busa's mid-century text analyses, the field enthusiastically engages in the current debates over machine learning and distance reading.[2] In just a few short years medievalists have transitioned from trekking across Europe and ordering microfiche to accepting that we will read most of our documents digitized and online. We embrace the fact that our research practices must and will adapt, and we also know that this is a good thing. The technologies into which we invest ourselves fashion what and how we think: they structure our communications, govern our ability to organize knowledge, and determine how we re-produce or re-present past worlds.

We know this not only from ourselves, for our propensity to innovation even inheres in the materials we study. Both Eusebius and Accursius re-conceived the graphic possibilities of the technology of the codex with the fourth-century *Chronicon*, and then

1 Birnbaum, Bonde, and Kestemont, "The Digital Middle Ages," S2.

2 See the entire journal issue in which the Birnbaum, Bonde, and Kestemont article appears. On these specific topics see therein: De Gussem, "Bernard of Clairvaux and Nicholas of Montiéramey"; Romanov, "Algorithmic Analysis of Medieval Arabic Biographical Collections"; and Cruse, "A Quantitative Analysis of Toponyms."

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the thirteenth-century *Glossa ordinaria*, while the monks of St. Martin of Tours and St. John in Stoudios reconceived the very appearance of letters with their eighth- and ninth-century standardizations and disseminations of "miniscule" scripts. Studying these materials has taught us that ideas are grounded in the limits of the forms of their re-presentation, and that changes to those forms can present anew a past that has grown too familiar. We know that in insisting our research methods and our publishing outputs remain persistently open to the influences of developing technologies we keep open the possibility of continued insights.

And yet. And yet, we have not habituated our most important re-presentations of the past into this dynamism: our classrooms are technologically stagnant. It is time we invested our pedagogies with the robes of creativity and the rings of innovation with which we approach our own research. It is time we re-programmed how we teach new minds to inhabit the medieval. The *next* computing revolution in study of the Middle Ages is upon us: it is time to bring the digital turn to pedagogy. I believe we can take this turn simply by claiming the technologies we have been given for our own ends, by bringing the technological structures of our communication and education into better alignment with the way we actually want to think and work and share. The tools are in front of us and if we are the ones to pick them up, we can decide how they are used. The following narrative is an impetus to do just that. I describe my mediocre, still-in-process online teaching encyclopedia project in a way that I hope will inspire the scholar willing to consider such a stance, the scholar willing to reconsider whether the technologies we have been given, with which we were taught, are the best tools for what we hope the next generations of scholars in our fields will do.

Over the last five years I have employed digital technologies to turn students' work in three iterations of a course in my core subject—the medieval Roman Empire of Byzantium—into a collaborative teaching resource. By approaching instruction as collaboration, I was able to develop a process for students to use their own learning to create material that would teach others. Embracing the digital gave me the means to curate this material into an interactive, topographically-organized, pixelated collection of medieval Constantinopolitan paraphernalia—what I have come to call the *Constantinople as Palimpsest* project.[3] When I initiated the project five years ago, I modestly expected and planned that I would develop a teaching resource for myself, which I would perhaps share with select others. What I didn't expect to create was a resource which had equal potential for public outreach, which facilitated new interdisciplinary connections, which prompted me to re-conceive the very structures of my knowledge of the past.

How Did the Project Come about (and What Is It)?

The project began as an exploration into how students in a survey course might learn the material realities of the capital of the medieval Roman Empire through their own

3 *Constantinople as Palimpsest*, https://arcg.is/01GXyj. For previous write-ups, see Jesse W. Torgerson, "Constantinople as Palimpsest," "Constantinople as Palimpsest: Now Live," and, "Constantinople as Palimpsest: Now With Words!" on the Wesleyan University *Traveler's Lab*.

research rather than by reproducing truncated versions of my lectures and our class discussions as papers and exams. In Spring 2015 I designed a rudimentary course unit that required students to perform library-based research on items found in Constantinople, from the textually-attested statues in the Baths of Zeuxippus to the still-standing Golden Gate. Once their research was complete, students then uploaded their miniature research projects onto ArcGIS online (https://www.arcgis.com/home/index.html). Over the course of multiple, gradually improving iterations of this course project I was able, with the help of students and colleagues, to curate and organize these research projects as a cumulative collaborative database via StoryMaps (https://storymaps.arcgis.com/), an associated component of the Esri mapping package.

Constantinople as Palimpsest, the title we eventually gave to this project, is a simile analogizing our online map with both the medieval process of creating a palimpsest—scraping off the ink of a previous text and over-writing another—and the modern process of using ultraviolet or infrared light to recover those earlier texts without removing the latter. As a metaphor, palimpsest "lends itself especially well to the interpretation of architectural monuments and landscape sites" because it encourages us to always be mindful of changes in appearance and usage over time.[4] Analogous to a palimpsest, our project preserves the long process by which any built environment breaks down or buries earlier structures: not only as Istanbul did to Constantinople, but as late Byzantine Constantinople did to earlier Byzantine Constantinople, and as Constantinople did to Byzantion. The project works to not only study Constantinople as a palimpsest but is also a literal and metaphorical palimpsest itself. As described below, the mapping software we used—Esri's ArcGIS online—envisions items and geo-referenced images as layers added onto a base map, just as new hands can gloss or overwrite a base text. Furthermore, even in its earlies stages our project presented multiple overlapping and contradictory stories and eras within a single object. Like a palimpsest, successive student contributors invested new realities into a single space shared between times.[5]

The StoryMaps platform allowed us to use the digital technology of ArcGIS *layers* to present multiple past realities at once, with separate views of the city placed one on top of the other. The base is a digital projection of the contemporary world. Onto this base the first *layer* added is a schematized, geo-referenced map of medieval Constantinople including the outlines of walls, harbours, hypothesized major roads, as well as Hagia Sophia and the Hippodrome for reference. The map was drawn by Alp Eren as part of his work in Wesleyan University's Traveler's Lab.[6] In their work for my semester-long Byzantine history course students used ArcGIS online to add interactive content as digital *layers* added on top of this first *layer*. These additional *layers* were drawn polygons,

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4 *Palimpsests: Buildings, Sites, Time*, edited by Aksamija, Maines, and Wagoner.

5 Neither the alpha (Spring 2017) nor the beta (Spring 2020) versions of our place-based encyclopedia are able to take time into account: they visually display every item as though equally present at the same time in the millennium-long history of the Byzantine Empire. While we have embedded this chronological information in the text of each entry, enabling time-sensitive visualizations remains a goal for future versions of the project.

6 Traveler's Lab: https://travelerslab.research.wesleyan.edu.

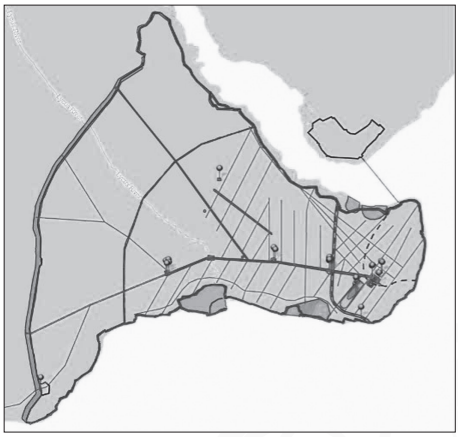

Figure 4.1: *Constantinople as Palimpsest* concept, with map for the topic Monumental Architecture.

lines, or pins which ArcGIS online calls *map notes*. These *map notes* contain text and images which, when added to a map as *layers* appear as items on the map: since they are geo-referenced, or digitally linked by the latitude and longitude at which they are placed, base map and *layers* are thus exactly coordinated with each other.

In other words (to return to the palimpsest metaphor), if one were to scrape off these *layers*, as well as Eren's over-laid historical map, the exact corresponding location in modern Istanbul would appear. Figure 4.1 illustrates the concept with the map for Monumental Architecture, one of eight topical maps in the project.

The ArcGIS online platform that hosts this map allows it to remain dynamic. Both the first *layer*—which functions above as the base map—and added layers of *map notes* with their associated text and image content are all interactive. Users can navigate the map by dragging or zooming in and out and access the text content of the overlaid *map notes* by selecting any of the green lines, points, or polygons. Thus, when any one is selected, a window opens to display an encyclopedic write-up by an undergraduate student with the historical images and reconstructions they selected, all linked to the appropriate place in Constantinople.

The potential of this project as an attractive repository for sharing student work is obvious: students are drawn to the invitation to create something for their coursework that has lasting, public value. However, compiling and archiving this content as a palimpsestic-accumulation of ArcGIS *layers* also means all of the text content added to the project (the *map notes*) is now indexed by place. That new categorization has pedagogical value in displaying known information in a more accessible manner. In addition, it also has the potential to provide new scholarly insights by offering an entirely new way of connecting and associating our bits of historical knowledge. As I will describe in later sections of this article, the project's framework not only offers a new means of sharing knowledge between specialists and from specialists to the public, but also by sorting known information in a new way contains the potential for new knowledge: not through discovery but through new connections and associations.

Before turning to that potential, however, I first will describe how this project came into being.

Slowly

I never sat down and designed *Constantinople as Palimpsest*. It came to be through an unplanned, heuristic process of experimentation with project-based teaching, beginning in 2015 as a shared folder on ArcGIS.com called "COL 128 – Constantinople." Students

Figure 4.2: *Constantinople as Palimpsest*, ca. 2015.

in that course uploaded their course work (micro-research projects on sites and objects) to the folder to display the work to the rest of the class. I had students put these research projects into the pixelated topography of an online map—the *layers* and *notes* described above—because I wanted a part of their research to be identifying where in Constantinople each place or item was. I required this for no more profound reason than I was trained that provenance matters. I wanted to make sure my students also learned to value that idea by being required to plot out on a map where they believed an item should be located and what scholarship backed up that assertion.

The screenshot above gives a sense of what this initial 2015 version of the project looked like. This is not to criticize student work (I myself tried to draw a freehand hippodrome and did no better), but to demonstrate the rudimentary and unprofessional way this project began. I came to understand that the bar to start a "digital humanities project" is literally whatever your abilities are, right now.

It is easy, in conceiving of digital projects, for the aesthetics to become the starting point and so completely overwhelm any idea. Instead, I encourage my colleagues to worry about what we are already used to concerning ourselves with: the content, quality, and organization of the information. The final aesthetics of digital design cannot be anticipated but, in my experience, are something that is incorporated when the time is right. What *is* essential is to decide what information will be included, and how that information will be organized.

Thus it was that in the summer after this initial haphazard and exploratory venture into project-based learning, it occurred to me that beneath these poor drawings I already had the makings of an interactive digital topography of Byzantine Constantinople. The shared class folder was not merely proof of work done (which is all that I initially thought I would achieve) but was also a real collection of historical information. If I spent the time to edit the students' work and consolidate it onto a single map I could teach the next instantiation of my course from this material. Then, in the process of curating this accretion of historical knowledge I realized I was working with a palimpsest. And so,

with the addition of a name, a rudimentary course unit turned into a Digital Humanities Project. I decided to focus the next offering of my Byzantine history survey (in Spring 2017) on the city of Constantinople, and to make the entire goal of the course to turn the shared ArcGIS.com folder into a collaborative, interactive online map of the city.

With Help, and the Right Timing

It is only in retrospect that I can state the *Constantinople as Palimpsest* project evolved in response to the desires and ideas of students enrolled in three classes of between ten and eighteen Wesleyan undergraduate students as they generated content over the course of the Spring 2015, Spring 2017, and Spring 2020 semesters. To be clear, I did not turn the student coursework into this resource on my own, and I have no interest in giving the impression I did. The project is a true team effort. After the initial exploratory offering (Spring 2015), the subsequent versions of the course (Spring 2017, and Spring 2020) each had two groups of students who assisted with the project.

