

THE WAGNER FREE INSTITUTE OF SCIENCE

Fall 2018

HISTORY OF SCIENCE SERIES

A History of Cartography: From Antiquity to Longitude

Professor Darin Hayton

This course meets at the **Independence Branch of the Free Library**, located at 18 South 7th Street (between Market and Chestnut Streets), Philadelphia, PA

Dates: 6 Wednesdays, September 26 - November 7, 2018

Time: Classes meet from 6:15 to 7:45 PM

No pre-registration necessary. Register by completing a registration form at the class.

Course Description

When we interact with maps through our in-dash GPS systems or on Google Earth on our phones, we rarely think about how maps actually work. Maps are complicated and confusing instruments that function on many levels, silently shaping how we view the world. Rather than consider maps as more or less accurate depictions of the earth or tools to guide us to a destination, this course will examine maps as the products of particular cultures and societies to answer specific questions or address specific needs. As questions and needs changed, cartographers adapted their maps accordingly. The class will look at some of the narrative, political and religious aspects of maps. It will also work through the often sophisticated mathematics and geographic knowledge that undergirded cartographic projects from antiquity through the 18th century, when people finally solved the longitude problem.

Course Schedule – lectures begin at 6:15 PM

1. Wednesday, September 26, 2018 - Ancient Efforts to Map The World

The ancient civilizations around the Mediterranean not only mapped the celestial and terrestrial worlds that were important to them, they also established the theoretical (mathematical) foundations that undergird cartography to the present. We will look first at these early efforts to map the earth and sky and then work through some of the ancient calculations to appreciate their accomplishments.

2. Wednesday, October 3, 2018 - Medieval Islamic Maps

Medieval Islamic mapmakers developed sophisticated mathematical techniques for determining geographic locations and for identifying your place on the globe. They also produced detailed regional and world maps. Many of these efforts were related to their religious practice. We will investigate their mathematical advances for finding your place on earth and the maps and instruments they produced to help chart their place in the world.

3. Wednesday, October 10, 2018 - Medieval Latin World Maps and Portolan Charts

Maps produced during the early Latin middle ages look unfamiliar to modern viewers, with their strange orientation, often-crude depictions of the landmasses, and the sea that seems to surround the earth. We tend to misunderstand those maps because we assume they were meant to function as ours do. We will try to understand how early medieval maps (T-O maps and mappae mundi) functioned, what sort of information they conveyed, and how they relate to larger narrative questions that made sense to people in the middle ages.

NO CLASS – Wednesday, October 17, 2018

4. Wednesday, October 24, 2018 - Byzantine Mapping Projects

The Byzantine world stretches a millennium from late antiquity until the 15th century and traded with civilizations throughout the known world. Byzantine scholars also enjoyed unproblematic access to ancient Greek science. Yet those same scholars seemed uninterested in producing maps. We will look at how the Byzantine world used their knowledge of the earth and their use (or not) of Ptolemy's Geography, where they produced maps, and what they expected those maps to do.

5. Wednesday, October 31, 2018 - Navigation and the Discovery of the New World

In the later Middle Ages the point of maps shifted from representing narrative or historical spaces and, increasingly but not solely, represented navigational and geographic spaces. Portolan charts are perhaps the clearest example of maps designed as navigational instruments. Mapmakers also developed various new and they hoped better systems of projecting the globe onto a surface. New World maps, while not simply navigational tools, sought to depict what was there, what navigators and explorers had encountered. We will explore these new, "realistic" maps, to see how they continued to reflect fantasies about these New World spaces and the peoples inhabiting them.

6. Wednesday, November 7, 2018 - Longitude

Longitude had long been a problem. While finding your longitude on land was a relatively straightforward exercise, finding your longitude while at sea was impossible. We will look at the techniques used to determine longitude on land and why they did not work for sea travel, early ideas about how to develop methods for finding your longitude at sea (including using occult powders to heal a dog—stay tuned), and the method that finally enabled sailors to determine their location.

Wednesday, November 14, 2018 - make-up class (if needed)

Suggested Readings

Readings for this course will be available for download online. Details will be provided at the class.

About the Professor

Dr. Darin Hayton is a historian of science whose research focuses on the creation and dissemination of scientific knowledge, especially the science of the stars (astrology and astronomy) in pre-Modern Europe and the late Byzantine Empire. He recently published a book on the history of early modern astronomy, *The Crown and the Cosmos. Astrology and the Politics of Maximilian I*. He is an Associate Professor of the history of science and Chair of the History Department at Haverford College. Learn more about him and his work at <http://dhayton.haverford.edu>.

The course is presented by the Wagner Free Institute of Science. Founded in 1855, the Wagner is dedicated to providing free science education. All classes are free and open to the public. To attend, please complete a registration form at the class. For more information about the Wagner Free Institute of Science and its programs, please visit www.wagnerfreeinstitute.org or call 215-763-6529.
