

RICHARD WHITE, HISTORY

How the West Was Shaped: Railroads in the 19th-century North American West

Evgenia Shnayder, John Watson, and Samantha Azure (student research assistants) will work with Richard White (faculty member) to examine how railroads in the 19th century North American West arranged space by measuring distance in terms of cost instead of miles. This opportunity will provide the students with a variety of conceptual and analytical experiences. The students will organize and analyze project datasets in Microsoft Access and Excel, ArcGIS, and statistical programs such as R and SPSS. ArcGIS and Adobe Creative Suite programs will then be used to generate visualizations of this data in order to highlight anomalies and prompt additional research questions and exploration. Dynamic graphic interfaces including the Spatial History Lab's Project Steel program (developed in summer 2008 through a previous VPUE grant) will also be used to interact with and manipulate graphic representations of the data. In order to better understand the project's significance in the fields of history, geography, and design, the students will also read and discuss theoretical literature on the representation of space and time and examine the role of spatial thinking in research in the humanities.

The students' participation in this research project will generate several ideas as well as tangible results. The students will help finalize a precise and accurate digitized map of all of the historic railroad lines and stations for the entire state of California and portions of other western states. These digitized maps will be used to produce a series of printed maps for use in the faculty mentor's planned book on the 19th century railroads and the North American West (for which the students will receive credit). Digitized maps and data will also form the basis for a series of dynamic visualizations on the web that will inform further exploration as well as illustrate key findings. These findings will illuminate the ways in which the manipulation of railroad freight rates distorted geography and differed as freight entered and exited San Francisco, and the relationships between agricultural and population census data and the development of the railroads in the North American West.

The faculty mentor and students will participate in collaborative weekly meetings to share progress and findings, brainstorm potential solutions to any challenges that have arisen, and reflect on the activities' relation to the broader conceptual framework of spatial history. The faculty mentor will also encourage the research assistants to generate and present him with their own research questions. As the proposed research is part of a much larger study, the Spatial History Project, the students will also have a unique opportunity to collaborate with other advanced researchers and professional staff who are also exploring new historical methodologies, visual analysis, and ways to represent the relationships between time and space. The Spatial History Lab staff will provide technical guidance and support for optimizing use of the aforementioned computing programs to best suit project needs.

The three students (Samantha Azure, Evgenia Shnayder, and John Watson) who will be working on this project have all worked with Richard White (faculty mentor) for at least one prior

term. Providing them with the opportunity to continue to be involved in this research is an obvious fit due to their familiarity with the project data and processes (both technical and conceptual). Existing relationships between the students and faculty mentor also help facilitate clear communication essential to the success of this collaborative process. Most importantly, having invested significant energy to acquiring, organizing, and digitizing the project's data, the students are eager to participate in the next stage of this project where this plentitude of information will be used to create a series of visualizations that prompt the development and exploration of research questions. This grant will allow them to deepen their involvement with the project and contribute in ways that we expect to substantively influence the research outcomes.

So far students funded by previous VPUE Faculty Grants utilized to support this project have gathered and digitized historic maps and data from California Commissioners Reports, Poor's Manuals of Railroads, and historic atlases from Stanford's Branner Library, libraries at UC Berkeley Library and CSU Chico, and the California State Archives in Sacramento. The students have also benefited from the project's collaborative relationships that extend beyond Stanford, such as one with railroad scholars at the University of Nebraska in Lincoln. Initial analyses of the digitized data have begun to reveal a series of significant patterns including findings of how shipping rates in Northern California were manipulated to give preferential treatment to those shipping in to San Francisco. Future project tasks will include additional visualizations that reveal other similar sorts of patterns and anomalies in the data.

During Summer 2008, students funded by Richard White's previous VPUE Faculty Grant participated in a weekly, lunch time, research seminar with faculty and undergraduate researchers affiliated with the Bill Lane Center for the West, the parent organization of the Spatial History Lab. At least once during the summer, each student made a formal presentation about his or her research and took questions from the audience. The seminar series also provided students with the opportunity to hear faculty present research and discuss the research process. The Bill Lane Center plans to run the summer seminar again during the summer of 2009.

Following their participation in the project this summer, the Spatial History Lab staff interviewed the students to gather their input on how to improve their research experiences. The students expressed that they highly valued the support, trust, respect, and level of engagement of their faculty mentor. Frequent interaction and open communication was key to clarifying project goals and resolving research challenges. The students also appreciated working in an environment that supported and encouraged developing new technical skills. In addition to continuing these positive attributes, the students' future experiences with this project will be improved by continuing to request and address their feedback, and ensure that they are being given ample opportunity to develop skills of interest as well as experiment with their own research questions.

A VPUE Faculty Grant for Undergraduate Research would provide Samantha Azure, Evgenia Shnyder, and John Watson with a unique opportunity to work alongside an accomplished scholar, developing essential technical and conceptual skills that will put them in good standing to conduct their own research projects in the future.

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Student Stipends or hourly wages:

1 student working 10 hours/week (Winter and Spring Quarters)
1 student working 10 hours/week (Winter and Spring Quarters)
1 student working 10 hours/week (Winter and Spring Quarters)
1 student full time - Summer
1 student full time - Summer

Requested
2600.00
2600.00
2600.00
5200.00
5200.00
18200

Subtotal

Materials cost for supplies:

Subtotal

Student Travel Expenses:

Subtotal

Other:

Subtotal

Grand Subtotal

18200

Matching Funds:

Total Matching Funds

Total Requested

18200

Budget Notes: