

Connecting Content
Information Connections Research
SAA Research Forum
August 23 2011

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Information Connections Research Intern

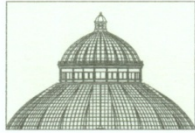


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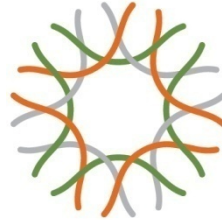
Connecting Content: Project Background

- The California Academy of Sciences Library, located in San Francisco, CA, was recently awarded a 3-year Institute of Museum and Library Services (IMLS) National Leadership Grant entitled “Connecting Content: A Collaboration to Link Field Notes to Specimens and Published Literature.”
- Connecting Content is a collaborative effort involving several natural science museums and universities. This cooperative project aims to improve access to biodiversity research materials in archives, libraries, and museums through identifying connections and creating linkages between collections that are physically and geographically dispersed.
- Further, it seeks to establish connections between collections that are also intellectually dispersed in terms of collection management practices.

Collaboration Between

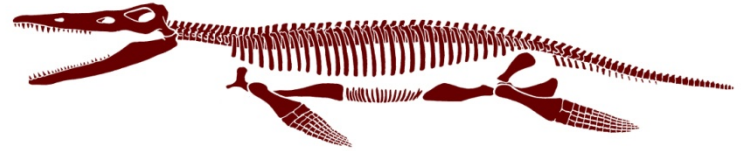


THE NEW YORK BOTANICAL GARDEN



CALIFORNIA
ACADEMY OF
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MUSEUM OF COMPARATIVE ZOOLOGY



HARVARD UNIVERSITY



THE
ACADEMY
OF NATURAL
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– PHILADELPHIA –



Smithsonian
National Museum of Natural History



MISSOURI BOTANICAL GARDEN

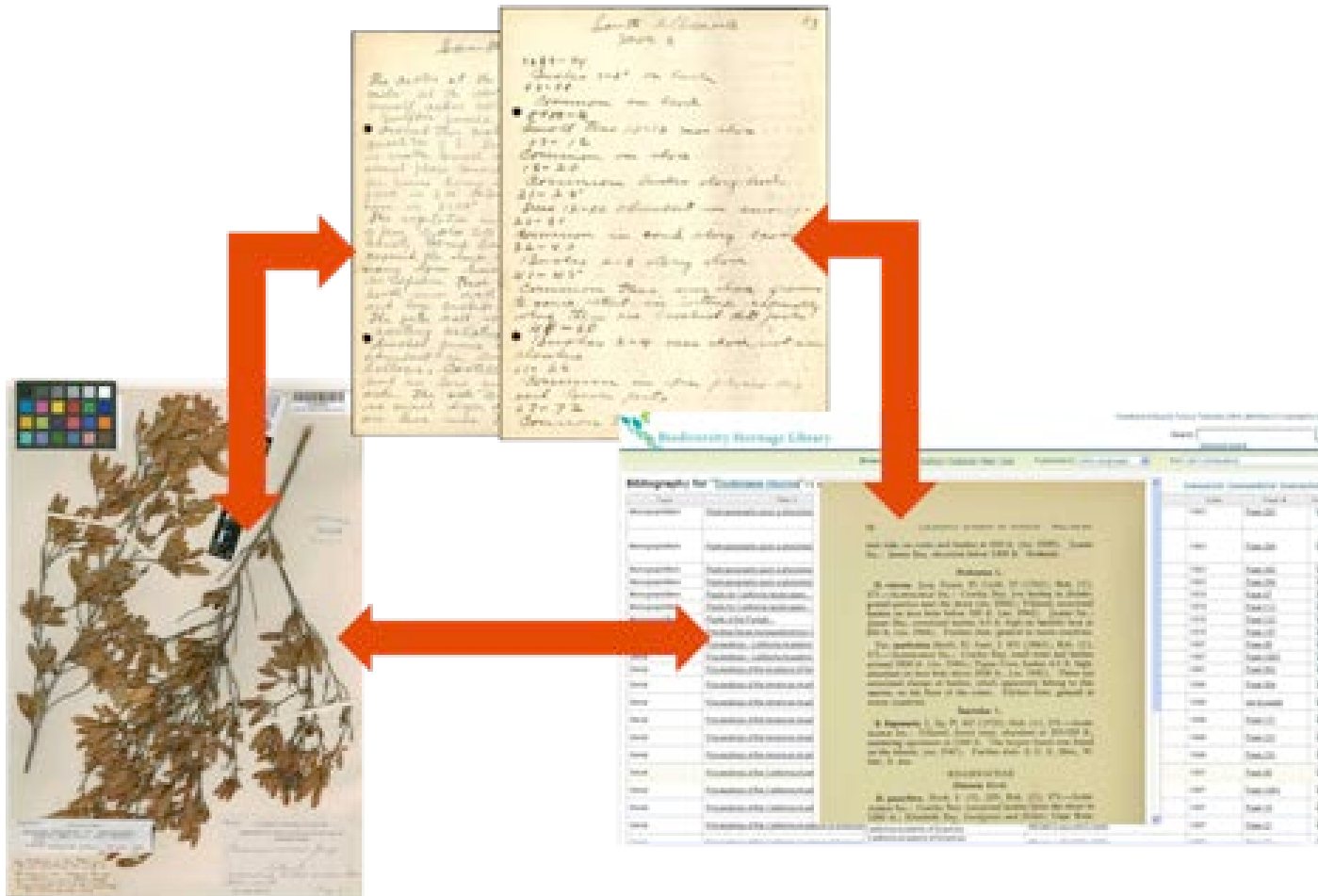
Connecting Content: Information Connections

The Summer 2011 Connecting Content Information Connections Research Internship investigated extant linkages between:

- scientific expedition field books
- museum specimen collections
- digitized published literature in the Biodiversity Heritage Library (www.biodiversitylibrary.org) and JSTOR

This exploration of information relationships is intended to lead towards the functional use of the data by researchers in various scientific disciplines.

Connecting Content: Project Background



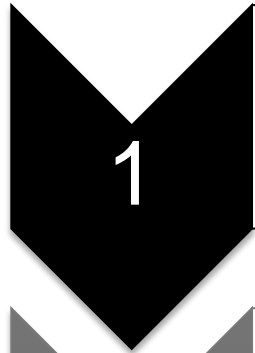
Successes

Successes: Methodology

- A methodology was developed over the course of 8 weeks that succeeds in registering the information relationships a given collector's field books have with digitized publications and collection databases.

Anatomy of a Three Way Match: J.N. Rose's Cacti

- Field books are original or primary source documents that describe the events and circumstances leading up to and including the collection and description of biological specimens.
- Beginning the research process with the primary source is the most effective model for this research.



- **Field Book**



- **Publication**



- **Specimens**

Successes: Methodology for Uncovering Matches

Continuing Inquiry with Publications Narrows Scope:

The screenshot shows a Mozilla Firefox browser window displaying the Biodiversity Heritage Library (BHL) website. The address bar shows the URL <http://biodiversitylibrary.org/item/100137#page/9/mode/1up>. The page title is "The Cactaceae : v.1" and it includes a "Download/About this book" link. The main content is a scanned page of the book "THE CACTACEAE: DESCRIPTIONS AND ILLUSTRATIONS OF PLANTS OF THE CACTUS FAMILY" by N. L. Britton and J. N. Rose, Volume I, published by the New York Botanical Garden. The page is displayed at a zoom of 25%. The sidebar on the left shows a "Pages" list with options to "Select pages to download" and "View Text" for the current page. The footer of the page indicates "Book contributed by New York Botanical Garden".

Anatomy of a Three Way Match: J.N. Rose's Cacti

The Cactaceae: descriptions and illustrations of plants of the cactus family / by N.L. Britton and J.N. Rose.

Carnegie Institution of Washington publication; 248; 1919-1923

From the Introduction (3-4):

The writers began field, greenhouse, and herbarium studies of the Cactaceae in **1904** and in the years following they made studies and collections over wide areas in the **United States, Mexico, and the West Indies**... In **1914 and 1915** Dr. Britton again visited **Porto Rico [sic]**... In **1914** Dr. Rose went to the west coast of South America, making short stops at **Jamaica** and **Panama**. He made extensive collections in central and southern **Peru**, central **Bolivia**, and northern and central **Chile**... The types of the new species described in this work **are deposited in the herbaria of the New York Botanical Garden and the United States National Museum**, unless otherwise indicated.

In this and other publication introductions, collecting details and logistical information such as dates and place-names provide a foundation for further inquiry into field books and specimen collections.

Anatomy of a Three Way Match: J.N. Rose's Cacti

- Botanical family of Cactacea.
- Date range given of 1904-1918.
- Locations given of North America, South American and the Caribbean.

Anatomy of a Three Way Match: J.N. Rose's Cacti

Botany Collections | Keyword Search | **Search by Field** | Help | Feedback

Search by Field

Barcode:

Catalog Number:

Catalog:

Special Collections:

Division:

Family: Cactaceae

Subfamily:

Taxonomic Name:

Primary Collector: J.N. Rose

Collector(s):

Collection Number:

Collection Date: From: 1904-01-01 To: 1918-01-01

Biogeographical Region:

Country:

Province/State/Territory:

District/County:

Precise Locality:

Island Name:

Only Records with Images:

Records/Page to Display: 10 20 50 100

Data current as of 22 July 2011: 827,355 total records

Anatomy of a Three Way Match: J.N. Rose's Cacti

- Rose's field books "6801-8500", "8501-11538", the NMNH Botany Collection Database returns approximately 300 specimen level matches.



