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# Beyond the Framework: Transforming twentieth-century library websites into twenty-first century digital collections

*Summary:* The Osher Map Library and Smith Center for Cartographic Education (OML) at the University of Southern Maine has partnered with digital history company HistoryIT on a new project to create a truly innovative twenty-first century digital collection. We recognize the importance of maintaining IFLA standards for the library's catalogue records, which are accessible through the university's OPAC and WorldCat, but for OML's digital presence we have rejected established standards for conceptualizing digital items (FRBR, ISBD, MARC, RDA).

We have instead transformed the library's decade-old website into a new digital collections site based on a dynamic reimagining of metadata designed to take into account the user perspective and to take advantage of the wealth of information available from academic works on the history of cartography and related fields. Our new, unique, enhanced metadata schema builds upon standardized lists such as name authorities and Library of Congress Subject Headings but vastly improves access through the creation of new macro- and micro-level tags. These tags enhance the user experience through more meaningful and deeper linkages of items, imagery, and historical context that go far beyond traditional cataloging or existing metadata models. Examples of macro-level tags include plain-language translations of titles, new geographic area aliases to enhance authority headings, and context from modern academic works. Micro-level tags include detailed information for cartouches, borders, and other map attributes such as artistic motifs, specific mythological and ethnographic subjects, and types of sailing vessels and fortifications.

This paper will demonstrate how, by moving beyond the prescriptive frameworks provided by current metadata standards, institutions can create twenty-first century digital collections that are highly searchable and seamlessly connect digital assets through a new conceptualization of metadata and utility.

## The Osher Map Library and Smith Center for Cartographic Education

Since 1986 with Eleanor Houston Smith's donation of the Smith Collection and the 1989 donation of the Dr. Harold L. and Peggy L. Osher collection to the University of Southern Maine (USM) the institution that became The Osher Map Library and Smith Center for Cartographic Education (OML) has been dedicated to its mission of preserving and sharing the over 1.5 million items in its cartographic heritage collections. As part of its mission OML promotes the use of maps as teaching and learning tools through university courses, collaborations with schools, programming, conferences, publications, and a robust online presence.

OML began digitizing its collections in 2004, first with a third party vendor and, more substantially, since 2009 with the purchase of scanners and cameras to create an in-house digitization lab. OML's online presence existed long before that however, as the library began adding professionally catalogued records to the University of Southern Maine's (USM) online public access catalog (OPAC) URSUS in the late 1990's. As they still do now, these catalog

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records followed AACR2 and then RDA standards for third level cataloging. With the opening of OML's own physical space in 2009, OML also developed it's own separate website www.Oshermaps.org in order to expand it's mission from the physical world to the digital. This new website was run off of a separate content management system where new records that utilized FRBR concepts and adhered to Dublin Core metadata standards were manually created, using information from URSUS if available, for all items in the collection.

As with all other large institutions of its ilk that began going digital more than ten years ago (early in the history of digital collections), OML has experienced both pros and cons with its initial digitization and website efforts. The most positive development: the decision to implement an in-house imaging process has best positioned the organization to maximize staff knowledge of collections and student worker support with top quality digital processing. The most notable drawback: importing metadata from URSUS to populate the metadata on the OML website and adhering to standards such as Dublin Core for creating metadata resulted in a digital catalog that worked well for librarians and professional researchers but failed to engage the general public.

In 2015 and 2016, we conducted user studies that revealed the OML website's reliance on accepted bibliographic and metadata frameworks and standards were severely limiting access to a wide range of regular users. A sample of USM undergraduate and graduate students, key OML stakeholders, and members of the general public were asked to perform a series of searches with the goal of finding specific digital materials in the collection. In the majority of instances users were unable to return results that included a sufficient number of the preselected materials. In examining the search strings employed by the test users and comparing those with the metadata in the records for the items that OML staff had identified as the best results for each search the conclusion was clear. The OML search interface provided a library-like experience, rather than a modern online search, thus excluding a large number of modern users from access. Moreover, the metadata on the backend was produced using antiquated notions of how, and in what specific language, information should be presented, which obscured the results that those searches were intended to retrieve. While the items were available digitally through the OML website, users were unable to locate them due to the disconnect between searching behavior and item metadata. In order to find a solution to this problem OML partnered with international technology company HistoryIT.