Even the Spring 2015 offering was only possible through generous gifts of time, expertise, and training from my Wesleyan University colleagues Dr. Jason Simms and Prof. Kim Diver. Without my student GIS intern, Marjahn Finlayson, assisting students in the course with technical difficulties in using ArcGIS.com the course project would have been impossible. When my colleague Prof. Lisa Dierker won (and shared!) a Davis Foundation grant that year to support project-based learning, I was able to hire the student research assistants to help me organize and catalog the work the students had produced. Turning the initial course into an ongoing project with a life of its own was invigorating, exhausting, and the result of many willing hands and minds.

For subsequent semesters I was determined to transform the idea from a time-consuming experiment in project-based learning into a sustainable ongoing project around which I would design future courses. To do so I built my pedagogy around institutional resources I thought would be relatively permanent, and which I thus could take for granted. First, I had a Course Assistant (Connor Cobb in 2017, and then Nathan Krieger in 2020). These were history majors who earned course credit for attending the class, serving as an initial research resource to help students study and write up their projects, and at the end of the course working with me to index and edit all of the research submitted as *map notes*. I also had a GIS assistant for each year (Nadja Shannon-Dabek in 2017, and then Alp Eren in 2020) each trained in ArcGIS by Prof. Kim Diver. These GIS assistants worked with students on uploading their projects as layers to ArcGIS.com, and then for the most recent *beta* version of the project, Mr. Eren re-drew the historical base layer we had used previously, which Konstantinos (Kostas) Plakidas had published to Wikimedia commons from a synthesis of Raymond Janin's *Constantinople Byzantine*.[7] Mr. Eren's new drawing meant that the image of Constantinople's shoreline and schematized roads was no longer an image only fairly-accurately super-imposed on a map, but is its own geo-encoded shapefile, which can thus be shared for similar uses.

7 https://commons.wikimedia.org/wiki/File:Byzantine_Constantinople-en.png; Janin, *Constantinople—Byzantine*.

Additionally, I had the unique resource of the Traveler's Lab, a collaborative multi-campus research network run by myself, Gary Shaw of Wesleyan University, and Adam Franklin-Lyons of Emerson College. Each year students from various majors collaborate with us to work—depending on resources and interest, either voluntarily, for credit, or as paid Research Assistants—on ongoing research projects using a combination of methods (both analogue and computer-based). Through the Traveler's Lab some of these same students (Connor Cobb, Nathan Krieger, Alp Eren) as well as others (Caroline Diemer, Jesse Simpson, Jonah Skolnik) contributed additional work beyond the semesters when I was actually teaching the course. These lab students helped me curate, organize, and standardize the research done by the students in the class, to prepare resources for student research projects, and to test run various course materials.

I must emphasize the significance of these individuals' contributions to *Constantinople as Palimpsest*. In theory, the project might have taken place without them, but in reality, it never would have done so. If I myself had logged the thousands of hours of training and support these students and colleagues collectively invested in the project, it would have come at the direct expense of the sort of research outputs recognized by the structures of academia as legitimate for advancement: as we all know, an exploratory project such as *Constantinople as Palimpsest* does not fit into traditional categories for tenure and promotion. It is worth considering how often we, as scholars, are entirely responsible for inhibiting innovation by insisting that the forms of scholarship that happen to be in place, in which we published, remain necessary.[8]

In my case, the risks of investing in this project were possible to sustain for two reasons. First, given the assistance I received (and only because of that assistance) I was able to restrict the amount of time I spent on the project to essentially what I would have spent teaching a traditional version of a historical survey. The time spent researching, writing lectures, and grading traditional exams or papers was roughly equivalent to that spent providing students with their own miniature research projects and assessing, uploading, and curating those projects on the website. Second, I was correctly advised to begin the experiment of this project-based course at the very outset of my time in a tenure-track position. Some studies indicate that when students are given the opportunity to be properly self-reflective they will identify that they learned more in a project-based learning environment.[9] Conversely, other research and widely-shared anecdotal evidence indicates that without extensive coaching of student expectations, project-based learning can be perceived negatively in evaluations of teaching.[10] Since I engaged in experimental project-based learning from my very first year in a long-term contract I was able to sustain critical student feedback and confusion about the course by improving the class each time I taught it, throughout the duration of my contract.

I found three lessons here. In designing my long-term project, it was essential to identify the specific resources at my own institution and to create the project out of

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8 Kleinberg, "4. The Analog Ceiling," in his *Haunting History*, 115–33.

9 Clark, "Project Based Learning"; Mou, "Students' Evaluation of Their Experiences."

10 Shih and Tsai, "Students' Perception of a Flipped Classroom Approach"; Beckett, "Teacher and Student Evaluations of Project-Based Instruction," 52.

those resources rather than trying to replicate what others had done elsewhere. Second, it was essential to think strategically about timing, both professionally and personally. My idea for a project needed to be developed slowly and heuristically and through accretion and experimentation. I needed to plan time for the ideas to sit and percolate. Finally, the previous point is why, in my experience, many brilliant and completely viable ideas never see the light of a classroom for want of job security and institutional support. Brilliant ideas can wait to be realized as successful projects, but they cannot wait forever.

By Rethinking the Nature of Student Coursework

Once I decided to use student coursework to create something of lasting pedagogical value, I was immediately confronted with the challenge of getting students to produce quality work. Students will produce work that reflects not only their knowledge and abilities, but their own expectations for a grade. I had to get students' personal standards and expectations for their work to meet my expectations and standards for a public-facing resource. Thus, after the project's initial run in Spring 2015 I set out to design assignments in ways that student submissions would be of high-enough quality that subsequent students could both learn content from them and imiate them as models.