Anatomy of a Three Way Match: J.N. Rose's Cacti

Cactaceae	Mammillaria sp.	Rose, J. N.	821	1905-06-28	Mexico	Hidalgo
Cactaceae	Opuntia lindheimeri Engelm. va	Rose, J. N.	8222	1905-06-27	United States	Texas
Cactaceae	Opuntia lindheimeri Engelm. va	Rose, J. N.	8223	1905-06-27	United States	Texas
Cactaceae	Echinocereus enneacanthus	Rose, J. N.	8224	1905-06-27	United States	Texas
Cactaceae	Opuntia schottii var. schottii	Rose, J. N.	8225	1905-06-27	United States	Texas
Cactaceae	Grusonia schottii (Engelm.) H. F	Rose, J. N.	8225	1905-06-27	United States	Texas
Cactaceae	Wilcoxia poselgeri	Rose, J. N.	8226	1905-06-27	United States	Texas
Cactaceae	Opuntia lindheimeri Engelm. va	Rose, J. N.	8235	1905-06-27	United States	Texas
Cactaceae	Thelocactus bicolor	Rose, J. N.	8240	1905-06-28	Mexico	Coahuila
Cactaceae	Heliocereus speciosus	Rose, J. N.	8242	1905-06-30	Mexico	Distrito Federal
Cactaceae	Mammillaria magnimamma	Rose, J. N.	8243	1905-06-30	Mexico	Distrito Federal
Cactaceae	Opuntia tomentosa Salm-Dyck	Rose, J. N.	8244	1905-06-30	Mexico	Distrito Federal
Cactaceae	Opuntia imbricata (Haw.) DC.	Rose, J. N.	8262	1905-07-01	Mexico	Distrito Federal
Cactaceae	Opuntia imbricata (Haw.) DC.	Rose, J. N.	8262	1905	Mexico	México
Cactaceae	Echinocereus cinerascens	Rose, J. N.	8263	1905-07-01	Mexico	Distrito Federal
Cactaceae	Pachycereus marginatus	Rose, J. N.	8278	1905-07-03 to 1905	Mexico	Hidalgo
Cactaceae	Pachycereus marginatus	Rose, J. N.	8278	1905-07-03	Mexico	Hidalgo
Cactaceae	Pachycereus marginatus	Rose, J. N.	8278	1904-07-03	Mexico	Hidalgo
Cactaceae	Pachycereus marginatus	Rose, J. N.	8278	1904-07-03	Mexico	Hidalgo
Cactaceae	Mammillaria magnimamma	Rose, J. N.	8281	1905-07-03	Mexico	Hidalgo
Cactaceae	Mammillaria sp.	Rose, J. N.	8281	1905-07-03	Mexico	Hidalgo
Cactaceae	Stenocereus dumortieri	Rose, J. N.	8282	1905-07-03	Mexico	Hidalgo
Cactaceae	Stenocereus dumortieri	Rose, J. N.	8282	1905-07-03	Mexico	Hidalgo
Cactaceae	Stenocereus dumortieri	Rose, J. N.	8282	1905-07-03	Mexico	Hidalgo
Cactaceae	Stenocereus dumortieri	Rose, J. N.	8282	1905-07-03	Mexico	Hidalgo
Cactaceae	Opuntia cantabrigiensis Lynch	Rose, J. N.	8284	1905-07-03	Mexico	Hidalgo
Cactaceae	Opuntia sp.	Rose, J. N.	8284	1905-07-03 to 1905	Mexico	Hidalgo
Cactaceae	Opuntia imbricata (Haw.) DC.	Rose, J. N.	8287	1905-07-03 to 1905	Mexico	Hidalgo
Cactaceae	Opuntia imbricata (Haw.) DC.	Rose, J. N.	8287	1905-07-03	Mexico	Hidalgo
Cactaceae	Myrtillocactus geometrizans (M)	Rose, J. N.	8288	1905-07-03 to 1905	Mexico	Hidalgo
Cactaceae	Myrtillocactus geometrizans (M)	Rose, J. N.	8288	1905-07-03	Mexico	Hidalgo
Cactaceae	Opuntia x "dendroide"	Rose, J. N.	8289	1905-07-03 to 1905	Mexico	Hidalgo
Cactaceae	Opuntia streptacantha	Rose, J. N.	8289	1905-07-03	Mexico	Hidalgo

Crucial Information Points for Connections

- Creator Names
- Collection Numbers
- Geographic Location
- Dates or Date Range

Challenges

Information Connections Research: Challenges

- Discerning *precise* matches between field books, publications, and specimen collections is uncommon compared to the instances of discerning *probable* or *ambiguous* connections.

Ambiguous Connections: Walcott's Cambrians

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Cambrian Brachiopoda / [Download/About this book](#)

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- Title Page
- Text
- Text
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- Table of Contents
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Zoom: 25%

UNITED STATES GEOLOGICAL SURVEY
GEORGE OTIS SMITH, DIRECTOR

CAMBRIAN BRACHIOPODA

BY
CHARLES D. WALCOTT

Mar Q275
M9
Vol. 51

Ambiguous Connections: Walcott's Cambrians

Paleobiology Collections Keyword Search **Search by Field** Help Feedback

Search by Field

Identification **Collection** Location Morphology Geologic Age/Stratigraphy

Collection Name:

Collector:

Date Collected: From: To:

Expedition Name:

Vessel Name:

Cruise Number:

Site/Station Number:

Records/Page to Display: 10 20 50 100

Data current as of 22 July 2011: 591,495 total records

Ambiguous Connections: Walcott's Cambrians

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<input type="checkbox"/>	<input type="checkbox"/>	PAL 83947.F	Burgess Shale Type	Crustacea	<i>Burgessia bella</i> Walcott		Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 83947.K	Burgess Shale Type	Crustacea	<i>Burgessia bella</i> Walcott		Canada	Cambrian
<input checked="" type="checkbox"/>	<input type="checkbox"/>	PAL 83947.B	Burgess Shale Type	Crustacea	<i>Burgessia bella</i> Walcott		Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 83947.L	Burgess Shale Type	Crustacea	<i>Burgessia bella</i> Walcott		Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 199715	Burgess Shale Biolog	Worm	<i>Burgessochaeta setigera</i> (Walcott)	1910 to 1917	Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 199806	Burgess Shale Biolog	Worm	<i>Burgessochaeta setigera</i> (Walcott)	1910 to 1917	Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 199777	Burgess Shale Biolog	Worm	<i>Burgessochaeta setigera</i> (Walcott)	1910 to 1917	Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 14348	Brachiopoda Type		<i>Camarophoria cooperensis</i> (Shumard)		United States	Carboniferous
<input type="checkbox"/>	<input type="checkbox"/>	PAL 199467	Burgess Shale Biolog	Worm	<i>Canadia setigera</i>	1910 to 1917	Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 199437	Burgess Shale Biolog	Worm	<i>Canadia setigera</i>	1910 to 1917	Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 199448	Burgess Shale Biolog	Worm	<i>Canadia setigera</i>	1910 to 1917	Canada	Cambrian
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<input type="checkbox"/>	<input type="checkbox"/>	PAL 199488	Burgess Shale Biolog	Worm	<i>Canadia setigera</i>	1910 to 1917	Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 199438	Burgess Shale Biolog	Worm	<i>Canadia setigera</i>	1910 to 1917	Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 199468	Burgess Shale Biolog	Worm	<i>Canadia setigera</i>	1910 to 1917	Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 199508	Burgess Shale Biolog	Worm	<i>Canadia setigera</i>	1910 to 1917	Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 199498	Burgess Shale Biolog	Worm	<i>Canadia setigera</i>	1910 to 1917	Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 199478	Burgess Shale Biolog	Worm	<i>Canadia setigera</i>	1910 to 1917	Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 199499	Burgess Shale Biolog	Worm	<i>Canadia setigera</i>	1910 to 1917	Canada	Cambrian
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<input type="checkbox"/>	<input type="checkbox"/>	PAL 199510	Burgess Shale Biolog	Worm	<i>Canadia setigera</i>	1910 to 1917	Canada	Cambrian
<input type="checkbox"/>	<input type="checkbox"/>	PAL 199470	Burgess Shale Biolog	Worm	<i>Canadia setigera</i>	1910 to 1917	Canada	Cambrian

Ambiguous Connections: Walcott's Cambrians

- Ambiguity for hundreds of specimen-level records in NMNH Paleobiology Collections, due to broad date range (1910-1917) given in Date field.
- Vice versa, for specimens that do have exact dates in Date field, in many cases their Scientific Name is not given, only the higher level Collection name, and there is no Catalog number.
- Therefore, certain or probable matches are very low proportionally to possible matches.

Connecting Content: Moving Forward

Structuring of harvested data:

- Collector numbers
- BHL Citations
- Field book data

Conclusion

Thank you!

Contact me:

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