HistoryIT brings industry-leading expertise to preserve historical collections of all types and sizes and to make them searchable in meaningful ways. Working with cultural institutions, universities, corporations, professional associations, sports teams, and others, HistoryIT leverages cutting-edge technologies, proprietary methodologies, and the subject matter expertise and commitment of its team to create appealing, effective digital portals for historical resources. They meet organizations wherever they are in their digital development, assessing their holdings, catalogs, systems, and capacity in order to create detailed strategic plans, or roadmaps, to achieve their goals.

## Catalog versus Digital Collection

HistoryIT's philosophy made it clear to OML leadership and staff that twenty-first century digital collections consist of more than scans and digital photographs connected to a rigid structure of metadata. Resources uploaded online in this way create little more than a digital dumping ground. A comprehensive digital collection does much more than hold scanned materials. It also makes them organized, discoverable, and navigable. This more sophisticated process involves creating

new types of consistent metadata for individual items in order to understand the web of relationships among diverse and formerly disparate materials. It was clear that when done correctly, a comprehensive twenty-first century digital collection could open the door to an extraordinary range of benefits for OML.  In order to achieve this goal, HistoryIT and OML moved beyond the prescriptive framework provided by standards such as RDA, ISBD, Dublin Core. Instead, we focused on generating content about the stories the items in the collection tell and, most notably, developing and implementing a new, enhanced metadata schema. This shift in direction moved OML's digital interface from a simple online catalog that served only dedicated researchers to a robust digital collection that can engage diverse online audiences.

## HistoryIT's Enhanced Metadata for OML

At the outset of the HistoryIT/OML project the greatest priority was to develop the structure of metadata fields that would benefit the largest number of users on the OML website and help the library better achieve its mission. The result was a combination of standard fields (title, author, publication date, etc.) and search-optimized metadata. Search-optimized metadata, or enhanced metadata, describes an item in ways that allow different visitors, using different vocabularies, to locate the same materials. Without question, defining and creating enhanced metadata is the most critical aspect of producing a twenty-first century digital collections site. An enhanced metadata approach adopts a strategy of using subject tags to create meaningful linkages among all of the items that share overlapping themes or components. These tags are pulled from lists of controlled vocabulary, which leads to consistent and meaningful searches across OML's holdings. The subject tags include Library of Congress authorized headings, as well as natural language descriptions, making searching accessible to a wide variety of users. For example, the record for Ortelius's map of Iceland includes LC Heading Maps-early works to 1800 as well as natural language tags for sea monsters and imaginary creatures as seen in Fig. 1.

Figure 1: Ortelius Islandia, 1602. From new OML website.

Another way HistoryIT and OML expanded access was by incorporating six new enhanced item types. This vastly improved the accessibility of OML's collections by providing in-depth exploration of individual items. Two of the most notable enhanced item types are the Atlas Page Inset and Map Inset. These records describe map insets separate from the parent map. This allows users to discover content specific to their search needs, and eliminates inaccurate results. For example, enhanced metadata will direct a user searching for maps of Quebec City to the inset included on Robert Sayer's 1755 map, "A New and accurate Map of the English Empire in North America Representing their Rightful claim …" The old metadata did not identify Quebec City as being included on the map, so searchers could not find this inset map in their search results. Other enhanced item types highlight and capture specific content within a map. The Cartouche item type separately catalogs cartouches within a newly created Cartouche Collection (Fig. 2 and Fig. 3.) These records allow researchers to explore the variety of styles and ways cartouches are used in map design. Cartouche records are linked together through tags describing the elements associated with them, such as "vegetation" or "animals." Similarly, a Map Imagery item type highlights exceptional or unusual examples of imagery found within the body of a map, or its borders. A

map populated with numerous sea monsters will have an associated Map Imagery record focused on the presentation of each one of the creatures.