I had no idea how to do this. Approximately half of the assignments that students submitted in Spring 2015 were unusable as learning materials for the next version. Here I was once again assisted by institutional investment in pedagogy. I needed help thinking through a new pedagogical approach on the conceptual level, and this aid was provided by my institution through the persons of Paula Blue and Dan Mercier at Wesleyan's Center for Pedagogical Innovation. Thanks to discussions with Paula, Dan, and Lisa Dierker (mentioned above), three changes made the difference.

First, in the 2015 instantiation of the course, I was interested in having students approach historical study differently, considering, among other things, *past place* rather than *past time* or *event*. We read and discussed selections from Walter Benjamin and Michel de Certeau which gave the students models for how to conceive of the spectral necropolitics of the city, and of the creative tactical resistance of urban everyday life.[11] We read Poe's "The Man of the Crowd" and theorized the way in which our historical gaze would, for both good and ill, resemble that of a nineteenth-century *flâneur*.[12] We asked: could we do better? Fantastic discussions and exercises notwithstanding, this effort to apply reflections on the nature of "city" developed in modern Paris and New York did not help my students produce more focused and accurate research on Constantinople. Therefore, in subsequent offerings I scaled back our work in criticism and instead limited theory to articles produced by Byzantinists on Constantinople itself.[13]

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11 Benjamin, *The Arcades Project*; de Certeau, *The Practice of Everyday Life*; Bavidge, *Theorists of the City*.

12 Poe, "The Man of the Crowd," in his *Tales* (1845), 219–28. Shaya, "The Flâneur, the Badaud, and the Making of a Mass Public in France."

13 Accessible, discussion-provoking chapters include Cyril Mango, "The Disappearance and Revival of Cities," in his *Byzantium: The Empire of New Rome*, 60–87; Judith Herrin, "Constantinople,

Second, in the initial course offering I allowed students free rein over the topics they were interested in researching. This led to some delightful, singular experiences—such as when we collectively debated how to "map" a processional route—but in general it incited students to stretch themselves too far. In the subsequent offerings, students identified thematic interests and I created small groups from these themes. This allowed me and my course assistants to issue dossiers of materials and bibliography to groups rather than to each student individually. Students were also able to take on slightly larger projects by collaborating for a week or two. Finally, students naturally increased their sophistication as the weeks progressed and their attention focused on single topics such as defensive structures or economic exchange, for example. Their later research projects were thus informed by previous work and previous work was then revised in light of later learning. All of this substantially improved the quality of what students submitted.

Third, I developed increasingly exacting rubrics for grading, balanced by an invitation to revise as many times as desired. When the course was taught in 2017 we developed a ten-page guide on creating and uploading items to the project platform on ArcGIS online. As student submissions came in, we honed the grading rubric until it communicated exactly what I wanted from research submissions. The eventual guidelines identified all of the areas where students tended to be less exacting. I assigned percentages to each of these areas so that students' submissions were harshly docked for neglecting essential items: students dropped an entire letter grade for minor infractions such as forgetting to put their name on the submission, forgetting to provide a working link to an image, or not formatting their text correctly. With this rubric, students' initial submissions often received grades as low as twenty-five to fifty percent. I allowed students to re-submit as many times as they wanted, however, challenging them to get every one of their submissions up to at least ninety-five percent. This allowed our interests to align. Students responded well to the real opportunity to earn full marks in the course, and I enjoyed seeing students master the material as they continued to revise and learn the importance of form and citation in scholarship. The project as a whole was only possible because publication to the internet no longer depended on my re-writing, editing, and adding content to the vast majority of student submissions. The project maintained its pedagogical value beyond the mere confines of a single course exercise due to the crucial adjustments we made along the way.

Achieving the Goal: Pedagogical Value

The initial goal of the *Constantinople as Palimpsest* project, as the narrative above explains, was to present students of my Byzantine history survey with a textbook whose interactivity facilitated learning about the city of Constantinople in a manner such that it took shape in their imaginations. Although the project will continue to grow, it has already achieved this initial goal. I will use *Constantinople as Palimpsest* for my future university classes on Byzantium, I invite others to do so as well, and hope they will con-

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the Largest City in Christendom," in her *Byzantium: The Surprising Life of a Medieval Empire*, 12–21; and Robert Ousterhout, "Constantinople and the Construction of a Medieval Urban Identity."

tribute assignments as additions to the content. Furthermore, I hope to introduce secondary school teachers to the resource for units touching on medieval history. To this end, in this section I will lay out how our project may be read and studied.

The three key aspects to the online map are the city base layer, the thematic "tabs," and the pop-up windows where much of the student-generated material resides. Once a user has chosen a thematic tab, the historical content is revealed by exploring the topography of the city: scrolling and clicking on any pin, line, or polygon in the map (green) activates a "popup" dialogue box. Each dialogue box contains a brief entry on the item (whether object, monument, site, region, or route) which includes a short definition of the item, its date, some commentary, further bibliography, and image citations. The content in these boxes represents a student's self-designed research project, generated as their coursework for a single week of the semester. Each item's pop-up box consists entirely of the student research with only corrective editing. Thus, these are fully attributed to those students as authors. These are the surviving traces of Constantinople, as "unearthed" by students.

Each item is categorized according to our unique collaboratively-designed system. Items are noted by type, by the nature of their survival into the present, by name, and by date of appearance in the city. We identified four item "type" categories so that users will know what they have chosen since it is impossible to provide scale drawings for each item. The categories are the following:

- REGION—an area: neighbourhoods, regions, etc.
- ROUTE—a way: roads, processional routes, etc.
- SITE—built structure: forums, harbours, palaces, walls, cisterns, etc.
- MONUMENT—immovable item: obelisks, columns, mosaics, etc.
- OBJECT—moveable item: statues, lamps, hairpins, etc.

We also created three coded categories to designate the status of each item's survival into the present. These are:

- IP—*In Place*: intact/visible; object never been moved
- DP—*Displaced*: survives but has been moved from its medieval location
- TA—*Textually Attested*: completely gone, but texts attest its existence.

