NACIS XIX

CONFERENCE PROGRAM

The Nineteenth Annual Meeting of the **North American Cartographic Information Society**

in **Williamsburg, Virginia**

October 20-23, 1999

Radisson Fort Magruder Inn & Conference Center

Welcome!

The Program and the Local Arrangements Committees welcome you to NACIS XIX. This year's program offers a record number of exhibits, posters, papers, workshops, and social events that we believe you will find both diverse and interesting. We look forward to getting to know each of you during the next several days.

Williamsburg is in many ways an ideal venue for a cartography conference. Appropriately, historical mapping is a major component of the program, including an exciting keynote address by Seth Mallios about the archeological excavation of the original Jamestown fort. In the program you also will find numerous papers about park and tourist mapping. As an employee of the National Park Service who deals daily in producing these kinds of maps, I am especially pleased about this fact.

Williamsburg's early residents undoubtedly had grandiose visions for the future, but, they could not have predicted that their town would become an icon for historic preservation-the concept simply did not exist at the time. Thus this former colonial capital is symbolic of the kinds of unpredictable change each of us deals with as we go about our work. To help you more accurately divine the future, the undaunted NACIS presenters will be examining leading-edge technology, mapping challenges, and new ways of thinking about spatial relationships.

Everyone should take time to explore Williamsburg. The Fort Magruder Inn is a mile and one-half from the center of Colonial Williamsburg and an abundance of restaurants, taverns, and shops. Tours have not been scheduled; however, private options are available. Historical map buffs should consider the "Mapping of Virginia" exhibit in Richmond, organized by, presenter Richard Stephenson. Information about the exhibit is available at the NACIS registration desk. Tours of the Federal mapping agencies are another possibility after the meeting ends. Many Federal employees will be at the meeting, and Washington, D.C. is only 2.5 hours away by car.

Special thanks go out to Jim Anderson, Sona Andrews, Chris Baruth, Cindy Brewer, Susan Peschel, Don Zeigler and many others who helped me organize the program. Your tactful guidance always materialized when I needed it most. Lastly, my heartfelt thanks goes to the 60 individuals who volunteered to participate in the program. You have made the meeting the resounding success that it is!

Tom Patterson
Vice President and Program Chair

"Please take the time to welcome first-time NACIS conference attendees. They can be identified by the globe stickers on their name tag."

The first colony to speak for American independence did it with the unanimous voices of the gentlemen who gathered May 15, 1776, in the tall brick building that dominated the east end of Williamsburg. To blunt the threat of fire, the Capitol was built without fireplaces. Candles and pipes were barred. But in 1723 the secretary complained that the building was damp, so chimneys were added for fireplaces to help keep the Capitol dry. Between 7 and 8 a.m. on January 30, 1747, someone noticed that the building was burning. When the flames died, only some walls and the foundation remained. In this building Patrick Henry delivered his Caesar-Brutus speech against the Stamp Act on May 29, 1765. Henry, George Washington, George Mason, George Wythe, Richard Henry Lee, Jefferson, and others played their parts in the legislative wars that ended in revolution. There were lighter moments. The Capitol was the scene of dances, suppers, and other social events. But as fighting erupted in the North, the building rang to the debates over Mason's Declaration of Rights, his Virginia constitution, and Jefferson's first attempt at a bill for religious freedom. The building was last used as a capitol on December 24, 1779, when the General Assembly adjourned to reconvene May 1 at the new capital, Richmond.

The Capitol

Images and text regarding historic structures were collected from the Colonial Williamsburg Foundation, Copyright © 1999.

CONFERENCE SCHEDULE

WEDNESDAY, OCTOBER 20

2:00 p.m. - 7:30 p.m.
REGISTRATION

3:00 p.m. - 5:30 p.m.
NACIS BOARD MEETING – Abraham Lincoln

7:30 p.m. - 9:00 p.m.
OPENING SESSION – General Hill

James Fort Rediscovery
Seth Mallios, Archaeologist, Jamestown Discovery Project

9:00 p.m. - 11:00 p.m.
POSTER SESSION/ EXHIBITS/RECEPTION – Petersburg Hall

Current and Recently Completed Projects
Mark Wherley
Deasy GeoGraphics
Department of Geography
Pennsylvania State University
wherley@essc.psu.edu

Relief Art and Published Maps
John Bonner
National Geographic Society
bonner@intrepid.net

Hurricane Mitch
James Fulmer
jfulmer@usgs.gov

USGS Earth Science Information Center
Diane Brittle, Reston ESIC
debrittle@usgs.gov

Historical CIA Produced Maps
Jerry Fields and Doug Stiles
dougs@ucia.go

U.S. National Park Service
Lori Simmons
Lori_Simmons@nps.gov

Recent Work by the Cartography Research Laboratory
Jeff McMichael
Department of Anthropology & Geography
Georgia State University
JMcMichael@gsu.edu

Avenza Software Inc. (*www.avenza.com*)
Developers of MAPublisher & pdfPLUS
Susan Muleme
susan@avenza.com

Managing a Statewide Distributed Spatial Metadata Library: the MAGIC Experience
The collaborators for this posters will be John Gwinnell, Scott McEathron and Patrick McGlamery.
libadm43@uconnvm.uconn.edu

You Be The Judge! The Question of Creativity in Cartographic Design as it Relates to the Barbara Petchenik International Children's Map Design Competition
Henry W. Castner
Co-Chair, ICA Commission on Cartography and Children
hcastner@mindspring.com

Mountain High Maps and MapRender3D
Digital Wisdom Inc.
David Broad
david@digiwis.com

Recent Lab Work: World Regional Geography—College Text by Dr. Lydia Pulsipher
Will Fontanez
wfontanez@utk.edu
Unversity of Tennessee, Knoxville

Parallel Atlas, 38 00N: A Transboundary Cartography for Korea's Evolving Militarized Zone (DMZ)
Deborah Natsios
Natsios Young Architects
dn@pipeline.com

Excavations at Cetamura del Chianti
Peter Krafft
Florida Resources and Environmental Analysis Center
Florida State University
pkrafft@mailer.fsu.edu

Chicago Metro Bike Map—a Technical Challenge
Dennis McClendon
Chicago Cartographics
dmc@mailhost.ais.net

U.S. Census Bureau, TIGER Mapping Branch
Andy McIntire
amcintire@geo.census.gov

"Visualizing GPS Error Estimates"
Patrick Guiberson
Department of Geography
University of Nebraska-Lincoln
cubbynboone@earthlink.net

Shaded Relief Map Created for the Purpose of Explaining the Origin of a Peculiar Class of Landform Called Paha.
This project is in collaboration with Dr. Don Johnson (Geography, UIUC) and
Dr. Don Luman (Illinois State Geological Survey).
Jane Domier
Cartographer
University of Illinois - Urbana-Champaign
j-domier@uiuc.edu

Academic Cartographic Education
James F. Fryman
Bonnie Sines
Geography Department
University of Northern Iowa
James.Fryman@uni.edu

Maps of Various Restored Buildings in Nauvoo, Illinois
Justin Bingham
University of Illinois at Urbana-Champaign
jbingham@uiuc.edu

Creative Publishing Group
US WEST Dex
Dale Sanderson
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THURSDAY, OCTOBER 21

8:00 a.m. - 3:00 p.m.
POSTERS AND EXHIBITS – Petersburg Hall

8:00 a.m. - 10:00 a.m.
Session A: HISTORICAL CARTOGRAPHY I – General McClellan
Chair: Chris Baruth, American Geographic Society Collection

"A Countrie so Faire" The Mapping of Colonial Virginia
Richard Stephenson, U.S. Library of Congress (Retired)
From Battle Plans to Tourist Maps: The Role of the Federal Government in Preserving the Cartographic Heritage of the Williamsburg-Yorktown Area
Ronald Grim, U.S. Library of Congress
The Promotional Cartography of Captain John Smith
John H. Long, The Newberry Library, Chicago

8:30 a.m. - 10:00 a.m.
Session B: CARTOGRAPHIC METHOD AND THEORY – General Emory
Chair: Carolyn Weiss, Statistics Canada

Visual Perception of Oriented Point Symbols for Mapping
Maureen Ann Kelley, San Jose State University
Color Schemes for Visualizing Climatological and Other Continuous Data
Aileen R. Buckley, Patrick J. Bartlein, and Adam Light, University of Oregon
Feeling it Out: The Use of Haptic Visualization for Exploratory Geographical Analysis
Amy L. Griffin, Department of Geography, Pennsylvania State University

10:30 a.m. - Noon
Session C: HISTORICAL CARTOGRAPHY II – General McClellan
Chair: I. Ren Vasiliev, SUNY Geneseo

Out of bounds, Mapping Over the Edge — A Look at the English View of the Middle Atlantic Colonies
Alice C. Hudson, Map Division, NYPL
Where You Are Is Where You Are Not: Mapping the American Civil War
Earl B. McElfresh, McElfresh Map Co.
Colonial Maps and GIS: Creating a Database for the Guilford Courthouse National Military Park
Roy Stine, University of North Carolina Greensboro

Session D: DRAWING SOFTWARE SHOOT-OUT: ADOBE ILLUSTRATOR vs. CORELDRAW vs. MACROMEDIA FREEHAND – General Emory

Chair: Tom Patterson, U.S. National Park Service
Panel: Greg Chu, University of Wisconsin-La Crosse
Richard Furno, Washington Post
Dave Nelson, Mapping Services

Noon - 1:30 p.m.
LUNCHEON AND ANNUAL BUSINESS MEETING – General Hill

1:45 p.m. - 3:15 p.m.
Session E: PANEL DISCUSSION: CARTOGRAPHIC AND GIS EDUCATION, PREPARING STUDENTS FOR THE WORKFORCE – General McClellan

Chair: Susan N. Muleme, Avenza, Inc.
Panel: Tanya Allison, Montgomery College
Jim Meacham, University of Oregon
Charles Rader, University of Wisconsin-River Falls
Charlie Frye, ESRI
Ed Easton, Magellan Geographics
Brian Schmidt, Macromedia, Inc.
Ken Wylie, Adobe Systems, Inc.

