

David Rumsey Map Collection

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INTRODUCTION

The intent of this digital library review is to examine the various features and issues of the David Rumsey Map Collection (<http://www.davidrumsey.com>) by Cartography Associates. This private map collection comprises of thousands of high-resolution maps and other cartographic materials of 18th and 19th century of North and South America. This review is organized into the following sections: Mission / Goals, Community / Audience, Content, Organization of Information, Interfaces, Services, Technology, Management, and Publications.

MISSION / GOALS

David Rumsey began his collection of cartographic materials more than 20 years ago. His collection focuses primarily on maps, atlases, globes, exploration books, and government documents of the 18th and 19th century of North and South America. At the time, these artifacts were not in high demand, therefore allowing him to acquire them in high volume from dealers, auctions, and other collectors at low costs. Throughout the years, the physical collections were housed in his residence in San Francisco. The collections have grown to more than 150,000 historical items to this date. It is Rumsey's long-term goal to make his collections accessible to a wider audience by revolutionizing the way cartographic materials are shared with the public. In 1997, he began the digitization of his collections, starting with Civil War maps, bicycle maps, globes, children's manuscripts, and critical atlases. Three years later, the David Rumsey Map Collection website was launched. As of January 2008, there are over 17,400 maps on the website.

COMMUNITY / AUDIENCE

The David Rumsey Map Collection offers the opportunity for scholars, researchers, geographers, historians, and enthusiasts around the world to view hard-to-find maps and other cartographic materials online. In a web-based environment, the possibility of damaging some of the fragile artifacts is eliminated. Utilizing cutting-edge technologies provided by various partners, the website offers its users experience comparable to having physical access to the items.

CONTENT

One of Rumsey's approaches is to collect as many cartographic materials as possible in order to exemplify a time period with its history, culture, and people. His primary focus is 18th and 19th century of North and South America. Artifacts on his website include historical maps, atlases, books, surveys, globes, puzzles, games, government reports, and paintings. Before launching his website in 2000, Rumsey had considered storing his digital collection on CD-ROMs and distributing them to interested parties. He later decided to use the Internet as the medium to distribute to a wider audience.

By the time Rumsey began his digitization process in 1997, his physical collection had grown to 150,000 items. His approach of selecting the first group of items to scan was to select items that were

representative to the general broad themes in his collection. Since his collection focuses on the 18th and 19th century of North and South America, his first group of items included Civil War maps, globes, and atlases. Each of the scanned images in his entire collection is given a unique identification. The identification scheme is hierarchical in the sense that related items are grouped together. This allows users to easily retrieve related items together. For instance, if a scanned book cover is given the ID “1234”, the individual pages of the book will have the IDs “1234.1”, “1234.2”, “1234.3”, and so forth.

ORGANIZATION OF INFORMATION

The David Rumsey Map Collection utilizes four facets in organizing its thousands of high-resolution images. These include topical (what), geographical (where), chronological (when), and authorship (who). During the cataloging process, each scanned item is carefully reviewed and given characteristics according to the four facets. Multiple characteristics can be assigned to a single facet to represent the different levels of granularity. For instance, a map titled “A General Map of the River Ohio, Plate the second” is given the values of “Ohio River”, “Ohio”, “Virginia”, and U.S. Mid West” for its geographical characteristic. This flexible approach borrows its ideas from social tagging and faceted browsing in which users are provided with multiple ways in narrowing down their search criteria.

The metadata of each item in the David Rumsey Map Collection contains the following fields: author, date, publisher, type, object width and height, scale, note, state / province, city, region, event, subject, full title, list number, page number, series number, engraver or printer, publication author, publication date, publication title, publication reference, publication note, publication list number, publication type, publication maps, publication width and height, image number, and institution. The metadata of each scanned image is available when it is opened in the workspace. However, there does not seem to be a simple way for users to export the metadata into a dataset.

INTERFACES

The David Rumsey Map Collection provides a total of five browse and search interfaces for accessing the digital objects: Directory, Insight™ Browser, Insight™ Java Client, GIS Browser, and Collections Ticker.

DIRECTORY

A unique feature in the David Rumsey Map Collection is the Directory, which provides faceted browsing capability. Facets in the map collection include type of artifact (what), geographical location (where), year in which the physical artifact was produced (when), and publication author (who). Faceted browsing allows users to continuously narrow or modify their criteria until their desired results are displayed. For instance, browsing the collection by geographical location displays a list of locations in the entire collection. Each location is accompanied by its respective number of artifacts. Clicking on a location displays all the artifacts in the specified location. If desired, users can narrow their criteria by selecting another facet. Each displayed result is presented with a thumbnail along with its metadata. Clicking on the thumbnail opens a popup window containing a more detailed version of the digitized artifact. Within this popup window, users have the ability to zoom in and out of the image.

INSIGHT™ BROWSER, INSIGHT™ JAVA CLIENT

The Insight™ Browser and Insight™ Java Client are the search interfaces of the David Rumsey Map Collection. Besides searching by keywords, users can search the collection by its metadata fields. A complex search query can be constructed by using logical operators (i.e. “and” and “or”) and match types (e.g. equal, begin with, greater than, less than). The search results page lists the corresponding results sorted by the publication author. Similar to the Directory, clicking on a thumbnail in the search results page opens a popup window in which users can zoom in and out of the image. The Insight™ software also provides users with the ability to add images to a workspace where they can be retrieved at a later time.

GIS BROWSER

The GIS Browser is a Java Applet that allows regional maps of different time periods to be laid on top of each other. In addition, 5 transparent layers containing geospatial data such as state boundaries and major roads can be turned on and off. This provides scholars and researchers a way to oversee how a region evolves over a period of time. Currently, there are seven regions available: San Francisco, Boston, Mount Washington (Nevada), Washington D.C., New York City, Lewis and Clark Expedition, and Japan. Users have the ability to zoom into a specific set of coordinates (i.e. latitude and longitude) or a street address.

COLLECTIONS TICKER

The Collections Ticker borrows the idea of stock tickers on television. It displays the entire collection (over 17,000 items) as scrolling thumbnails. By place the mouse cursor over a thumbnail, the title of the artifact is displayed. Clicking on the thumbnail opens a popup window that allows users to zoom in and out of the image. The images in the Collection Ticker appears either in the order in which they appear in the collection or in random order. The usefulness of this interface is questionable since it does not allow users to browse or search the collection to restrict the number of returned items.

SERVICES

The David Rumsey Map Collection website is open to the general public. It does not require any user registrations to access the collection. From the global navigation, there is a “Help” section that includes a list of frequently asked questions (FAQ) and answers, tutorials for each of the browse and search interfaces, and a reference of the data fields of each record. In each of the tutorials for the browse and search interfaces, users are provided with detailed instructions on how to browse and search for a particular collection, to add images to a workspace, and to manipulate a single image. The website also includes a Flash-based, 360-degree tour of the collection space. It is available in five languages: English, Spanish, French, German, and Italian.

Since the David Rumsey Map Collection is provided free of charge to the public, revenue is necessary to support the maintenance of the physical collection as well the website itself. On the website, visitors

can purchase reproductions of the physical collection. Reproductions are in the form of art poster, framed art, and canvas Giclée. Price ranges from \$29 to \$299.

TECHNOLOGY

The digitization process of the physical map collection is a collaborative effort among David Rumsey and several companies in various disciplines. David Rumsey built his first scanning station in 1997 using a scanning back and a digital camera. He chose a digital camera over a traditional flatbed scanner because of the three-dimensional nature of some of his collection such as globes and books. Each object is scanned at least 300 pixels per inch. He then utilized the MrSid image compression software provided by LizardTech to compress the high-resolution images and generate the resulting JPEG file formats so that users can view the images using a standard web browser. Each image is saved in various zoom levels so that users can zoom in and out of the object to view the fine detail. The zooming capability was provided by Luna Imaging's Insight™ software. This software was originally written for arts and humanities, but was adopted by David Rumsey to display his map collection. In addition to the zooming capability, the Insight™ software allows users can add images to a workspace so that they can be retrieved at a later time. It also serves as the browse and search interfaces on the website.

After the initial launch of the website in 2000, David Rumsey introduced the GIS Browser interface that allowed users to overlay regional maps from various time periods on top of each other. This was made possible by Telemorphic's Maplicity and MapImager GIS software and ESRI's ArcIms GIS server software. Lastly, the Collection Ticker, which is a Flash-based viewer of the entire collection, was developed by Ideum and David Rumsey.

The following is a list of hardware and software used in digitizing and distributing the collection:

- ❖ Insight™ client/server and browser software by Luna Imaging, Inc.
- ❖ PhaseOne Powerphase 4x5 digital scanning camera back (150 megabyte capture)
- ❖ PhaseOne PowerphaseFX 4x5 digital scanning camera back (380 megabyte capture)
- ❖ PhaseOne image-capture software
- ❖ Sinar X 4x5 view camera
- ❖ Rodenstock lenses
- ❖ Kaiser RePro copy stand with Videssence Icelites
- ❖ Adobe PhotoShop 7.0
- ❖ MrSid image compression software by LizardTech
- ❖ Maplicity and MapImager GIS software from Telemorphic
- ❖ ArcIms GIS server software from ESRI

MANAGEMENT

The David Rumsey Map Collection is funded primarily by David Rumsey's digital publishing company, Cartography Associates. Google advertisements are visible on the website to generate revenue in addition to the online store. It is unknown at this time how much revenue is generated through the online store and Google advertisements. Nonetheless, revenue plays a significant role in the sustainability of the map collection in the future.

PUBLICATIONS

An article titled *Historical Maps Online* was published by David Rumsey himself in 2003 before attending the Where 2.0 Conference. This article discusses his personal map collection as well as his work with geographic information systems (Rumsey, 2003). On the David Rumsey Map Collection website, it cites an article originally published in Mercator's World Magazine titled *State of the Art* (Sweetkind, 2000). This article provides a detailed description of the process in which David Rumsey transformed his physical collection into a digital collection accessible by millions in the world. Lastly, because of the popularity of the David Rumsey Map Collection, hundreds of articles and blog entries can be found on the Internet.

REFERENCES

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