History of Cartography As Taught at UCSB †

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As background to my course at the University of California, Santa Barbara, I should inform you that my training is in geographical cartography, and my specialties are the subjects of map projections, mathematical and computer cartography, and analytical geographical modeling. I teach courses in all of these areas. My language competence is limited to western tongues.

During a ten week quarter I present twenty-five lectures in a once-a-year course called "History of Cartography". While at the University of Michigan I had the good fortune to audit the comparable course offered by the late Professor George Kish, and I use some slides from his set in my course. Beyond Professor Kish's lectures I have done considerable reading in the field, augmenting the slides from many books, and collecting facsimiles. I was able to spend two sabbatical periods traveling to over a dozen major libraries in the United States and Europe examining original manuscript maps. Our own university library subscribes to the major journals in the field, and the somewhat larger library at UCLA is not far distant. With these resources, and the increasingly available - as pointed out by Ruggles (1989) - books, exhibition catalogues, journal publications, facsimiles, and even video tapes it is possible to assemble sufficient materials for a creditable undergraduate course. There is to date no suitable (in the North American sense) textbook, and I produce an annual syllabus with readings, bibliography, glossary, gazetteer, sample maps, time lines, etc., as do many others teaching in the field. The course enrolls circa 35 students, 80% of whom are geography majors. The enrollment is enhanced by the fact that the course satisfies both an undergraduate writing requirement - I require book reports and a term paper - and the undergraduate requirement in world cultures. Without these inducements, which have positive and negative benefits, the enrollment would undoubtedly be more modest. Previous cartographic courses are not a prerequisite.

The history of cartography can be approached from several, overlapping, points of view, as detailed in the first table. My own approach is largely chronological, and a sample sequence of lectures is given in the second table. This clearly fits into the "Normal" category in Ruggles' taxonomy. Nevertheless, given my background and interests, some topics are emphasized more than others. I will try to give you an inkling of these.

Cartometric analysis of old maps has become relatively easy with the development of computers. Digitization of "landmark" coordinates, and their identification in modern terms is the normal prerequisite here. This can be used to solve the long-standing problem of estimating the scale of an old map (see appendix). The accuracy of tables given in old manuscripts also present interesting challenges. As an example consider the maps which might have been made by the Kosterneuburg monks in the 1400's using information comparable to that in the Brussels Distance Table. This can be used as a nice problem for students, as illustrated in the appendix. For California students the table needs to be converted into contemporary units, since they neither read Latin nor have any idea where the towns mentioned in the manuscript might be. One is then also led to a nice treatment of the history of surveying, plane tableing, triangulation, and the development of error analysis and adjustment. Ptolemy's *Geographia*, recently available again in English translation but also in many facsimiles, is well suited to detailed analysis since he already gives latitudes and longitudes; all one needs to do (sic!) is to identify the places. I

consider it somewhat of a cartographic scandal that 500 years of scholarship has not yielded better results in this regard. Another task made simpler by the development of computers is the estimation of the distortion on Portolan charts and medieval maps. What can be done in this area is illustrated in the viewgraphs. Or, given a birds eye view, the modern photogrammetrist might wish to calculate the coordinates in space above the earth which best represent the hypothetical viewing point, and the extent to which the depiction satisfies the laws of perspective.

An issue raised here is the extent to which students of the history of cartography should have training in cartography, especially in the analytical aspects, and whether they should be computer literate. If the answer to the latter question is yes, with what kinds of cartographic software should they have a familiarity - word processing does not count as cartographic software nor computer literacy. Should student exercises involve map analysis using mathematics and calculation?

One of the themes that I like to bring out is the usefulness, and appropriateness, of old maps for the study of the development of concepts in physical and urban geography. The quickest way to do this is to look at the depiction of mountains, and to a lesser extent rivers, over time. The geomorphological understanding was simply not there. In this regard one can contrast the paintings of Leonardo da Vinci with contemporary map makers works. Having brought in an artist, one can also contrast a view of Amsterdam by Jan Micker with two of the same city by Matthias Meran and by Rembrandt from the year 1640. To illustrate the growth of cities a set of slides of models from the City of Vienna Museum fit nicely into historical maps of the same city. And castles on old maps can be compared with the same on modern postcards. This provides *prima facie* graphic evidence of the veracity of many facets of old maps for students. Of course these are only a few examples from many possibilities.

An attractive aspect of the history of cartography is that it can involve themes from art and mathematics, geography and myth, culture and science; there's a bit here for everyone.

Citations:

R. Ruggles, "The Teaching of the History of. Cartography", *International Cartographic Association report*, Budapest, 1989, 28pp.

Pelletier, Ormeling, Scharfe, Kadmon, Kretsclimer, Woodward, & Hameleers, 'Teaching the History of Cartography', *Seminar Proceedings*, Uppsala, 1991, S2pp.

W. Tobler, "Bidimensional Regression", *Geographical Analysis*, 26: 186-212, 1994.

† Pages 9-22 of F. Ormeling, & Y. Bouma, eds., *Seminar on the Teaching of the History of Cartography*, ICA Commission on the History of Cartography, Education and Training, University of Utrecht.

The mathematical appendix is not given here. It was badly mauled in the foregoing publication. It is available from the author under the title "The Scale Problem for Old Maps".

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HOW TO APPROACH THE TOPIC

History of Art - Geographic illustration; 'coffee table books; Lots of Slides, History of Science

Cumulative development (?) - Evolution of topographic, thematic maps;

History of Exploration - Voyages of discovery; Explorers maps

Nationalistically - History of map making in my country, region

The view from today - evaluation of accuracy, content

The view from yesterday - in the context of the times Maps as symbols, not to be taken literally

How to identify - The hobby market, collectors, investors (e.g. stamps). Watermarks, paper, printing techniques, styles of individuals

G. Ritzlin, ed., 1980, "World Directory of Dealers in Antiquarian Maps", Chicago, Chicago Map Society
Study dates back less than 200 years

Exotic (foreign) terms, impossible-to-pronounce names

Languages needed - Latin, ancient Greek, English, French, German, Italian, Spanish, Russian, Chinese, Japanese, Arabic, Portuguese, Babylonian Cuneiform, Egyptian hieroglyphics, etc.

Some Libraries to visit if you have a chance [GA 192/193]

J. Walter et al, eds., 1986, "World Directory of Map Collections", Munich, Saur [GA 192 W67]
D. Carrington, & R. Stephenson, eds., 1984, "Map Collections in the United States and Canada", 4th ed., Special libraries Assn.

Italy: Naples, Florence (Archivo di Stati, Laurenziana, Science) Rome (Vatican)
France: Biblioteque Nationale (Paris)
Austria: National Bibliotek (Vienna)
Germany: Munich; Nuremberg (Germanisches National Museum), Berlin
UK: British Library (London)
China: Xian (County Museum)
USA: Newberry (Chicago); LC (Washington); Huntington (Pasadena) AGS (Milwaukee); UCLA; Yale (Rare Book - Beinike); Clements (Ann Arbor), Brown (Minnesota); UCSB (Special Collections); UCLA

Exhibits and Facsimilies