Finally, students identified a date—whether a specific year or a century—when the item in question appeared in Constantinople. The Serpent Column of Delphi, or the Obelisk of Theodosios, for instance, are much older than the city but are given dates according to when they arrived there.

An example here may be in order. The label for Constantine's column is the following: MONUMENT IP_COLUMN OF CONSTANTINE_330. The codes indicate that this is a "monument" (according to our categories); it is still "in place" today; it is commonly known as the "Column of Constantine"; and, it is believed to have been constructed in AD 330. Below this label the pop-up window contains a description and images of the site or item where possible or relevant. The item is briefly defined and dated, a fuller commentary follows, and a bibliography of relevant images and sources is appended.

After the first two iterations of the course, the students had generated over three hundred distinct items. We therefore needed to redesign how our materials were pre-

sented, since a single map populated with hundreds of nondescript green points was no longer legible to our users. The knowledge we accumulated needed to be curated. At this point in the project I realized this was no longer simply a way of housing student projects but rather a new means of knowledge curation that needed a logic different than that of the encyclopedia, which had governed my organizational strategy until that time.

My Course Assistants and I talked through our material. The goal was to make it possible for students to explore the current historical image of Constantinople as it lives in the minds of Byzantinists. The traditional item-by-item heading-based encyclopedia is not a helpful introductory tool since even digital versions such as Wikipedia require the reader to already know something—often quite a bit—about what they are looking for. Furthermore, even when advanced scholars use traditional encyclopedias, they tread the same trails again and again, looking up entries on subjects or items they wish to know rather than reading ecumenically for discovery. A map, by contrast, is an easier way to orient oneself (quite literally) to an unfamiliar field of study since they are a dynamic means to re-conceptualize information already known via other formats. But our dynamic map needed to give first-time readers some orientation.

My Course Assistants, GIS Assistants, Lab Students, and I had numerous discussions—both theoretical and practical—over this issue. The StoryMaps platform (provided by Esri and fully compatible with their ArcGIS online software) made it possible for us to present multiple curated maps for readers or users to explore. We finally decided upon the now-obvious idea of creating multiple maps whose contents would be defined by overlapping themes. Adopting an approach using overlapping themes was an important step: we wanted a compromise between our contemporary need to have some help in understanding, and the past reality which we were trying to enable users to re-imagine. We did not want to lose the sense of a real, lived city which could only truly be known by living through the uninhibited cacophony of quotidian life. We tried to make our themes reflect what students had chosen to work on, rather than import established scholarly topics. We settled upon Monumental Architecture, Water Infrastructure, Exchange Economy, Religious Life, Private Life, and Administrative Regions as ways to bring our readers gently into the life of the City.

It became clear to me that what would perform this function for my students would do the same for both the general adult public and students at the secondary level whose teachers might introduce a unit on a particular medieval empire. *Constantinople as Palimpsest* was suddenly not just a course project, but a way to present what interdisciplinary scholars of Byzantine Studies have uncovered about the medieval life of the city of Constantinople (or Byzantium) in an interactive, open, public-facing format that can serve a range of readers equally well. Persons with no knowledge of Byzantium at all can "walk" the imagined medieval city by working through our curated, manipulable maps. Experts will explore what they already know in a new form. Using location as the organizing construct for artefacts (rather than initial letter, discipline, or historical period) opens up a field in which new associations and ideas can germinate. As we continue to populate the map, historians, scholars of literature, art historians, and archaeologists will be reminded of neglected or underappreciated material, and start to make new connections like those described in the next section.

Beyond Expectations: from Teaching Experiment to Historical Source

What I have found with this project is that re-integrating abstracted texts or artefacts with their provenance changes the vantage point for scholars at all levels of expertise—from students to endowed chairs—as well as when and how we recall what we have learned. I know this because of how *Constantinople as Palimpsest* has changed my own mental landscape. I have always been an avid fanatic of imagined worlds depicted on maps—whether fantastical or historical. But even after a decade studying Byzantium, even after spending time in the streets of Istanbul, I was still not able to hold medieval Constantinople in my imagination. Even the truly incredible three-dimensional design work of the "Byzantium 1200" project did not quite suffice.[14] Instead, it was through designing a platform in which my students deposited their research on Constantinople that I was finally able to visualize, in my own mind, the historical world I spend my days studying. The realization of an imagined landscape has made my engagement with the computer-based possibilities of organizing, storing, visualizing, and sharing our knowledge of the past worthwhile for me both as a teacher and scholar.

In historical studies, the associations made by our imaginations often determine the limits of our ideas and insights. When we first began the project, I gave the students who worked on *Constantinople as Palimpsest* my abstract ideas about the items and places in Constantinople as I had come to know about them through the course of my own education from the work of Raymond Janin, Wolfgang Müller-Wiener, Averil Cameron, Judith Herrin, and others.[15] Week after week they brought this knowledge back to me sometimes with content I did not know, but always in forms I did not recognize. Not only were the students re-placing what I knew about Constantinople into its topographical context, they were adding to that knowledge through new bibliographies and new readings. This multi-layered reorientation made me quite literally re-visualize everything I knew about Constantinople and in the process created an entirely new network of knowledge that we now shared. I stopped remembering the hostel cum hospital of the Ξενὼν τοῦ Κράλη (Xenon of the Kral) as an entry in the *Oxford Dictionary of Byzantium* that I had once found while double-checking what I knew about Stefan II Milutin's patronage but re-learned it, right along with my students, as a philanthropic attachment to the monastery of St. John in Petra (more on this association below).[16]

Moreover, the last meeting of each week was devoted to rapid-fire presentations, where each student presented that week's micro research project to the group for peer evaluation and collective learning. These presentations soon went from terrifying spot-checks to miniature workshops, as students became comfortable with the platform and their research methods. I began to look forward to these events with expectations simi-

14 https://www.byzantium1200.com/; https://www.youtube.com/user/Byzantium1200; https://twitter.com/Byzantium1200.