Session F: UNDERSTANDING MAPS AND DATA – General Emory
Chair: Gordon Kennedy, Washington State Department of Transportation

The Use of Grid Cell Maps in School Demography
Richard Lycan, Portland State University
Results and Experiences of Using Focus Groups to Evaluate the U-Boat Narrative: A Data Exploration System for the U-Boat War 1939-1945
Fritz C. Kessler, University of Kansas
Re-visiting the Problems of Cartographic Design for Route-based Mapping
Gordon Kennedy, Washington State Department of Transportation

Session G: TERRAIN PRESENTATION PRACTICUM – General Smith
Chair: Ev Wingert, University of Hawaii and Pacific Mapping

MapRender3D Pro from Digital Wisdom, Inc.
David Broad, Digital Wisdom, Inc.
Relief Presentation at The National Geographic Society: A Digital Demonstration
John Bonner, National Geographic Society

3:30 p.m. - 5:00 p.m.

    Session H: PARK AND TOURIST MAPPING – General Emory
    Chair: Elisabeth Nelson, San Diego State University

    A Brief History of National Park Service Visitor Maps
    Nancy Haack, U.S. National Park Service
    The Power of Maps In Resource Management Decision-Making
    Jean E. McKendry, University of Idaho Cooperative Park Studies Unit and
    U.S. National Park Service Social Science Program
    *Tourism Maps and the Amish: Technological Discrepancies in Lancaster
    County*
    Alison E. Philpotts, Shippensburg University

    Session I: UNIVERSITY ACTIVITIES – General McClellan
    Chair: James Meacham, University of Oregon

    Introductory Cartography Reconfigured
    Charles Rader, University of Wisconsin-River Falls
    *The Colorado Landscape Project: Reflections from the Cartography/GIS and
    Classroom/Library Interfaces*
    Karen S. Cook and George F. McCleary, University of Kansas
    *Development and Maintenance of the University of Oregon's Campus
    Mapping Program; Integrating Map Publishing, GIS, Facilities Mapping,
    and Architectural Building Floor Plans*
    James E. Meacham and Andrea C. Ball, Department of Geography, University
    of Oregon

7:30 p.m. - 9:00 p.m.

    *CARTOGRAPHIC CONVERSATIONS: WHAT CAN WE LEARN FROM
    EUROPEAN CARTOGRAPHY? – Hospitality Suite*
    Hosted by Greg Chu and Mike Peterson

FRIDAY, OCTOBER 22

8:00 a.m. - 10:00 a.m.

    *Session J: EARTH SCIENCE INFORMATION CENTER (ESIC) –
    General McClellan*
    Chair: James R. Anderson, Florida State University

    Just Ask Us
    Diane Brittle, U.S. Geological Survey, Reston, VA

On-line and Outreach: the Delaware Geological Survey Earth Science Information Center in the New Millennium
William S. Schenck, Delaware Geological Survey, University of Delaware
National Datasets Incorporating the National Spatial Data Infrastructure Framework Criteria: The National Hydrography Dataset and the National Elevation Database
John C. Fouke, U.S. Geological Survey, Rolla, MO
Land Boundary Information System: A Comprehensive Website for the Distribution of Florida Geographic Data
James R. Anderson and Louis Cross, Florida Resources and Environmental Analysis Center, Florida State University

8:30 a.m. - 10:00 a.m.

Session K: PREPARATION AND DISSEMINATION OF GEOGRAPHIC INFORMATION – General Emory
Chair: Sona Andrews, University of Wisconsin-Milwaukee

The History and Development of Online Mapping and Distributed GIS
Jeremy W. Crampton, George Mason University
Map Design for High Volume Automated Mapping at the U.S. Census
Andy McIntire, U.S. Census Bureau
Collaboration as a Method for Design of a User-driven Mapping Design
Byron Moldofsky and Peter Gozdrya, University of Toronto

10:30 a.m. - Noon

Session L: SMALL BUSINESS CARTOGRAPHY ROUNDTABLE, KEEPING UP WITH THE SOFTWARE AND DATA EXPLOSION: EXPERIENCES AND STRATEGIES – General McClellan
Chair: Alex Tait, Equator Graphics, Inc.
Panel: Dennis McClendon, Chicago Cartographics
       Dan Van Dorn, free-lance cartographer
       Tom Patterson, U.S. National Park Service

Session M: ATLASES – General Emory
Chair: James Minton, University of Tennessee-Knoxville

Developing a Socioeconomic Atlas Series for National Parks
Jean E. McKendry, University of Idaho Cooperative Park Studies Unit and U.S. National Park Service Social Science Program
Atlas of Antarctic Research
Cheryl A. Hallam, U.S. Geological Survey

America's Online, Interactive Atlas: The National Atlas of the United States of America
Brigitta A. Urban-Mathieux, U.S. Geological Survey

1:30 p.m. - 3:00 p.m.

Session N: EXPLORING ANIMATION AND 3D – General McClellan
Chair: Mark Harrower, Pennsylvania State University

The Influence of Verbal Commentary on Fly-By Animated Terrain Maps
Keith Rice, University of Wisconsin-Stevens Point
Animated Series to Demonstrate the Distortion of Map Projections
Claudia James, University of Akron
3D Visualizations of the Prehistoric Olduvai Gorge
Hassan S. Hodges and Michael J. Medler, Department of Geography, Rutgers University

Session O: CARTOGRAPHIC CHALLENGES AND CHANGES – General Emory
Chair: Dennis McClendon, Chicago Cartographics

Cartography in a Class Action Suit: Himelrigh v. PPG
Joe Stoll, University of Akron
Producing "Good" Maps when Non-Cartographers Control Design
Trudy A. Suchan, Population Division, U.S. Census Bureau
Cartographic Challenges and Changes at MapQuest.com, Inc.
Dan Etter and Herwig Schutzler, MapQuest.com, Inc.

3:30 - 5:30 p.m.

Session P: FEDERAL AGENCIES – General McClellan
Chair: Megan Kealy, U.S. National Park Service

CIA Cartography: Past, Present, and Future
Jerry Fields and Doug Stiles, U.S. Central Intelligence Agency
Cartographic Information at the Department of State: International Boundaries, Sovereignty, Place Names, and GIS
Leo Dillon, Office of the Geographer and Global Issues, U.S. Department of State
The United States Board on Geographic Names Toponymic Standards for Cartographic Application
Roger L. Payne, USBGN, U.S. Geological Survey

After the French and Indian War began in earnest, the cache of arms and ammunition stored at the Magazine on Market Square grew so large and valuable that more security was in order. The Virginia colony built a high wall around the octagonal repository and, just a few yards to the east, a Guardhouse. A typical story-and-a-half brick building, the Guardhouse contained a small, brick-paved room for the shelter and convenience of the sentries; much as the reconstructed exhibit does today.

The Guardhouse

Session Q: NEW PERSPECTIVES – General Emory
Chair: Ellen White, Michigan State University

Molecules, Metaphors and Maps
Joseph Poracsky, Portland State University
Poems Shaped Like Maps: (Di)Versifying the Teaching of Geography, II
Adele J. Haft, Hunter College: City University of New York
Parallel Atlas, 38 00N: A Transboundary Cartography for Korea's Evolving Demilitarized Zone (DMZ)
Deborah Natsios, Natsios Young Architects, NY, NY
In Maps the Story Unfolds through Space not Time
Steven R. Holloway, Oikos Work Arts, Missoula, MT

3:30 p.m. - 5:00 p.m.
NACIS BOARD MEETING – Abraham Lincoln

6:30 p.m. - 10:00 p.m.
ANNUAL BANQUET – General Hill

Cartographic Perspectives Award Presentation

Student Web Map Contest Awards Presentation

Gateway to the Earth – A Vision for Information Management at the USGS
Speaker: Barbara J. Ryan, Associate Director for Operations, U.S. Geological Survey

SATURDAY, OCTOBER 23

WORKSHOPS

9:00 a.m. - 5:00 p.m.
3D Landscape Visualization with 3DNature's World Construction Set 4.5
Ev Wingert, University of Hawaii and Pacific Mapping

9:00 a.m. - 12:30 p.m.
Animated and Interactive Cartography with Macromedia Director
Mark Harrower, Pennsylvania State University

1:00 p.m. - 5:00 p.m.
Making Web Maps Interactive
Mike Peterson, University of Nebraska-Omaha

All workshops will depart from the NACIS Registration Area

The Public Gaol

Virginia's General Assembly ordered a "substanciall Brick Prison" built in Williamsburg soon after it decided to make the city the colony's new capital. Known as the Public Gaol, the building's construction was authorized by an act of August 1701. Contractor Henry Cary got the job--as he had the Capitol and would the Governor's Palace. He had two cells ready for guests in a building just north of the Capitol on Nicholson Street by May 1704. The word gaol is pronounced "jail." It comes from an Old North French word, gaole, which in turn comes from caveola, a diminutive form of the Latin term cavea, which means cage. Debtors, runaway slaves, and occasionally the mentally ill were sometimes confined in the Gaol. During the Revolution, tories, spies, military prisoners, deserters, and traitors were included in the prisoner inventory.

ABSTRACTS

"A Countrie so Faire" The Mapping of Colonial Virginia
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During the past three years, I have been actively engaged in the "Virginia in Maps Project." This study of the mapping of Virginia undertaken by the Library of Virginia has led to the completion of three major interpretive components: the compilation, editing and soon to be published facsimile atlas entitled Virginia in Maps: Four Centuries of Settlement, Growth, and Development; a major multimedia exhibition of more than 100 maps and related materials presently on display at the Library of Virginia until December 15, 1999; and a scholarly symposium on the mapping of Virginia held in the Library of Virginia's new building on April 23 and 24, 1999, with more than 200 persons in attendance. It has been my privilege to have served as co-editor of the facsimile atlas along with Marianne M. McKee, the Library of Virginia's Map Specialist and Research Archivist.

The project grew out of a generally accepted opinion that Virginia's long and rich history is well-documented in four centuries of public records, books, newspapers, and countless journal articles, but the equally important cartographic record has been largely ignored. Maps form a visual record of Virginia's development showing the changing understanding of the geography of the colony and state through time. While highly valued as historic documents and holding a wide general interest and appeal, there has been no comprehensive atlas until now that reproduces the important maps of the Commonwealth and its parts.

In the time that we have at our disposal today, I would like to present and discuss several of the important manuscript and printed maps of Virginia drawn or published during the colonial period of our history. All are reproduced and described in Virginia in Maps.

The Promotional Cartography of Captain John Smith

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Captain John Smith, famous to most Americans as the soldier of fortune whose leadership saved the Jamestown (Va.) colony when it was on the verge of collapse

and whose own life was saved by the Powhatan princess Pocahontas, also has earned the gratitude of scholars for publishing important early maps of Virginia (1612) and New England (1616). Those maps were founded on observations made either by Smith himself or under his direction, and, for their time, they were remarkably accurate.

Smith aspired (without success) to lead English colony and his primary purpose in creating both maps was to promote colonization of the areas they depicted. Both maps remained in print for about two decades. The Virginia map underwent seven revisions during that time; New England was altered eight times. This much of the history of Smith and his maps is well known, but there is more. Smith's maps, particularly the map of New England, also were designed to promote Smith himself. By examining the maps and the circumstances surrounding the creation and revision of each one, this paper will demonstrate how their primary purpose changed over time from the promotion of colonial settlement to the promotion of Captain John Smith as a professional advocate and authority on colonization in America, sort of a seventeenth-century version of today's celebrity expert/author.

Session B
CARTOGRAPHIC METHOD AND THEORY

Visual Perception of Oriented Point Symbols for Mapping

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The orientation visual variable for point symbols is used for specialized areas such as geologic mapping and can be employed for other types of spatial data as a result of the popularity of geographic information systems and scientific visualization. However, map users are generally not aware of their ability to accurately judge angular measurements. This study addresses how well we judge angled symbols and if there are differences between experienced and inexperienced map users through experimentation using two types of maps. The results correspond to psychophysical research in orientation.

Built in 1718 by the first keeper of Williamsburg's Magazine, John Brush's five-bay, timber framed, story-and-a-half house of hand-split weatherboard stands in modest contrast to its lofty next-door neighbor, the Governor's Palace. But it is not without elegance of its own. Brush, a gunsmith and armorer who died in 1727, left an early example of the fashionable center-passage plan house on the east side of Palace green for his successors to improve upon.

Brush-Everard House

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To display continuous data, such as those used in climatological studies, mapmakers can select from a variety of color schemes. The rainbow color scheme (or full-spectral progression) is often the default color scheme for mapping continuous data in many visualization and GIS software packages. This color scheme can be effective, although it presents special challenges for proper use. Our goal in this paper is to provide clear and concise guidelines for the proper use of the rainbow color scheme, and its variants, for mapping continuous data. We present guidelines for the careful uses of a mixture of both progressive and diverging color schemes to reflect the physical characteristics of the variables being mapped. We apply these color schemes in maps of a variety of climatological variables and evaluate their advantages and disadvantages, and we present alternatives that are equally or more effective than the full-spectral progression.

Feeling it Out: The Use of Haptic Visualization for Exploratory Geographical Analysis

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Visualization is often narrowly defined as the act or process of making something visible. MacEachren and Ganter have argued for an expanded definition of visualization that emphasizes the role of cognitive processes in creating visual representations. Cartographic visualization in this sense requires both identifying patterns and structuring information. This process of pattern identification and structuring is what helps to provide insight in exploratory analysis. Cartographic sensualization is the multisensory counterpart to cartographic visualization. The use of haptic (both tactual and kinesthetic) information for visualizing geographic phenomena has not been well explored due to the difficulty of implementing such a system. However, due to advances in virtual reality technologies, it may soon be possible to implement these variables in a system that creates exploratory Geospatial Virtual Environments (GeoVE). This paper explores those haptic variables that might be used in such representations and develops a haptic variable syntax for the representation of geographic information.

Session C
HISTORICAL CARTOGRAPHY II

Out of bounds, Mapping Over the Edge — A Look at the English View of the Middle Atlantic Colonies

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Mapmakers in their London garrets probably never set foot in the region of the Chesapeake. They depended on earlier works, travelers' notes, ships' logs, and creative cartography. Entranced by these English maps and charts of the East coast, map collector Lawrence H. Slaughter focused on the Middle Atlantic region, where he had lived and worked, and his collection came to The New York Public Library Map Division as a gift from his estate.

An exhibit, "In thy map securely saile," was mounted in 1998-99, highlighting maps from his collection. The exhibit was positively reviewed in the New York Times, and that review, along with the powerful visual effect of these antiquarian maps, brought in continuing visitors over the life of the exhibit. Two books of their impressions and comments provide nuggets for a conversation among visitors and the curator.

This presentation will be a slide talk about the Slaughter collection, its impact on this public library map collection, and the impression it made on its audience. What did they think of these old maps of the Middle Atlantic? Slides of books, charts and maps in the exhibit, of the Middle Atlantic and elsewhere, will be discussed in the context of the curator's viewpoint and the public commentary as recorded and collected by the Library.

Colonial Maps and GIS: Creating a Database for the Guilford Courthouse National Military Park

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On March 15, 1781, British forces under Lord Charles Cornwallis engaged and defeated and American army under the command of General Nathaniel Greene. The Battle of Guilford Courthouse, as it has become known, proved to be a

crippling blow dealt to the British army and it set in motion the events which led to the surrender of Cornwallis at Yorktown Virginia in 1783. Today Guilford Courthouse National Military Park is a unit of the National Park Service and is located within the northern city limits of Greensboro North Carolina. Over the past 10-15 years the city of Greensboro has undergone dramatic urban development, which has threatened the cultural integrity of the park. Park managers have teamed with the University of North Carolina Greensboro, Department of Geography to develop a Geographic Information System (GIS) to manage and protect historic, cultural, and environmental resources in and around the park. This paper discusses the integration of colonial period maps into the modern GIS database and how these historic maps are used to help solve modern and historic questions. These questions include, uncovering clues as to the location of the third battle line and the appearance of the landscape at the time of the battle.

Session D
DRAWING SOFTWARE SHOOT-OUT: ADOBE ILLUSTRATOR vs. CORELDRAW vs. MACROMEDIA FREEHAND

Drawing Software Shoot-out: Adobe Illustrator vs. CorelDraw vs. Macromedia Freehand

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Organizer:
Tom Patterson
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Panel:
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Postscript-based drawing software has been a major factor in the development of desktop cartography during the last decade. Ironically, drawing software has been developed for general graphical use rather than map making per se, which requires cartographers to "discover" work-around solutions for common mapping tasks. To assist cartographers in choosing the drawing software that best meets their design and production needs, this session will evaluate the most popular drawing applications for cartographic use. Three advocates, who are professional users, will demonstrate the high-end features of their favorite software that are uniquely suited to map making and/or cartographic education. The demonstrations will showcase the latest releases of CorelDraw, Freehand, and Illustrator (with possibly a beta sneak preview of Illustrator 9). Following each demonstration, members of the audience will be encouraged to ask questions, share insights, and suggest alternative tips and techniques.

Session E
PANEL DISCUSSION: CARTOGRAPHIC AND GIS EDUCATION, PREPARING STUDENTS FOR THE WORKFORCE

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Proposed Topics

– What GIS/Cartographic concepts and software do employers need graduates to be knowledgeable about.
– If a school were to choose from the list of GIS software available, which package offers the most transferable knowledge so that business can invest minimal training time.
– Is there still a need to teach traditional cartography (scribing, peel coats?)
– What is currently lacking in recent graduates?
– How are they teaching GIS and cartographic concepts (text book, tutorial, independent study)
– Should all software come with a tutorial manual?
– Is it easier for teachers to learn software from a tutorial then teach from that tutorial? Or would teachers like a teaching guide?

From Software Industry:

– What can we do to help educational institutions better prepare grads for the works force?

Agenda

– Introductions and description of each panelist's current status.
– Professionals, including recent grads, discuss issues and major concerns.
– Teachers respond to concerns of professionals and voice their input.
– Software industry responds to both professionals and teaching staff.

Session F
UNDERSTANDING MAPS AND DATA

The Use of Grid Cell Maps in School Demography

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The center where I work provides demographic services to school districts, among other clients. We provide enrollment forecasts, school siting advice, and help adjusting boundaries. Data utilized in these studies include census information, student data, vital statistics, and data and reports from local planning agencies. Maps play an important role as a source of data. Maps also are important in conveying information back to the district's citizens and administrators. The issue addressed here is mapping of point data such as address matched student data. Simple pin maps showing where students live are helpful in conveying basic ideas about geographic distributions. However if one attempts more complex point maps, the use of heterogeneous point symbols often is not visually effective. Data that are spatially smoothed and averaged using grid maps do allow us to convey a sense of more subtle geographic distributions. This paper shows how the theme of net-migration of student households can be conveyed using grid mapping techniques. We found that maps of migration rates convey more accurate impressions than simple "hot spot" grid maps which show areas of in and out-migration. While the grid cell maps free us from the constraint of fixed boundaries, such as census tracts or attendance areas, they do suggest that the demographic analysis can be freed of such boundary constraints, which at this time it cannot. Also, since the maps depend on address matched data they are highly susceptible to magnifying errors resulting from the address matching process. Grid mapping of point data is a useful tool that should be used with care and caution.

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This paper presents the results of using focus groups to evaluate the U-Boat Narrative (UBN), a data exploration system focusing on the U-boat conflict of 1939-1945. UBN was developed in response to the limitations inherent in existing methods (e.g., static maps) used to convey information about the U-boat conflict. Existing methods generally fail to adequately convey the spatio-temporal aspect of the U-boat war's chronology. In response to these limitations, the computer, with its animation and interactive capabilities, was turned to as a possible solution. A prototype of UBN was developed, which contained two components: narratives and data exploration modules. The narratives provided a background on the U-boat war through static maps, text, and pictures, while the data exploration modules allowed users to see an animation of Allied ships sunk and damaged, select from various attributes, and view several statistical and graphical representations. Three focus groups (i.e., novices, historians, and cartographers) were tested to assess UBN's overall "look and feel", interface design, and usefulness as a data exploration tool. The narratives were appealing to all groups while the novices and cartographers especially enjoyed the pictures and wanted to see more of them throughout the program. The animation and attribute modules were intriguing to all groups, but the historians were particularly keen on the modules' ability to represent patterns of ships sunk by U-boats. The novices and historians concluded that, compared to the rest of UBN, the graphical summaries module was not enticing. While the cartographers agreed with this stance, they suggested alternative strategies that would improve the appeal of this module. In summary, the focus groups provided comments on the prototype's existing design and offered suggestions on ways to improve UBN for future versions.

Re-visiting the Problems of Cartographic Design for Route-based Mapping

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The representation of linear thematic data continues to vex cartographers as GIS software generates increasingly complex combinations of data based on networks. Highway routes and river systems are examples of networks that can be cali

brated to enable the measurement of location along a linear reference system. The capacity of analytical mapping software to produce, manipulate and plot features located by their network position pushes cartographic symbology traditions to their limits. This paper reports on recent developments in the visualization of route-based data that reside on linear reference systems.

The problems of effectively displaying complex linear data sets, like multiple sets of points and segments on lines, are reviewed through the use of examples drawn from recent work in GIS for transportation (GIS-T). Contemporary efforts to refine the linear reference system data model are discussed, particularly with regard for attempts to include the visualization of data and data quality. A comparison is made between the direction of such data-centric GIS thinking, and that of the cartographic tradition for representing linear features. Also, the unique challenges presented by the use of global positioning satellite (GPS) data for linear phenomena are noted, and some questions needing research are identified.

Session G
TERRAIN PRESENTATION PRACTICUM

MapRender3D Pro from Digital Wisdom, Inc.

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Digital Wisdom, Inc.
Box 2070
300 Jeanette Drive
Tappahannock VA 22560-2070 USA
david@digiwis.com

Sales: 800-800-8560 (USA & Canada)
Tel: 804-443-9000
Fax: 804-443-3632
http://www.digiwis.com
http://www.maprender3d.com

MapRender3D terrain modeling and visualization software package creates high quality 2D and 3D relief maps and uses either a supplied seamless world wide elevation database at 1000 meter resolution or widely available public domain DEM files for the US at 30 and 100 meter resolution. MapRender3D is suitable for cartographers who wish to generate realistic relief shaded landscape perspectives of local, regional, national and worldwide areas for use in a wide range of print and electronic media and widely exportable to other software applications MapRender3D features in one integrated application many advanced controls including custom rendering, projection selection, rotation, sizing, exaggeration, texture draping, lighting, shading, selective elevation color graduation. The NACIS presentation will include a demo of the application. For more information check the Maprender3D web site at http://www.maprender3d.com.

Technical Specifications for MapRender3D Pro

– Worldwide seamless elevation databases.
– "Convert" extraction and map reprojection utility.
– Render modes. Relief shaded maps can be created using either OpenGL or Bitmap render modes.
– 3D modeling. 3D relief shaded maps can be interactively rotated and sized. Both orthographic and perspective views are supported.
– Textures. These can be draped over height data. Many different image file formats are supported.
– Exaggeration. Height data can be exaggerated to enhance 2D and 3D effects.
– Lighting. The light position and angle can be set. Light colors can be set.
– Shading. Smooth shading, flat shading and no shading options are available. The shadow intensity can be set.
– Coloring. Maps can be colored on the basis of height, slope or variability. Solid and two types of gradient fill can be used between any arbitrarily selected heights and colors.
– Height data Import. USGS DEM, SDTS DEM, Landform Panorama NTF, RAW, ASCII, GHz PSB.
– Texture import. BMP, PCX, TIFF, PNG.

Relief Presentation at The National Geographic Society: A Digital Demonstration

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Please join National Geographic Society relief artist John Bonner as he demonstrates relief portrayal using Adobe Photoshop and a Wacom digital stylus and tablet. His technique melds the art and craftsmanship of manual relief shading with the latest digital graphics technology. As he demonstrates, he will narrate key points to remember when you render relief for your own map. Emphasis will be placed on how to create eye-catching shaded relief that is understandable to map readers. He will also discuss samples of his work, including original shaded relief art, 35 mm slides, computer-generated portrayals, and printed copy.

The Wren Building

The College of William and Mary's Wren Building is the oldest academic structure still in use in America. Begun August 8, 1695, two years after the school was chartered, it is the signature building of the second oldest college in the nation (next to Harvard). Three times destroyed by fire, the appearance of the brick-walled Wren Building has often changed, but it stands today much as it appeared by 1732. It was the first major building restored by John D. Rockefeller, Jr., after he began Williamsburg's restoration in the late 1920s.

A Brief History of National Park Service Visitor Maps

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The National Park Service official publication program dates back to 1911, almost forty years after the creation of the first national park, Yellowstone, and five years before the establishment of the National Park Service.

The park brochures and their maps have evolved over the years. Early documents offered tourist information in order to encourage greater park visitation. In the 1940s and 50s, small booklets were produced including detailed scientific and historic information. Those maps were drawn in ink. By the 1960s and 70s, pocket sized brochures with generalized maps and visitor information prevailed. Those maps were created with scribecoat, peelcoat, and photographic negatives. In the 1980s and 90s, larger brochures with information graphics and detailed maps were developed. In the 90s, the ongoing conversion of these detailed maps to digital format was started.

If one looks at the visitor brochures and maps as reflection of the time of creation, park brochures and maps reveal that attitudes towards historic and natural resources have changed, that creative solutions of map size, scale, and detail are often repeated, and that the National Park Service has been expanded to include more aspects of our historic and cultural resources.

The Power of Maps In Resource Management Decision-Making

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Maps are important tools for decision-makers. The increased use of GIS and other mapping applications has changed approaches to map design ? who does it and

how. Cartography is no longer the domain of experts only, and the potential for poorly designed maps has increased. This trend has raised concerns that poorly designed maps might mislead decision-makers. Hence, an important research question is. Can different cartographic displays of one data set so influence decision-makers as to alter a decision that relies on the mapped data?

The influence of cartographic display was studied using a spatial decision problem typical for a resource management agency: a decision-making situation in the USDA (US Department of Agriculture) Forest Service. Cartographic display was varied by constructing three hypothetical "map treatments" from the same data set. The map treatments and other test materials were mailed to Forest Service District Rangers. They were asked to make a decision (i.e., choose between two alternatives) using a hypothetical decision problem and map treatment. District Rangers received the same decision problem and possible alternatives. However, each District Ranger received only one of the three map treatments. Information about the decision was obtained through a written questionnaire. The results of this research will be presented, and implications for theory, methods and applications related to map-based decision-making will be discussed.

Tourism Maps and the Amish: Technological Discrepancies in Lancaster County

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Maps have often been a common feature in tourism brochures. They serve the basic function of providing directions to the tourist attraction. Equally as important, maps also serve as a persuasive form of advertising by influencing the tourists' decision on which routes to travel and where else to stop along the way. With changing technology many tourist attractions are now advertised on the internet, and many home-pages have interactive maps and virtual tours of their attractions. Lancaster County, located in south central Pennsylvania, is a travel destination for millions of Americans each year. While Lancaster is home to historical sites, scenic roadways, and chocolate factories, the main focus of tourism is on the Amish lifestyle. This lifestyle rejects modern amenities such as automobiles and electricity, yet the Amish are successfully embedded into the modern economy. The main tourism agency managing this area is The Pennsylvania Dutch Convention and Visitors Bureau which distributes both public and private sector maps, and maintains an official web site. This paper will describe the list of attractions promoted by the Visitors Bureau and will evaluate the maps advertising each attraction. The maps will be analyzed for the level of technology used and whether it is consistent with the type of lifestyle. The influences of these maps will be considered. The Amish attractions that have incorporated current mapping techniques, especially web-based maps, will be further discussed.

Session I
UNIVERSITY ACTIVITIES

Introductory Cartography Reconfigured

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The nature of introductory cartography is and has been in flux for some time. In this paper, the multiple roles that introductory cartography courses play within the curriculum and the impacts that computers, visualization, interactivity, and GIS technologies have in the classroom are reviewed. These trends are examined in the context of how we teach cartography and the structure of our cartography courses. The paper continues with a discussion of educational outcomes that are desirable from introductory cartography courses and that can serve as a basis for redesigning these courses. In light of what we do, what we need to do, and what we should do in the classroom, it is argued that the structure of our introductory cartography courses needs to be both revisited and reconfigured in order to better represent the field to aspiring cartographers.

The Colorado Landscape Project: Reflections from the Cartography/GIS and Classroom/Library Interfaces

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The conviction that successful GIS output requires good design input led to the experimental linking, in Spring 1999, of University of Kansas courses in Intermediate GIS and Map Design, both previously taught separately by George McCleary. All of the students attended a common core of classes, but those registered for GIS or Map Design attended additional sessions in their subject. The culminating project involved GIS and Map Design students interacting collaboratively in small mixed groups to produce a page-size map depicting the landscape of Colorado,

using ArcInfo and FreeHand. Observation of students working on this project (during classroom discussions, laboratory sessions and data-gathering visits to the University of Kansas Map Library) revealed several basic conceptual and operational problem areas. The project to characterize a regional landscape had been chosen, because the concept of landscape is both fundamental to geography and broad enough to allow different approaches and solutions. Despite readings and lectures on landscape study in geography, the students found this complex term hard to grasp, both in general and in specific application to Colorado, a state neighboring Kansas that surprisingly few of them had ever visited. Embarking on the project without a clear vision aggravated an observed tendency to scavenge data from various sources and throw it into the database, hoping that GIS would magically transform it into a satisfactory result. They often lacked the library research skills to find and evaluate different data sources. The transition from "canned" ArcInfo and FreeHand laboratory exercises to a less defined project was another hurdle for the students. As well as assessing the educational value of the project experience, this paper will suggest improved strategies for a future course offering.

Development and Maintenance of the University of Oregon's Campus Mapping Program; Integrating Map Publishing, GIS, Facilities Mapping, and Architectural Building Floor Plans

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The InfoGraphics Lab coordinates the University of Oregon Campus Mapping Program. The Campus Mapping Program consists of three main components, 1) campus map publishing, 2) campus-wide GIS/Facilities Mapping, and 3) CAD building floor plan development. Maintaining and integrating these various program components creates many challenges and opportunities. This paper will cover the designing and implementation of a comprehensive campus mapping model that addresses issues of multi disciplinary needs, software integration, scale, database maintenance and access, print and web publishing, and cross-campus coordination. Specific technical solutions and administrative funding strategies will be touched on.

Among the men of the Revolution who attended Bruton Parish Church were Thomas Jefferson, George Washington, Richard Henry Lee, George Wythe, Patrick Henry, and George Mason But the building's history, and that of its churchyard, goes back further in time. Dating from 1715, the present structure is the third in a series of Anglican houses of worship that began in 1660. The first, which may or may not have been at or near the 18th-century site, was built, probably of wood, in the Old Fields at Middle Plantation, Williamsburg's name until the 66-year-old community was incorporated in 1699.

Bruton Parish Church

Session K
PREPARATION AND DISSEMINATION OF GEOGRAPHIC INFORMATION

The History and Development of Online Mapping and Distributed GIS

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This paper traces the rise of a new development in cartography, that of highly distributed interactive mapping. This development, known both as online mapping or Distributed Mapping/GIS (DMGIS) is both technique and concept, application and theory, and as such represents a new research frontier in cartography. DMGIS may be the most significant development for cartography since the invention of printing, which dramatically widened the availability of maps in its own way, but which is as nothing to the distributivity afforded by the Internet. Distributed Mapping/GIS is comprised of several technical components, which, with hindsight, can be seen as converging over time. These are: interactivity, distributivity (ie., the Internet), geographic visualization, and map display and analysis. A brief historical overview is given of these components and how they have converged to produce DMGIS. The roots of DMGIS lie in the early attempts to produce animated maps in the 1930s; the ability to incorporate interactivity during the personal computer boom of the 1980s; the embrace of the geographic visualization approach; and most significantly, the rise of the Internet in the late 1990s. As with most new technologies, DMGIS exists in certain social contexts, that is, it is affected by, and in turn affects the way we think about problems, in this case spatial data and its use. Therefore it is critical to understand this technology's implications and limitations, in other words to develop a good conceptual framework. A brief attempt to do this by combining practice and theory will be presented.

Map Design for High Volume Automated Mapping at the US Census

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The Census Bureau is generating millions of maps for projects designed to ensure an accurate database of housing units prior to the 2000 census. These maps are produced in an entirely automated fashion by software developed in-house.

Cartographic design is controlled by a set of ASCII tables, setting page size, features displayed, features named, scale, arrangement of margin elements, etc. Since most projects cover a wide variety of subject entities nationwide, all design elements must accommodate a wide range of possibilities. For example, many counties in the southwest are large and sparsely populated, while counties in the mid-Atlantic are often small and densely populated. Design elements such as what level of roads to show or name, and optimal scale must accommodate these wide ranges. Other considerations are potential combinations of area screens. Combinations can include water (blue screen) in a park (green screen) outside the subject area\ (black screen). Such screens must not conflict with each other too much, or mimic other fills in combination (yellow screen over blue screen looks like green screen).

Map design must also take into account map-production and post-map-production activities, such as enumerator notations, scanning for digitizing new features, and plotter ink usage.

South-East Toronto Health Data Mapping System: Community-University Collaboration as a Methodology for Design of a User-driven Mapping Design

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A partnership between a research group at the University of Toronto and a consortium of community health agencies was formed to explore ways of addressing the geographic questions of decision-makers in the agencies. Useful geographic data sets existed, but logistical/technical problems made these difficult for non-experts in GIS to access and utilize. To effectively speak to the needs of community partners, the process of conceptualization and implementation of a technical solution needed their involvement at every stage.

The objective of this project became the creation of a prototype interactive mapping system incorporating available data related to questions of respiratory health in a downtown environment. Respiratory health was identified as a community priority, which allowed a concentrated focus for the development of the system. The methodology included an analysis of user needs, creation of a conceptual data model, survey and evaluation of existing data sources, assembly of data sets into a comprehensive data structure, and design of a mapping interface customized for intended users. Continuing input and feedback from the community partners was ensured through direct representation on the project steering committee, a series of hands-on workshops, and on-site testing of the system at each community agency.

Analysis of feedback from users during on-site testing and the final workshop indicate areas where design has been successful and others where continued development is needed. Findings from a cartographic design viewpoint relate to data quality issues and appropriate data representation in the customized interface. More generally, the project demonstrates an effective method of incorporating user needs into a customized mapping system.

Session L
SMALL BUSINESS CARTOGRAPHY ROUNDTABLE, KEEPING UP WITH THE SOFTWARE AND DATA EXPLOSION: EXPERIENCES AND STRATEGIES

Organizer:

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How can a small cartography company or free-lance cartographer keep up with the constant changes and advances in software and data while trying to make money doing what they already know how to do? There will be room to discuss: business planning, continuing professional education, usefulness of conferences

and seminars, good sources of info to keep up to date (journals, list serves, etc.), in addition to all the latest applications and data sources.

Session M
ATLASES

Developing a Socioeconomic Atlas Series for National Parks

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The natural and cultural landscapes adjacent to National Park System (NPS) units are experiencing dramatic change. Many parks once considered remote and distant from cities are surrounded by an expanding urban and suburban matrix; parks in rural areas often attract gateway community development. Changing socioeconomic conditions in regions adjacent to NPS units can affect resources and visitor use within these parks. For example, increased development can lead to habitat fragmentation. Population changes can alter traditional visitor use patterns and shift demands for interpretive and recreation services. Park managers need systematic information about socioeconomic trends. Such information can be used to anticipate complex management challenges that originate outside park boundaries.

Maps are powerful tools to help managers visualize spatial patterns related to socioeconomic trends. For example, a map that shows projected population change in a region surrounding a national park reveals where development will likely occur, and where park managers might actively collaborate in land-use planning decisions. An atlas that displays a range of socioeconomic trends (e.g., related to population, resource use, commerce, and land use) can provide managers with an important resource for planning, management, and public participation.

The purpose of this presentation is to 1) describe a project to develop prototype atlases of regional socioeconomic trends for individual national parks, 2) present examples of data and atlas sheets for pilot parks participating in the project, and 3) discuss the potential benefits and challenges of developing a socioeconomic atlas series for the 370+ units of the National Park System.

Atlas of Antarctic Research

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The Antarctic Program of the U.S. Geological Survey (USGS) is developing an online Atlas of Antarctic Research. It is an adaptation of the USGS National Atlas of the United States. Although its functions are similar, it uses data in Polar Stereographic projection, and its scale range is quite different because it is based on data of different resolutions. The Atlas contains base layers of data ranging from continental scale to the highest resolution maps that are available of the three U.S. permanent stations. It provides URL links for access to other databases, including the online geodetic database developed through a cooperative project between the USGS and the National Air and Space Administration. It provides map index information and access to other sites of the Scientific Committee on Antarctic Research members. Scientific information about research conducted in Antarctica and plans for the field season will reside in the Atlas. As digital raster graphics and other USGS databases become available, they will be displayed there, and downloading sites will be provided for access to the data. The Atlas is partially funded through an agreement with the National Science Foundation.

America's Online, Interactive Atlas: The National Atlas of the United States of America

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The first new National Atlas of the United States of America in nearly 30 years is a popular online destination Americans visit to explore their natural and sociocultural landscapes. The National Atlas is designed to serve the interests and needs of a diverse populace in many ways: as a flexible desktop mapping system, as an essential reference, as a framework for information discovery, as an instrument of education, and as an aid in research. As part of continuing development of the Atlas, Federal producers of geospatial information are actively engaged in assembling additional integrated geographic products and the U.S. Geological Survey is enhancing the World Wide Web services to reliably, accurately, and quickly convey national conditions through an easy-to-use desktop mapping system. URL: http://www.national atlas.gov

EXPLORING ANIMATION AND 3D

The Influence of Verbal Commentary on Fly-By Animated Terrain Maps

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Once the exception, now a standard, map animations have allowed cartographers to express geographic concepts in engaging and arresting formats. In particular, animated map presentations have made an impact on multimedia presentations, the Internet and in our classrooms, but research about the utility, functionality and communication effectiveness of such displays is still limited. Using fly-by (or model and camera) animation an experiment was conducted to investigate the effect of verbal commentary on the retention of topographic information. Three groups of students were presented with an animated terrain model of a portion of the Adirondack Mountains. Each student of the groups was shown a 2-minute fly-by presentation of the study area. The first group was shown the fly-by animation sequence along with the path route of their 'flight.' The second set of students was shown the same movie, but with verbal commentary about the orientation of their flight. The last group was shown the same flight, except the commentary included information about terrain features. Subjects were then given an outline map of the study area and asked to mark and outline areas of high and low elevations and the location of water bodies. Visual and statistical comparisons between the study groups indicated that retention of terrain information was statistically and visually different between the test groups. The results suggest that the complexity and orientation problems in using fly-by animated maps may be alleviated with the use of verbal narration.

3D Visualizations of the Prehistoric Olduvai Gorge

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Computerized techniques for three-dimensional landscape visualization are changing quickly. One possible application of such technology is the recreation of prehistoric landscapes to help researchers understand the spatial arrangement of

variables that may have affected fossil location. In this paper we present such visualizations of the Olduvai Gorge in Tanzania. This effort is intended to further an ongoing NSF funded research effort examining early hominids and the origins of the human species. The project started with simple hand drawn maps and prehistoric environmental data collected from dozens of archeologic digs in the field. That data was transformed first into a geographical information system (GIS), and then into 3D models. World Construction Set was used to extrapolate the environmental data points into a landscape and create models of a 2 million year old landscape, including varying lake margins, stream flows, and outcrops. Models of the present day landscape were also created. All models combine elevational, geologic, and hydrologic data elements as well as simulated vegetation. In addition to still images, the project output includes surface level QuickTime Virtual Reality (QTVR) walkthroughs of the landscapes, animated flyovers, and time lapses between prehistoric and present day landscapes.

Session O
CARTOGRAPHIC CHALLENGES AND CHANGES

Cartography in a Class Action Suit: Himelrigh v. PPG

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Cartography has been vital to the judgement and settlement of numerous legal issues throughout history. A lengthy northeastern Ohio class action legal case is a recent example of the interface of Cartography and the legal system. In the case of Himelrigh v. PPG, aspects of cartography were incorporated into preparations for a trial, settlement of the case, and post-settlement issues. This paper will discuss the support of cartography for the legal processes of this case. The anticipated role of cartography versus the actual role of cartography will be examined. This paper will also discuss issues of cartographic communication that emerged from the case settlement involving a large number of claimants. These issues include: design of large-format maps for display, design of maps for use by a concerned subset of the general public-many of whom are not map literate, and map accuracy.

Carter's Grove

Eighteenth-century Williamsburg was the hub in a network of plantations that ranged the banks of Tidewater's rivers. The great farm of Carter's Grove is located eight miles southeast of the capital on the James River. Colonial Williamsburg interprets more than four centuries of life at Carter's Grove.

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Mapping has been a centralized function at the U.S. Census Bureau. With one division preparing most maps, consistency from map to map has been assured. Many agency programs are customers of—and deliver data to—the Geography Division, where experts design and produce maps with a standard Census Bureau look and feel. The centralized-production approach, however, is changing for some maps (meant for a broad public audience) as the agency increases reliance on the Web for disseminating its products. As publication of statistical data shifts from paper reports to the Web, so do maps. Using ArcView and other desktop computing tools, specialists in a wide range of subjects are able to design their own maps. These maps, produced in a program such as Population Estimates and Projections, are consciously consistent with the other components of a data release (i.e. publication on the Web) such as statistical tables and a narrative press announcement. But this decentralized approach typically shifts decisions about "good" publishable maps to non-cartographers. I am the cartographic leader in such a mapping environment. In this presentation, I will discuss the experimental nature of Web publishing versus Census Bureau conventions for paper maps; experimentation with map design versus a need for quickly developing a program's signature look on the Web; designing maps for the Web while conforming to graphics guidelines developed primarily for print; and meeting Census Bureau Web standards developed primarily for text, rather than for maps and other graphics.

Cartographic Challenges and Changes at MapQuest.com, Inc.

