Spatial Literacy in the History Classroom: Teaching the Silk Road with Google Earth

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“Historians specialize in tracing and accounting for change over time. At least in principle, historians also recognize that history unfolds through space, yet it is fair to say that we have found it more cumbersome, and perhaps less important, to trace spatial relations than to trace temporal relations.”


→Actually, historians don’t even have a model for HOW to account for space.
Spatial Literacy and History

• Doreen Massey: “What might it mean...to question that habit of thinking of space as a surface? If, instead, we conceive of a meeting-up of histories, what happens to our implicit imagination of time and space?”

• Tim Ingold: “The landscape is constituted as an enduring record of—and testimony to—the lives and works of past generations who have dwelt within it, and in so doing, have left there something of themselves.”

• Michael Curry, “Toward a Geography of a World Without Maps: Lessons from Ptolemy and Postal Codes” – a way out of the space versus place stalemate and a way to think about spatio-temporal integration.

• Three modes of thinking about the world:
  – *Choros* (names and regions)
  – *Topos* (travels, itineraries, and relationships)
  – *Geos* (mathematically oriented maps of continuous space)
### The State of the Art?

#### Classical Greece, 800-400 B.C.E.

- [x] Greece, ca. 750 B.C.E.
- [x] Greek Influence, 500 B.C.E.
- [x] Persian Fleet, 490 B.C.E.
- [x] Persian Military, 480/479 B.C.E.
- [x] Delian League, 477-431 B.C.E.

- [ ] Place Names
- [ ] Cities and Towns
- [ ] Bodies of Water

- Greece, ca. 750 B.C.E.
- Greek Influence, 500 B.C.E.
- Delian League
- Persian Fleet, 490 B.C.E.
- Persian Army, 480 B.C.E.
- Persian Fleet, 480 B.C.E.

**From Jerry Bentley and Herb Ziegler, *Traditions and Encounters***
Erica Neuhaus, History 10 (World History to 1450), UC Merced, Fall 2006
History 108: The Silk Road

*The Baburnama* (c. 1540s), by Jonathan Munguia

- An upper division undergraduate course. Every Monday a seminar, every Wednesday a lab. No technical prerequisites.
- Each student chose a Silk Road travel narrative and completed a series of assignments leading to a KML due at the end of the semester.
  - Prospectus/Bibliography
  - Gazetteer
  - Episodes (History Engine)
  - Ten-page research paper
  - KML
Right click on the file in Google Earth > Save Place As > Save File.
The overlay is too big and too far south.

Move from the corner to resize the image.

Move from the edges to change the dimensions.

Move from the middle to pan the entire image.
Final Project KML..an Atlas!

Rubric Categories

1. Writing
   - Episodes
   - Paper
2. Spatial Reasoning and Visualization
   - Gazetteer/Point Locations
   - Google Earth Cartography
3. Storytelling and Integration

- Based on a detailed rubric to provide clear standards and guidelines and support review and assessment.
- An authored document with a title and legend, which illustrates a particular approach to the travel narrative and supports a research paper.
The Travels of Benjamin of Tudela (c. 1160s), by Jesus Carillo
Baghdad, Iraq
http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

History 108 Google Earth Project

Baghdad: Jewish Equality

Baghdad was another metropolis that was influential in transforming the Middle East as the Centre of Central Asia. Unlike Constantinople, he highly regarded the Mesopotamian capital. Benjamin seems transfixed at the amount of Jews that resided in the city walls, which are more than 40,000. He notes that “Jews here dwell in security, prosperity and honor under the great Caliph.”

This struck me as odd the first time I read it because many of the Islamic populations that inhabited Spain, where Benjamin originated from, had Jews persecuted and executed yet he records that Baghdad was such an equal state. He noted that the Caliph, most likely Mostarjah Abul Medinhaffar who ruled until 1170 according to Nathan Marcus Adler, acknowledged the importance of knowledge.

Benjamin commented that there were ten different academies’ each specializing the study of law to communal administration. He often records the influence the Caliph retains over his subjects yet Benjamin views this as respect to the Baghdad population. He records “the great Caliph holds his court, and he is kind unto Israel, and many belonging to the people of Israel are his attendants, is well versed in the law of Israel and writes the holy language of Hebrew.

He also notes that the Caliph had built on the banks of an arm of the Euphrates where there borders the city, a hospital consisting of blocks of houses and hospices for the sick and poor who come to be healed, which is open to every person from different nationality. This was also noted by Rabbi Nathan Marcus Adler, were in Baghdad, for three centuries obtained a great school of Medical Science. This proved with Christopher Beckwith’s claim that the great cities of Central Asia were centers of culture, libraries and education. Benjamin also mentioned the attire worn by the Caliph at the time which serves as a glimpse of how productive silk production was in the Middle East. He notes that “in the Caliph’s palaces are great buildings of marble and columns of silver and gold, carvings upon rare stones are fixed in the walls, there are great riches and towers filled with gold, silken garments of gold and silver and precious stones.” The symbol and the color of wealth and power does not change either in a different empire. The Caliph in my opinion might have tolerated the Jewish population, allowed them to practice their religion and allow them to prosper in Silk Road endeavors, in an effort to study a
The Rubric