15 Janin, *Constantinople—Byzantine*; Müller-Wiener, *Bildlexikon zur Topographie Istanbuls*; Cameron and Herrin, *Constantinople in the Early Eighth Century*.

16 Talbot, "Xenon of the Kral," entry in vol. 3 of *The Oxford Dictionary of Byzantium* (available online behind paywall since 2005).

lar to what I bring to a promising conference panel: I expected to learn something new (even about things I thought I knew well), and especially to make connections I had never before imagined. As these experiences accumulated, I realized what made this was possible and the implications for the project's future. Before I discuss this value as a tool for discovery, I will illustrate the sorts of insights the project made possible by following a serendipitous series of connections made in the Spring 2017 iteration of the class.[17]

One week, Chris Wyckoff, a junior in the course, decided to map *all* of the cisterns noted in the important work by Crow and his colleagues in *The Water Supply of Byzantine Constantinople*. Mr. Wyckoff's group had already studied and mapped the famous cisterns, including the underground Basilica Cistern and the open-air cisterns of Aspar, Mocios, and Aetius.[18] Though I thought this effort would presumably produce useful information, I was unsure of how it would integrate with the project, and how we would use it: I had always thought about the water supply of Byzantium in terms of either feats of engineering, or of the city's ability to sustain a population and withstand a siege. At the same time as Mr. Wyckoff was working on cisterns, another group of students (Zheng Mao, Nadja Nurjadin, and Melissa Thornton) were studying places of residence in the city. They were looking for ways to locate and learn about middling or lower-nobility residences, and more specifically anything more than the few known aristocratic non-imperial palaces, such as the palace of Anicia Juliana.[19]

As chance would have it, the group working on residences and the group working on the city's water infrastructure presented back to back: the comprehensive map of cisterns followed discussion of the difficulties of finding examples and patterns of elite residence. The connection was suddenly clear: while fountains were markers of population concentration, small cisterns were signs of elite residence and clusters of cisterns indications of an elite neighbourhood.

In the ensuing discussion two new hypotheses emerged concerning residential patterns in the city of Constantinople that I had never before considered. First, the standard narrative of Constantinople is that imperial residence migrates from the Great Palace to the Blachernae region.[20] Yet I had never thought through what this meant for elites who wanted proximity to the imperial court. An initial answer arises from the six significant clusters of cisterns that appear immediately as they are plotted on the map. The ancient and early Byzantine elite residences likely account for the largest of these groupings: on the acropolis point; near the Hippodrome; between the Forum of Constantine and

17 It should be noted that the Spring of 2020 class did not have these experiences, one of the billions of small tragedies brought about by the COVID-19 pandemic. By the time we arrived at the project-based learning component of the course that semester, everyone was at home doing the best they could with "remote learning." Students did exceptional work on their projects, but did their work at their own pace and I was the only person who actually studied the growing collective project, and only then outside of the context of the discussions and rejoinders that made connections in previous semesters happen so continually and naturally.

18 Crow et al., *The Water Supply of Byzantine Constantinople*.

19 Harrison, *A Temple for Byzantium*.

20 Ousterhout, "Constantinople and the Construction of a Medieval Urban Identity."

Figure 4.3: Clustered cisterns near the Imperial Court.

Figure 4.4: Clustered cisterns in the regions of Blachernae and Petra.

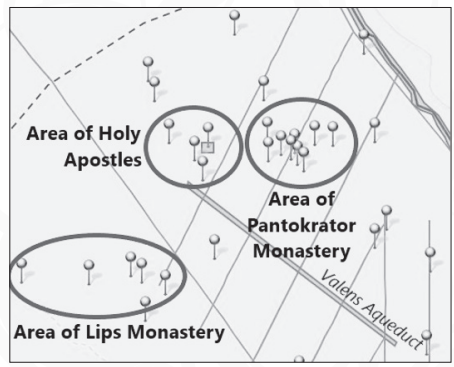

Figure 4.5: Cistern clusters around the monastery of Constantine Lips.

the Neorion and Prosphorion harbours (but within the Severan walls); and, around the Forum of Theodosius, as below, in figure 4.3.

A more sporadic cluster in the regions of Blachernae and Petra, as in Figure 4.4, likely indicated elite residences built near Blachernae Palace during the Palaiologan period. Though it is interesting to see this mapped out, I did not find it particularly unusual. What took me completely by surprise were the obvious clusters around the monastery of Constantine Lips (restored ca. 908), as seen in Figure 4.5. If Constantine Lips' tenth-century patronage is an indicator of a larger pattern—the emperor Basil I (r. 867–886) also famously restored the nearby Constantinian Church of the Holy Apostles—then the Macedonian emperors (867–1057) and the elites of their era would seem to have viewed this region as a new zone for not only patronage but residence.

Furthermore, the final cluster of cisterns located around the Komnenian dynastic church of Christ Pantokrator would seem to similarly indicate elite residences built (or

renovated) in connection with imperial patronage of the monasteries and churches in this Platea region, just inside the old Constantinian walls.[21]

Seeing cisterns as traces of resident wealth suggested, immediately, that elites in Constantinople generally moved in conjunction with the more famous trajectory of imperial palaces from the ancient acropolis point during the Early Byzantine period, to the Platea region on the coast of the Golden Horn in the Macedonian and Komnenian periods, to the Blachernae Palace region in the late Komnenian and Palaiologan periods. The work of transferring already-known information to a digital-map format generated socio-economic questions which I would not have initially looked to maps to answer. Did elite residences cluster near imperial palace regions *because* they were zones of patronage and influence? Can this hypothesis explain the cluster of cisterns around the Pantokrator monastery (Zeyrek Camii) during the Komnenian period,[22] parallel to John Tzetzes' later patronage around the Pammakaristos church during the Palaiologan?[23]

Up until this experience of being taught in my own classroom, I had thought of Constantinople's history in terms of a slow migration of elite residence from the ancient centre of the acropolis point, northwards and westwards along the Golden Horn to the Blachernae region. Instead of a story of imperial decline (emperors could no longer maintain the massive Great Palace complex on the Easternmost point of the city), a simple map of known cisterns and a series of interdisciplinary student questions allowed me to hypothesize a more engaging narrative of shifting zones of patronage. Further research may even flip the old narrative around: perhaps instead of assuming imperial patronage drew aristocratic, we should be thinking of imperial residences as following and responding to slowly shifting zones of wider trends in elite patronage. This is not, of course, the conclusion to an extensive research project, but merely an opening question. Nevertheless, finding the sparks of ideas which motivate scholars to attend conference panels in the undergraduate classroom demonstrates just how revolutionary opening ourselves to new pedagogical technologies could be: not just for making teaching more invigorating, but for the formation of new minds just beginning their work in the field.