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MapQuest.com, Inc. came into existence in late 1998 but our cartographic roots and history go back a lot further. This talk will give a brief history and evolution of cartography at RR Donnelley & Sons Cartographic Services, GeoSystems Global Corporation, and now MapQuest.com, Inc. The impact of technological and cultural changes on our cartographic staff will be discussed as well as the changes

that have occurred and that continue to occur as we move forward. Photographs
of MapQuest.com facilities and staff members will be used to help illustrate our
history and growth.

Session P
FEDERAL AGENCIES

*Cartographic Information at the Department of State: International Boundaries, Sover-
eignty, Place Names, and GIS*

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Cartographic activity at the Department of State is centered in the newly-formed
Geographic Information Unit of the Office of the Geographer and Global Issues.
This unit is responsible for cartographic production and utilization of geographic
information systems within the Department of State, and provides guidance to all
federal mapping agencies on depiction of international boundaries, sovereignty
issues, and foreign place names. The subject of this paper will be the types of
cartographic information generated by the Department of State.

The paper will first examine the foreign policy implications of international
boundaries. A system for cartographically categorizing boundaries by type - e.g.
definite, indefinite, disputed - will be presented, along with an analysis of the
problems inherent in such a classification. Similarly, the subject of sovereignty will
be reviewed, with a discussion on cartographic portrayal of dependencies,
disputed areas, and places of special sovereignty.

The Department of State's toponymic activities will be reviewed. Standardization
of foreign place names is the responsibility of the U.S. Board on Geographic
Names, in which the Department plays an active role. Problems with foreign place
name standardization will be examined, focusing on the varying needs of the ìdesk
userì versus the ìfield userì in such areas as native-form generic names, use of
diacritics, and conventional names.

Last will be a review of the Department's use of GIS applications to assist foreign
policy initiatives. Projects include a mapping package to assist peacekeeping in
Cyprus, a geographic database for humanitarian relief in Kosovo, and use of GIS
to analyze election results in Mexico.

Public Records Office

The Public Records Office is the oldest archival structure in the
western hemisphere and an original example of 18th-century
thinking about how to make a building safe from fire but
warm and reliably dry. The origins of the hip-roofed, one-story
brick building are found in the flames that consumed the
Capitol on January 30, 1747. Only the wooden chair rails on
the walls are flammable.

The United States Board on Geographic Names Toponymic Standards for Cartographic Application

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The United States Board on Geographic Names was created in 1890 to standardize the use of geographic names on Federal maps and documents, and was established in its present form in 1947 by Public Law. Therefore, the Board is responsible for geographic name usage and application throughout the Federal Government, and its members must approve a name change or new name before it can be applied to Federal maps and publications. To accomplish its mission, the Board has developed principles, policies, and procedures for use in the standardization process. The Board is also responsible legally for the promulgation of standardized names, whether or not they have ever been controversial, and today this is accomplished by the universal availability of electronic databases for domestic and foreign names. To assure completeness and integrity of these databases, there are projects for extensive compilation of data, and maintenance programs with participants from principle Federal mapping agencies. This program for maintenance of the domestic names' database is being expanded to include State mapping agencies. This paper examines the role of the Board and its programs in support of applied cartography.

Session Q
NEW PERSPECTIVES

Molecules, Metaphors and Maps

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As practitioners of cartography, we are frequently accustomed to viewing maps in a few well-worn ways and may get stuck in our traditional viewpoints. However, those who do not regularly think about mapping can provide some wonderful perspectives on new ways of using the map as a concept to organize thinking about non-traditional-map subjects. In exploring these other avenues, we find that the map has been used as a metaphor for a variety of phenomena. One particularly interesting example comes from the field of chemistry, in the form of P. W. Atkins, The Periodic Kingdom: A Journey into the Land of the Chemical Elements (New York: Basic Books, 1995.) This, and other examples, serve to reiterate the

richness of the map concept and can help stimulate the creative energies of cartographic professionals.

Poems Shaped Like Maps: (Di)Versifying the Teaching of Geography, II

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Visual poetry may have begun when Simias of Rhodes designed his delightful technopaignia ("games of skill") in the multicultural Hellenistic world of the third century BC. Since then, it has displayed a spectacular array of guises. After World War II, the international movement known as "Concrete Poetry" drew upon the graphic arts to create patterns never before seen. One of these, I shall argue, is the poem shaped like a regional map.

In this paper, I will focus on seven map-poems, tickle out their meanings, and uncover their geographic and cartographic inspirations. Because they are maps and because concrete poetry resembles cartography in its graphic form generally, these playful map-poems offer a delightfully eccentric way to teach how maps—like/as poems—are generalized, simplified, and selective views of the world.

Eugen Gomringer, the Bolivian-born founder of concrete poetry, designed "Geographica Europa," a sketch-map that misplaces cities and countries (1960). The Scots poet Edwin Morgan produced "A Chaffinch Map of Scotland" (1965), a dialectical overlay of territorial Scotland. On Canada's centenary, Earle Birney composed "up her can nada," a satirical sketch-map of Upper Canada/Ontario (1967). John Hollander published "A State of Nature" in 1969; his poem, shaped like New York State, describes how the Iroquois would not have recognized such boundaries. In 1970-71, New York's Richard Kostelanetz designed "The East Village," eleven map-poems of his vibrant neighborhood. Canadian poet bp Nichol "found" his punning "Man in Lakeland" during a 1978 trip to the English Lake District. And geographer and poet, Howard Horowitz, celebrates Manhattan's variety in his poem shaped like the island ("Manhattan," 1997).

George Wythe House

Residence of the Virginian whose name appears first among the state's signers of the Declaration of Independence, the George Wythe House on Palace green was General George Washington's headquarters just before the Siege of Yorktown and French General Rochambeau's after the victory. In 1776 it accommodated General Assembly delegate Thomas Jefferson and his family. George Wythe (pronounced "with") was among colonial America's finest lawyers, legal scholars, and teachers.

Parallel Atlas, 38 00N: A Transboundary Cartography for Korea's Evolving Demilitarized Zone (DMZ)

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This series of digital mapworks explores the changing cartographic identity of the Cold-War's last prominent relic: the ideological boundary established by the Korean War's 1953 Armistice Agreement whose uninhabited no-man's-landscapes have unexpectedly reverted to a de facto nature sanctuary in the past 45 years—harboring rare flora and fauna, including some of Northeast Asia's most endangered migratory species.

While the DMZ continues to be a centerpiece of US security preoccupations—framed by one million anti-personnel landmines and two million battle-ready troops—inaccessibility has allowed the 4-km wide, 250-km-long corridor's damaged ecosystems to rehabilitate and flourish. Recent proposals by international
biodiversity and wildlife specialists are competing with the DMZ's rhetoric of violence, calling for the transformation the fortified corridor into a system of protected transboundary bioreserves.

New mappings of the DMZ offer unique insights into the production of contemporary narratives about nature and culture. Parallel Atlas surveys transboundary conditions underpinning the DMZ's disputed cartographic status—hybrid sites whose evolving biogeographic identity is threaded with the narrative text of competing map legends: the interwoven discourses of geopolitics, entomology, culture, memory.

In Maps the Story Unfolds through Space not Time

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The hero has a thousand new and old faces as she takes her journey. The journey and the sequence of events of the journey is familiar to all of us; ordinary life is interrupted by the Call to adventure, the Refusal .... and Return to ordinary life. This series of events takes place through time. But what is the pattern of the heros

story through space? Can we map the journey's patterns in a similar way as Joseph Campbell has interpreted the sequence of events though time? Is there a pattern? What are the significant spatial elements of her story? This paper explores the map of the heros journey and how and why we can map it.

WORKSHOPS

3D Landscape Visualization with 3DNature's World Construction Set 4.5

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The World Construction Set workshop will demonstrate the range of cartographic applications and power that this package can bring to a very large set of geographic and cartographic visualization problems. WCS is primarily an ecological modeling program based on accurate terrain data. The program is geographically referenced and can accept elevation information at any resolution from contour maps, elevation grey maps, ascii files, USGS DEM and GTOPO30 files and many other formats. The terrain models can be draped with many formats of vector, point, image and polygon data in order to control the generation of "ecosystems" that WCS builds on its terrain surfaces. WCS can also import 3D objects for scene use and includes the most powerful 2 and 3D texture engine in the industry. This workshop will focus on the production of perspective stills. WCS is also a powerful animation software, but time is short.

Instruction will be based on prepared modules that represent part of the range of the features of the program. Data will be provided for workshop use with time for experimentation in each module. Each module will focus on a sample cartographic visualization problem.

(Module 1) Raw data import and simple viewing and relief shading.
(Module 2) Ecosystems - narrowly defined, colorizing scenes.
(Module 3) Image Draping. Old maps and new photos.
(Module 4) Ecosystems - conventionally defined. Building a dry country forest.
(Module 5) Use of 3D objects - Importing different types of image components.
(Module 6) Ecosystems - very broadly defined. Linking images and ecosystems.
(Module 7) The WCS texture engine.