Figure 2. Sayer's A new and accurate map of the English Empire. From new OML website

Figure 3. Inset item type from Sayer's A new and accurate map of the English Empire. From new OML website

The result of this new approach is that OML site visitors receive appropriate and useful results using natural language, commonly used terms, and place names. Search results include hits from descriptive text within records, but also return results based on descriptive tags. A search for "Manhattan" or "New York City" also returns items referring "Nieuw Amsterdam" – a result guaranteed by the effective use of the region depicted field and subject tags. Similarly, everyday users are able to effectively search "Treaty of Paris" without needing to use the Library of Congress authorized subject heading, which is "Definitive Treaty of Peace Between Great Britain and the United States (1783 September 3)." The following examples show the same maps as displayed on the old OML website compared with the new, HistoryIT enhanced schema. There are also examples from the new website detailing cartouche, inset, and map imagery results (Fig. 4 to Fig. 17.)

Figure 4. Ortelius's Islandia, 1602. From old OML website
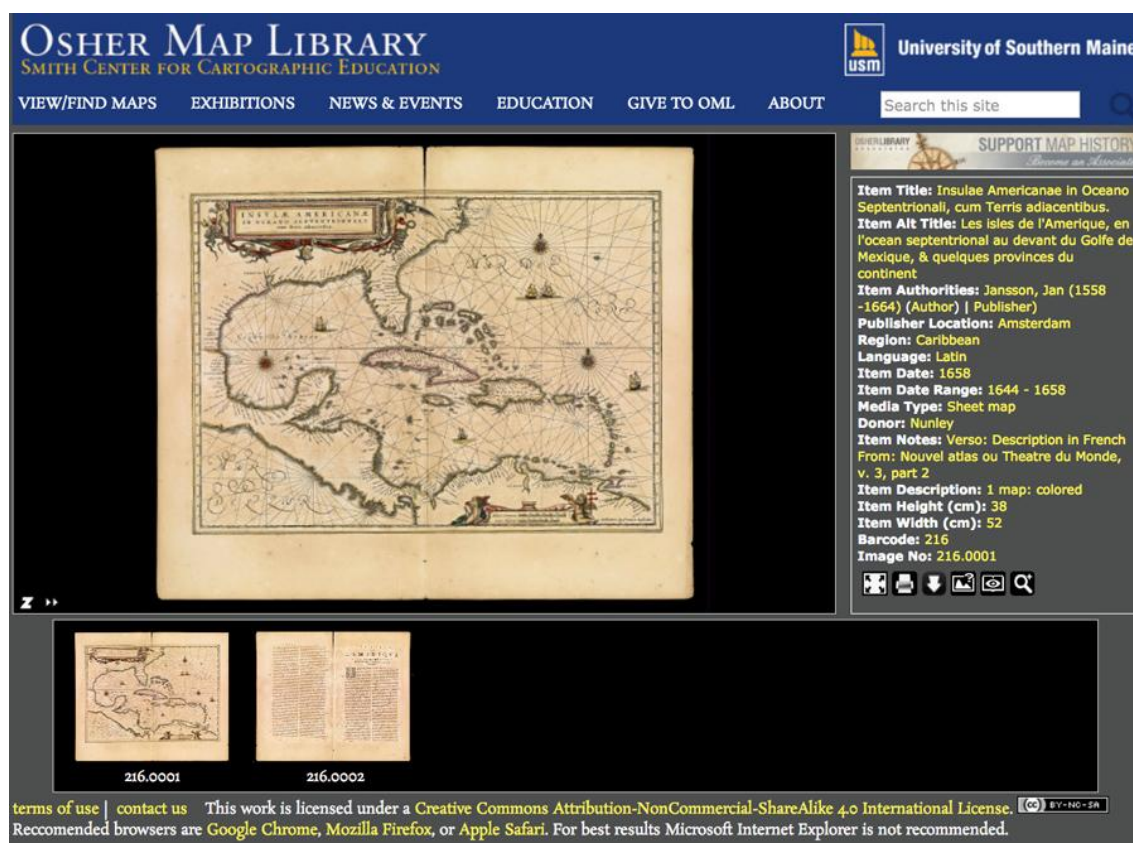


Figure 5. Ortelius's Islandia, 1602. From new OML website.

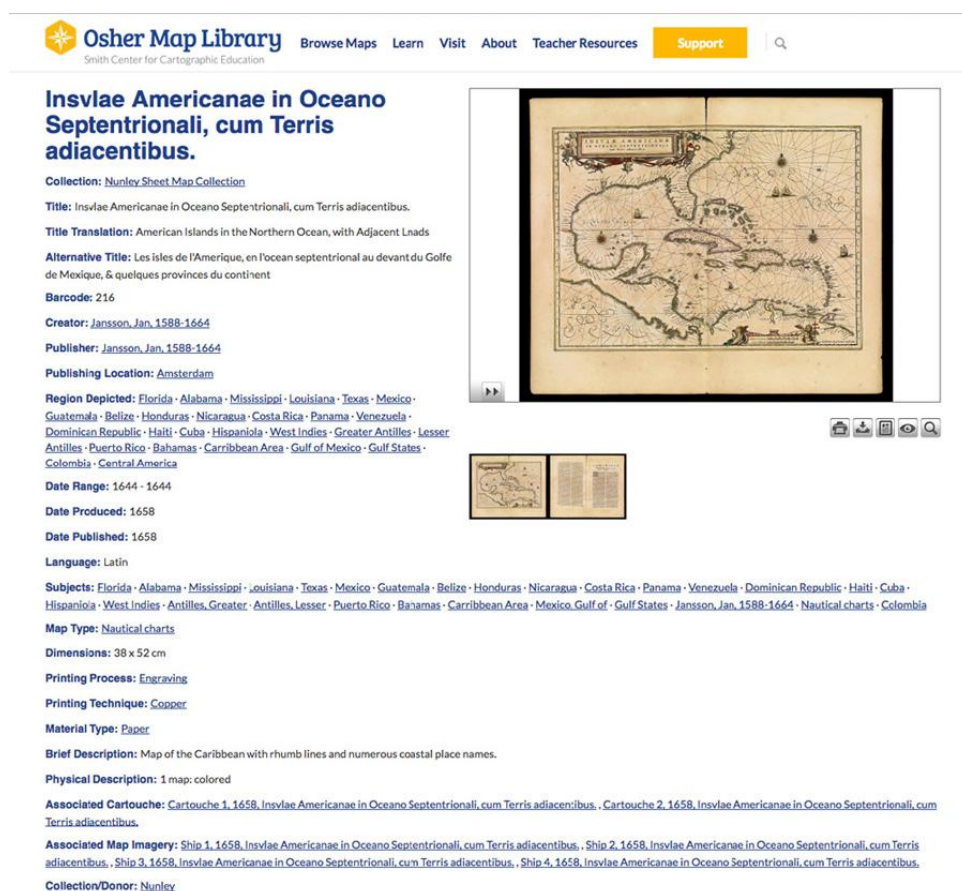Figure 6. Jansson's Insulae Americanae, 1658. From old OML website



Figure 7. Jansson's Insulae Americanae, 1658. From new OML website

Figure 8. Mackenzie's track from Fort Chipewyan, 1801. From old OML website



Figure 9. Mackenzie's track from Fort Chipewyan, 1801. From old new website

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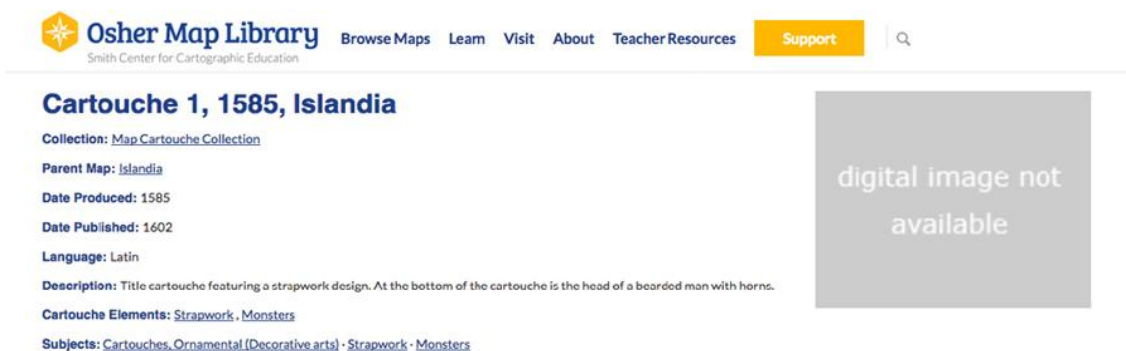
Figure 10. New cartouche record for Ortelius's Islandia, 1602 (image forthcoming upon completion of new website)



Figure 11. New cartouche record for Ortelius's Islandia, 1602 (image forthcoming upon completion of new website)



Figure 12. New cartouche and associated map imagery metadata for Ortelius's Islandia, 1602
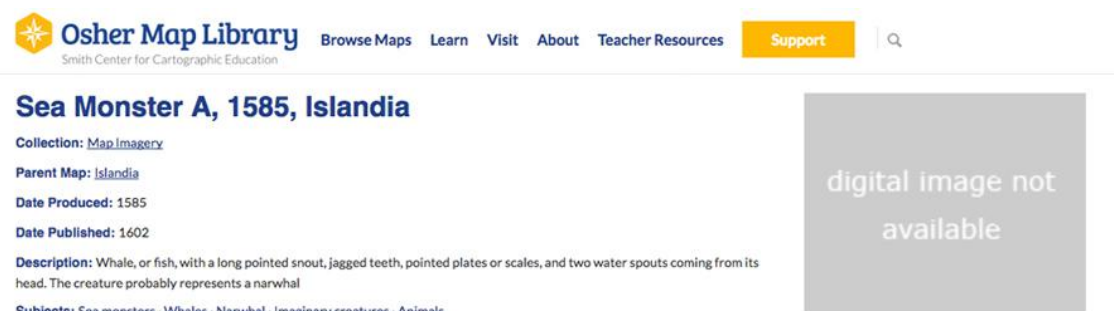


Figure 13. New associated imagery record for Ortelius's Islandia, 1602 (image forthcoming upon completion of new website)

Figure 14. New associated imagery record for Ortelius's Islandia, 1602 (image forthcoming upon completion of new website)



Figure 15. New associated imagery record for Ortelius's Islandia, 1602 (image forthcoming upon completion of new website)



Figure 16. New cartouche and associated map imagery metadata for Jansson's Insulae Americanae, 1658



Figure 17. New associated map imagery metadata for Jansson's Insulae Americanae, 1658 (image forthcoming upon completion of new website)