A second, more succinct example: another student group from the same Spring 2017 class took up the topic of societal infrastructure and considered specific locales like xenodocheia, hospitals, baths, and gardens. One week one of these students, Silin Chen, chose to research the Xenon of the Kral in the Petra region, and in doing so read about the famous Vienna Dioscurides manuscript associated with it. She asked to pursue that the following week, though it was a slight tangent from the group's focus.[24] When Ms. Chen included in her report that the Vienna Dioscurides had been held for a time at the Xenon of the Kral and at that time famously rebound by John Chortasmenos, the

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21 Congdon, "Imperial Commemoration and Ritual"; Kotzabassi, *The Pantokrator Monastery in Constantinople*.

22 Ousterhout, "Architecture, Art and Komnenian Patronage."

23 Magdalino, "The Maritime Neighborhoods of Constantinople" and his "Neighbourhoods in Byzantine Constantinople."

24 Kiilerich, "The Image of Anicia Juliana in the Vienna Dioscurides"; Brubaker, "The Vienna Dioskorides and Anicia Juliana."

provenance of this most famous herbal took on a new and more urgent significance. I suddenly remembered a conference I attended in which Byzantine medicine and codicology specialists argued whether, on a theoretical level, the manuscript would or could have been used "in the field." Would, or could its famous accretion of marginal notations have been made in the context of use in actual fields and gardens to identify herbs, or to test and annotate the documented knowledge? The terms of this debate—at the time I witnessed it—concerned the size of the codex and whether one could viably carry it about. What was not debated was its location in Constantinople, for it was assumed implicitly—even by specialists trained to account for provenance—that the manuscript belonged in some kind of palatial library, in a truly urban environment.

When I summarized this debate for the students, Ms. Chen insisted—correctly!—that the debate should have begun with the evidence that the herbal was actually kept in the xenon or hospice–hospital attached to the monastery of St. John in Petra. Relying on their own knowledge of mapped locales within the city, other students pointed out that this was near the cistern of Aetius and the late Byzantine inner-mural agricultural zone between the Constantinian and Theodosian walls.[25] With this provenance and topography firmly fixed in their minds, it became impossible for the class to view the Vienna Dioscurides as anything but the most practical of reference handbooks for a suburban hospital attached to a monastic intellectual centre, located in a region replete with gardens and farms. Once again, I was shocked that I had never before considered this while thinking about use, for of course it should be essential to think not only about the adjacent volumes on the bookshelf, but about where the library itself was located. I had never even entertained the idea that John Chortasmenos' rebinding was done to preserve the manuscript for continued use in the Xenon of the Kral. Now this was a real possibility. Undergraduate students who two months prior did not know Constantine I from Justinian I provided me with valid, sophisticated, and practical insight into a topic I never even would have mentioned in a lecture format due to its obscurity and my presumption of specialist-only interest.

The above anecdotes are not field-changing insights; indeed, if either of these topics were the focus of my own research, they may not even qualify as insights but rather quotidian passing ideas or wrong-headed from the start. Nevertheless, the experience of literally re-mapping things I already "knew" caused me to re-think what I actually knew about these items and also an entire network of associated facts. I mentally filed these and many other ideas away for later use, as the seeds for further thought and further research. These are the sorts of ideas and experiences for which I attend presentations and lectures by my peers, not what I expect to learn from my own introductory lecture course for undergraduate students completely new to the subject. I learned through this experience that the difference between teaching and learning is not in somehow finding a pocket of undergraduates who are already exceptional researchers. Enthusiastic and motivated students are of course important, and some prior experience doing library research helps, but the project-based learning environment especially incites and activates these characteristics. Students do good work when their peers are apparently

25 Constantinides, "Byzantine Gardens and Horticulture in the Late Byzantine Period."

invested and when their instructor is spontaneously and increasingly enthusiastic, and they then in turn become increasingly invested and curious. In my case students' good work led not just to satisfactory assignments, but to insights. It did so because their work took field-wide knowledge and converted that knowledge into a different shape, form, and outlet. Doing so generated new possibilities for understanding, for neophytes and experts alike.

Certainly, this project-based course is different from other lecture-based classes, where I have good experiences as well. Even re-formulating an old lecture can allow me to see my sources differently, and I can always hear texts and ideas anew from students' perspectives in discussions. But outside of my courses devoted to the Constantinople as Palimpsest project, I have never had that flash of insight where two and two becomes seven: when one realizes how three seemingly different things are in fact closely related, and when put together not only explain each other better but point out something else entirely. The *Constantinople as Palimpsest* project and the digital methodologies upon which it is based have made it possible to think about what all of my students were working on all at once, in combination with everything I already knew. It provided me with a different way of visualizing what was already present in my mind. And this is the real significance of the project: it is a new way of visualizing historical knowledge.