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This workshop will be an introduction to creating interactive and animated maps with Macromedia Director and its scripting language Lingo. Director is one of the most popular and powerful multimedia authoring tools on the market - it is used to create games (i.e. Myst and You Don't Know Jack), CD-ROM magazines (i.e. Launch), and cutting edge content for the web (using Shockwave). Topics will include: Director's stage-and-play authoring metaphor, sprites, channels, frame rates, scripting behaviors and interactivity, and coordination of multimedia elements such as sound and motion. The workshop will finish with strategies for optimizing the delivery of content over the web or by CD-ROM.

Making Web Maps Interactive

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A major advantage of providing maps through the World Wide Web is the potential for interaction. Many maps on the web, however, are still static. This workshop outlines methods to add interactivity to web maps. The primary technique to be addressed is the concept of mouseover mapping in which changes are
made to the map display based on the position of the mouse. The technique will be implemented with maps in a variety of ways including the creation of an interactive cartographic animation. Making client-side, clickable maps will also be demonstrated. Some experience with HTML is suggested. The exercises will use Netscape and a text-editor such as NotePad or SimpleText.

BANQUET ADDRESS

Gateway to the Earth – A Vision for Information Management at the USGS

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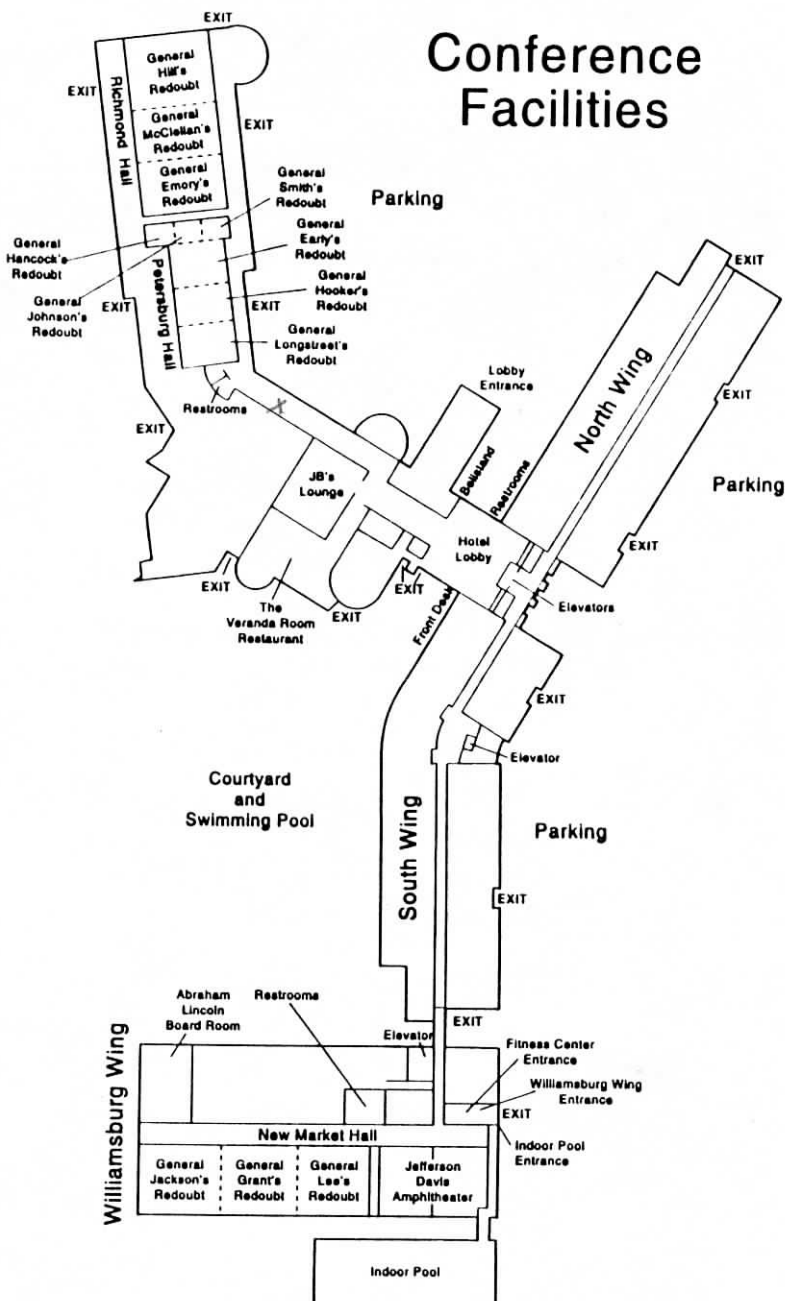Reston, VA
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"Gateway to the Earth" is a vision for information management at the U.S. Geological Survey (USGS). It is an organizing principle, a system for accessing, integrating, managing, and delivering the information assets of the USGS to a wide range of users. These assets are the sum total of our natural science data, information and knowledge, geospatial, temporal, and textual, regardless of communication media—analog or digital. The cost of developing these assests, which are not static, but continually growing, is currently estimated to be $20B, yet as an organization we have never effectively exploited the full use of these assets. In order to promote optimal use of these information assets, we need to first integrate them. Yet our existing systems, processes, practices, and even culture result in dis-integration rather than integration.

Anyone who starts to build a Geographic Information System (GIS) soon realizes there is no one place to go to acquire or access the full range of information assets this bureau, much less the earth and natural science communities, have to offer; a fully implemented Gateway to the Earth will correct that. Access to these information assets must be made easier, both internally and externally. One should have easy and full access to the entire suite of assets, whether one's point of entry is discipline based (biology, geology, geography, or hydrology), theme based (hazards, resources, environment, or information), geospatially based (place name or latitude/longitude), or organizationally based (science center, district office, branch or field station), or time based (date, time series).

Historically we have done an excellent job on integrating our data and information horizontally as indicated by our many national coverages of selected data sets (topography, surficial geology, bedrock geology, aquifers, aerial photography, landuse and land characterization, ecosystem coverage, etc.). We need to do a much better job of integrating these national coverages vertically.

Lastly, Gateway to the Earth needs to have pointers to our partner's information, where available. Although the USGS has tremendous amounts of data, measured in terabytes and possibly petabytes, we don't have it all. Gateway to the Earth is about creating full and easy access to earth and natural science information for addressing the needs of citizens, scientists, resource managers, and policy officials. Gateway to the Earth is a coherent set of interfaces that enable diverse users to find, get, and use natural science information in ways that are meaningful to them.

Conference
Facilities

Parking

Lobby Entrance

EXIT

EXIT

North Wing

Parking

EXIT

EXIT

EXIT

General Hill's Redoubt

General McClellan's Redoubt

General Emory's Redoubt

EXIT

EXIT

Richmond Hall

General Smith's Redoubt

General Early's Redoubt

General Hooker's Redoubt

General Longstreet's Redoubt

General Hancock's Redoubt

General Johnson's Redoubt

EXIT

Petersburg Hall

EXIT

Restrooms

EXIT

JB's Lounge

Bandstand

Restrooms

Hotel Lobby

Elevators

The Veranda Room Restaurant

EXIT

EXIT

EXIT

Front Desk

EXIT

Elevator

Courtyard and Swimming Pool

South Wing

Parking

EXIT

EXIT

Abraham Lincoln Board Room

Restrooms

Elevator

Fitness Center Entrance

Williamsburg Wing Entrance

EXIT

Williamsburg Wing

New Market Hall

Indoor Pool Entrance

General Jackson's Redoubt

General Grant's Redoubt

General Lee's Redoubt

Jefferson Davis Amphitheater

Indoor Pool

Painted in gilt above the mantel of the Raleigh Tavern's Apollo Room is the motto "Hilaritas Sapientiae et Bonae Vitae Proles." It may be translated "Jollity, the offspring of wisdom and good living." Established about 1717, the Raleigh's namesake was Sir Walter Raleigh, who had attempted the first colonization of Virginia in 1585. His lead bust stood above the door and, during Publick Times in April and October, planters and merchants from all over the colony passed beneath it on the way to the court. Some adjourned to play dice in the gaming room or to feast in the dining room. There were more serious occasions for resort to the Raleigh. When the House of Burgesses protested the Townshend Acts in 1769 and Governor Botetourt dissolved the chamber for its disrespect, bolder members reconvened at the tavern. There they formed a nonimportation association, agreeing to suspend the purchase of various goods from British merchants. It might have been called a boycott, but the word would not be invented for another 111 years.

Raleigh Tavern

It is a NACIS tradition that our meetings be informative, thought provoking, and reflect the cutting edge in the field of mappping. It is also a tradition that conference participants take the time to engage in informal conversations with their colleagues.

In order to facilitate the later, we welcome everyone to join us during the conference in the NACIS Hospitallity Room.

UPCOMING MEETINGS

October 11 - 14, 2000
Knoxville, Tennessee

October 3 – 6, 2001
Portland, Oregon