I. Writing

A. Paper

<table>
<thead>
<tr>
<th>Ten page paper</th>
<th>• Clear thesis, correct citations, good use of primary and secondary sources and examples, good mechanics, well-organized.</th>
</tr>
</thead>
</table>
| Based on a travel narrative and course themes | • Extensive and creative engagement with a narrative
• Citation and discussion of assigned readings and course themes. |
| Focused on geography | • A thesis and analysis that reflects the traveler’s movement through a particular human and physical terrain at a particular time. |

B. Episodes

| Six episodes | • Identify the most important places along your traveler’s route and describe what your traveler did at each place.
• Use the History Engine standard |
2. Spatial Reasoning and Visualization

A. Gazetteer/Point Locations

<table>
<thead>
<tr>
<th>Descriptions of each placemark</th>
<th>At least 15 placemarked locations along your traveler’s route</th>
<th>Even if you are focusing on one leg of your traveler’s journey in detail, sketch in the whole route for context.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Brief information that may include: images, hyperlinks, quotes from your travel narrative, or standardized information related to your thesis such as city populations, religious practices, trade commodities, etcetera.</td>
<td>• Be sure that your spatial locations match the terrain.</td>
</tr>
<tr>
<td></td>
<td>• Consistently formatted in content and style</td>
<td>• If you cannot determine dates for your traveler’s waypoints, be sure to include that information somewhere.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 15 locations is a minimum: use as many as you need</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Using the Spreadsheet Mapper tool is optional. You may use an offline spreadsheet to keep track of your locations, and thumbtack them in Google Earth by hand.</td>
</tr>
<tr>
<td>Routes of travel</td>
<td>• Lines depicting the traveler’s route between each waypoint</td>
<td>• This is in addition to the six required in-depth episodes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• These should be as accurate as feasible (e.g. traverse passes instead of mountain peaks), but they may not be exact.</td>
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## B. Google Earth Cartography and Visualization

| Communicative visual style | |  
|---------------------------|--|--  
| - Clear and consistent iconography  
| - Objects distinguished from each other by category (e.g. battlefields from monasteries, the route out from the route home, et cetera)  
| - A title and legend placed on the map as an overlay  
| | |  
| Contextual information | | The content and quantity of this information should be dictated by your project and your thesis.  
| - This might include: important cities, ports, passes or other places in the vicinity of your traveler’s route; map overlays; or polygons representing important regimes or other regions.  
| | |  
| Zoom/Tilt | - The visible range of your project should be appropriate to its spatial scope.  
| - Some details may be visible only at a high zoom range.  
| Animation | - Create a tour or flythrough.  
| - Determine how to communicate your project in this format.  
| - Consider creating a voiceover.
### 3. Storytelling and Integration

<table>
<thead>
<tr>
<th>Integrated Map and Paper</th>
<th>The thesis of the paper, the topics of the episodes, the theme of the map, along with any hyperlinks and images, should reinforce and reference each other.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The places and events mentioned in the paper, episodes, and the map should be the same.</td>
</tr>
<tr>
<td></td>
<td>The map should help to prove the thesis of the paper.</td>
</tr>
<tr>
<td>Intuitive User Experience</td>
<td>Control how users experience and navigate your project. Use appropriate titles and filenames for layers (including flags like “start here”), organize the layers well, launch your paper from a placemark on the map, create a title and legend overlay.</td>
</tr>
</tbody>
</table>
Lessons Learned

Alexander the Great (356-322 BCE), by Patrick Swisher

- The students succeeded in historical spatial reasoning, historical research, and Google Earth authoring.
- The class exceeded my most optimistic expectations! It was a lot of work, but it was worth it.
- The Google Earth tasks that were hard for them were:
  - Using Spreadsheet Mapper
  - Understanding the difference between KML editing (for placemark behavior) and HTML editing (for popup content)
  - Working with time
Student Survey

Thank you to the UC Merced Center for Teaching and Research Excellence for supporting a research assistant to observe the course and to survey and interview the students.

“Compared to a normal history class without a digital and spatial component, how much have you learned about history by integrating spatial reasoning and map design into your work this semester?”
• “It allows us to view different regions and see how cultures spread out through history.”
• “It’s more interactive and forces the student to be more engaged in his/her work.”
• “The spatial approach helps put history into perspective.”
• “When I become a teacher, I will definitely use tools like the ones we have learned this semester in my own classes—they help put a physical location with historical texts.”
• It is sooooo nice to use Google Earth in learning about history and to see locations visually. It helps to make the ideas easier to grasp.”
• “It was one of my favorite courses to date. I have shown my finished project off to many friends and family and when I teach in the future I want to do something similar.”
Google Earth Limitations

- A timestamping interface!
- Spreadsheet-based data entry (I tried Spreadsheet Mapper. I’ll look at Fusion Tables next time)
- A content authoring interface for placemark pop-ups, with image management.
- Groups in Google Earth Community.
- A legend builder.
Next Steps

Anthony Jenkinson (1529-1610), by Tim Bell

- Create a website with lab slides, the rubric, and exemplary student work.
- Write an academic article and reports about this course methodology.
The students used Google Earth to locate historical events in geographical space. They tilted, rotated, and zoomed the map to view the lay of the land.

Google Earth users can navigate from the entire earth to a single region.