

The Exploratory Essays Initiative: Background and Overview

Mark Monmonier and David Woodward

This special issue of *Cartography and Geographic Information Science (CaGIS)* arises out of planning for Volume Six (Cartography in the Twentieth Century) of the *History of Cartography*, a multi-volume series that has performed a dual role as a reference work and interpretive narrative for the history of mapmaking in all periods and cultures. When the History of Cartography Project was conceived in 1977, the original plan was for four volumes to cover the subject to 1900, the traditional cutoff date for cartographers and map historians. This plan was sharply criticized by one of our editorial advisers, Walter W. Ristow, then chief of the Geography and Map Division of the Library of Congress, who pointed out that the story would stop before the most prolific cartographic century. The history of twentieth-century cartography was added to the plans, and in December 1984, Brian Harley and David Woodward invited Mark Monmonier to be a co-editor for Volume 6. A detailed outline for the volume was drafted in 1985, but plans were put on hold as work on other volumes mushroomed. We eventually modified the outline for discussion at a three-day conference on issues and events in twentieth-century cartography held at the Library of Congress on October 9-11, 1997. The conference was attended by thirty-four scholars, practitioners, and institutional sponsors, with support from the National Endowment for the Humanities.

The challenges of writing a twentieth-century history of cartography are daunting. The sheer amount of material is enormous, scattered, often informal and inaccessible, and even secret. In the closing decades of the century, cartographic technology changed so rapidly that it is difficult to gain perspective on what happened. The institutional histories that are so central to the century—particularly of military, social, and environmental government agencies—are fraught with selective reporting and political posturing. Since far more artifacts, agencies, and techniques need to be discussed for the twentieth century than for,

say, the Renaissance, we decided a year ago that a large multi-level interpretive encyclopedia was logistically a far more straightforward method to complete Volume Six. A departure from earlier volumes in the series, which consisted of long interpretive essays, the encyclopedic format—adopted for Volumes Four, Five, and Six—is fully consistent with the *History's* preeminent role as a scholarly reference of first resort.

The ten essays in this special issue of *CaGIS* represent the culmination of the three-year Exploratory Essays Initiative sponsored by the National Science Foundation. Proposed to NSF in January 1999, the project was our response to the rejection of a longer-term, inherently more expensive plan that would have advanced Volume Six two-thirds of the way to completion—impressive perhaps but insufficiently complete to warrant support. Understandably, the National Science Foundation wanted a tangible product at the end of the funding period. So we overhauled the proposal to address a serious impediment to Volume Six: the shortage of researchers working in the history of twentieth-century cartography, often considered too recent to be “history” and too old to be of interest to anyone focusing on cutting-edge techniques in mapmaking and GIS. The Initiative was devised as a comprehensive plan to encourage research in this area by recruiting established or promising scholars with interests related to cartography and mapping, and to offer guidance on historiography and sources. In addition to supporting communications and travel, the grant included substantial honoraria to partly offset authors' research expenses and opportunity costs.

We began by recruiting a board of distinguished advisors and requesting short proposals from prospective participants. Our solicitation, distributed worldwide through listservs, newsletters, and periodicals in the history of science and the history of technology as well as in cartography and geography, resulted in over two dozen responses from qualified scholars, more than twice the number we

could support. Board members were enormously helpful in selecting participants, reshaping outlines, and sharing insights with authors at various stages of the project, including our extensive peer review this spring.

Authors and board members attended a three-day meeting in Chicago in June 2000 where the editors described the broader goals of the History of Cartography Project, the unique challenges and opportunities of historical research focused on cartography in the twentieth century, and the specific objectives and requirements of the Exploratory Essays Initiative, including a requirement that authors deposit a copy of their research materials with the Project. Authors described the key research questions and scope of their individual essays, and board members provided feedback at the meeting itself as well as during the following fall, when we circulated detailed outlines provided by the authors. In addition, editors and some board members provided additional commentary on penultimate drafts submitted in fall 2001.

Our authors presented their work orally in a two-day symposium in Los Angeles at the April 2002 annual meeting of the Association of American Geographers. Board members attended to offer authors additional feedback as well as meet with the editors the day after the Symposium to discuss the exploratory essays and the encyclopedic strategy for Volume Six. Reviewers were recruited during February, and final manuscripts went to *CaGIS* at the end of July, fully vetted and on time, as promised in our 1999 research plan. The ten authors in this special issue come from varied backgrounds. We discuss their contributions in the order in which they presented their papers at the Los Angeles meeting and in which they are published in this issue.

Karen Cook is a historian of cartography with a long interest in the technical history of cartography. Her research for the Exploratory Essays Initiative involved studying the association between photography and cartography in all stages of the cartographic process, from the late nineteenth century to the digital revolution in the 1970s. Here she focuses only on the photomechanical production techniques that superseded manual techniques in the nineteenth century until they too were superseded by electronic pre-press methods in the last quarter of the twentieth century. The methods shifted control from the engraver and printer over to the cartographer and changed the appearance of maps for the user.