Conclusions: Epistemological and Theoretical Value

Project-based thinking deployed in a historical course is not just a different way of running course assignments, but a revolution in the teaching and thus practice of history. Project-based work can overturn our presumed pedagogies by combining the process of learning *accepted* historical information with the process of creating *new* historical information. My students learned about what scholars know of Constantinople, but by connecting that knowledge to a historical provenance—a time and a place that they could actually visualize and so imagine—they were able to also generate new ideas on their own and collectively. By reflecting what I, as a scholar, already knew back to me but in a different form my students showed me what I knew in a new way. This raises the question: why do we—scholars—think about what we know in the way that we do? Could we do better?

Imagine with me the technology we currently use and take for granted for the mass preservation of widely-accepted basic knowledge: the encyclopedia. Encyclopedias have changed greatly over time. Nevertheless, from the great Byzantine collection known as the Suda to the *Encyclopedia Britannica* to the *Oxford Dictionary of Byzantium* and the now-ubiquitous Wikipedia, this technology of ordering knowledge primarily serves those who already know what they are seeking. I know that if I want to learn where and how imperial power was exerted and communicated in Constantinople, I might start by looking up βασιλεύς in any of these resources. But if I don't know that, these encyclopedias will at best confuse and overwhelm, and at worst lead me entirely astray. The technology of the encyclopedia structures knowledge according to an index, whether the alphabetical listings of an encyclopedia-in-codex, or the hyperlinked searchable listings of an encyclopedia-online. To use either an alphabetically listed or open-searchable

encyclopedia well, foreknowledge is required. Encyclopedias are incapable of true paideia. The presumed technology of our reference works requires that we have already been instructed in the topics of our searches.

As medievalists we know that it is possible to organize knowledge differently. In addition to the encyclopaediae we have the florilegium, the liber manualis, and the πρόχειροι κανόνες. But despite this variety, these are innovations within a specific technological limitation: these works are all tied to the arbitrary technology of the codex on which modern historical studies continue to be absolutely reliant. Is it in our best interest to be so dependent upon the arbitrary technologies that currently structure our teaching, our inter- and intra-field communications to limit both our public outreach and the very boundaries of our thought and research? We now can quite easily think beyond how the technology of the codex predetermines the ways we organize large and diverse collections of knowledge. If we can use computer-based forms to identify a different "compilatory technique," if we can create different "knowledge-ordering works," shouldn't we?[26] What if expert scholars and innocent students could deepen their knowledge with the exact same tool?

I have used the term imagination through this essay intentionally. As scholars of the past, our imaginations play an essential role in every act of thinking that we do. Historians of all fields imagine the worlds we study. Any tool that fleshes out our imaginations promises to exponentially increase the number of things—and ways—we can see. Before my project-based classes on medieval Constantinople, I knew a lot about my subject: I already had taught four complete lecture courses on it. My students, however, taught me that despite how much I knew, I ultimately merely had an idiomatic narrative—an abstracted, arbitrary, and frankly haphazard framework for categorizing and ordering that knowledge. In this sense, the mass of my knowledge was worth very little because it was separated from its actual provenance. Through graduate school I religiously photocopied and filed any map of the areas I studied that I happened to find—in textbooks, reference works, articles, monographs—because I knew I needed to fix the imagined historical geography of the regions I was studying in my mind. Maps were the way to create a topography for my historical imagination to roam. Ultimately this is the extent of the innovation of *Constantinople as Palimpsest*: to put an encyclopedia of information into a space. The digital platform simply makes it possible to load more information into a single map than would be possible in one that is static. A simple, accessible technology already provides us a way to re-integrate our specialist knowledge into its historical topography. We just need to use what is being given to us, what we already have.

In other words, we can theorize the "digital" aspects of projects like mine, identifying how we are moving from a specifically codico-logical form of knowledge into the logics of the never-ending scroll or digital plane. Yet in the meantime, we also can adopt a heuristic, exploratory approach that is perfectly suited to classroom practices. Just as Anthony Grafton and Megan Williams have described the way in which Eusebius simply made use of the possibilities of the full page of the codex for his *Chronicon*, we simply can decide to teach through working out, in practice, what computers can do for us.[27]

26 König and Woolf, *Encyclopaedism from Antiquity to the Renaissance*, 1.

27 Grafton and Williams, *Christianity and the Transformation of the Book*.

Digital projects can be approached as experiments in new forms, as open and collaborative explorations that end either when curiosity dries up, or when the question develops so that the medium no longer suffices. In the latter case, projects don't really end but evolve—just as my own *Constantinople as Palimpsest* project continues to take new forms. The question is how to organize, and how the organization fits to what we are trying to do, how it permits what we think we might do, and what we think we might want to do. We can ease our way into how an interactive computer-generated topography (in truth no more intimidating than plugging addresses into a driving app) gives us new possibilities for thinking about how to display what we know, and what this allows us to think, together.

How long my little project lasts is less important than what it accomplishes. *Constantinople as Palimpsest* won't work forever, but its name signals this intent: it is there to be written over. If it is useful, other forms of it will be made. What is important now is how a re-integration of knowledge can change the way we work and think, together and with our students. As Silke Schwandt recently put it,

> [Digital Humanities] is a genuinely interdisciplinary endeavour making use of two things: digitization, or technologization, and hermeneutic interpretation. New digital technology transforms how we perceive and store information. It changes the ways of (social) interaction and communication. It allows access to vast amounts of information that need new ways of organization.[28]

Even when we pursue interdisciplinarity, we still most often functionally separate the same real objects into artificial subfields: manuscript studies, social history, intellectual history, economics, numismatics, archaeology, history of art, theology, etc. There is specialist value in these distinctions, of course. But we also all *know* that none of these subfields were distinct from each other in the moment-to-moment, day-to-day lives of our historical subjects. Good intentions don't re-integrate those divisions—real structures of thought, and practice, and knowledge do. The value of project-based learning and scholarship is that it can help us practice how to return to a closer approximation of the worlds we seek to imagine, by integrating and re-connecting what we initially divided and distinguished in order to understand. We've come to understand a lot. Now it is time to re-integrate: to start putting the jigsaw puzzle back together, and to see what we've made.

28 Schwandt, "Introduction," 16.

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