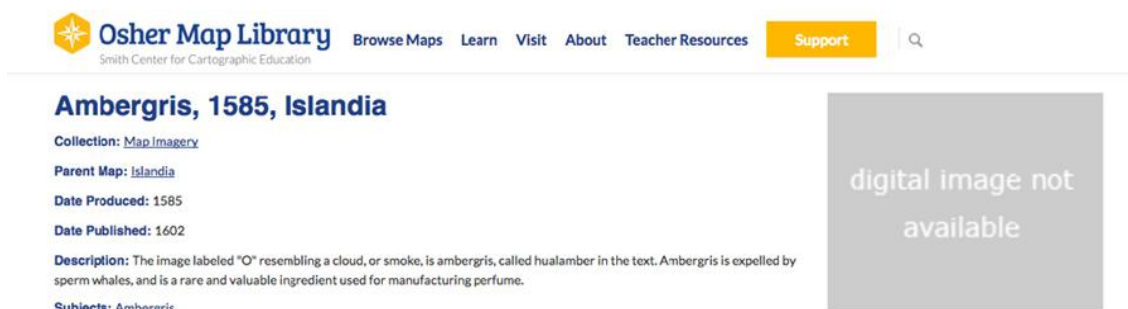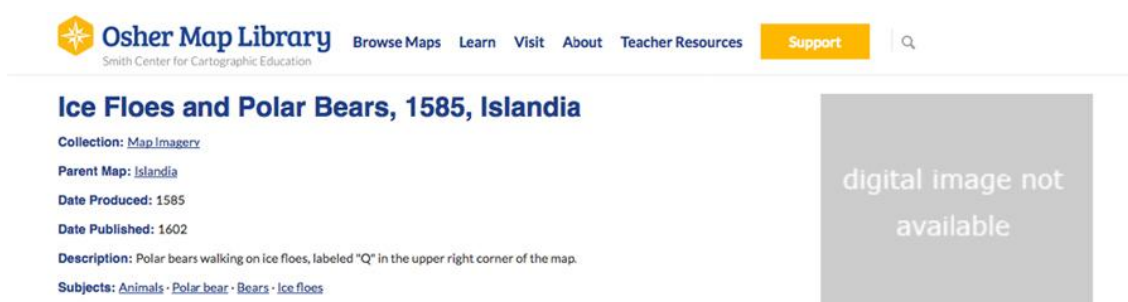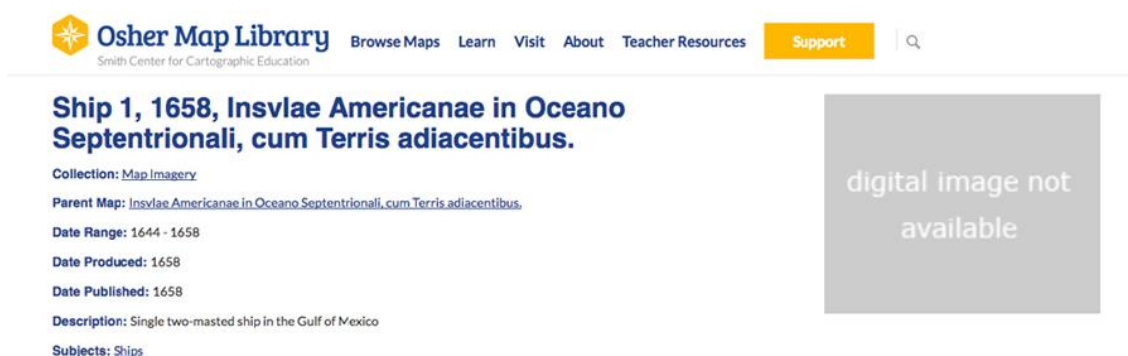Another aspect to the new enhanced records is that they make use of the wealth of academic literature written about the history of cartography in order to provide more in-depth information on each item and to show linkages among items. Examples of this include the new record for Ortelius's map of Iceland, which adds notational information about the map that not only tells the story of the map or provides a description of what is found on the map, but also increases access to the map. Another access point that has been created is the translation of map titles to English, as can be seen in the example record of Jansson's Insulae Americanae in Oceano Septentrionali, which has been translated to American islands in the Northern Ocean with adjacent lands. These title translations, combined with the new approach of tagging each separate island present on the map (twenty-seven geographic subject tags for the Jansson example, as opposed to the previous requirement of simply tagging the map as the "Caribbean") vastly increases the number of natural language access points available to user.

## Conclusion

While the Osher Map Library still maintains IFLA standards, including RDA, for its records that are catalogued in URSUS, this new approach to metadata for its website vastly increases user access to the collection and brings to the front the important stories and connections between items. By moving away from the frameworks that have so rigidly defined bibliographic descriptions of metadata, to a new enhanced model that focuses on the user instead of cataloger and brings out all aspects of the cartographic items in the collection, OML is able to better fulfill its educational mission and broaden its cultural appeal. While established authority vocabularies for subjects, names, and other important access points are still used, they are bolstered by natural language synonyms; words and phrases patrons actually use to search for the intended item. New access points are also created in non-traditionally controlled language, such as the identification of sea monsters which relies on research conducted on the history of cartography, through which users can trace the evolution of one specific sea monster through the centuries. Similarly these new tags will enable ethnographic depictions in the *carte de figure* examples on map borders to be compared with similar depictions throughout time. By working with HistoryIT to create an online digital collection, rather than a standard library website, OML will be able to greatly increase access to all of the items in its collection and at the same time visually show how those items relate to one another and connect the smaller stories of each item the larger narrative of the history of cartography.