Peter Collier, a geographer well versed in the early history of photogrammetry, particularly

British mapping in the Middle East during World War I, offers a broad assessment of the complementary and sometimes competing roles of land survey and aerial mapping during the first four decades of the twentieth century. Rooted in archival research, his essay examines the transfer of aerial survey technology between military and civilian users and diverse efforts to overcome technological impediments. Especially valuable are Collier's insights on the promotional and retarding influences of bureaucracy and personality.

Jim Akerman's essay on American promotional road mapping for oil companies builds on his research on the American road map stimulated by his position at the Newberry Library, which houses the archives of Rand McNally and other commercial mapmaking companies. Using his background as a geographer, Akerman explores the economics and aesthetic implications of the "free map," a situation that still exists to some extent in state-sponsored highway maps and the Internet.

Pat McHaffie, a geographer who once coordinated Kentucky's State Topographic Mapping Program with the U.S. Geological Survey, examines the acquisition and early use of computer technology by the USGS Topographic Division in the 1950s, 1960s, and early 1970s. Relying on oral histories supplemented by bibliographic sources, McHaffie explores the enormous change during that period in the organization of the USGS cartographic workforce and the relationship of computer-assisted mapping to the wider effects of automation on business, industry, and society.

Mike Heffernan is a historical geographer with an interest in the role of maps in geopolitical strategy. His essay focuses on the mapmaking agencies developed during World War I, using case studies of three cities: London, Paris, and New York, comparing archival sources in the Royal Geographical Society, the Société de Géographie de Paris, and the American Geographical Society. His work provides a model that could be extended to the Axis powers and smaller countries worldwide during this period.

Alastair Pearson, a geographer with expertise in the history of military mapping, addresses a specific cartographic product, the three-dimensional model, and its development during World War II as part of his wider research on the history of relief representation in the twentieth century. Based on archival sources and oral history, his essay examines the construction and use of models by the American and British military in the European and North African theaters of the war and the importance of cartographic representations in

military planning. In addition to placing wartime modeling in a broader historical context, Pearson explores fundamental links between cartography and art, as well as the deployment of artists as model makers.

Alexey Postnikov draws on his experience as a surveyor and his intimate familiarity with the Geodetic and Cartographic section of the Russian State Archives to weave a fascinating story of the double standard between Russian official cartography and the maps made available to civilians. His essay provides a telling counterpoint to John Cloud's treatment of the American experience during the Cold War.

John Cloud expands his dissertation research on the early development of United States spy satellites in the early 1960s under the Corona program. His focus here is the precise geodetic framework required for intercontinental ballistic missiles. Relying on oral histories and archival materials, Cloud explores links between German cartographic records captured at the end of World War II; satellite geodesy and image intelligence during the Cold War; little known relations between civilian mapping and the intelligence community; and the paradoxical reporting of technical developments in the mapping literature. His interpretation of the roots of GIS in military intelligence, although well argued, is likely to be controversial.

Dan Montello, trained as a cognitive psychologist but recently promoted to full professor in the University of California at Santa Barbara's geography department, where he has taught since 1992, leverages his interdisciplinary experience in a penetrating exploration of cognitive map-design research during the last century. Using oral histories and a close reading of published research, he traces the emergence and evolution of an important experimental paradigm. In probing the theoretical development and impact of this line of academic research and its links to related developments in psychology, Montello's essay complements Robert and Susanna McMaster's historical analysis of academic programs and research thrusts in American cartography.

Robert and Susanna McMaster, both at the University of Minnesota, present a portion of their research on the history of academic cartography, here focusing on the teaching of thematic cartography in the United States. They conclude that analytical cartography emerged as a quintessential American contribution to academic cartography in the last third of the century, springing out of academic geography's quantitative revolution in the 1960s and prefiguring the onset of GIS. Like

many of our authors, the McMasters gathered far more information than their exploratory essay could accommodate and are thinking seriously of expanding their investigation into a book.

Plans to continue with Volume Six of the *History of Cartography* series have suffered a temporary setback. In January 2002 we sent the National Science Foundation a proposal that would have moved Volume Six forward into the publication stage over a five-year period. Our proposal, which included a full-time managing editor to assist with developing a comprehensive list of subject entries, recruiting authors, and tracking and editing encyclopedia articles, was not successful. The Geography and Regional Science Program balked at supporting a large editorial project, while the Science and Technology Studies Program, which supports some editorial projects and ranked our proposal as "Category I—Must Fund," had concerns over parts of the proposal and its budget and strongly encouraged us to resubmit for the February 2003 deadline. Despite this setback, we are confident that we will attract the corporate and individual support for this project to match government sources of funding and allow the series to be completed. In the meantime, we will continue to develop lists of subject entries for Volume Six and to identify authors to write them. We fully anticipate the participation of many of the authors who have written for this issue and have gathered research materials suitable for a much wider scope of subjects than it was possible to include here.

Mark Monmonier
David Woodward
Guest editors

**Exploratory Essays:
History of Cartography in the Twentieth
Century**
Advisory Board

Christopher Board
London School of Economics

Ulrich Freitag
University of Berlin-West

Ingrid Kretschmer
Institut für Geographie der Universität Wien

Joel L. Morrison
Ohio State University

Ferjan Ormeling
Utrecht University

D.R. Fraser Taylor
Carleton University

Waldo Tobler
University of California at Santa Barbara